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AN ATLAS  
OF  
HUMAN ANATOMY  
FOR STUDENTS AND PHYSICIANS

BY  
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Adapted to English and American and International Terminology

BY  
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THIRD SECTION

D. MYOLOGY

(FIGURES 400 TO 640 AND INDEX)

REVISED EDITION



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MYOLOGY—GENERAL CONSIDERATIONS

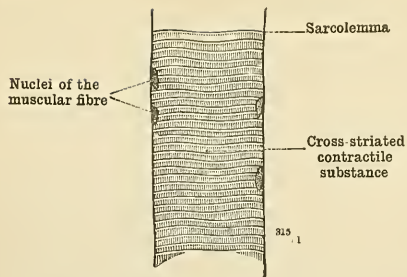


FIG. 490.—A PORTION OF AN ISOLATED CROSS-STRIATED MUSCULAR FIBRE.

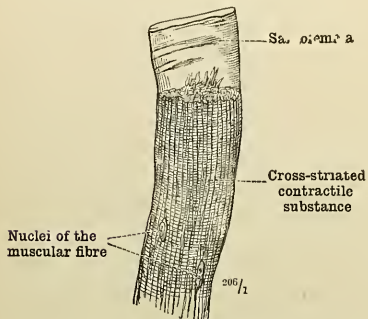


FIG. 491.—A PORTION OF AN ISOLATED CROSS-STRIATED MUSCULAR FIBRE IN WHICH FOR A SHORT DISTANCE THE CONTRACTILE SUBSTANCE HAS BEEN REMOVED FROM THE SARCOLEMA.

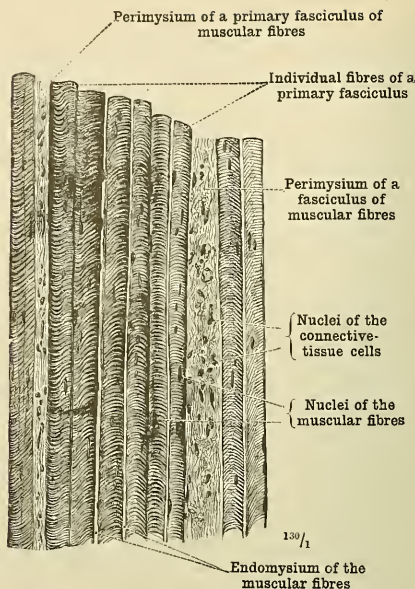


FIG. 492.—FASCICULUS OF MUSCULAR FIBRES FROM A LONGITUDINAL SECTION OF THE HUMAN SARTORIUS MUSCLE, HARDENED IN PICRIC ACID SOLUTION.

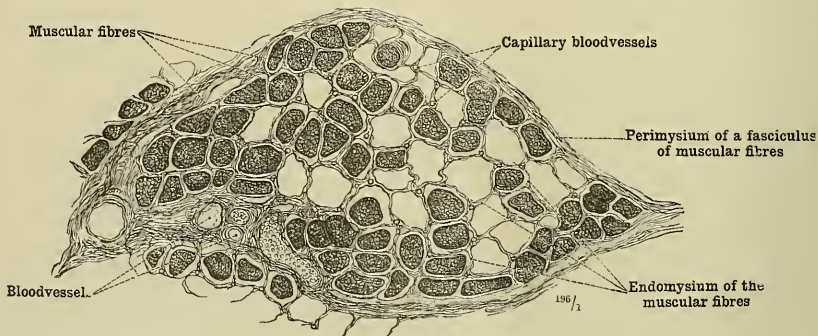


FIG. 493.—FASCICULI OF MUSCULAR FIBRES IN TRANSVERSE SECTION. SOME OF THE FASCICULI HAVE FALLEN OUT OF THE SECTION. IN THE PERIMYSIUM OF THE FASCICULI NUMEROUS CAPILLARY BLOODVESSELS ARE SEEN IN TRANSVERSE SECTION. (FROM A TRANSVERSE SECTION OF THE HUMAN SARTORIUS MUSCLE, HARDENED IN PICRIC ACID SOLUTION AND ALCOHOL.)

Elementary Constituents and Structure of Muscle.

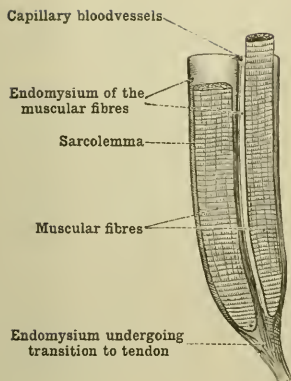


FIG. 494.—DIAGRAMMATIC REPRESENTATION OF THE RELATION OF THE MUSCULAR FIBRES TO THE ENDOMYSIUM.

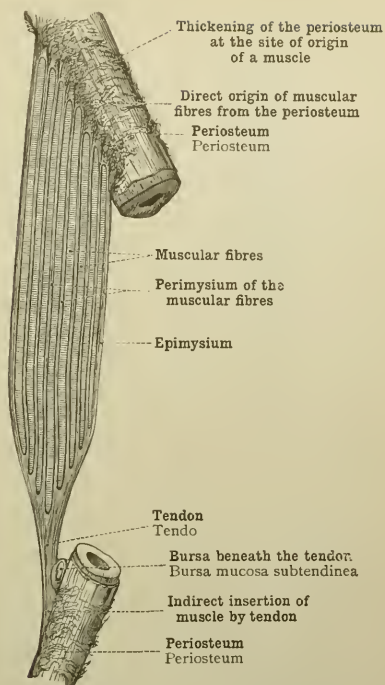


FIG. 495.—DIAGRAMMATIC REPRESENTATION OF THE RELATION OF THE PERIMYSIUM TO THE ORIGIN AND THE INSERTION OF THE MUSCLE (THE INSERTION IN THIS CASE BEING BY TENDON).

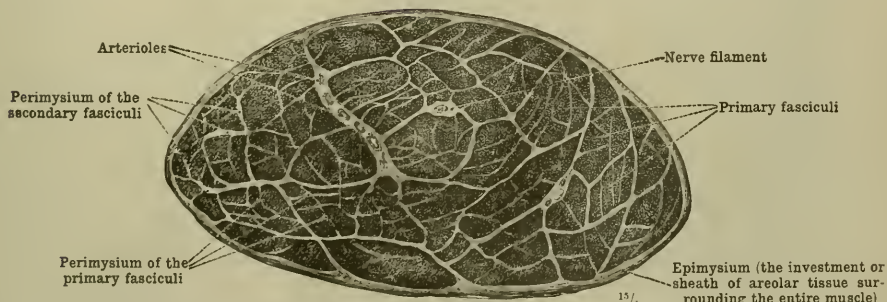


FIG. 496.—TRANSVERSE SECTION THROUGH THE SAKTORIUS MUSCLE OF A NEW-BORN INFANT, SHOWING THE PRIMARY AND SECONDARY FASCICULI OF MUSCULAR FIBRES.

Structure of Muscle.



FIG. 497.—MUSCULUS FUSIFORMIS; FUSIFORM MUSCLE.



FIG. 498.—MUSCULUS UNIPENNATUS; PENNIFORM MUSCLE.



FIG. 499.—MUSCULUS BIPENNATUS; BIPENNIFORM MUSCLE.

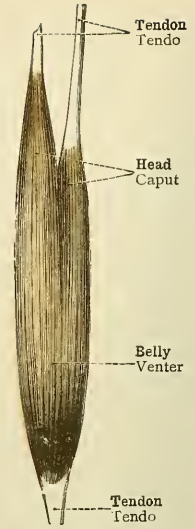


FIG. 500.—MUSCULUS BICEPS; DOUBLE-HEADED MUSCLE.

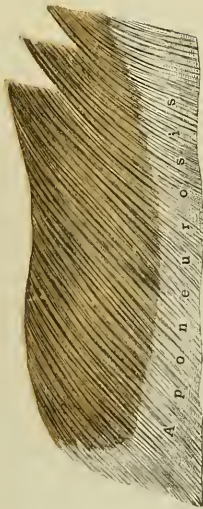


FIG. 501.—BROAD MUSCLE.

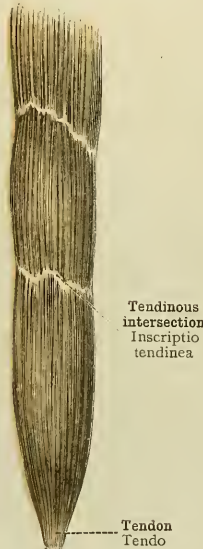


FIG. 502.—STRAP-SHAPED MUSCLE.

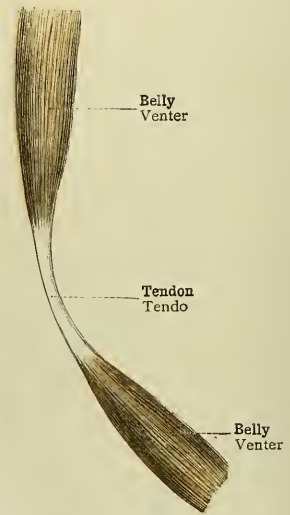


FIG. 503.—MUSCULUS BIVENTER; DIGASTRIC MUSCLE.

The Principal Muscular Forms.

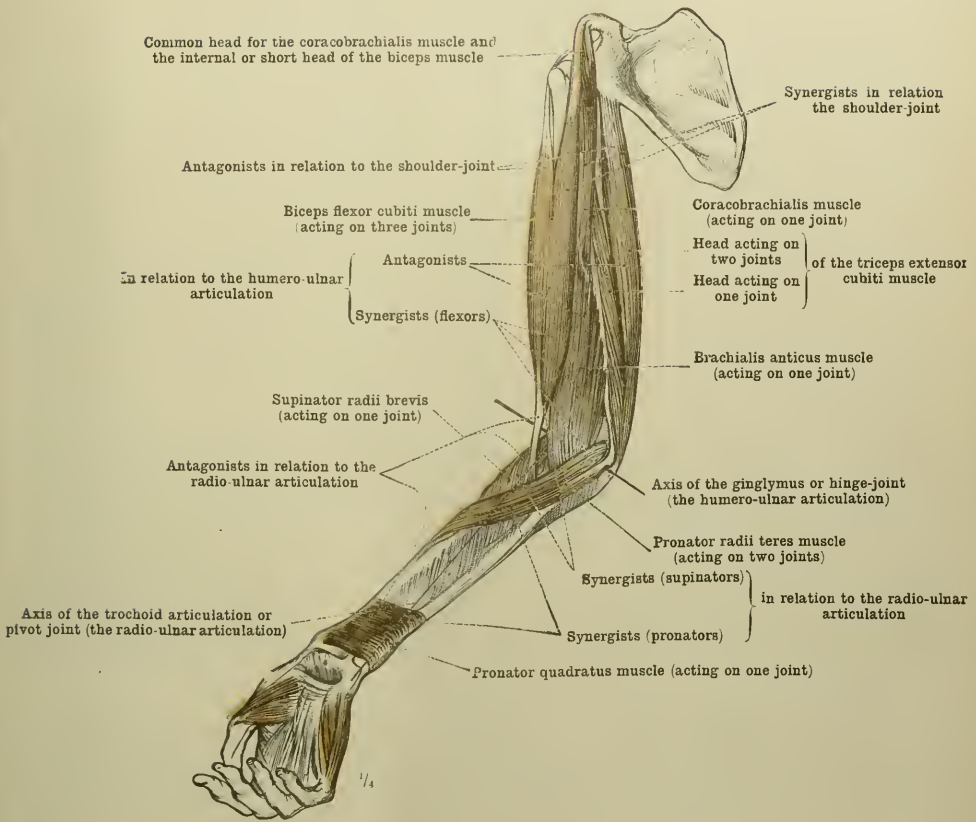


FIG. 504.—THE MUSCLES OF THE ARM AND THE PRONATOR AND SUPINATOR MUSCLES OF THE FOREARM AS EXAMPLES OF THE RELATION OF VARIOUS MUSCLES TO ONE OR SEVERAL JOINTS, AND ALSO OF THE SYNERGISTIC OR ANTAGONISTIC ACTION OF MUSCLES IN RELATION TO A PARTICULAR JOINT.



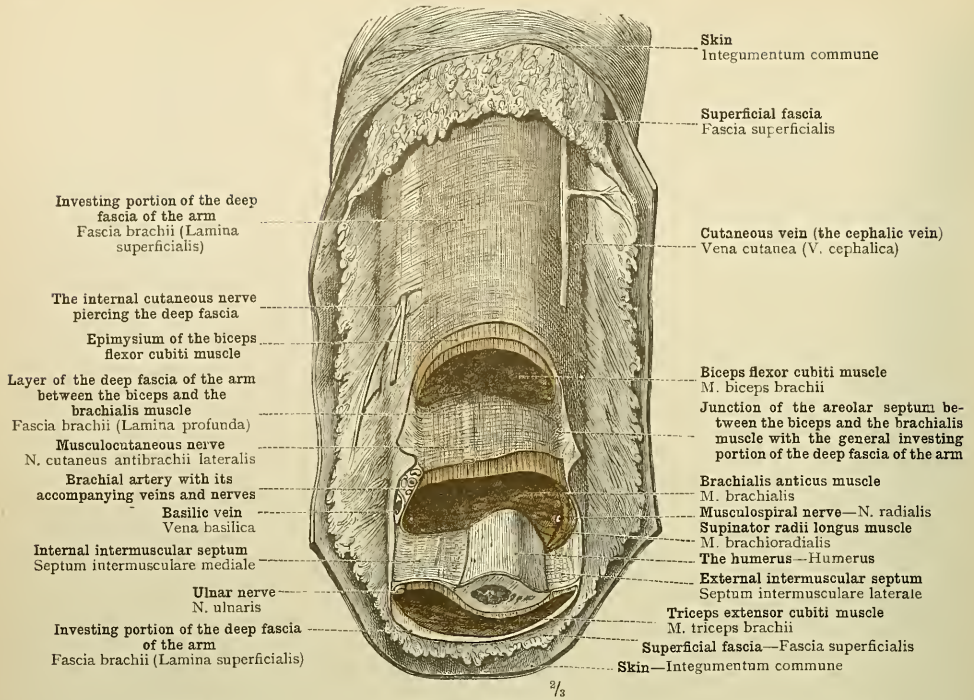


FIG. 505.—APONEUROSIS OR FASCIA. THE RELATION OF THE DEEP FASCIA TO THE VARIOUS GROUPS OF MUSCLES AND TO THE BONE. THE INTERMUSCULAR SEPTA. THE SUPERFICIAL FASCIA. (FASCIA OF THE RIGHT ARM.)

The individual muscles with their investing fascia in the lower third of the arm have been divided transversely at varying levels.

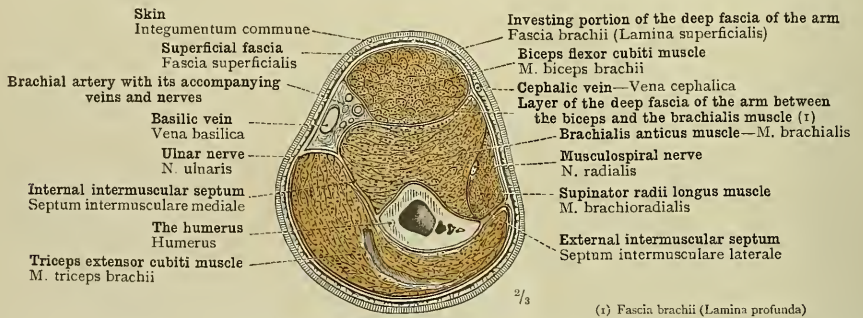


FIG. 506.—THE GROUPING OF THE MUSCLES OF THE ARM, AND THE RELATION OF THESE MUSCLES TO THE DEEP FASCIA. (TRANSVERSE SECTION THROUGH THE RIGHT UPPER ARM IN THE NEIGHBOURHOOD OF ITS DISTAL EXTREMITY; PROXIMAL CUT SURFACE. SEMI-DIAGRAMMATIC.)

Aponeurosis or Fascia.

MUSCULI TRUNCI  
THE MUSCLES OF THE TRUNK





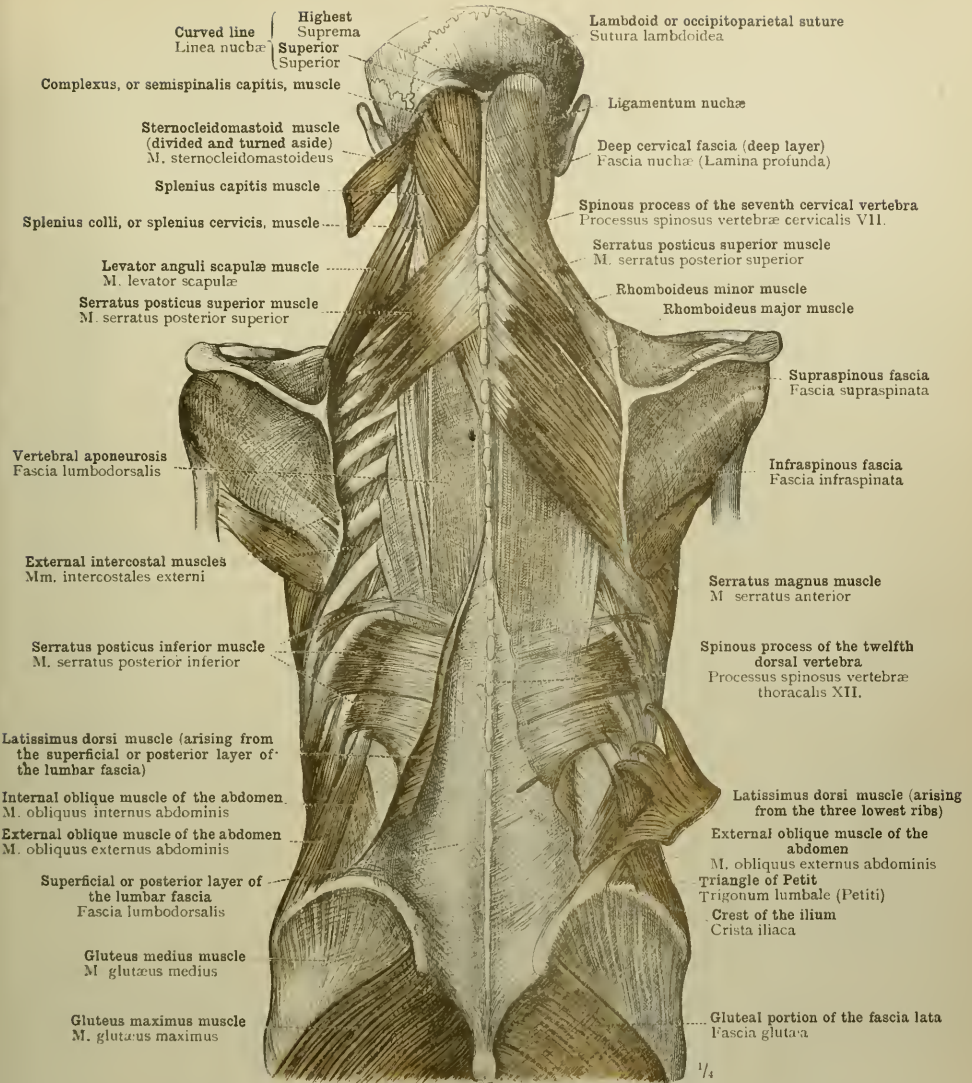


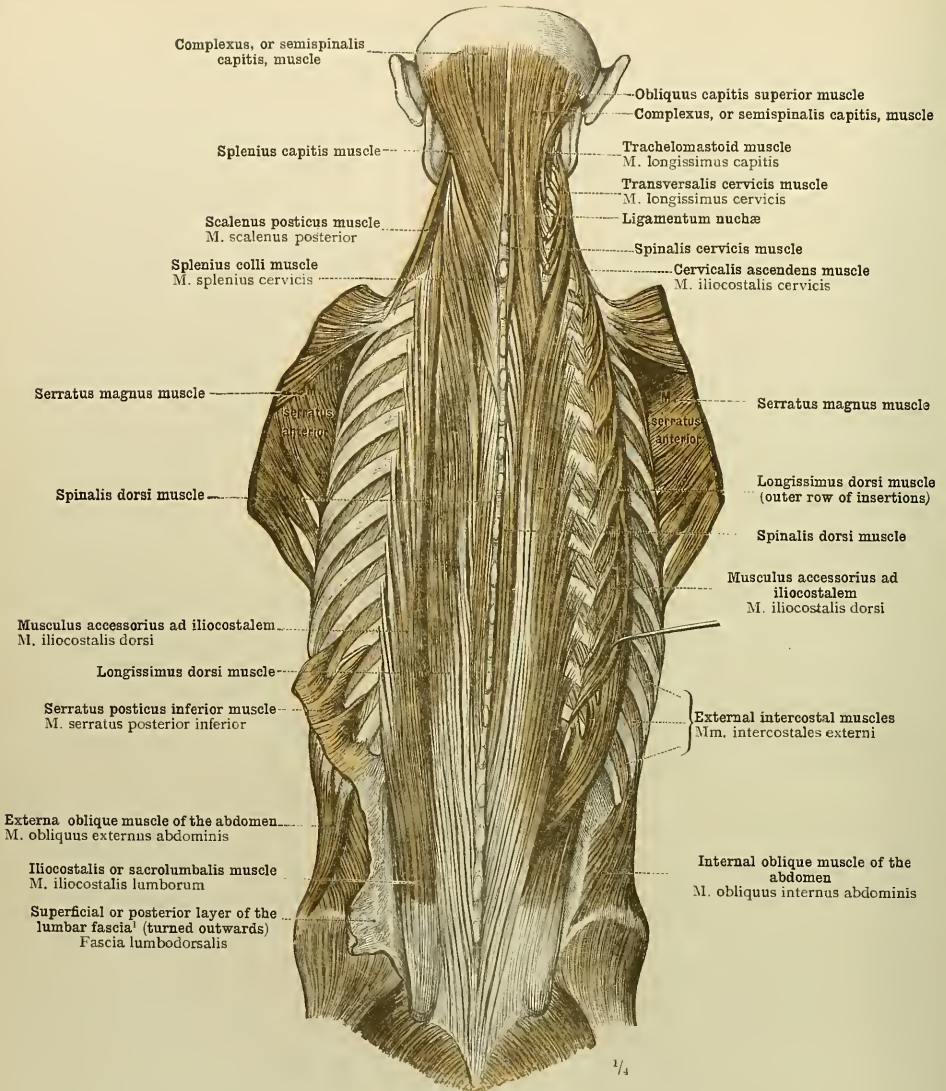
FIG. 508.—SECOND LAYER OF THE MUSCLES OF THE BACK (WIDE MUSCLES OF THE BACK), SHOWN BY THE REMOVAL OF THE LATISSIMUS DORSI AND THE TRAPEZIUS MUSCLES; ON THE LEFT SIDE, THE RHOMBOIDEUS MAJOR AND RHOMBOIDEUS MINOR MUSCLES HAVE ALSO BEEN REMOVED.

The muscles of the second layer are: Rhomboideus major, rhomboideus minor, serratus posticus superior, serratus posticus inferior, and levator anguli scapulae. The superficial or posterior layer of the lumbar fascia,<sup>1</sup> by means of which the latissimus dorsi and the serratus posticus inferior muscles are attached to the spines of the vertebrae, and the vertebral aponeurosis, are also shown.

<sup>1</sup> The name of *lumbar fascia* is by some anatomists restricted to the deeper layers of this structure (see note to p. 265), and what we here call the *superficial or posterior layer of the lumbar fascia* is in that case either regarded as the *lower portion of the vertebral aponeurosis* (with which it is continuous), or else is termed the *aponeurosis of the latissimus dorsi muscle*.—T.

Musculi dorsi—Muscles of the back.



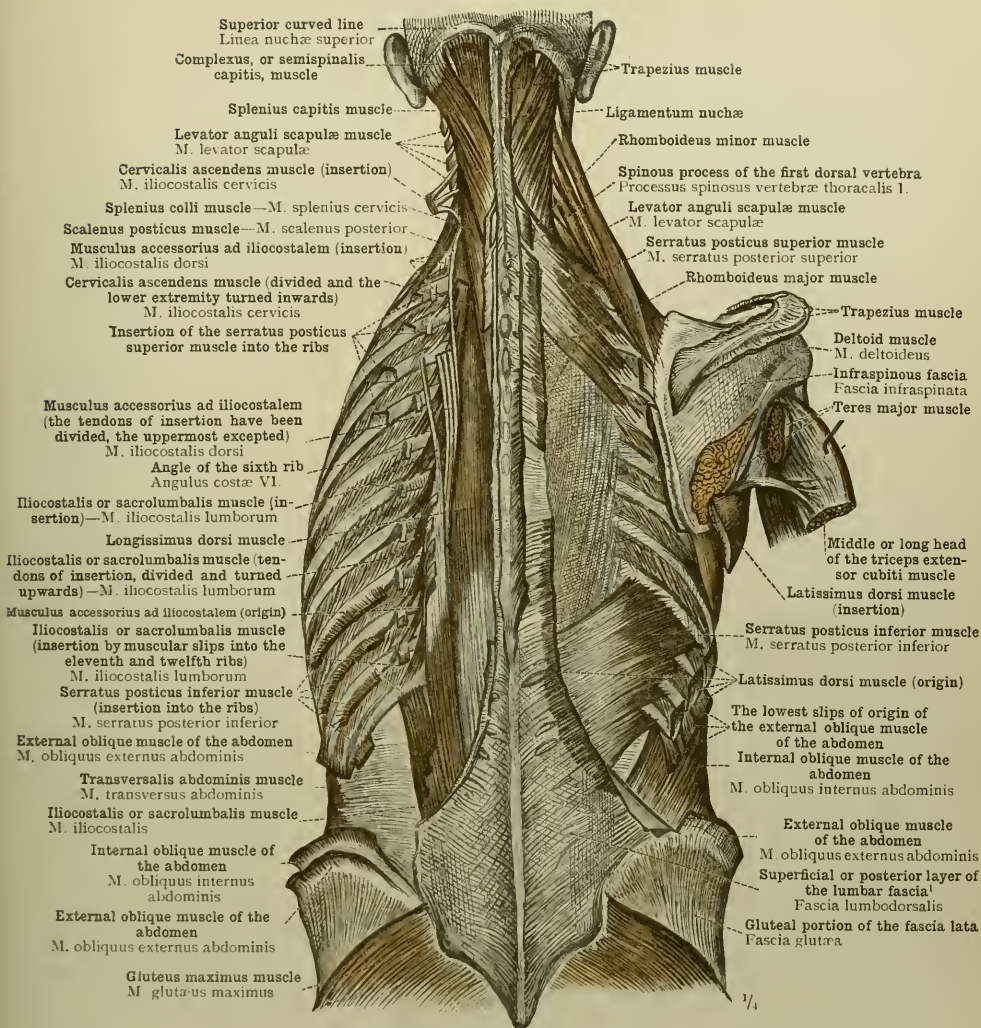


<sup>1</sup> See note to p. 267.

FIG. 509.—THIRD LAYER OF THE MUSCLES OF THE BACK (LONG MUSCLES OF THE BACK), SHOWN BY THE REMOVAL OF THE FIRST AND SECOND LAYERS OF MUSCLES AND OF THE SUPERFICIAL OR POSTERIOR LAYER OF THE LUMBAR FASCIA AND THE VERTEBRAL APONEUROSIS; ON THE RIGHT SIDE THE MUSCULUS ACCESSORIUS AD ILIOCASTALEM HAS BEEN DRAWN OUTWARDS.

The muscles of the third layer are: The erector spinae, consisting of the iliocostalis (sacrolumbalis) and the longissimus dorsi, with their prolongations upwards—accessorius, spinalis, and splenius muscles.

Musculi dorsi—Muscles of the back.



<sup>1</sup> See note to p. 267.

FIG. 510.—THE DIVISIONS OF THE ILIOCOSTALIS OR SACROLUMBALIS MUSCLE AND ITS ACCESSORY SLIPS OF ORIGIN, SHOWN BY THE REMOVAL OF PORTIONS OF THE MUSCLE. THE LEVATOR ANGULI SCAPULÆ, THE SPLENIUS CAPITIS, AND THE SPLENIUS COLLI MUSCLES. THE SERRATUS POSTICUS SUPERIOR AND THE SERRATUS POSTICUS INFERIOR MUSCLES.

The last-named muscle has, in respect of the width of its slips of insertion, a very different appearance from that shown in Fig. 508.



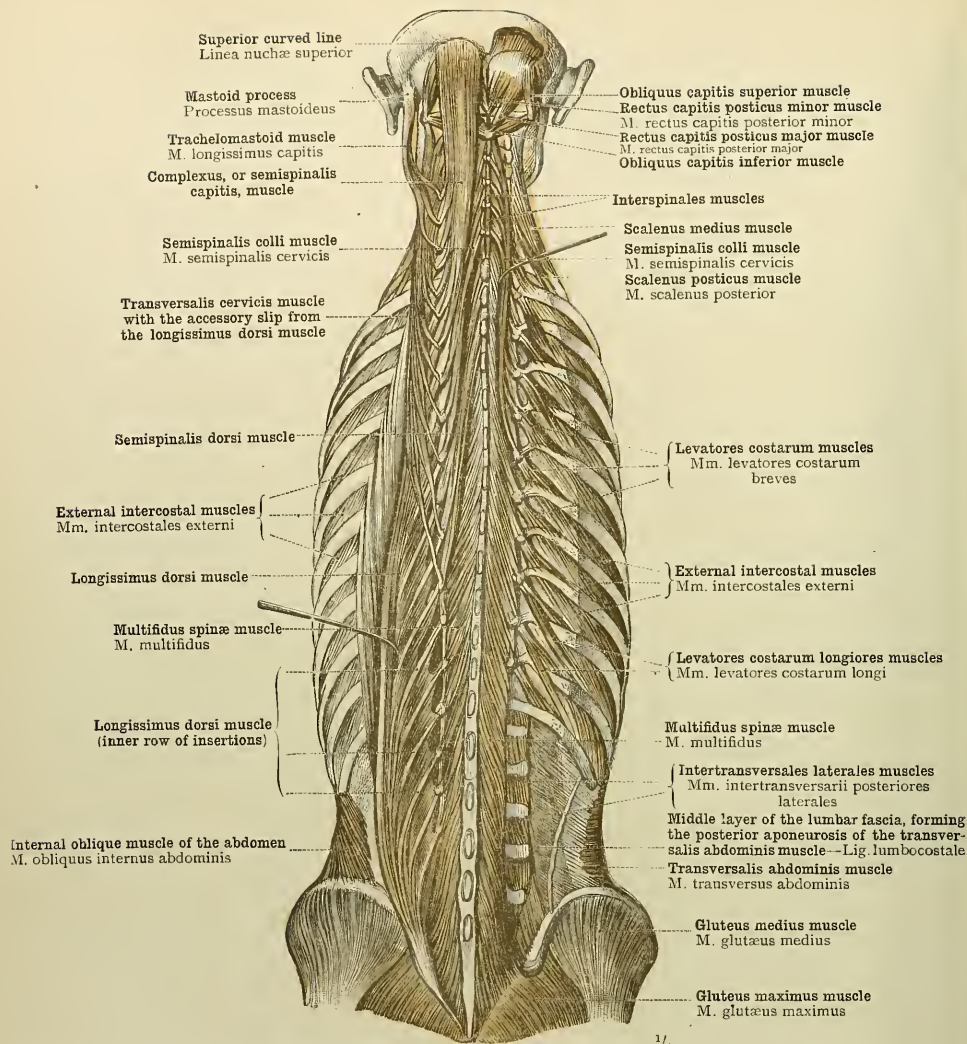


FIG. 511.—FOURTH LAYER OF THE MUSCLES OF THE BACK (LONG MUSCLES OF THE BACK); ON THE LEFT SIDE THE LONGISSIMUS DORSI AND THE TRANSVERSALIS CERVICIS HAVE BEEN DRAWN OUTWARDS, SHOWING THE CONNEXION BETWEEN THE TWO, AND THEIR ATTACHMENTS TO THE TRANSVERSE PROCESSES OF THE VERTEBRÆ; ON THE RIGHT SIDE THE ERECTOR SPINÆ MUSCLE HAS BEEN ENTIRELY REMOVED; THE SEMISPINALIS DORSI, SEMISPINALIS COLLI, SEMISPINALIS CAPITIS (COMPLEXUS), AND THE MULTIFIDUS SPINÆ MUSCLES MAKE UP THE FOURTH LAYER.

Regarding the insertion of the longissimus dorsi muscle into the lumbar vertebræ and the eleventh and twelfth ribs, see also Fig. 592.

Musculi dorsi—Muscles of the back.

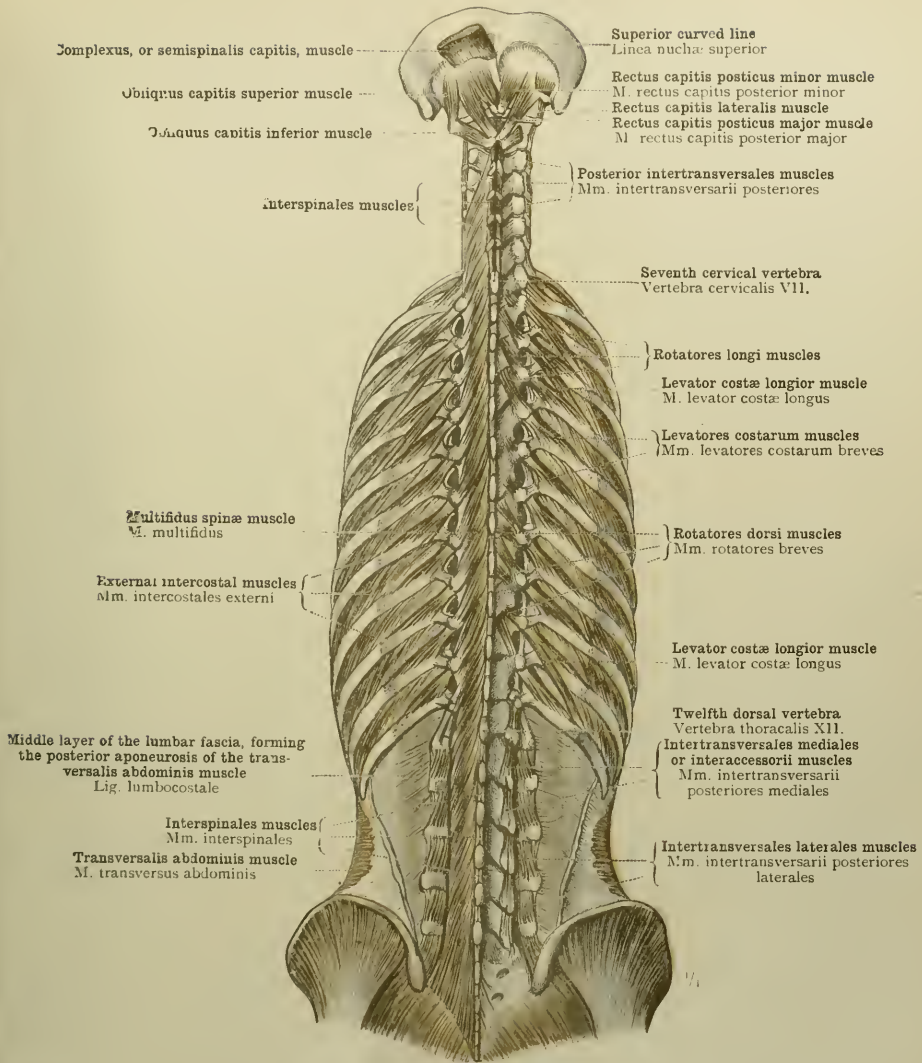


FIG. 512.—FIFTH (DEEPEST) LAYER OF THE MUSCLES OF THE BACK (SHORT MUSCLES OF THE BACK): ROTATORES LONGI, ROTATORES DORSI; INTERSPINALES; INTERTRANSVERSALES; LEVATORES COSTARUM.

The short posterior craniovertebral or suboccipital muscles also belong to the fifth layer of the muscles of the back.

Musculi dorsi Muscles of the back.

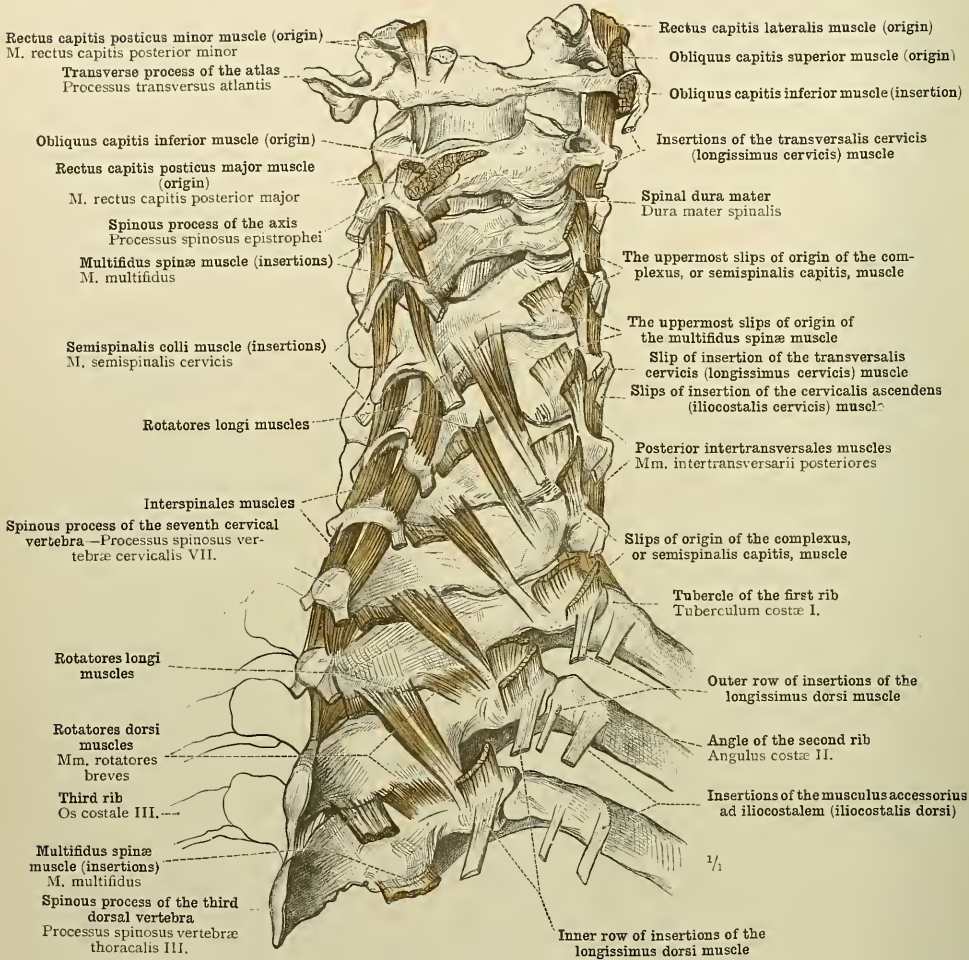


FIG. 513.—ORIGIN AND INSERTION OF THE LONG AND THE SHORT MUSCLES OF THE BACK IN THE CERVICAL AND UPPER DORSAL REGION. ORIGIN OF THE SHORT POSTERIOR CRANIO-VERTEBRAL OR SUBOCCIPITAL MUSCLES. INTERSPINALES MUSCLES. POSTERIOR INTERTRANSVERSALES MUSCLES. ROTATORES LONGI AND ROTATORES DORSI MUSCLES.

Musculi dorsi—Muscles of the back.



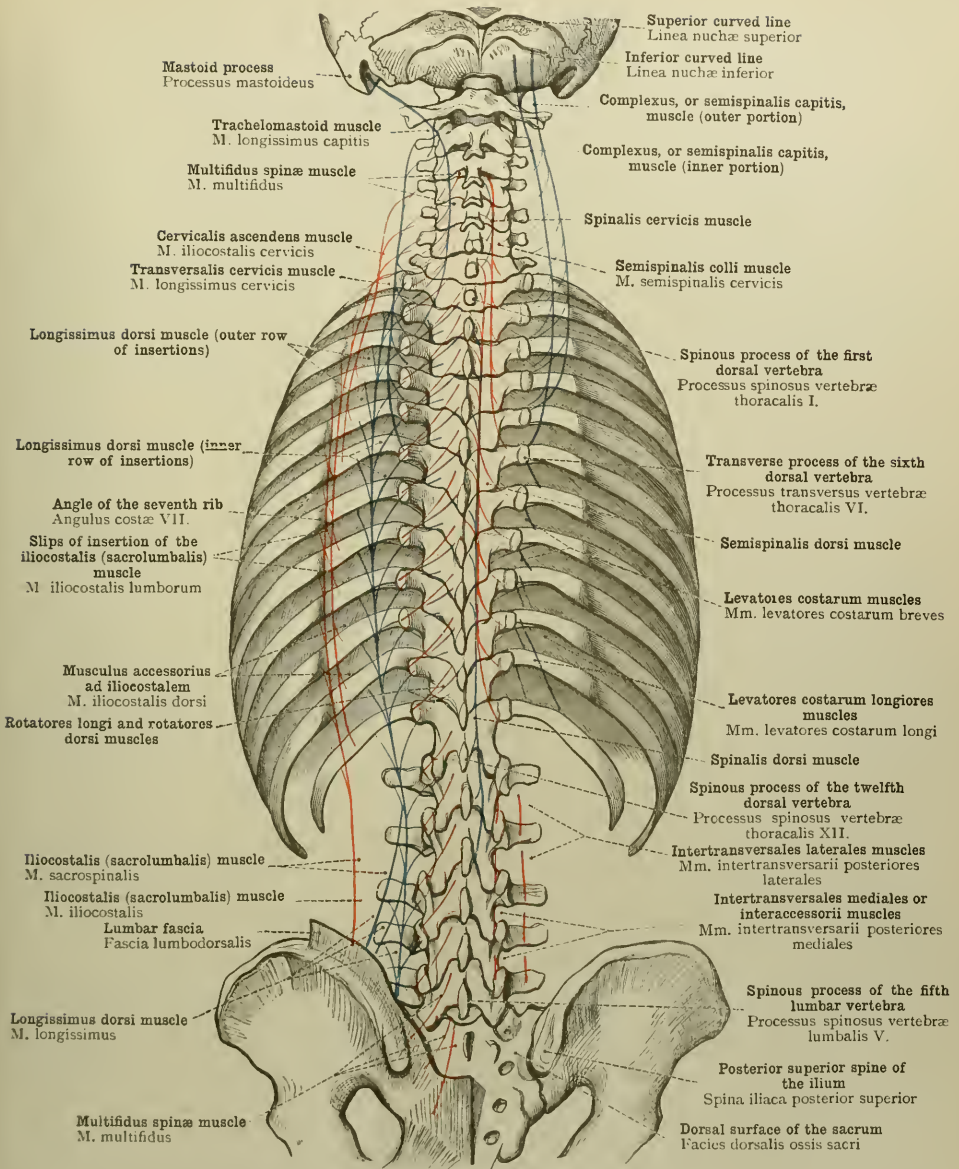


FIG. 514.—DIAGRAM SHOWING THE ORIGINS AND INSERTIONS OF THE LONG AND THE SHORT MUSCLES OF THE BACK.

Musculi dorsi—Muscles of the back.

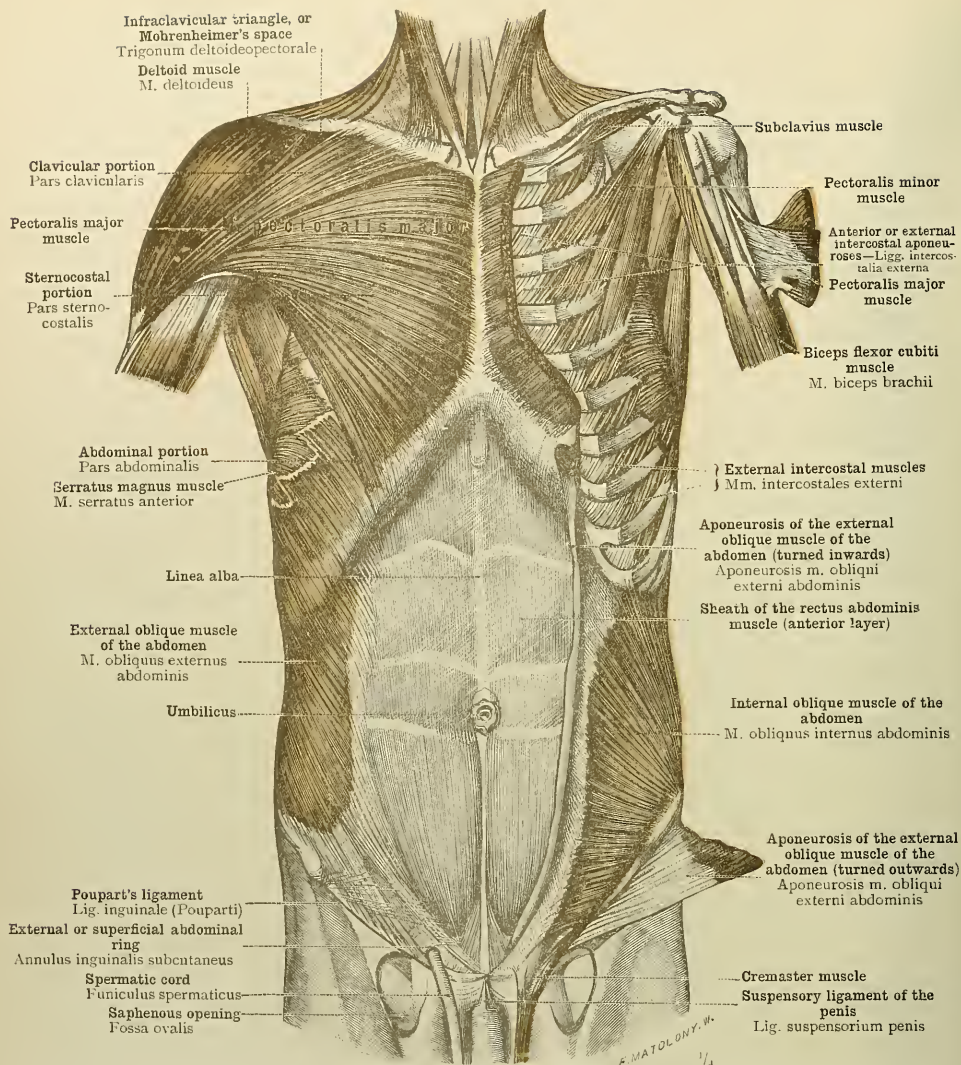
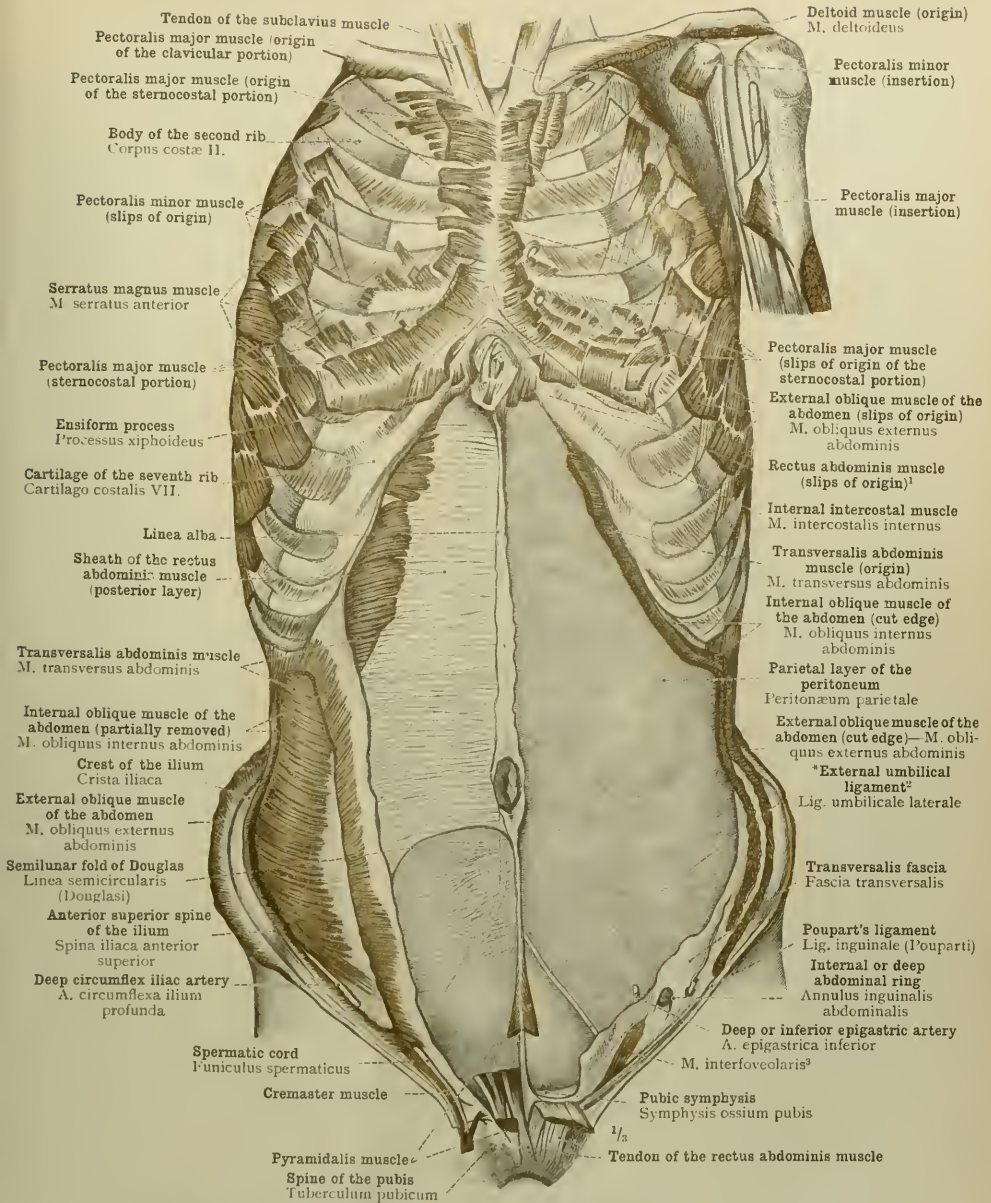


FIG. 515.—THE THORACIC AND ABDOMINAL MUSCLES ARE SHOWN, ON THE RIGHT SIDE THE MOST SUPERFICIAL LAYER, AND ON THE LEFT SIDE THE LAYER IMMEDIATELY BENEATH THIS. PECTORALIS MAJOR AND PECTORALIS MINOR MUSCLES; SUBCLAVIUS MUSCLE; EXTERNAL AND INTERNAL OBLIQUE MUSCLES OF THE ABDOMEN.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.



¹ By English anatomists the inferior or pubic attachment of the rectus abdominis is regarded as the origin of that muscle, and the superior or costal attachment as its insertion. — Tr.

² See pages 386 and 387.

³ A small bundle of muscular fibres in the posterior wall of the inguinal canal, running parallel with, but internal to, the spermatic cord, and anterior or superior to that portion of the conjoint tendon known as the *ligamentum interfoveolare* or *ligament of Heisterbach*. This muscular slip is described neither by Quain nor by Macalister. It is figured on a larger scale on p. 385, Section III., of the present work. — Tr.

FIG. 516.—ORIGINS AND INSERTIONS OF THE THORACIC AND ABDOMINAL MUSCLES.

Musculi thoracis et abdominis Muscles of the thorax and abdomen.



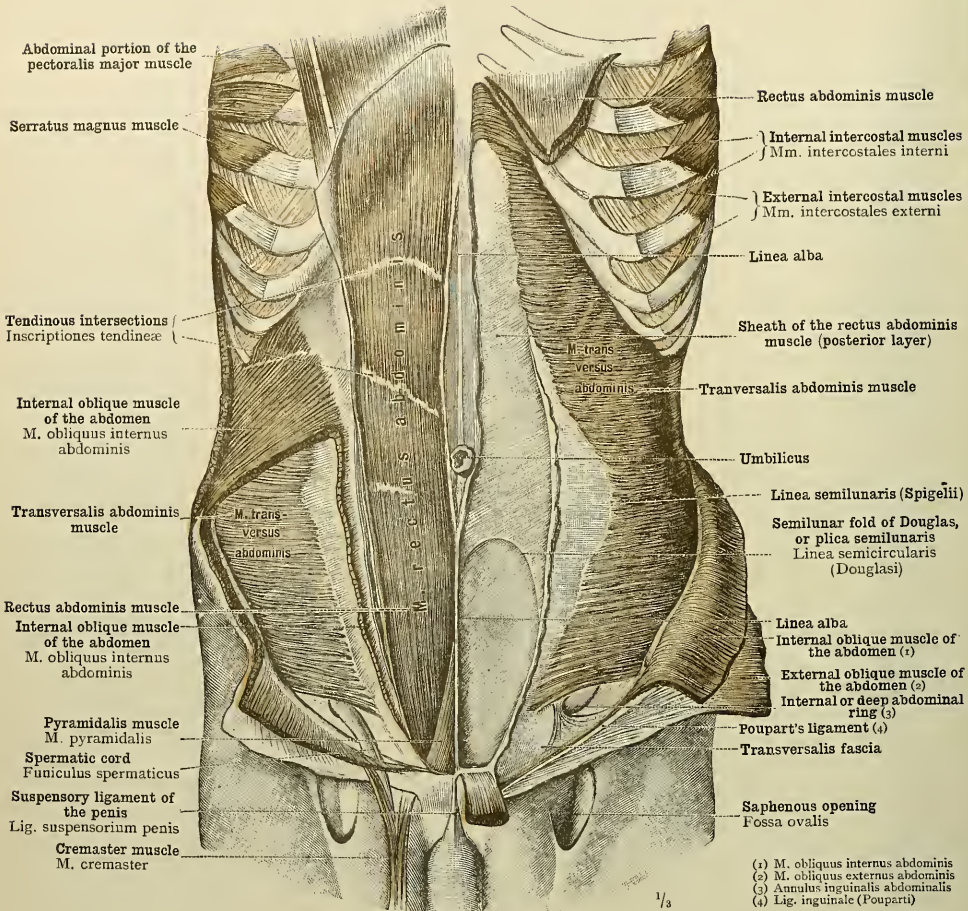


FIG. 517.—THE ARRANGEMENT IN LAYERS OF THE ABDOMINAL MUSCLES AS DISPLAYED BY PARTIAL REMOVAL OF THE SUPERFICIAL LAYERS. THE RECTUS ABDOMINIS MUSCLE OF THE LEFT SIDE HAVING BEEN CUT AWAY, THE POSTERIOR LAYER OF THE SHEATH OF THAT MUSCLE IS EXPOSED. RECTUS ABDOMINIS MUSCLE; TRANSVERSALIS ABDOMINIS MUSCLE; PYRAMIDALIS MUSCLE.

Musculi abdominis—Muscles of the abdomen.

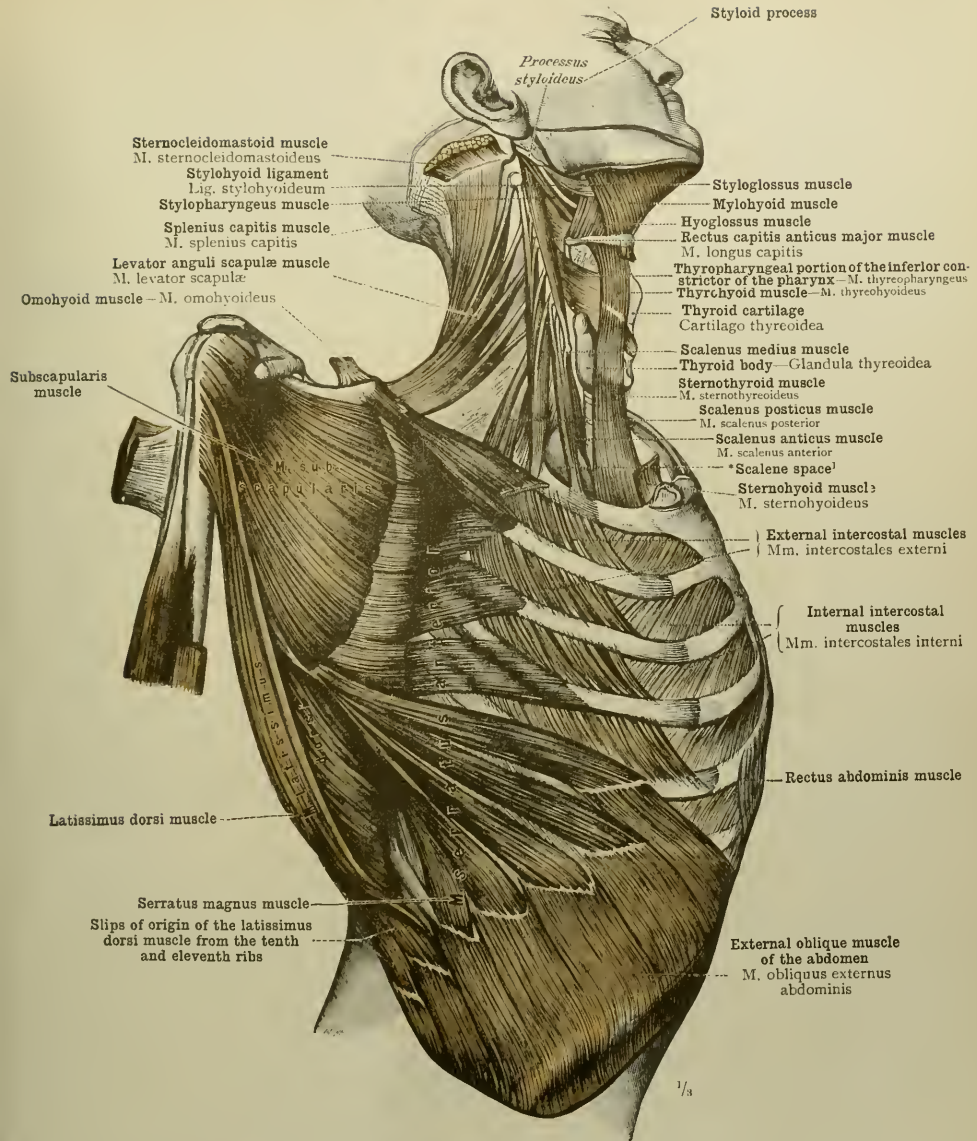
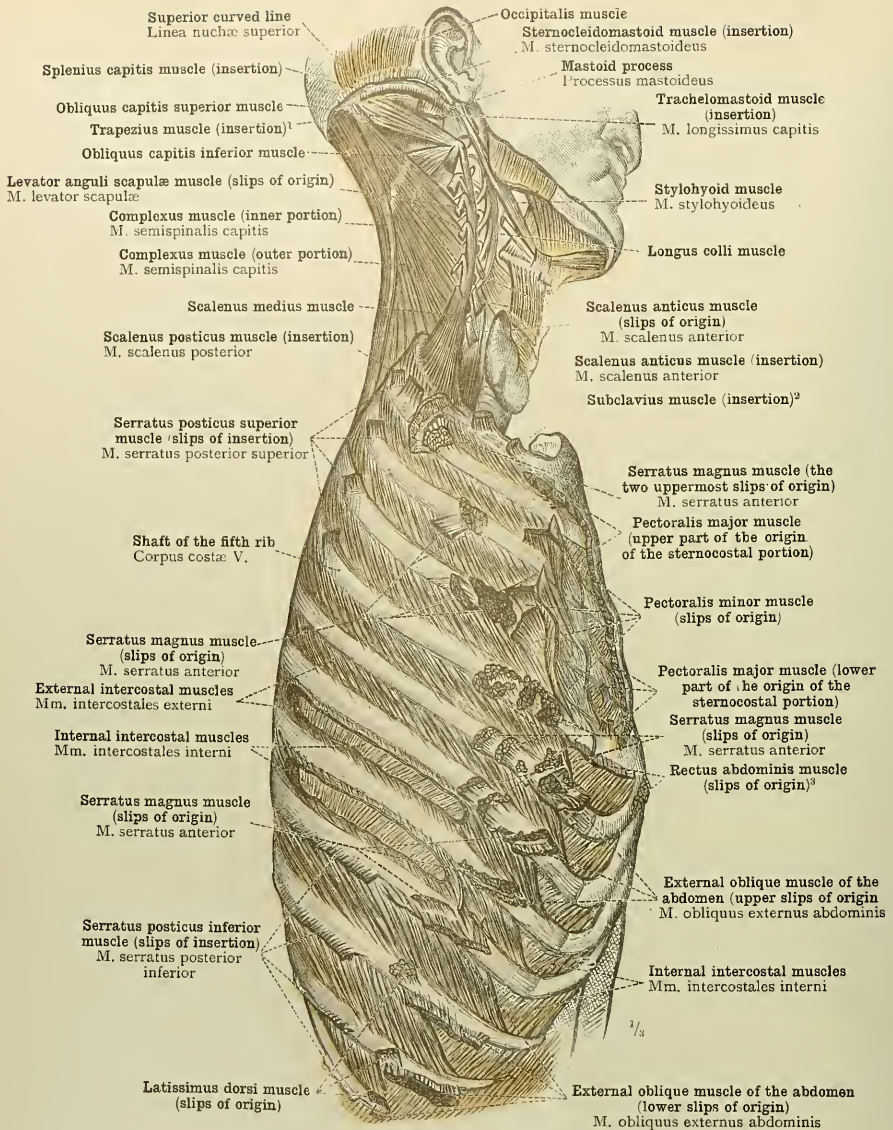


FIG. 518.—SERRATUS MAGNUS MUSCLE. LATISSIMUS DORSI AND SUBSCAPULARIS MUSCLE. THE THREE SCALENE MUSCLES AND THE \*SCALENE SPACE.<sup>1</sup> LEVATOR ANGULI SCAPULÆ MUSCLE.

<sup>1</sup> This is a triangular space, the base of which is formed by the upper surface of the first rib, the anterior wall by the scalenus anticus muscle, and the posterior wall by the scalenus medius muscle. It is occupied by the brachial plexus and the second part of the subclavian artery.—T.W.





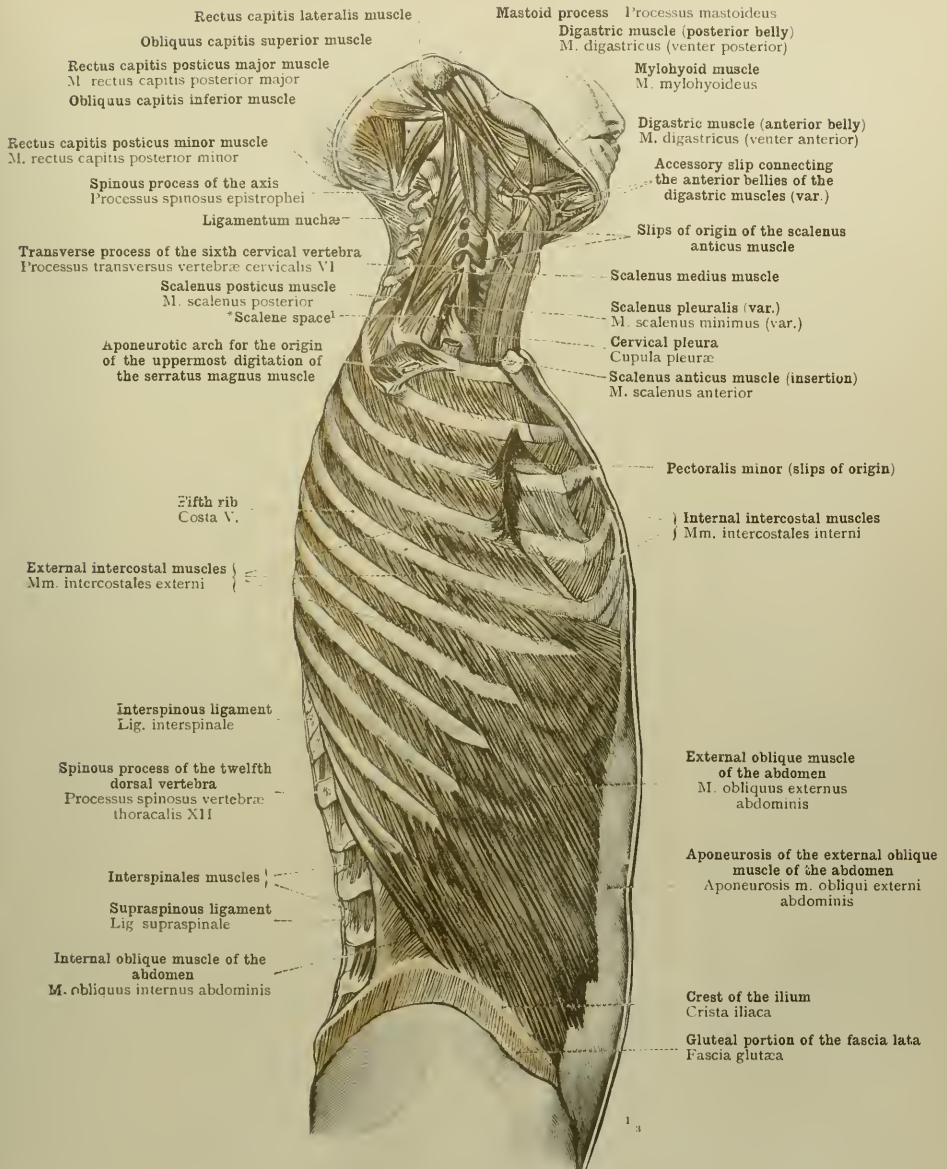
<sup>1</sup> Origin according to English anatomists.—Tr.

<sup>2</sup> English anatomists regard this as the origin of the subclavius muscle.—Tr.

<sup>3</sup> See note <sup>1</sup> to p. 275.

FIG. 519.—ORIGINS AND INSERTIONS OF THE MUSCLES ON THE ANTERIOR AND LATERAL WALLS OF THE THORAX. SEEN FROM THE RIGHT SIDE.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.



<sup>1</sup> See note to p. 277

FIG. 520.—MUSCULI INTERCOSTALES EXTERNI, THE EXTERNAL INTERCOSTAL MUSCLES; MUSCULUS OBLIQUUS EXTERNUS ABDOMINIS, THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN; THE SCALENE MUSCLES, WITH THE ANOMALOUS SCALENUS MINIMUS OR SCALENUS PLEURALIS.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.



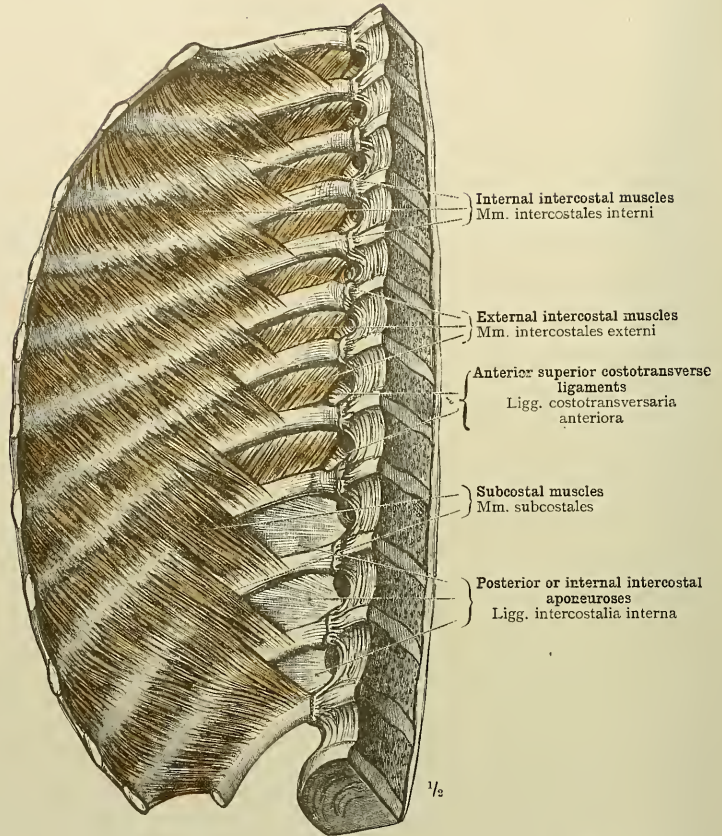


FIG. 521.—THE MUSCLES ON THE INNER SURFACE OF THE LATERAL WALL OF THE THORAX, SHOWN ON THE RIGHT SIDE OF THE BODY, THE DIAPHRAGM HAVING BEEN REMOVED: MUSCULI INTERCOSTALES INTERNI INTERNAL INTERCOSTAL MUSCLES; MUSCULI SUBCOSTALES, SUBCOSTAL MUSCLES.

Musculi thoracis—Muscles of the thorax.

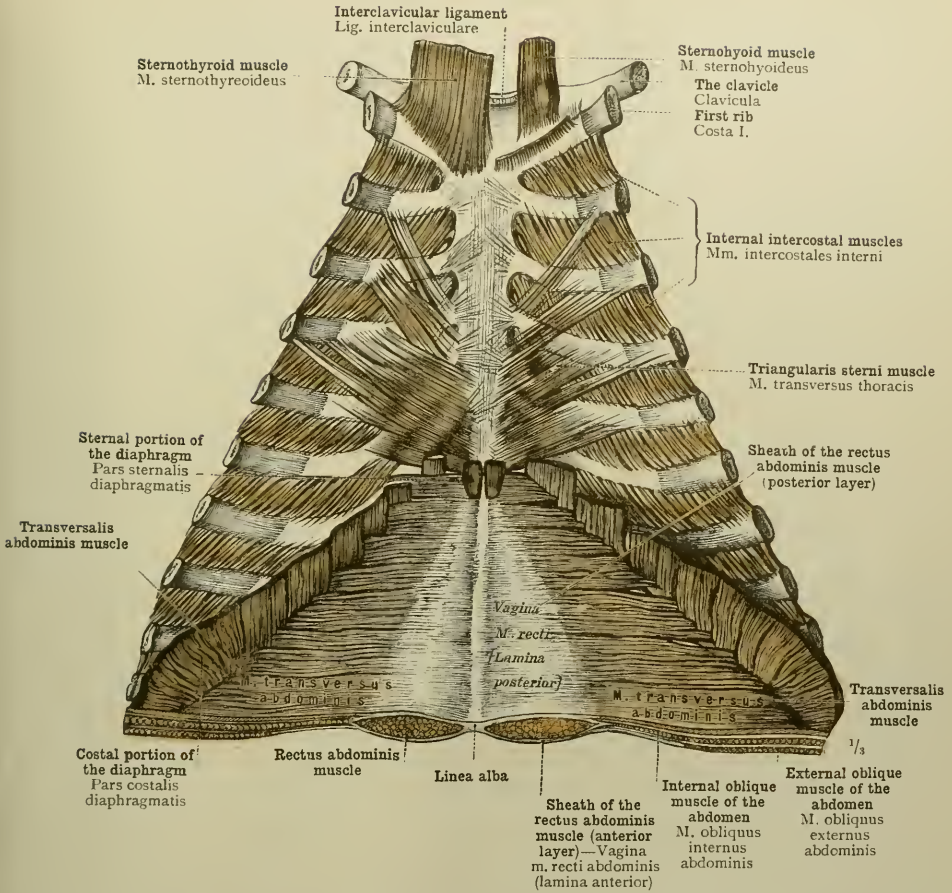


FIG. 522.—THE MUSCLES ON THE INNER SURFACE OF THE ANTERIOR WALL OF THE THORAX.

The slips of origin of the diaphragm from the costal cartilages and the ensiform process have been retained, in order to show their relation to the slips of origin of the transversalis abdominis muscle. The anterior wall of the abdomen has been divided horizontally at the level of the anterior extremities of the tenth pair of ribs to show the relation of the anterior aponeuroses of the external oblique, internal oblique, and transversalis muscles of the abdomen to the sheath of the rectus muscle, and to display the two layers of this sheath. The transversus thoracis or triangularis sterni muscle and the origins of the sternohyoid and sternothyroid muscles are also shown.

Musculi thoracis et abdominis—Muscles of the thorax and abdomen.

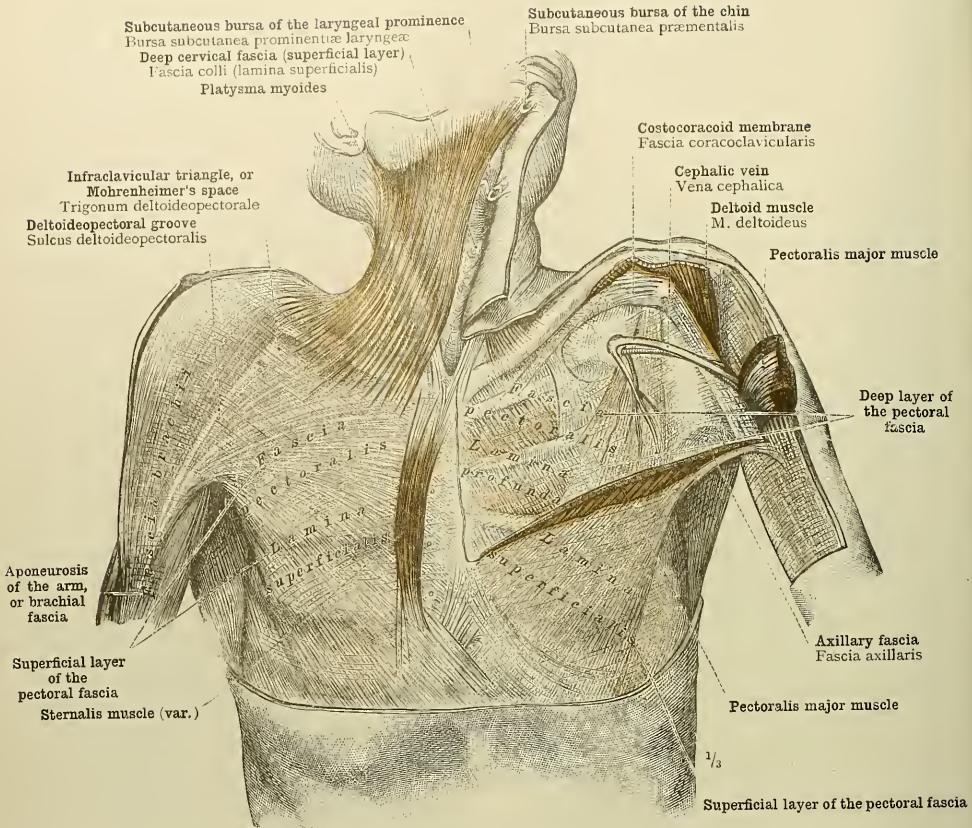


FIG. 523.—THE FASCIA OF THE ANTERIOR WALL OF THE THORAX, FASCIA PECTORALIS, THE PECTORAL FASCIA, AND ITS CONNEXIONS WITH THE FASCIAE OF THE ADJOINING REGIONS OF THE BODY. THE ANOMALOUS STERNALIS MUSCLE.

On the right side of the body, the skin and the superficial fascia having been removed, the superficial layer of the pectoral fascia is displayed, and its continuity with the aponeurosis of the arm is shown; on the left side, the greater part of the pectoralis major muscle has been removed, in order to display the deep layer of the pectoral fascia, with its specialized band, the costocoracoid membrane, and to show the continuity of this deep layer with the axillary fascia.



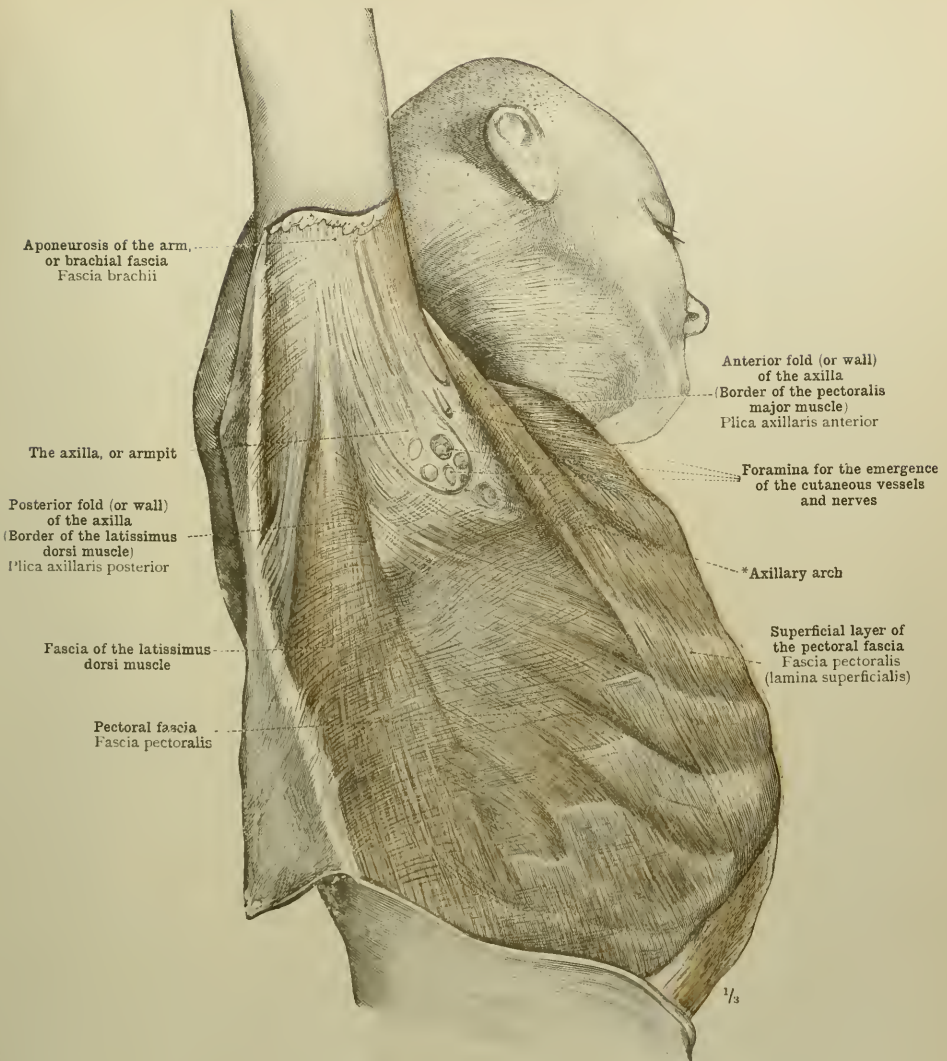


FIG. 524.—THE AXILLA WITH THE ANTERIOR AND POSTERIOR AXILLARY FOLDS, PLICA AXILLARIS ANTERIOR ET PLICA AXILLARIS POSTERIOR. FASCIA AXILLARIS, THE AXILLARY FASCIA, WITH THE \*AXILLARY ARCH OF LANGER.

The axillary fascia forms the base or inferior boundary of the axillary fossa. The cutaneous vessels and nerves have been removed.

Musculi thoracis—Muscles of the thorax.

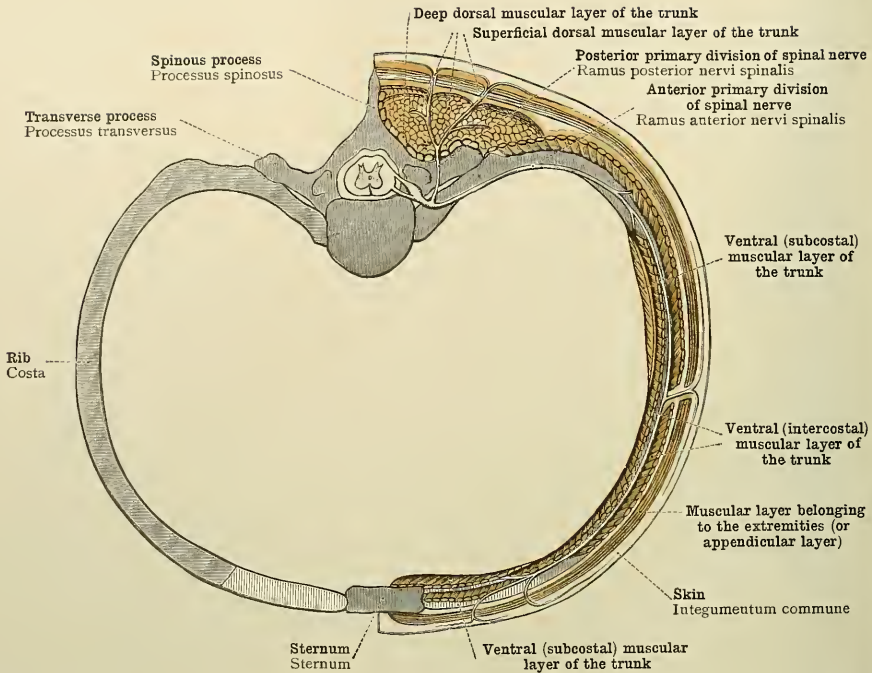
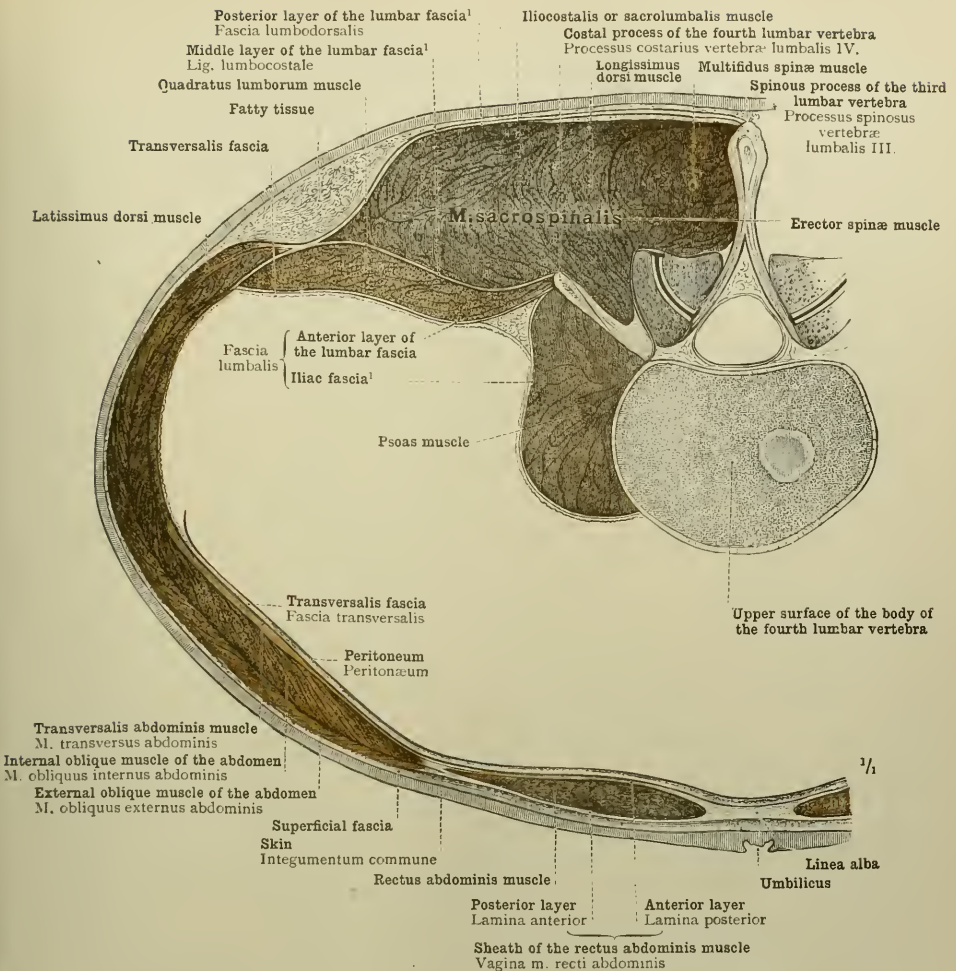


FIG. 525.—DIAGRAMMATIC REPRESENTATION OF THE MUSCLES OF THE TRUNK AND OF THE DISTRIBUTION OF THE SEGMENTAL NERVES BY WHICH THEY ARE SUPPLIED, SHOWN IN A THORACIC SEGMENT.

NOTE.

A brief explanation of this diagram seems useful, in the interest of students who have not made a special study of comparative anatomy. The muscles are grouped, first of all, into dorsal and ventral, the former being supplied by the posterior and the latter by the anterior primary divisions, respectively, of the spinal nerves. The dorsal muscles form the great mass lying chiefly in the hollow between the spinous processes and the angles of the ribs. They are classed in two groups—superficial and deep. These need not be further considered. The ventral muscles are shown to be arranged in three layers. In the abdominal region these are represented by three actual muscles, to name them from within outwards: the transversalis, the internal oblique, and the external oblique. Continuous with the deepest of these, the transversalis, for the purposes of this classification, are the triangulæri sterni, the subcostals, the sternal and costal portions of the diaphragm and part of the levator ani—these form the *subcostal* layer. Continuous with the internal oblique are the intercostals, the posterior serrati, the scalene muscles, and the quadratus lumborum—these form the *intercostal* layer. Continuous with the external oblique are all the muscles connecting the scapula with the trunk, viz.: the trapezius, levator anguli scapulae, serratus magnus, and rhomboidei muscles, also the latissimus dorsi, the pectorals, the sternocleidomastoid, and the superficial perineal muscles—these constitute what may be called the *appendicular* layer. There is finally a more superficial layer still (not shown in the figure), superficial indeed to the deep fascia, corresponding to the panniculus carnosus of lower mammals, but represented in man only by the platysma myoides, the occipitofrontalis, and the muscles of the ear and face.—T.R.



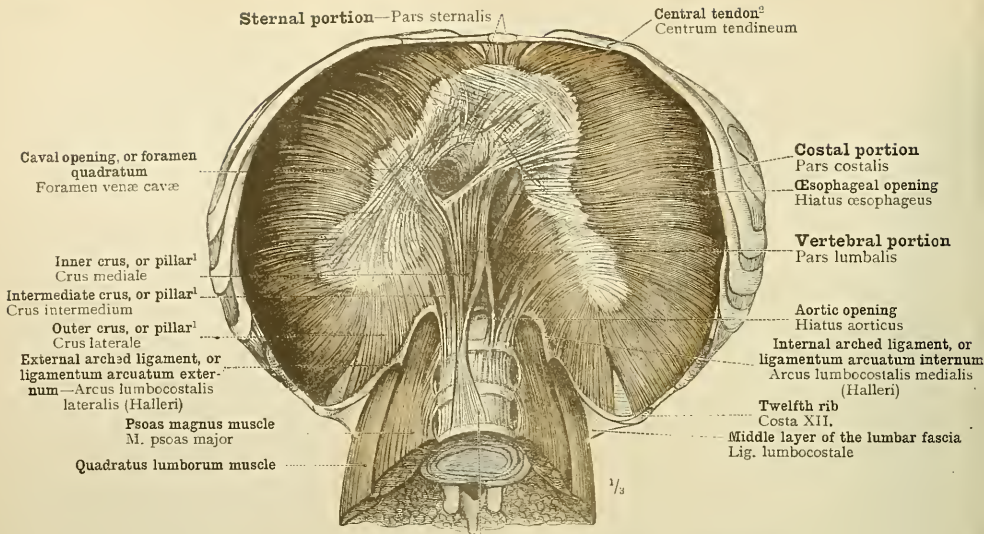
<sup>1</sup> In connexion with this figure, an account of the differences between the author's nomenclature of the fasciae of the back and abdomen and the nomenclature commonly employed by English anatomists may most suitably be given. The *lumbar fascia*, according to most English authors, is regarded as consisting of three layers. The *subfascial or posterior layer*, called by Toldt (see Fig. 526) *fascia lumbodorsalis*, is the layer passing behind the composite mass of the erector spinae muscle to be attached to the tips of the spinous processes (see note to p. 267). The *middle layer*, called by Toldt (see Fig. 526 on this page and also Fig. 512 on p. 271) *ligamentum lumbocostale*, passes in front of the erector spinae, between that muscle and the quadratus lumborum, to be attached to the tips of the costal (or so-called transverse) processes of the lumbar vertebrae. At the outer edge of the erector spinae muscle the posterior and middle layers unite to form the posterior aponeurosis of the transversalis abdominis muscle. The *anterior layer of the lumbar fascia* (called by Toldt *fascia lumbalis*) is the thin membrane lying on the anterior surface of the quadratus lumborum muscle. At the inner edge of this muscle it is attached to the anterior surfaces of the costal processes of the lumbar vertebrae, and at the outer edge of the muscle it is continuous with the *transversalis fascia*, the membrane lining the deep surface of the transversalis abdominis muscle. The term *fascia lumbalis* is applied by Toldt also to the fascia covering the abdominal surface of the psoas muscle, but by English anatomists this membrane is regarded as a portion of the *iliac fascia*.—Tr.

FIG. 526.—THE STRATIFICATION OF THE MUSCLES OF THE TRUNK AND OF THEIR ASSOCIATED FASCIAE, DISPLAYED IN A HORIZONTAL SECTION OF THE RIGHT HALF OF THE BODY-WALL. THE CONNEXIONS BETWEEN THE ANTERIOR APONEUROSES OF THE WIDE MUSCLES OF THE ABDOMEN AND THE SHEATH OF THE RECTUS ARE SHOWN.

The section was made in a frozen body at the level of the navel, and passed posteriorly through the intervertebral disc between the third and fourth lumbar vertebrae.

Musculi trunci—Muscles of the trunk.

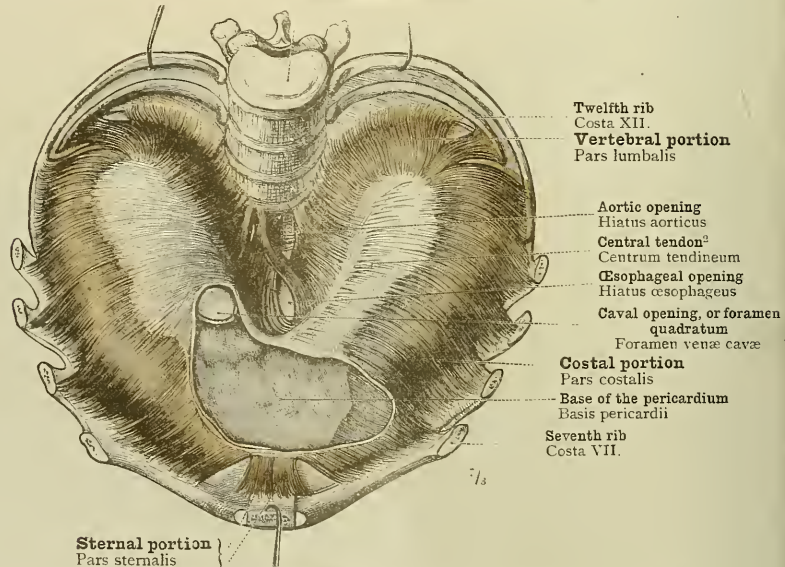




Fourth lumbar vertebra—Vertebra lumbalis IV.

FIG. 527.—VIEW OF THE DIAPHRAGM WITH ITS CRURA FROM BELOW. (ABDOMINAL ASPECT.)

Eleventh dorsal vertebra—Vertebra thoracalis XI.



<sup>1</sup> The *crura*, or *pillars*, of the diaphragm described by English anatomists are two only in number, a longer *right crus* and a shorter *left crus*. Each of these is composed of all the fibres passing from the right and left sides, respectively, of the bodies of the lumbar vertebrae and the intervertebral discs to the central tendon. Thus, the *crus* of English authors corresponds to the combined *inner crus* and *intermediate crus* of Todd; while the *outer crus* of the latter is in England not considered to belong to the crural portions of the diaphragm.

<sup>2</sup>—Tr.   
 <sup>2</sup> Called also the *trefoil* or *cordiform tendon* of the diaphragm.—Tr.

FIG. 528.—VIEW OF THE DIAPHRAGM FROM ABOVE, WITH THE BASAL PORTION OF THE PERICARDIUM. (THORACIC ASPECT.)

Diaphragma—The diaphragm, or midriff.

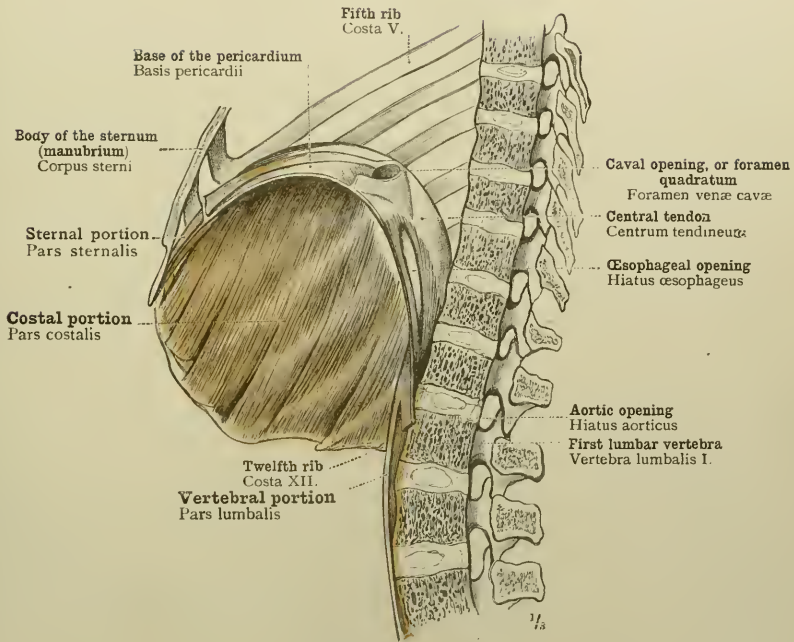
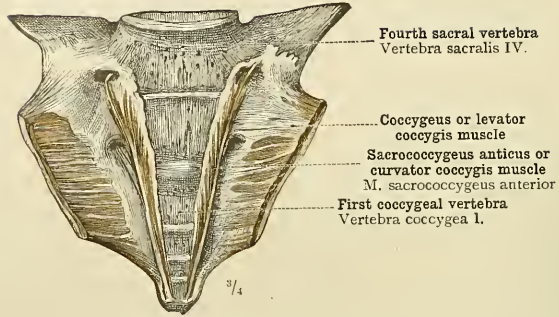


FIG. 529.—THE DIAPHRAGM IN MEDIAN-SAGITTAL SECTION, THE RIGHT HALF SEEN FROM WITHIN. DRAWN FROM A DRY PREPARATION.

The abdominal surface of the diaphragm was first cleaned by dissection and then given a coating of liquid plaster of Paris. When this had been allowed to harden, the thoracic surface of the muscle was exposed and similarly coated with plaster of Paris. In this manner the natural shape was as far as possible preserved.

Diaphragma—the diaphragm, or midriff.





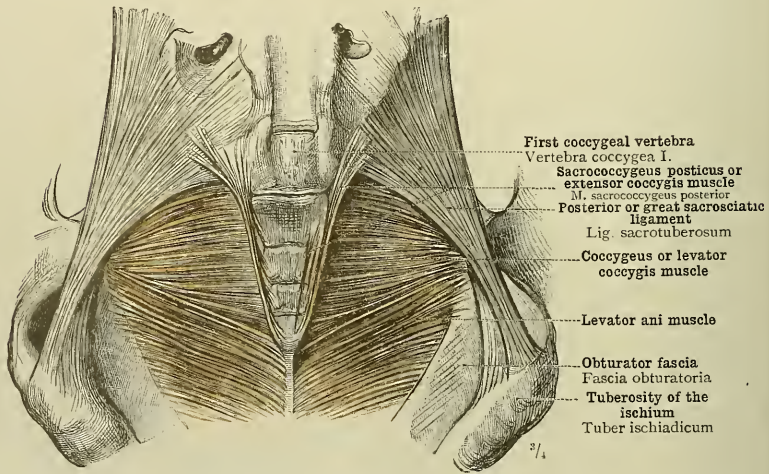
Fourth sacral vertebra  
Vertebra sacralis IV.

Coccygeus or levator  
coccygis muscle

Sacrococcygeus anticus or  
curvator coccygis muscle  
M. sacrococcygeus anterior

First coccygeal vertebra  
Vertebra coccygea I.

FIG. 530.—MUSCULUS SACROCOCYGEUS ANTERIOR, SACROCOCYGEUS ANTICUS OR CURVATOR COCCYGIS MUSCLE.



First coccygeal vertebra  
Vertebra coccygea I.

Sacrococcygeus posticus or  
extensor coccygis muscle  
M. sacrococcygeus posterior

Posterior or great sacrosaciatie  
ligament

Lig. sacrotuberosum

Coccygeus or levator  
coccygis muscle

Levator ani muscle

Obturator fascia  
Fascia obturatoria

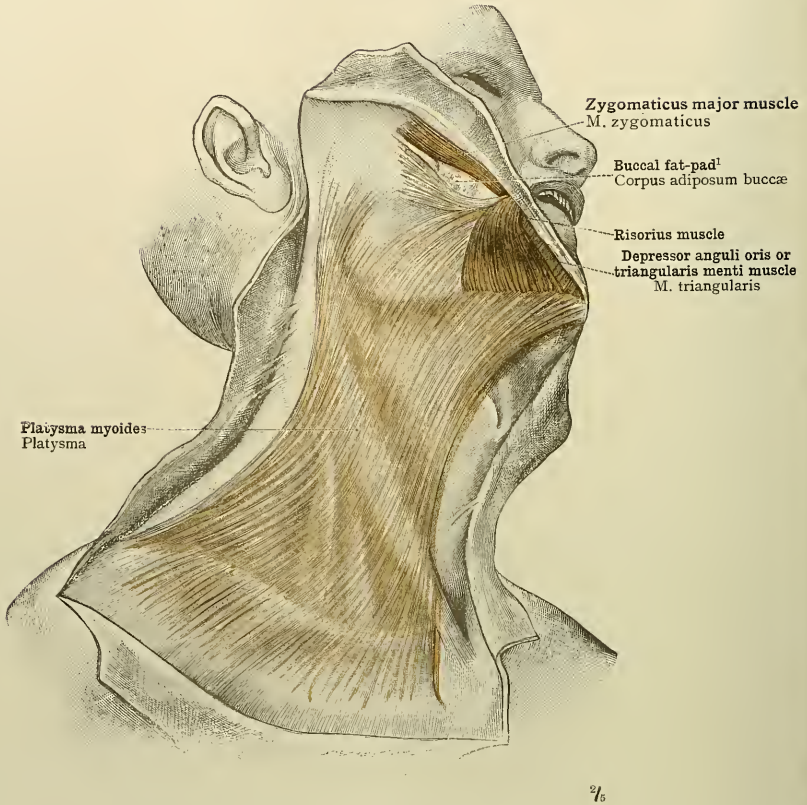
Tuberosity of the  
ischium  
Tuber ischiadicum

FIG. 531.—MUSCULUS SACROCOCYGEUS POSTERIOR, SACROCOCYGEUS POSTICUS OR EXTENSOR COCCYGIS MUSCLE; COCCYGEUS OR LEVATOR COCCYGIS MUSCLE.

Musculi sacrococcygei—Sacrococcygeal muscles.

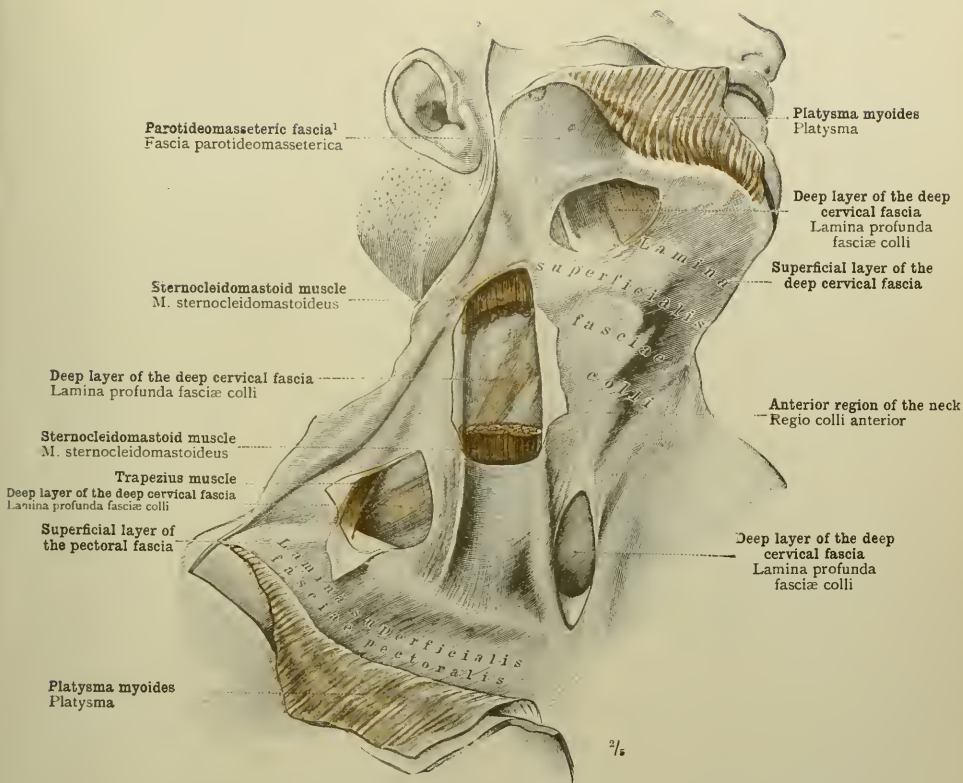
MUSCULI COLLI ET CAPITIS

THE MUSCLES  
OF THE HEAD AND NECK



Sometimes, but inappropriately, named the *sucking-pad*.—Tr

FIG. 532.—THE PLATYSMA MYOIDES OF THE RIGHT SIDE.



<sup>1</sup> In England, the portion of the deep cervical fascia covering the parotid gland is usually distinguished as the *parotid fascia*; that covering the masseter muscle, as the *masseteric fascia*.—Tr.

FIG. 533.—FASCIA COLLI, THE DEEP CERVICAL FASCIA, DISPLAYED ON THE RIGHT SIDE OF THE NECK BY THE REMOVAL OF THE PLATYSMA MYOIDES.

In those places in which the deep layer of the fascia is clearly differentiated from the superficial layer, the latter has been partially removed. The submaxillary gland has been taken away, and the middle portion of the sternocleidomastoid muscle has been cut out, to lay bare in each case the deep layer of the fascia; between the cut ends of the sternocleidomastoid, and between the lower portion of this muscle and the trapezius, the anterior and posterior bellies respectively of the omohyoid muscle are visible beneath the deep layer of the fascia.



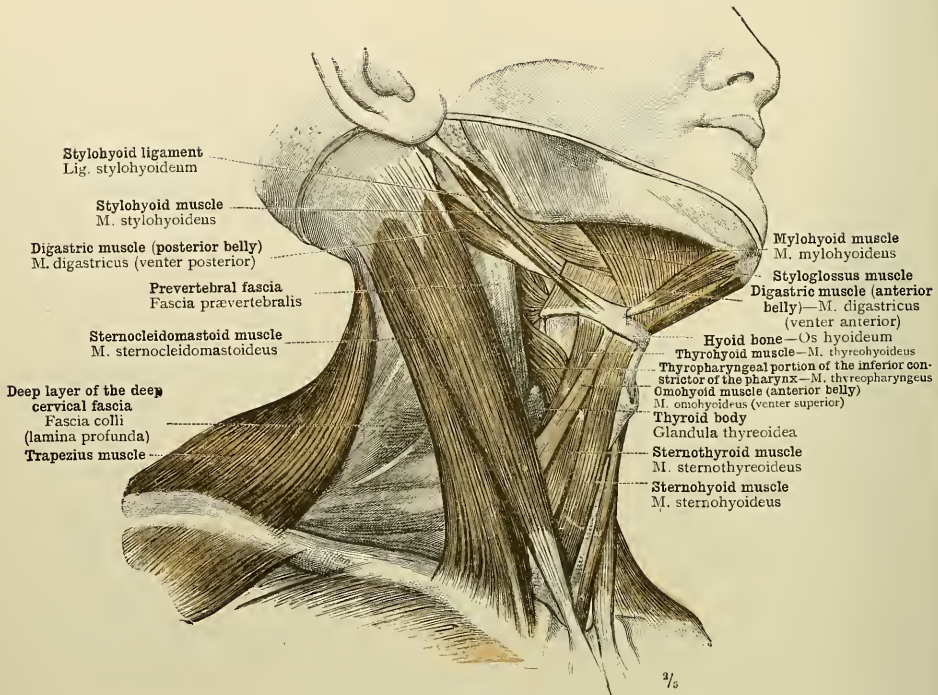


FIG. 534.—THE MUSCLES OF THE FRONT OF THE NECK, SHOWN ON THE RIGHT SIDE OF THE BODY. M. STERNOCLEIDOMASTOIDEUS, STERNOCLEIDOMASTOID MUSCLE; M. DIGASTRICUS, DIGASTRIC MUSCLE; THE RELATIONS OF THE LATTER TO THE STYLOHYOID AND MYLOHYOID MUSCLES. PORTIONS OF THE MUSCLES ARISING FROM THE STYLOID PROCESS, OF THE LOWER MUSCLES OF THE TONGUE, AND OF THE TRAPEZIUS MUSCLE, ARE DISPLAYED.

In the preparation of the muscles both the superficial and the deep layers of the deep cervical fascia have been removed, except in the posterior triangle of the neck, where the deep layer has been left intact.

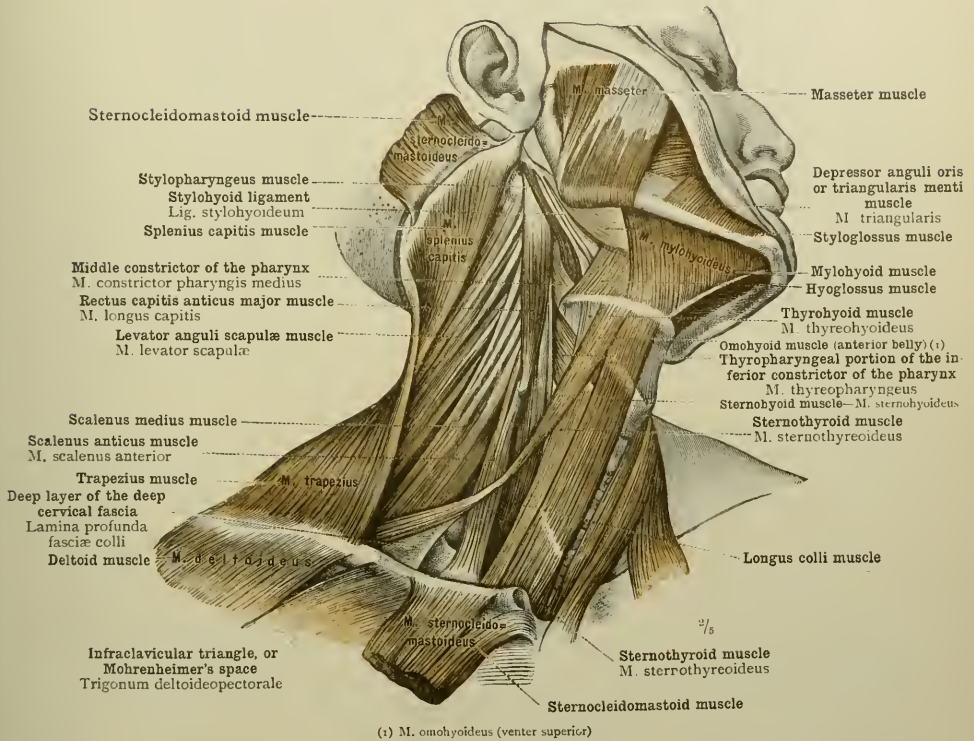


FIG. 535.—THE MUSCLES OF THE NECK, DISPLAYED ON THE RIGHT SIDE, THE STERNOCLEIDOMASTOID, DIGASTRIC, AND STYLOHYOID MUSCLES HAVING BEEN REMOVED. THE INFRAHYOID GROUP OF MUSCLES, STERNOHYOID, STERNOTHYROID, THYROID, AND OMOHYOID. THE MYLOHYOID MUSCLE, THE ANTERIOR AND MIDDLE SCALENE MUSCLES, AND THE LEVATOR ANGULI SCAPULAE; PORTIONS OF THE MUSCLES OF THE FACE, AND OF THE DEEP LATERAL AND PREVERTEBRAL MUSCLES OF THE NECK.

Musculi colli—Muscles of the neck.

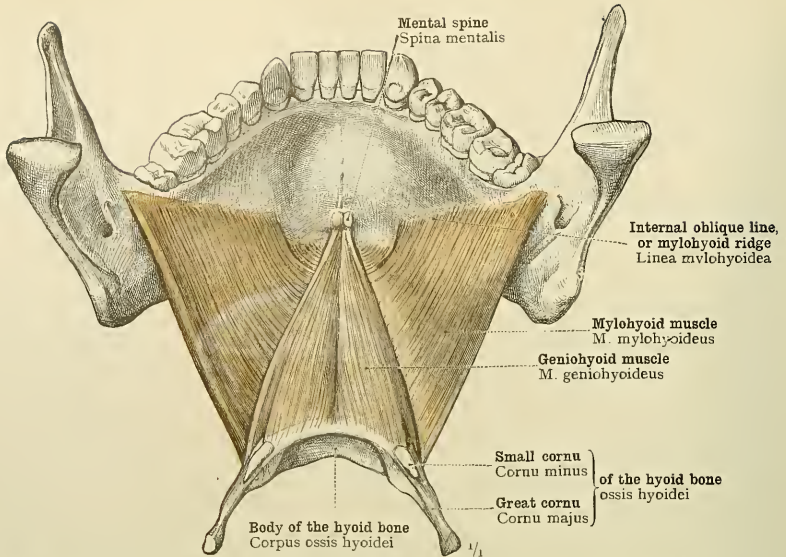
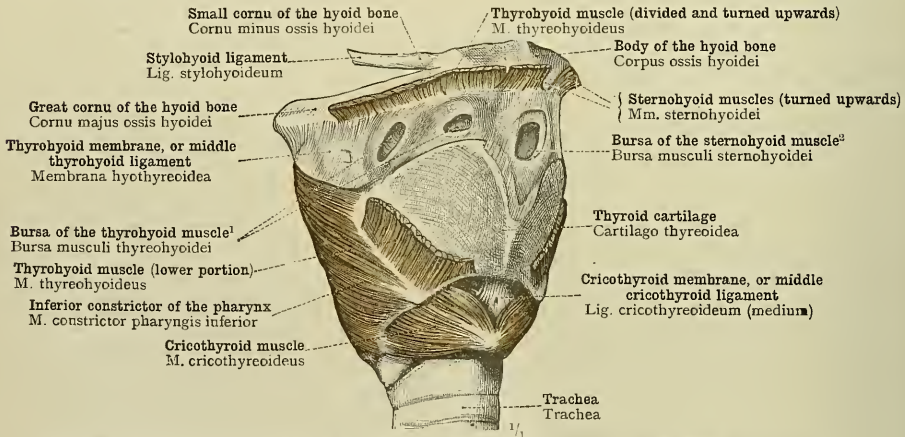


FIG. 536.—M. MYLOHYOIDEUS, THE MYLOHYOID MUSCLE, THE MUSCLES OF THE RIGHT AND LEFT SIDE TOGETHER FORMING A FLOOR BELOW THE ANTERIOR PART OF THE MOUTH, THE DIAPHRAGMA ORIS, AND THE GENIOHYOID MUSCLE, SEEN FROM ABOVE AND BEHIND



<sup>1</sup> The bursa of the thyrohyoid muscle, either single or double (the latter in the present instance), is situate beneath the thyrohyoid muscle on the anterior surface of the thyrohyoid membrane, external to the bursa of the sternohyoid muscle.—Tr.

<sup>2</sup> The bursa of the sternohyoid muscle is situate beneath the upper extremity of the sternohyoid muscle and in front of the thyrohyoid membrane, close to the median line.—Tr.

FIG. 537.—THE BURSÆ BELOW THE HYOID BONE. THE STERNOHYOID AND THYROHYOID MUSCLES HAVE BEEN DIVIDED TRANSVERSELY, AND THE PORTIONS OF THESE MUSCLES LEFT ATTACHED TO THE HYOID BONE HAVE BEEN TURNED UPWARDS. SEEN OBLIQUELY FROM THE RIGHT SIDE AND BEFORE.

Musculi colli—Muscles of the neck.



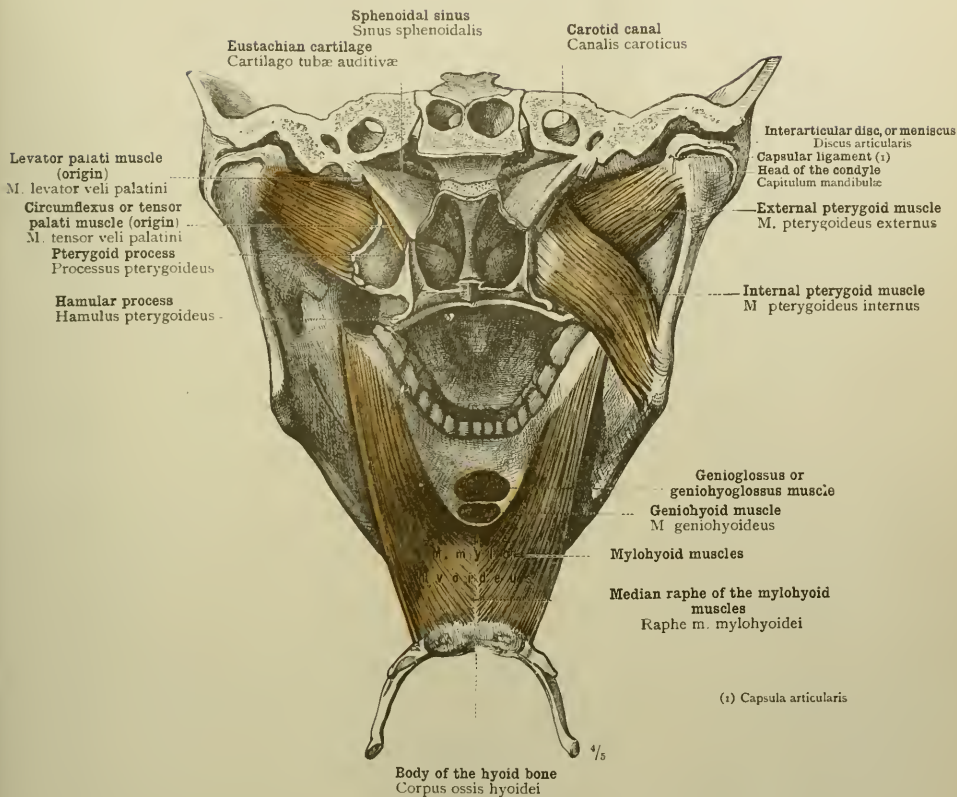


FIG. 538.—M. MYLOHYOIDEUS, THE MYLOHYOID MUSCLE, THE RIGHT AND LEFT MUSCLES FORMING THE DIAPHRAGMA ORIS, SEEN FROM ABOVE AND BEHIND. THE PTERYGOID MUSCLES, EXTERNAL AND INTERNAL, ARE DISPLAYED, BOTH INTACT ON THE RIGHT SIDE, WHILE ON THE LEFT SIDE THE INTERNAL PTERYGOID MUSCLE HAS BEEN REMOVED IN ORDER TO LAY BARE IN ITS WHOLE EXTENT THE POSTERIOR SURFACE OF THE EXTERNAL PTERYGOID MUSCLE.

The levator palati and the circumflexus or tensor palati muscles have been cut away close to their respective origins.



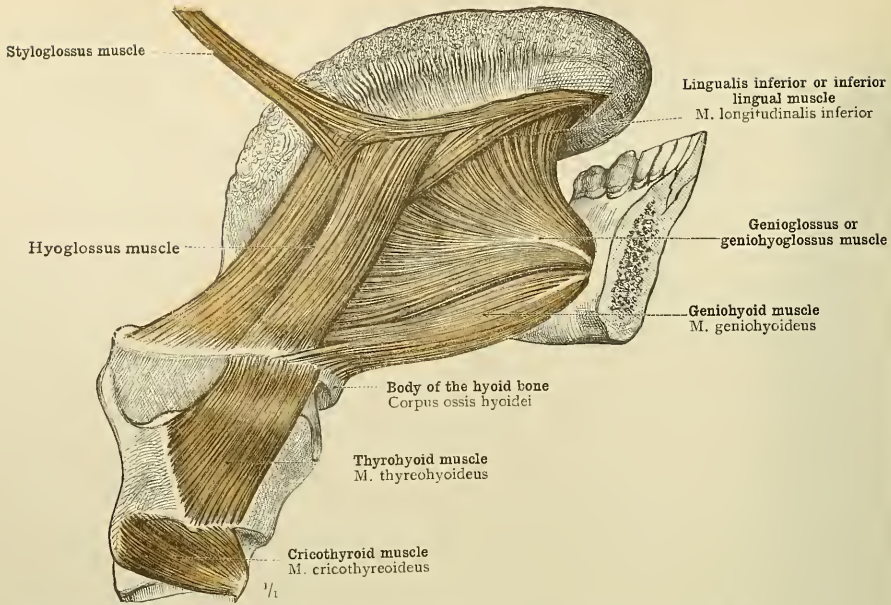


FIG. 539.—THE MUSCLES OF THE TONGUE, WITH THE GENIOHYOID MUSCLE, SEEN FROM THE RIGHT SIDE: THE HYOGLOSSUS, THE STYLOGLOSSUS, AND THE GENIOGLOSSUS OR GENIOHYOGLOSSUS MUSCLES. ALSO THE THYROHYOID AND CRICOTHYROID MUSCLES.

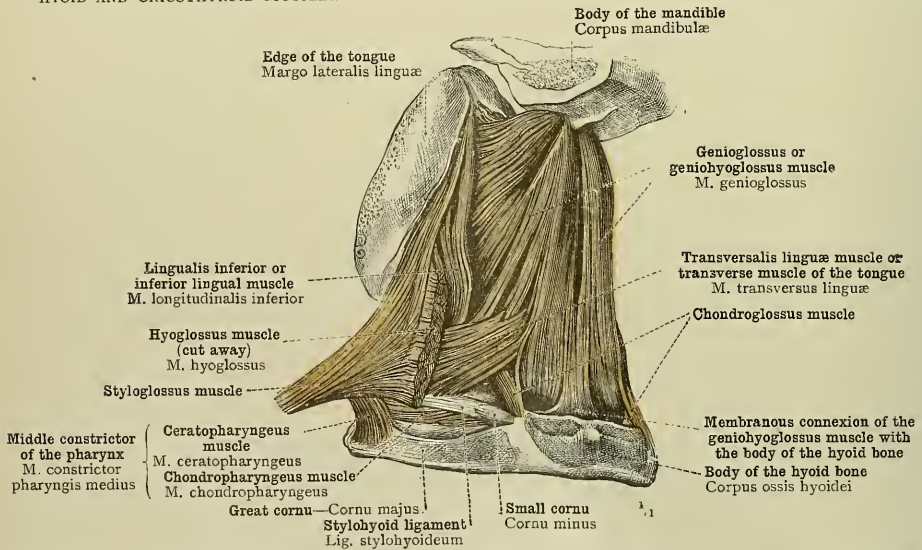


FIG. 540.—THE MUSCLES OF THE TONGUE SEEN FROM THE RIGHT SIDE AND BELOW, DISPLAYED BY THE REMOVAL OF THE HYOGLOSSUS MUSCLE: M. LONGITUDINALIS INFERIOR, THE INFERIOR LINGUAL MUSCLE; M. TRANSVERSUS (VEL TRANSVERSALIS) LINGUÆ, THE TRANSVERSE MUSCLE OF THE TONGUE, AND ITS RELATION TO THE GENIOHYOGLOSSUS MUSCLE; THE CHONDROGLOSSUS MUSCLE.

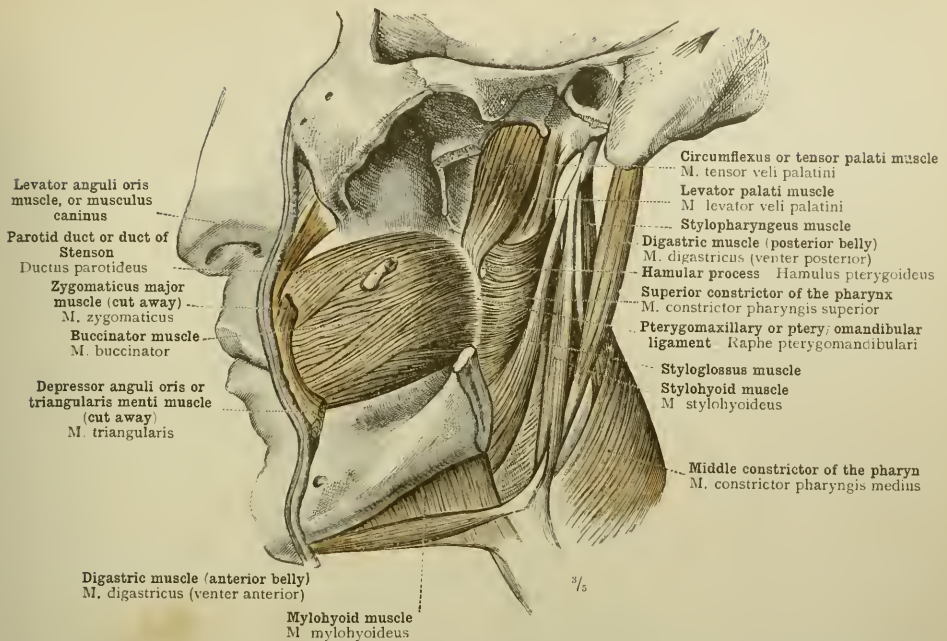


FIG. 541.—THE MUSCLES ARISING FROM THE STYLOID PROCESS WITH THE DIGASTRIC MUSCLE; THE CIRCUMFLEXUS OR TENSOR PALATI, THE LEVATOR PALATI, AND THE BUCCINATOR MUSCLE; SEEN FROM THE LEFT SIDE. The ramus of the jaw has been removed.

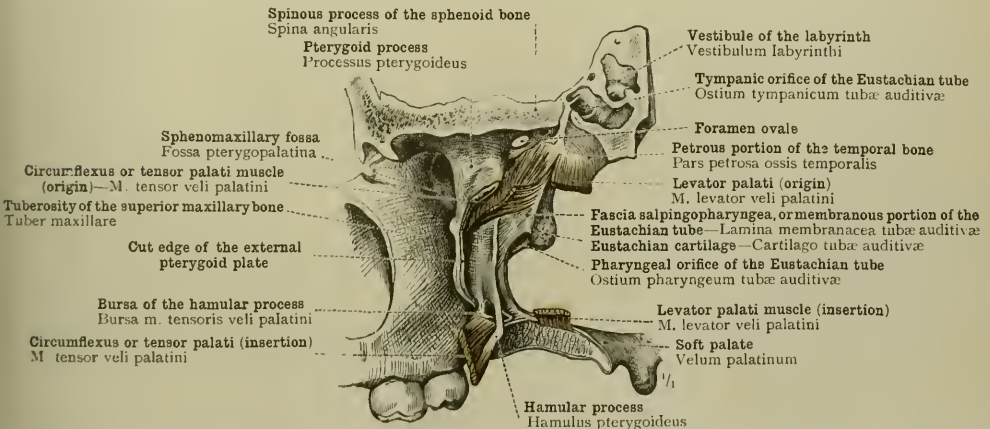


FIG. 542.—ORIGIN AND INSERTION OF THE CIRCUMFLEXUS OR TENSOR PALATI MUSCLE AND OF THE LEVATOR PALATI MUSCLE, WITH THE SYNOVIAL BURSA OF THE HAMULAR PROCESS, SEEN FROM THE LEFT SIDE.

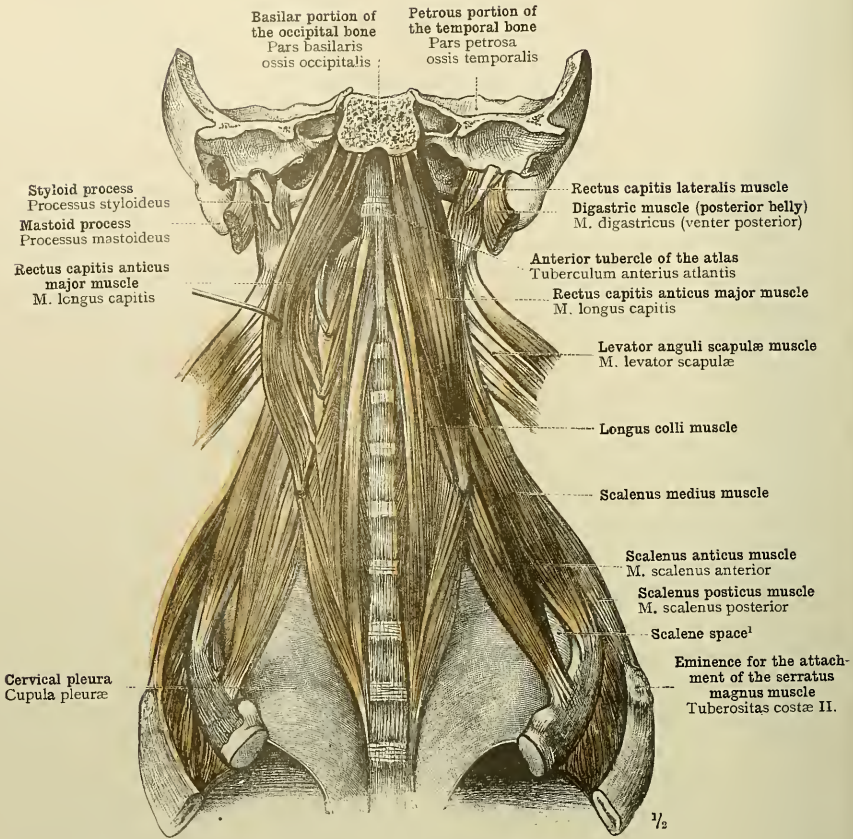
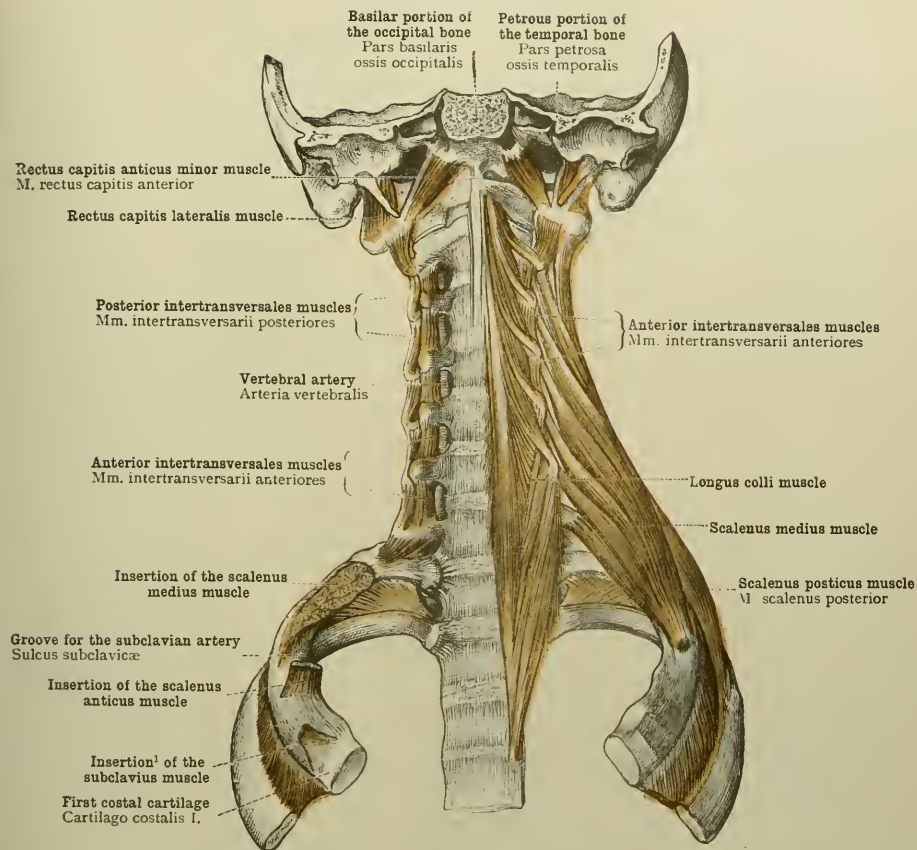


FIG. 543.—THE DEEP LATERAL AND PREVERTEBRAL MUSCLES OF THE NECK, DISPLAYED BY THE REMOVAL OF THE FACIAL PORTION OF THE SKULL AND THE CERVICAL VISCERA. SEEN FROM BEFORE. SCALENUS ANTICUS, MEDIUS, AND POSTICUS MUSCLES; LONGUS COLLI MUSCLE; RECTUS CAPITIS ANTICUS MAJOR MUSCLE. THE RELATION OF THE SCALENUS MUSCLES AND THE LONGUS COLLI MUSCLE TO THE CERVICAL PLEURA. THE SCALENE SPACE.<sup>1</sup>

<sup>1</sup> See note to p. 277.

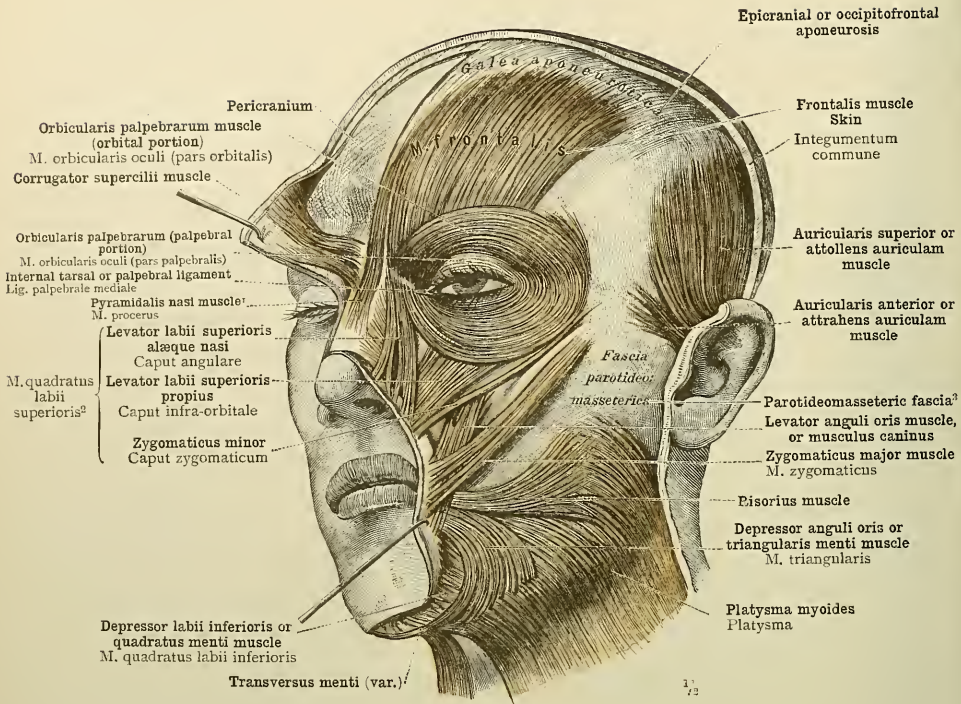




<sup>1</sup> English anatomists regard this as the *origin* of the subclavius muscle.—Tr.

FIG. 544.—THE DEEP LATERAL AND PREVERTEBRAL MUSCLES OF THE NECK, THE RECTUS CAPITIS ANTICUS MAJOR AND SCALENUS ANTICUS MUSCLES HAVING BEEN REMOVED. ON THE RIGHT SIDE THE LONGUS COLLI AND THE SCALENUS MEDIUS AND POSTICUS MUSCLES HAVE ALSO BEEN REMOVED. SEEN FROM BEFORE. INTERTRANSVERSALES MUSCLES; RECTUS CAPITIS ANTICUS MINOR AND RECTUS CAPITIS LATERALIS MUSCLES.





<sup>1</sup> The *pyramidalis nasi* muscle (*Musculus procerus*) is regarded by the author as a portion of the *occipitofrontalis* muscle.—Tr.

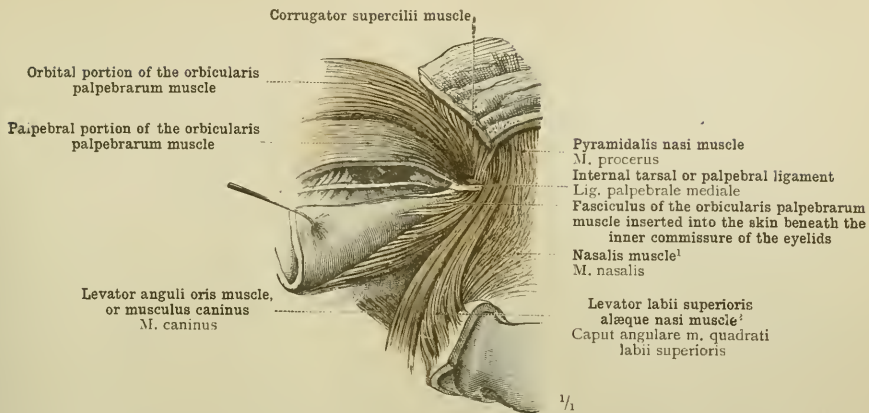
<sup>2</sup> In England the *levator labii superioris aequae nasi*, the *levator labii superioris proprius*, and the *zygomaticus minor*, are regarded as three separate muscles, not, as in the nomenclature of the German Anatomical Society, as the three heads, the *angular head*, the *infra-orbital head*, and the *zygomatic head*, respectively, of a single muscle, the *quadratus labii superioris*.—Tr.

<sup>3</sup> See note to p. 291.

FIG. 545.—THE SUPERFICIAL LAYER OF THE MUSCLES OF FACIAL EXPRESSION AND THEIR RELATION TO THE PLATYSMA MYOIDES. DEPRESSOR ANGULI ORIS OR TRIANGULARIS MENTI MUSCLE; RISORIUS MUSCLE; ZYGOMATICUS MAJOR MUSCLE; LEVATOR LABII SUPERIORIS MUSCLE; ORBICULARIS PALPEBRARUM MUSCLE. THE ANTERIOR PORTIONS OF THE OCCIPITOFONTALIS MUSCLE—THE FRONTALIS AND THE PYRAMIDALIS NASI MUSCLES (see note <sup>1</sup> above). AURICULARIS SUPERIOR OR ATTOLLENS AURICULAM AND AURICULARIS ANTERIOR OR ATTRAHENS AURICULAM MUSCLES. THE EPICRANIAL APONEUROSIS; THE PERICRANIUM; AND BEFORE.

#### Musculi faciei—Muscles of the face.<sup>4</sup>

<sup>4</sup> See note <sup>1</sup> on page 303.



<sup>1</sup> This consists of the *compressor naris* muscle and of the *outer part* of the *depressor ala nasi* muscle of English anatomists.—Tr.

<sup>2</sup> See note <sup>2</sup> to p. 300.

FIG. 546.—THE ATTACHMENT OF THE ORBICULARIS PALPEBRARUM MUSCLE IN THE NEIGHBOURHOOD OF THE INNER CANTHUS, AND ITS RELATION TO THE CORRUGATOR SUPERCILII MUSCLE, SEEN FROM BEFORE. RIGHT SIDE.

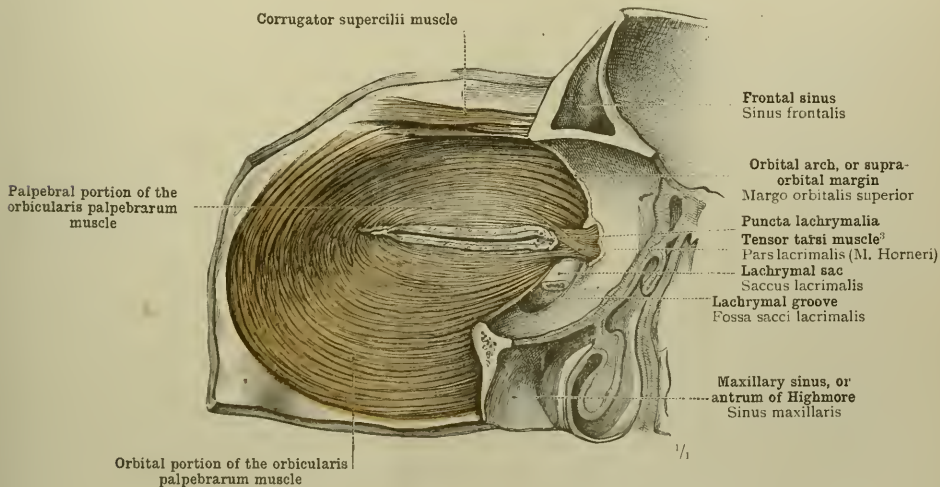


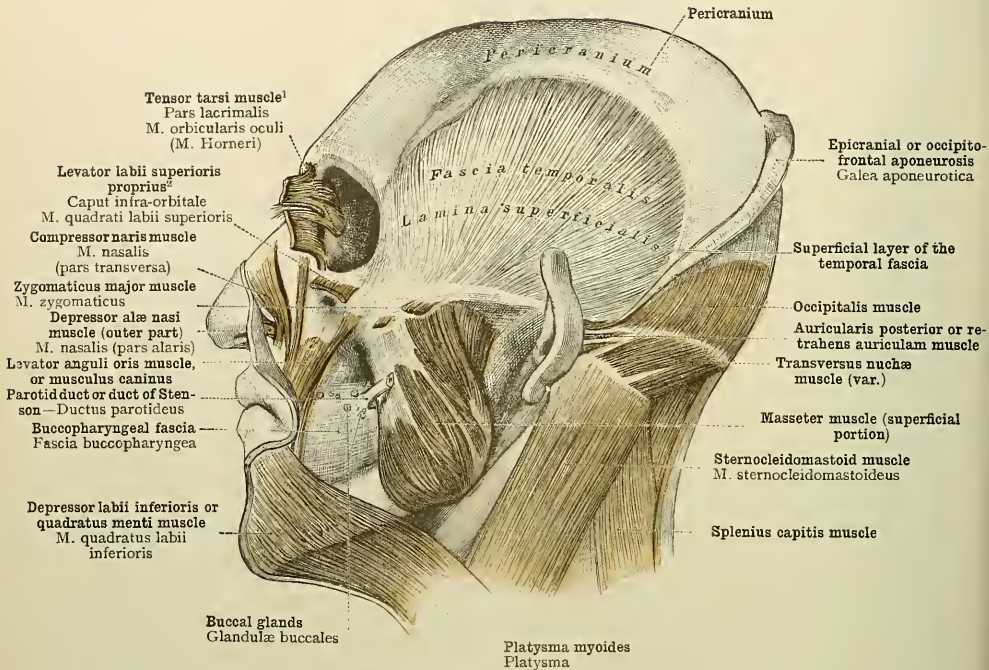
FIG. 547.—THE THREE PORTIONS<sup>1</sup> OF THE ORBICULARIS PALPEBRARUM MUSCLE, AND THE RELATION OF THIS MUSCLE TO THE CORRUGATOR SUPERCILII MUSCLE, SEEN FROM BEHIND. LEFT SIDE.

The soft parts in the neighbourhood of the eyelids, with the exception of the origin of the orbicularis palpebrarum muscle, have been detached from the bone; and by the removal of the conjunctiva, the tarsal cartilages and the palpebral fascia (septum orbitale), the orbicularis muscle has been laid bare from behind.

<sup>2</sup> Called also *pars lachrymalis musculi orbicularis palpebrarum*, *Horner's muscle*, or *musculus sacci lachrymalis*.—Tr.

<sup>3</sup> These three portions being the *orbital*, *palpebral* and *lachrymal* portions; the last-mentioned, however, is by English anatomists usually described as a distinct muscle, the *tensor tarsi* (see also note <sup>2</sup>).—Tr.

M. orbicularis oculi—Orbicularis palpebrarum and tensor tarsi muscles.



<sup>1</sup> See notes <sup>3</sup> and <sup>4</sup> on p. 301.

<sup>2</sup> See note <sup>3</sup> on p. 300.

FIG. 548.—THE DEEP LAYER OF THE MUSCLES OF FACIAL EXPRESSION WITH THE MASSETER MUSCLE, DISPLAYED BY THE REMOVAL OF THE LEVATOR LABII SUPERIORIS ALÆQUE NASI, LEVATOR LABII SUPERIORIS PROPRIUS, ZYGOMATICUS MINOR, AND THE DEPRESSOR ANGULI ORIS OR TRIANGULARIS MENTI MUSCLES, OF THE PAROTIDOMASSETERIC FASCIA, AND OF THE PAROTID GLAND: LEVATOR ANGULI ORIS MUSCLE, OR MUSCULUS CANINUS; DEPRESSOR LABII INFERIORIS OR QUADRATUS MENTI MUSCLE; COMPRESSOR NARIS AND DEPRESSOR ALÆ NASI MUSCLES. OCCIPITALIS MUSCLE. EPICRANIAL OR OCCIPITOFRONTAL APONEUROSIS; PERICRANIUM; TEMPORAL FASCIA AND ANTERIOR PORTION OF BUCCOPHARYNGEAL FASCIA. LEFT SIDE.

### Musculi faciei—Muscles of the face.<sup>3</sup>

<sup>3</sup> See note<sup>1</sup> on page 303.



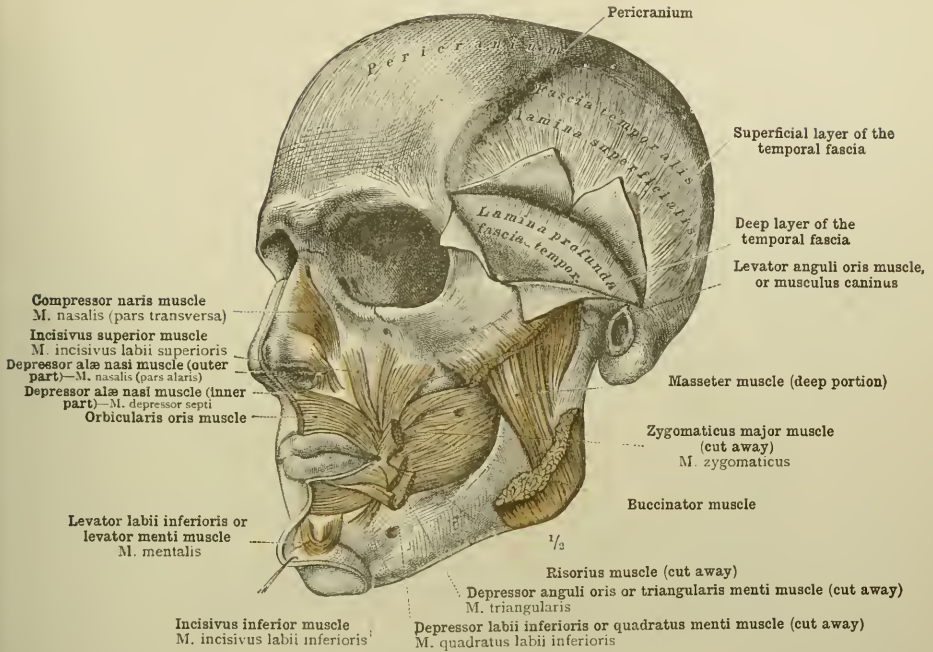


FIG. 549.—THE DEEP LAYER OF THE MUSCLES OF FACIAL EXPRESSION, AND THE RELATION OF THE ORBICULARIS ORIS MUSCLE TO THE ADJOINING MUSCLES. SEEN OBLIQUELY FROM BEFORE AND THE LEFT SIDE. BUCCINATOR MUSCLE, THE BUCCOPHARYNGEAL FASCIA HAVING BEEN DISSECTED OFF; ACCESSORY SLIPS OF THE ORBICULARIS ORIS MUSCLE KNOWN RESPECTIVELY AS INCISIVUS SUPERIOR AND INCISIVUS INFERIOR MUSCLES; LEVATOR LABII INFERIORIS OR LEVATOR MENTI MUSCLE; COMPRESSOR NARIS MUSCLE<sup>1</sup>; DEPRESSOR ALÆ NASI MUSCLE<sup>1</sup>; LEVATOR ANGULI ORIS MUSCLE, OR MUSCULUS CANINUS. THE DEEP PORTION OF THE MASSETER MUSCLE, DISPLAYED BY THE PARTIAL REMOVAL OF THE LARGER SUPERFICIAL PORTION. PERICRANIUM; TEMPORAL FASCIA.

<sup>1</sup> The principal differences between the author's grouping of the racial muscles and that usual in England is shown in the following table:

ENGLISH.		TOLDT'S (Being the nomenclature of the German Anatomical Society).	
Compressor naris muscle		= pars transversa	} muscoli nasalis.
Depressor alae nasi muscle	} outer part inner part	= pars alaris	
Levator labii superioris alaeque nasi muscle		= musculus depressor septi.	} muscoli quadrati labii superioris.
Levator labii superioris proprius muscle	= caput angulare		
Zygomaticus minor muscle	= caput infra-orbitale = caput zygomaticum		

—Tr.

Musculi faciei—Muscles of the face (see note above).



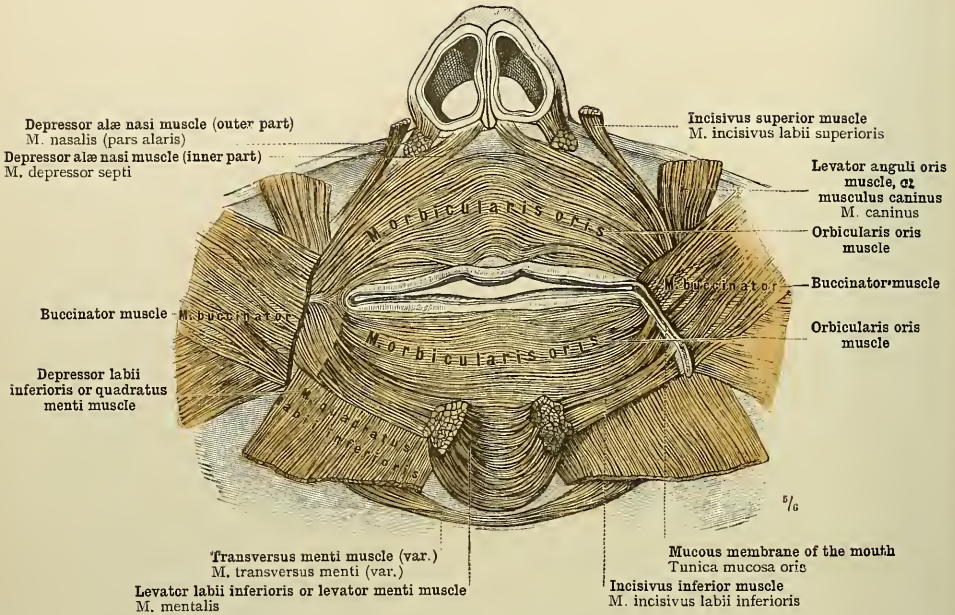


FIG. 550.—ORBICULARIS ORIS MUSCLE, AND ITS RELATION TO THE ADJOINING MUSCLES, SEEN FROM BEHIND.

The soft parts in the neighbourhood of the mouth and the cartilaginous portion of the nose were together detached from the bone, and the muscles laid bare from behind by the removal of the mucous membrane of the mouth. On the right side, a narrow strip of mucous membrane, passing outwards from the angle of the mouth, has been retained, to show the partial attachment thereto of the buccinator and orbicularis oris muscles.

M. orbicularis oris—Orbicularis oris muscle.

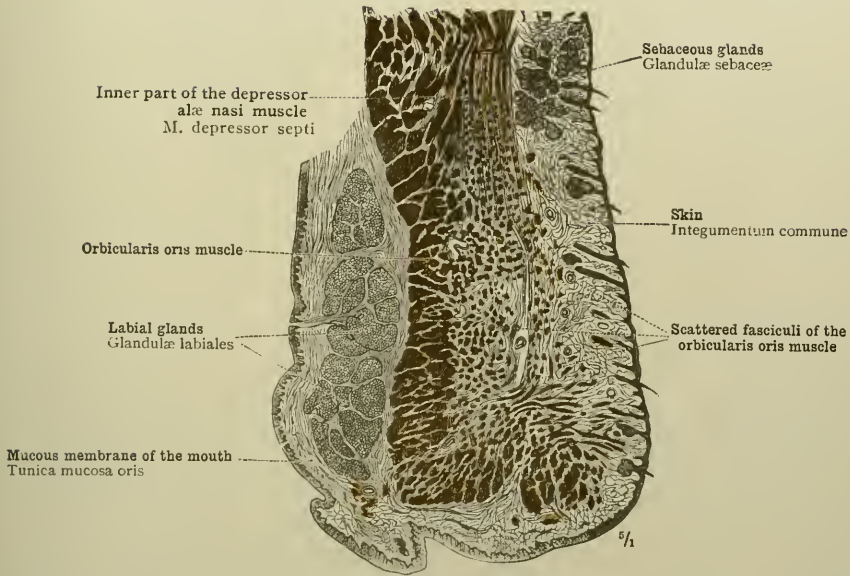


FIG. 551.—SAGITTAL SECTION THROUGH THE MIDDLE OF THE UPPER LIP, SHOWING THE SITUATION IN THE LIP OF THE ORBICULARIS ORIS, AND THE SHAPE OF THAT MUSCLE IN CROSS-SECTION.

Numerous thin fasciculi of the muscle are shown radiating to the skin.

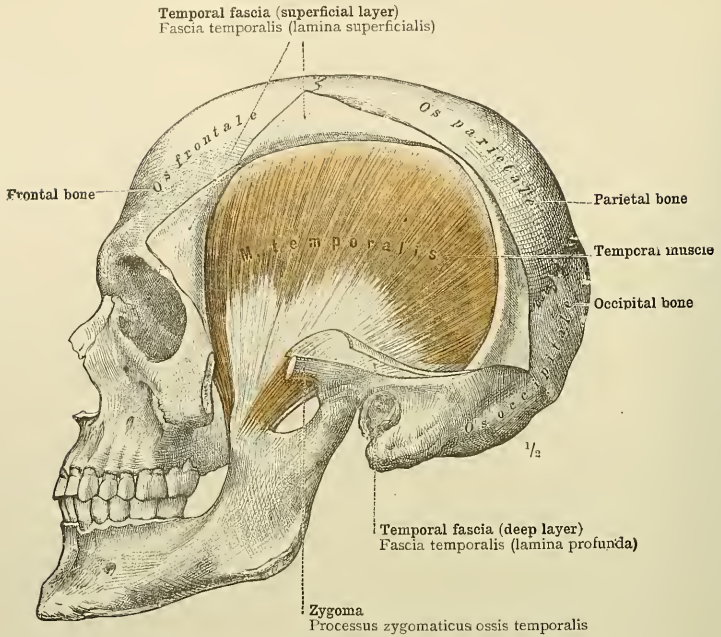


FIG. 552.—TEMPORAL MUSCLE, DISPLAYED ON THE LEFT SIDE OF THE HEAD, AFTER PARTIAL REMOVAL OF THE ZYGOMATIC ARCH, BY DISSECTING OFF THE SUPERFICIAL AND DEEP LAYERS OF THE TEMPORAL FASCIA.

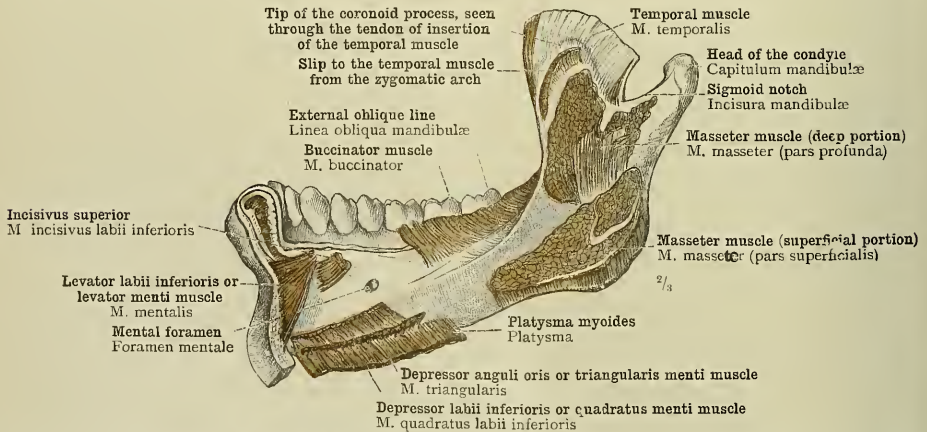


FIG. 553.—ATTACHMENT OF MUSCLES TO THE OUTER SURFACE OF THE INFERIOR MAXILLARY BONE. LEFT SIDE.

Musculi masticatorii—Muscles of mastication.

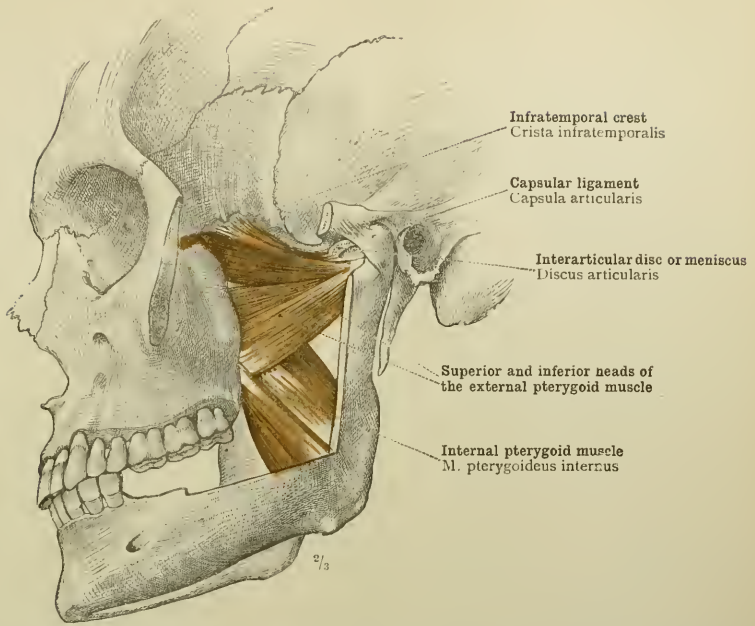


FIG. 554.—MUSCULI PTERYGOIDEI, EXTERNUS ET INTERNUS, EXTERNAL AND INTERNAL PTERYGOID MUSCLES, DISPLAYED BY THE REMOVAL OF THE ZYGOMATIC ARCH AND OF A PORTION OF THE RAMUS OF THE INFERIOR MAXILLARY BONE. SEEN FROM THE LEFT SIDE.

The temporomandibular articulation has been opened, in order to show the insertion of some of the fibres of the superior head of the external pterygoid muscle into the anterior border of the interarticular fibrocartilage and the capsular ligament of the articulation.

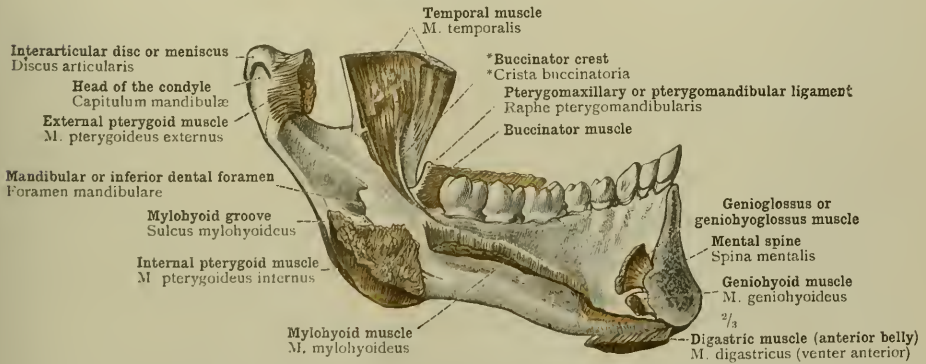


FIG. 555.—ATTACHMENT OF MUSCLES TO THE INNER SURFACE OF THE INFERIOR MAXILLARY BONE. RIGHT SIDE.

Musculi masticatorii - Muscles of mastication.



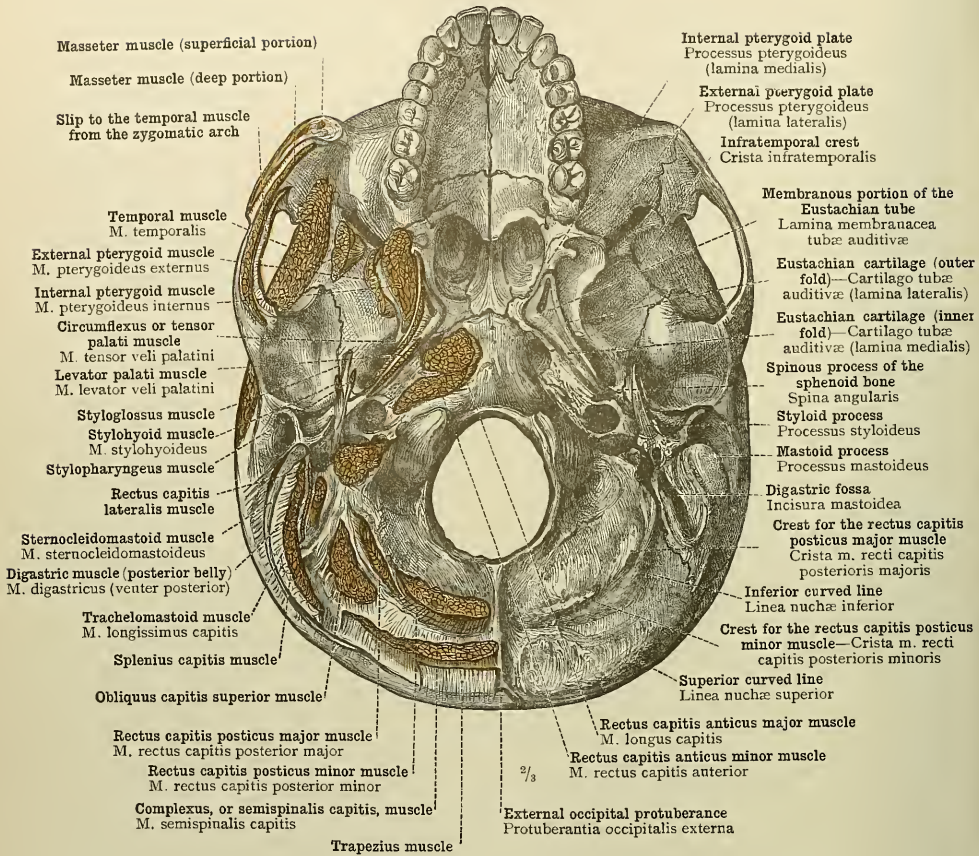


FIG. 556.—BASIS CRANII EXTERNA, EXTERNAL ASPECT OF THE BASE OF THE SKULL. AREAS OF ORIGIN AND INSERTION OF THE MUSCLES ATTACHED TO THE BASE OF THE SKULL.

The muscular attachments are shown on the right side only of the base of the skull; the bony prominences, etc., on the left side.

Attachment of Muscles to the External Aspect of the Base of the Skull.

MUSCULI EXTREMITATIS  
SUPERIORIS

THE MUSCLES  
OF THE UPPER EXTREMITY

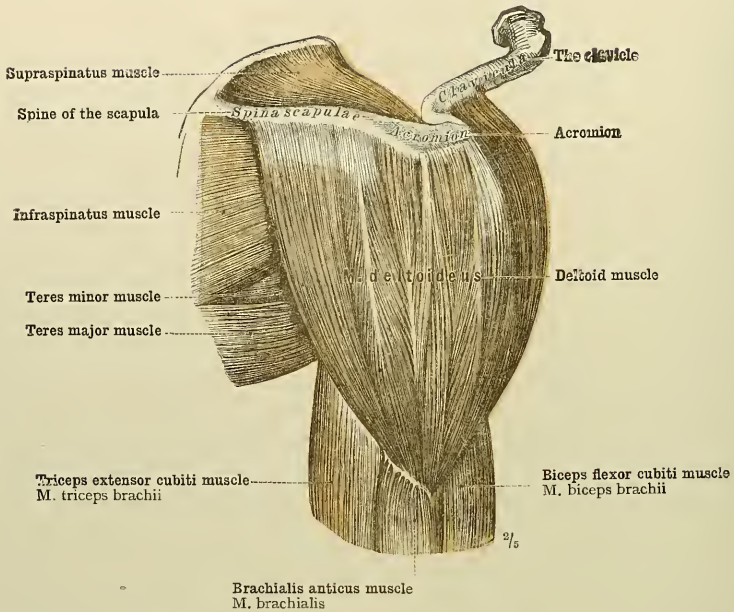


FIG. 557.—M. DELTOIDEUS, DELTOID MUSCLE, OF THE RIGHT SIDE, DORSO-EXTERNAL ASPECT, SHOWING ITS RELATIONS TO THE ADJOINING MUSCLES OF THE SHOULDER AND OF THE UPPER ARM.

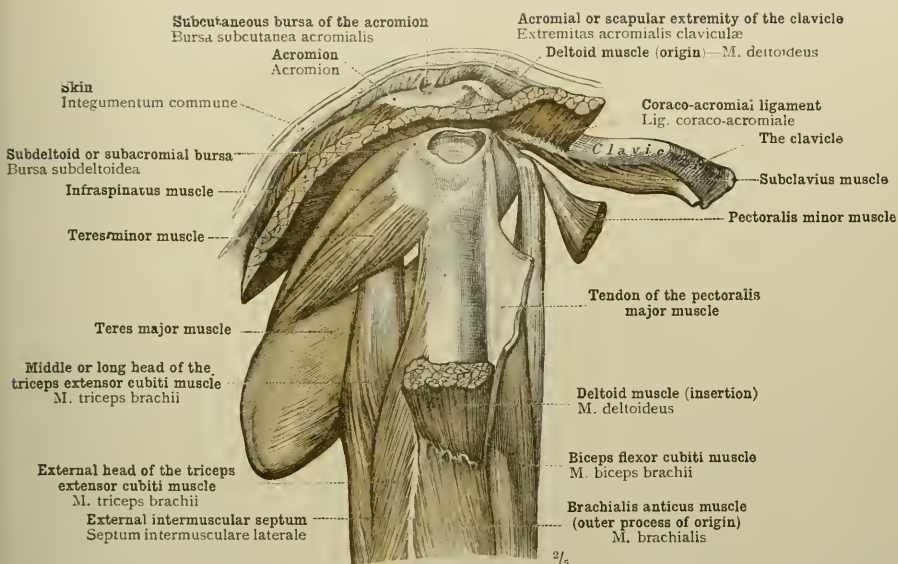
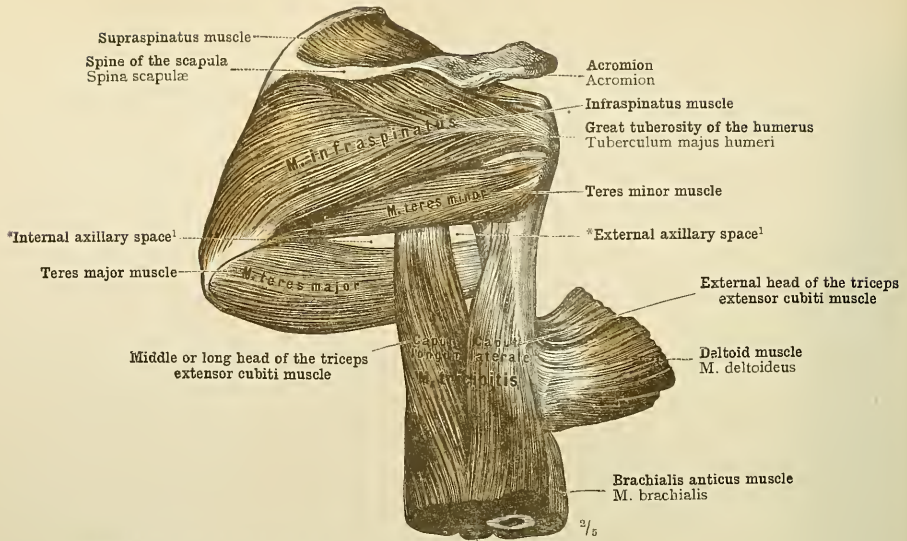


FIG. 558.—ARRANGEMENT OF THE MUSCLES ADJOINING THE RIGHT SHOULDER-JOINT AND IN THE PROXIMAL PORTION OF THE UPPER ARM, AS SEEN FROM THE OUTER SIDE, AFTER THE REMOVAL OF THE GREATER PART OF THE DELTOID MUSCLE. SUBDELTOID OR SUBACROMIAL BURSA AND SUBCUTANEOUS BURSA OF THE ACROMION.

Musculi articulationis numeri—Muscles of the shoulder.

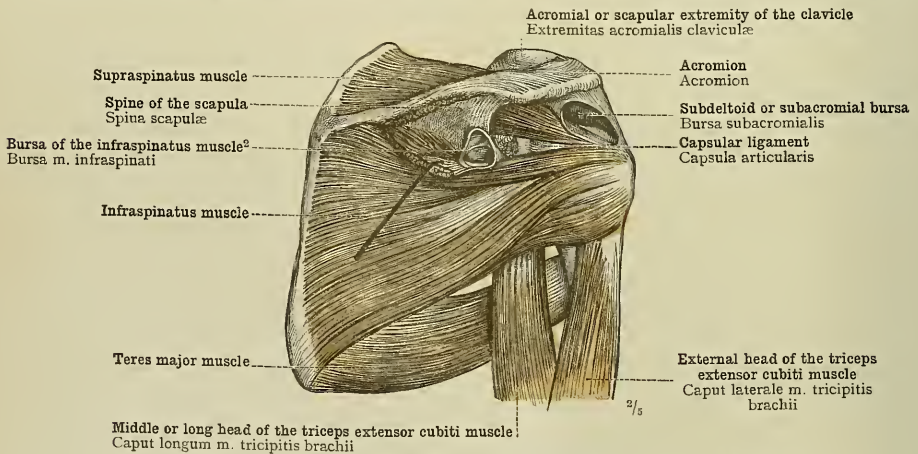




Internal or deep head of the triceps extensor cubiti muscle  
Caput mediale m. tricipitis brachii

<sup>1</sup> *Internal and External Axillary Spaces.*—Between the lower border of the teres minor muscle, the upper part of the humerus and the axillary border of the scapula, covered in front by the subscapularis muscle and behind by the teres minor muscle, is a triangular space, divided, as shown in the figure, by the middle or long head of the triceps into an outer, quadrilateral, and an inner, triangular, compartment, called respectively by Todd the internal and the external axillary space. These names are not in use in England, but are suitable, and may well be adopted. Through the external axillary space the posterior circumflex nerve and vessels pass backwards; and through the internal axillary space the dorsal branch of the subscapular artery passes round the margin of the scapula into the infraspinous fossa.—Tr.

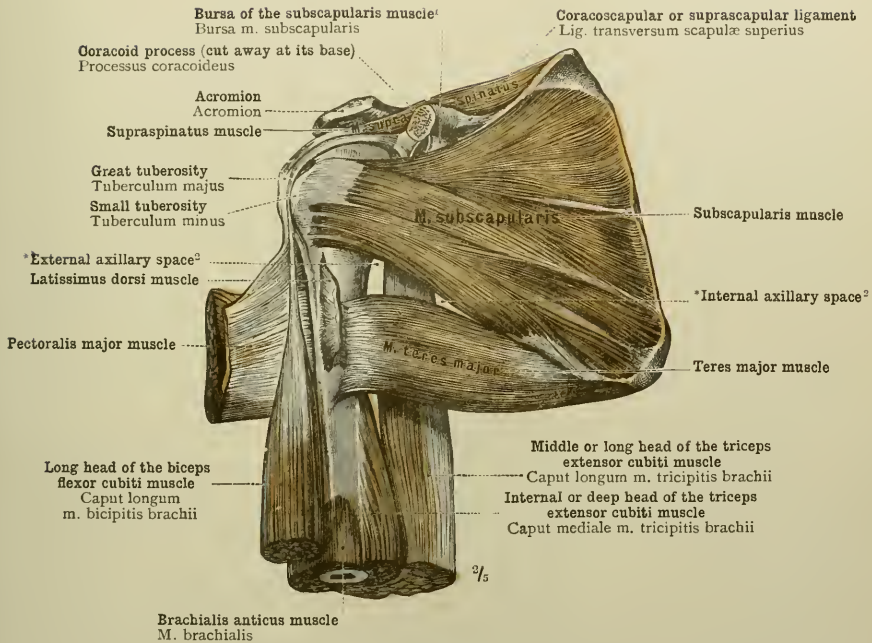
FIG. 559.—MUSCLES OF THE RIGHT SHOULDER, SEEN FROM BEHIND: SUPRASPINATUS AND INFRASPINATUS MUSCLES; TERES MAJOR AND TERES MINOR MUSCLES; THE ADJOINING PARTS OF THE TRICEPS EXTENSOR CUBITI MUSCLE. THE \*INTERNAL AND THE \*EXTERNAL AXILLARY SPACE (see note above).



<sup>2</sup> The bursa of the infraspinatus muscle lies between the infraspinatus muscle and the capsular ligament of the shoulder-joint.—Tr.

FIG. 560.—IN A PREPARATION SIMILAR TO THAT LAST DESCRIBED, THE ORIGIN OF THE INFRASPINATUS MUSCLE WAS DETACHED FROM THE SPINE OF THE SCAPULA, TO SHOW THE BURSA BETWEEN THAT MUSCLE AND THE CAPSULE OF THE SHOULDER-JOINT. THE SUBDELTOID OR SUBACROMIAL BURSA HAS ALSO BEEN OPENED.

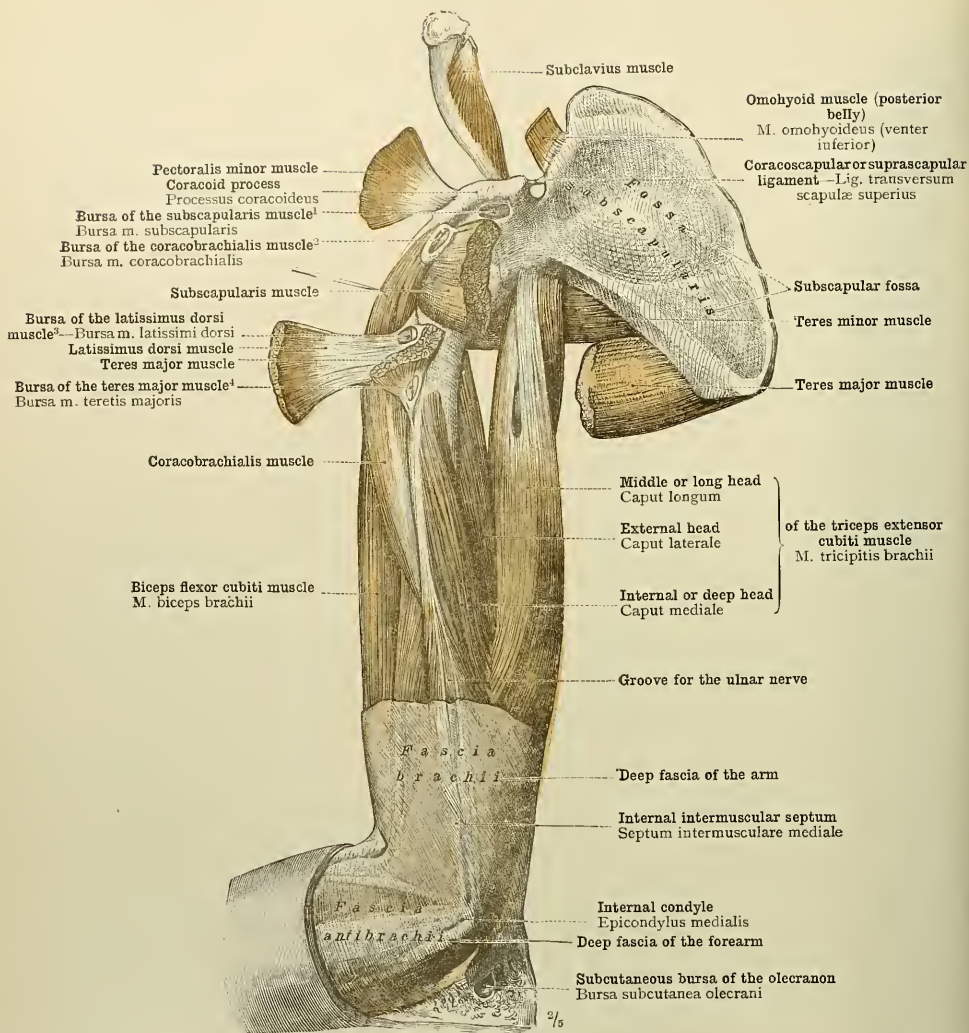
Musculi articulationis humeri—Muscles of the shoulder.



<sup>1</sup> The bursa of the subscapularis muscle is situated between the upper border and posterior surface of the subscapularis muscle and the coracoid process and neck of the scapula.—TR.

<sup>2</sup> See note <sup>1</sup> on p. 312.

FIG. 561.—MUSCLES OF THE RIGHT SHOULDER, SEEN FROM BEFORE. SUBSCAPULARIS MUSCLE, WITH ITS BURSA; SUPRASPINATUS MUSCLE; TERES MAJOR MUSCLE. ADJOINING PORTIONS OF THE MUSCLES OF THE UPPER ARM AND OF THE MUSCLES PASSING FROM THE TRUNK TO THE UPPER LIMB. THE \*INTERNAL AND THE \*EXTERNAL AXILLARY SPACE (see note <sup>1</sup> on p. 312).



<sup>1</sup> See note <sup>1</sup>, p. 312.

<sup>2</sup> The bursa of the coracobrachialis muscle is situate between the anterior surface of the subscapularis muscle and the upper ends of the biceps and the coracobrachialis muscles.—Tr.

<sup>3</sup> The bursa of the latissimus dorsi muscle is situate between the tendon of the latissimus dorsi muscle and that of the teres major muscle.—Tr.

<sup>4</sup> The bursa of the teres major muscle is situate between the tendon of the teres major muscle and the humerus.—Tr.

FIG. 562.—ARRANGEMENT OF THE MUSCLES IN THE PROXIMAL PORTION OF THE RIGHT UPPER ARM, AND THE RELATION OF THESE MUSCLES TO THE INSERTIONS OF THE MUSCLES OF THE SHOULDER AND OF THE MUSCLES PASSING FROM THE TRUNK TO THE UPPER LIMB. SEEN FROM THE INNER SIDE. BURSÆ OF THIS REGION. DISTAL PORTION OF THE DEEP FASCIA OF THE UPPER ARM AND PROXIMAL PORTION OF THE DEEP FASCIA OF THE FOREARM. SUBCUTANEOUS BURSA OF THE OLECRANON.

Musculi brachii—Muscles of the upper arm.

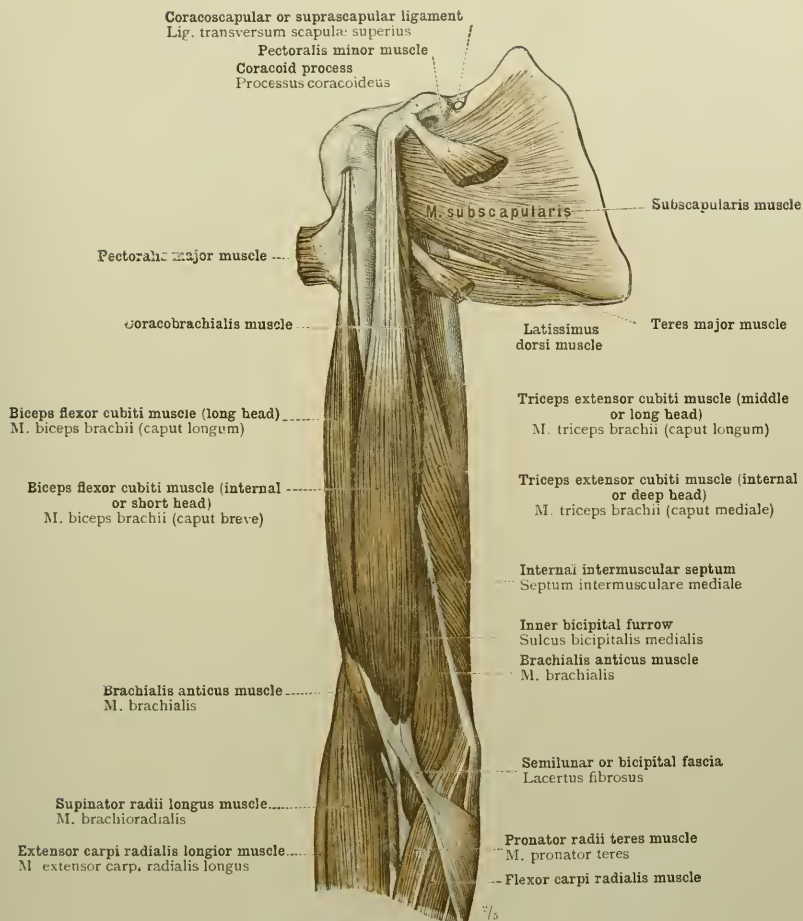
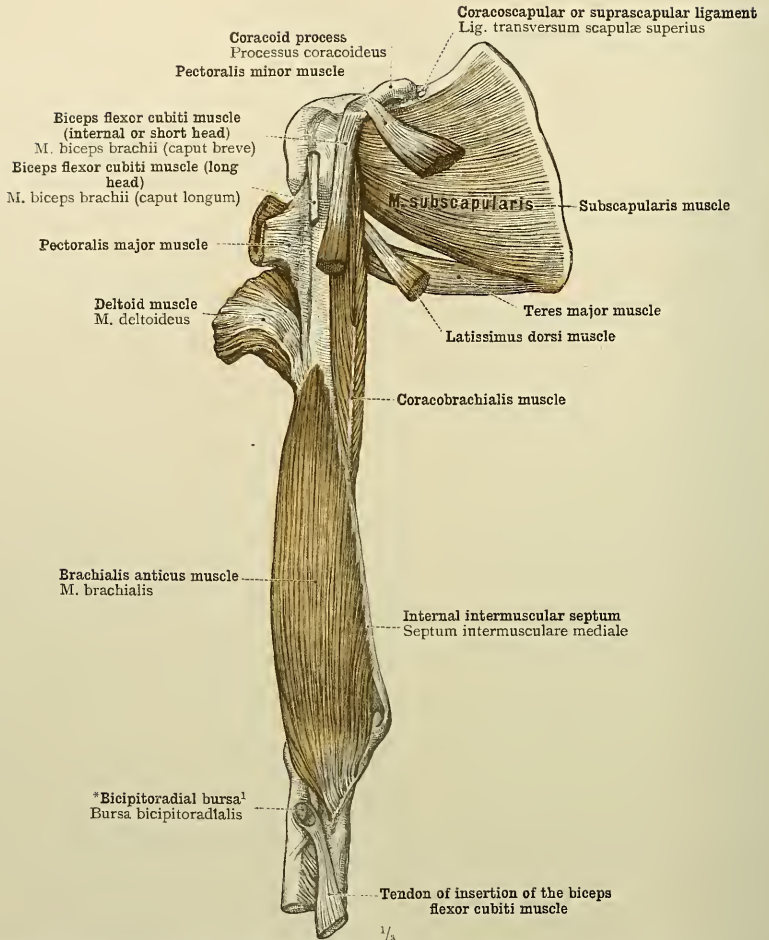


FIG. 563.—BICEPS FLEXOR CUBITI MUSCLE, OF THE RIGHT SIDE, AND ITS RELATIONS TO THE OTHER MUSCLES ON THE FLEXOR SIDE OF THE UPPER ARM, TO THE MUSCLES OF THE SHOULDER, TO THE MUSCLES PASSING FROM THE TRUNK TO THE UPPER LIMB, AND TO THE MUSCLES OF THE FOREARM.



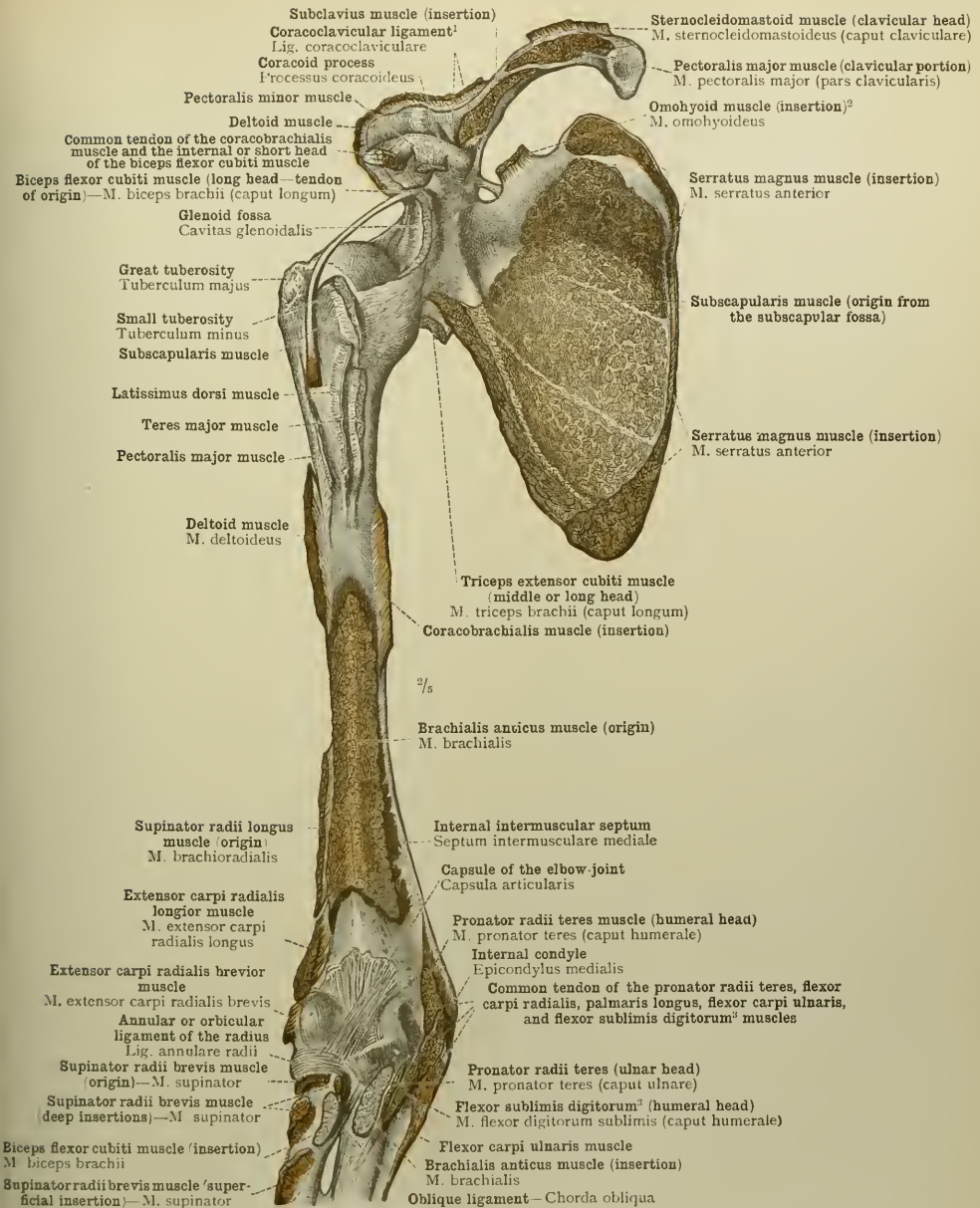


<sup>1</sup> This bursa is situated between the tendon of insertion of the biceps muscle and the anterior smooth portion of the tuberosity of the radius.—TR.

FIG. 564.—THE MUSCLES OF THE ANTERIOR (FLEXOR) SIDE OF THE RIGHT UPPER ARM, AFTER REMOVAL OF THE BICEPS FLEXOR CUBITI MUSCLE. CORACOBRACHIALIS MUSCLE; BRACHIALIS ANTICUS MUSCLE.

The tendon of insertion of the biceps flexor cubiti muscle has been turned downwards, in order to display the \*bicipitoradial bursa (see note above).

Musculi brachii—Muscles of the upper arm.



<sup>1</sup> This term, *coracoacromiolar ligament*, is seldom used in England, where the two parts of which the ligament consists are more often separately described, as the *conoid ligament* and the *trapezoid ligament*, respectively. See Section II. of this work, p. 202, Fig. 435.—Tr.

<sup>2</sup> The scapular attachment of the omohyoid is by English anatomists regarded as the *origin* of that muscle.—Tr.

<sup>3</sup> Or *flexor perforatus* muscle.

FIG. 565.—ATTACHMENT OF MUSCLES TO THE ANTERIOR SURFACES OF THE SCAPULA, THE HUMERUS, AND THE ELBOW.

Musculi brachii—Muscles of the upper arm.

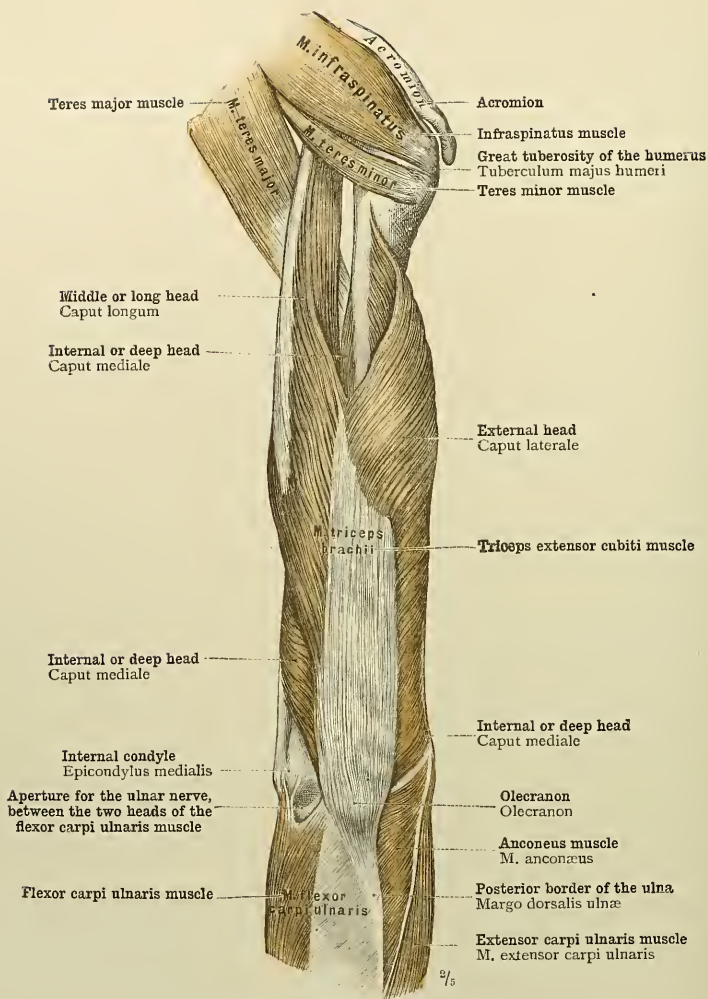
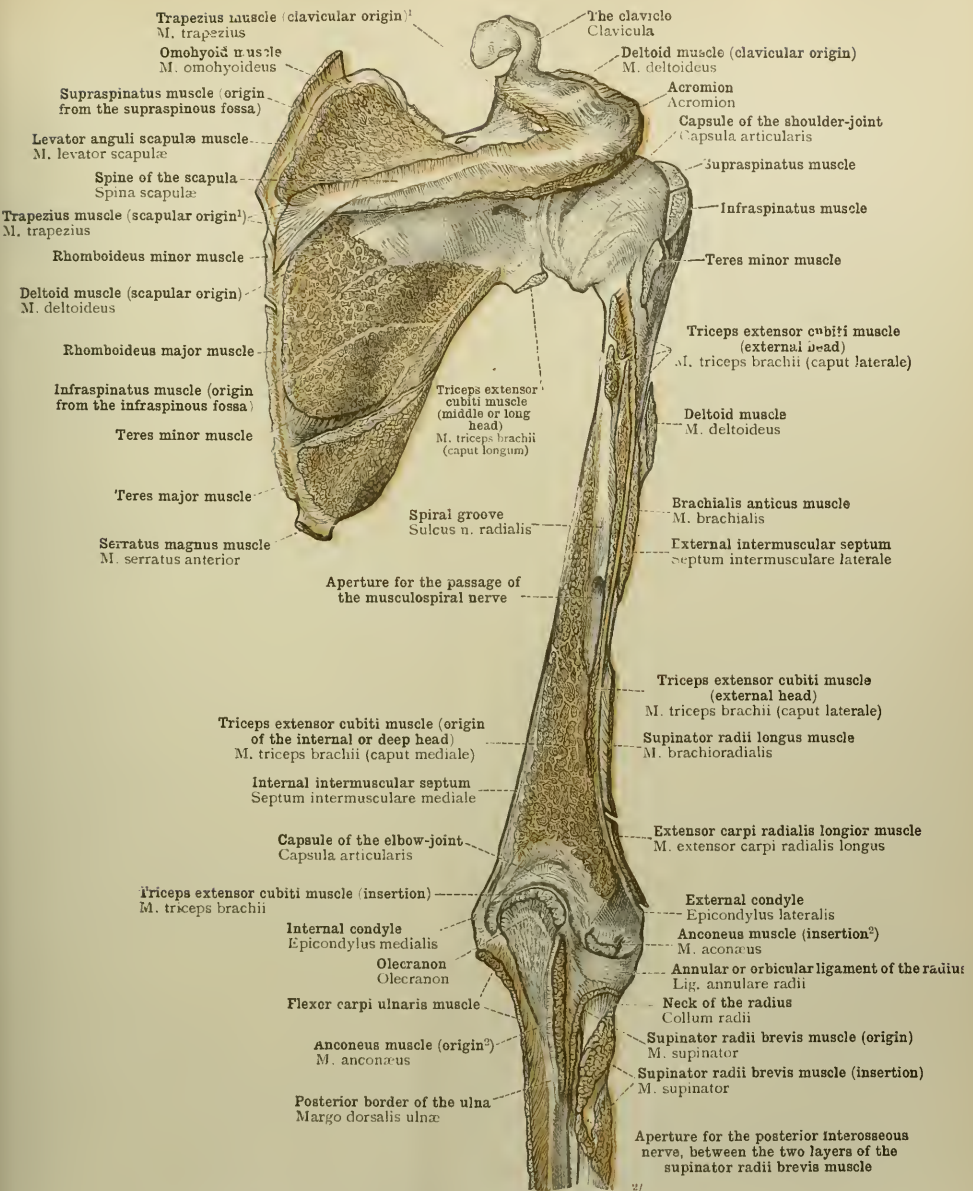


FIG. 566.—TRICEPS EXTENSOR CUBITI MUSCLE, OF THE RIGHT SIDE, SEEN FROM BEHIND; THE RELATIONS OF ITS PROXIMAL EXTREMITY TO THE MUSCLES OF THE SHOULDER, AND OF ITS DISTAL EXTREMITY TO THE MUSCLES OF THE FOREARM. ANCONEUS MUSCLE.



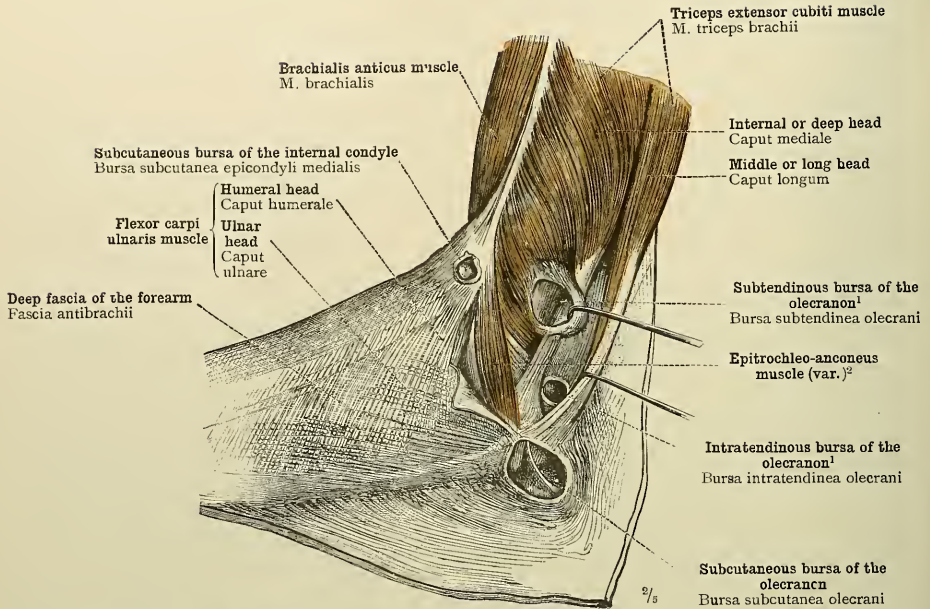
<sup>1</sup> Insertion of the trapezius muscle, according to English anatomists.

<sup>2</sup> English anatomists regard the humeral attachment of the anconeus muscle as the *origin* and the ulnar attachment as the *insertion*, of that muscle.—T.K.

FIG. 567.—ATTACHMENT OF MUSCLES TO THE POSTERIOR SURFACES OF THE SCAPULA, THE HUMERUS, AND THE ELBOW.

Musculi brachii—Muscles of the upper arm.



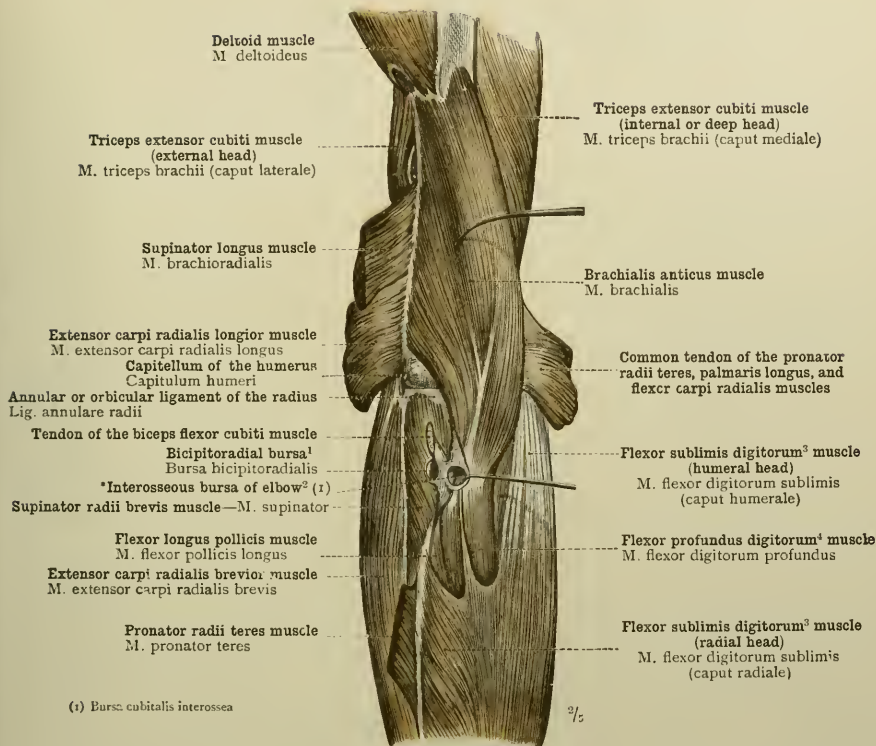


<sup>1</sup> Concerning these bursæ Quain writes ("Elements of Anatomy," 10th ed., vol. ii., Part II., p. 221): "In many cases there is a small bursa above the olecranon, either between the tendon of the triceps and the posterior ligament, or more frequently in the deep part of the tendon itself. A bursa behind the internal condyle, beneath the inner edge of the triceps and the ulnar nerve, is of rare occurrence."—Tr.

<sup>2</sup> The *epitrochleo-anconeus* is a small muscle often found, which arises from the posterior surface of the internal condyle of the humerus, and is inserted into the olecranon. It is superficial to the ulnar nerve. When absent, it is represented by a band of transverse fibres in the deep fascia of the arm.—Tr.

FIG. 568.—THE INNER SIDE OF THE RIGHT ELBOW WITH THE DISTAL EXTREMITY OF THE TRICEPS EXTENSOR CUBITI MUSCLE, THE ANOMALOUS EPITROCHLEO-ANCONÆUS MUSCLE, AND THE BURSÆ OF THIS REGION.

In order to display the intratendinous and the subtendinous bursæ of the olecranon two longitudinal incisions have been made in the distal extremity of the triceps extensor cubiti muscle, and the posterior margins of the incisions have been retracted with hooks. In the region of the forearm the deep fascia has been left intact.



<sup>1</sup> See note to p. 316.

<sup>2</sup> *Interosseous Bursa of the Elbow*.—This bursa is situate in the *bicipital hollow* of the ulna, which lies below the small sigmoid cavity, bounded behind by the supinator ridge and in front by the upper extremity of the interosseous border. In pronation of the hands, the bicipital hollow lodges the tuberosity of the radius and the distal extremity of the biceps tendon; and the interosseous bursa forms a synovial cavity between the two bones. Behind, the sac is in contact with the interosseous membrane and the oblique ligament; projecting forward, it separates the tendon of the brachialis anticus on the inner side from the tendon of the biceps and the upper part of the insertion of the supinator radii brevis on the outer side. Thus the tendon of the biceps at its insertion lies between the bicipitoradial bursa and the interosseous bursa of the elbow. The condition known as "law-tennis elbow" depends on inflammation of one or both of these bursae.—Tr.

<sup>3</sup> Or *flexor perforatus* muscle.

<sup>4</sup> Or *flexor perforans* muscle.

FIG. 569.—THE ORIGIN OF THE PALMAR AND RADIAL MUSCLES OF THE RIGHT FOREARM, AND THEIR RELATIONS TO THE BRACHIALIS ANTICUS MUSCLE IN THE NEIGHBOURHOOD OF THE ANTECUBITAL FOSSA. ANTERIOR ASPECT, THE FOREARM BEING SUPINATED. THE BICIPITORADIAL BURSA (see note <sup>1</sup> above) AND THE INTEROSSEOUS BURSA OF THE ELBOW (see note <sup>2</sup> above).

The brachialis anticus muscle has been drawn slightly inwards. The two superficial muscles of the radial group, the supinator radii longus and the extensor carpi radialis longus, have been cut away, except for their proximal extremities, which have been turned outwards, in order to lay bare the deep layer of muscles of the radial group: these are the extensor carpi radialis brevis and the supinator radii brevis. The superficial layer of the palmar group of muscles has also been removed.

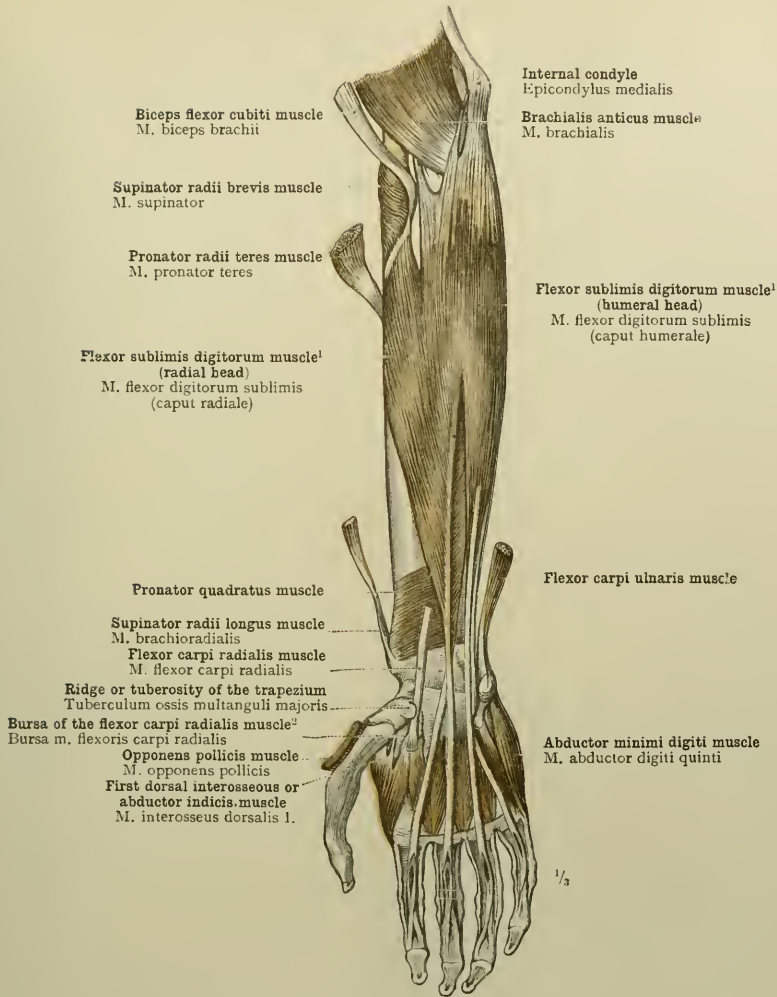


<sup>1</sup> Or *flexor perforatus* muscle.

<sup>2</sup> English anatomists group the pronator and flexor muscles of the forearm in *two* layers only: a *superficial*, comprehending the pronator radii teres, flexor carpi radialis, palmaris longus, and flexor sublimis digitorum muscles; and a *deep*, comprehending the flexor profundus digitorum, flexor longus pollicis, and pronator quadratus muscle. The author, however, groups these muscles in *four* layers, as enumerated in the description at the foot of Figs. 570, 571, and 572.—Tr.

FIG. 570.—THE SUPERFICIAL LAYER (see note <sup>2</sup> above) OF THE PALMAR GROUP OF MUSCLES OF THE RIGHT FOREARM: PRONATOR RADIJ TERES MUSCLE, FLEXOR CARPI RADIALIS MUSCLE, PALMARIS LONGUS MUSCLE, FLEXOR CARPI ULNARIS MUSCLE. THE SUPERFICIAL LAYER OF THE RADIAL GROUP OF MUSCLES: SUPINATOR RADIJ LONGUS MUSCLE, AND A PORTION OF THE EXTENSOR CARPI RADIALIS LONGIOR MUSCLE. THE ANTECUBITAL FOSSA, AND THE ULNAR AND RADIAL FURROWS OF THE FOREARM. LIGAMENTUM CARPI VOLARE, THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST, AND THE PALMAR FASCIA WITH THE PALMARIS BREVIS MUSCLE.

Musculi antibrachii—Muscles of the forearm.



<sup>1</sup> Or *flexor perforatus* muscle.

<sup>2</sup> This bursa lies beneath the tendon of the flexor carpi radialis muscle as it crosses the scaphoid bone and the trapezium.—Ta.

FIG. 571.—THE SECOND LAYER (see note<sup>2</sup> to p. 322) OF THE PALMAR GROUP OF MUSCLES OF THE RIGHT FOREARM: FLEXOR SUBLIMIS DIGITORUM OR FLEXOR PERFORATUS MUSCLE. THE DISTAL ATTACHMENTS (INSERTIONS) OF THE TENDONS OF THE FLEXOR CARPI ULNARIS, FLEXOR CARPI RADIALIS, AND SUPINATOR RADII LONGUS MUSCLES. THE SUPERFICIAL MUSCLES OF THE HYPOTHENAR EMINENCE, AND THE INTEROSSEOUS MUSCLES OF THE HAND THAT ARE VISIBLE FROM THE PALMAR SIDE. THE BURSA OF THE FLEXOR CARPI RADIALIS MUSCLE (see note<sup>2</sup> above).

After the removal of the muscles of the superficial layer and the anterior annular ligament of the wrist, the flexor sublimis digitorum muscle was laid bare. In order to show clearly the disposition of the tendons of the flexor sublimis digitorum muscle, the flexor profundus digitorum muscle was removed.

Musculi antibrachii—Muscles of the forearm.





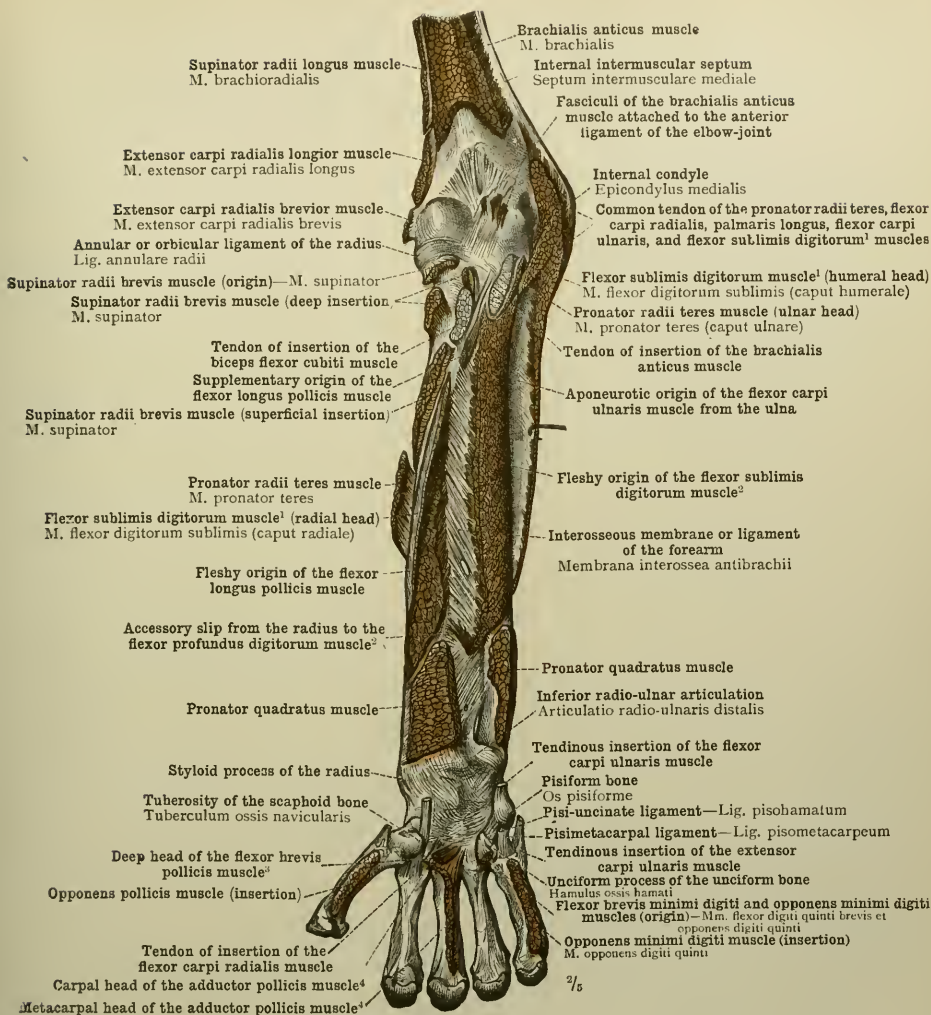
<sup>1</sup> Or *flexor perforatus* muscle.

<sup>2</sup> The author adheres to the old nomenclature of the short muscles of the thumb, but that introduced by Cunningham is now generally adopted by English anatomists. Following this writer, the former *adductor pollicis* is called the *adductor pollicis transversus*, and what used to be called the *deep head* of the *flexor brevis pollicis* muscle is divided into two parts. The larger part, known as the *adductor obliquus pollicis*, the largest of the thumb muscles, consists of several slips arising from the upper ends of the second and third metacarpal bones, the os magnum, the anterior carpal ligaments, and the sheath of the flexor carpi radialis muscle; the muscle is inserted, in common with the adductor transversus and the deep head of the flexor brevis, into the inner side of the base of the first phalanx of the thumb. What is now termed the *deep head* of the *flexor brevis pollicis* is a very small slip, deeply placed between the adductor obliquus pollicis and the outer head of the adductor indicis. It arises from the ulnar side of the upper part of the first metacarpal bone, and is inserted as already described.—Tr. See also Figs. 573, 585, and 586.

<sup>3</sup> Or *flexor perforans* muscle.

<sup>4</sup> See note 3 to p. 334.

FIG. 572.—THE THIRD LAYER OF THE PALMAR GROUP OF MUSCLES OF THE RIGHT FOREARM, AFTER THE FIRST AND SECOND LAYERS AND THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST HAVE BEEN REMOVED: FLEXOR PROFUNDUS DIGITORUM OR FLEXOR PERFORANS MUSCLE, AND FLEXOR LONGUS POLLICIS MUSCLE. IN THE FOURTH LAYER WE SEE A PORTION OF THE PRONATOR QUADRATUS MUSCLE. LUMBRICALES MUSCLES, AND THE SUPERFICIAL MUSCLES OF THE THENAR AND HYPOTHENAR EMINENCES: ABDUCTOR BREVIS POLLICIS, ADDUCTOR POLLICIS (see note <sup>2</sup> above), FLEXOR BREVIS POLLICIS, FLEXOR BREVIS MINIMI DIGITI AND ABDUCTOR MINIMI DIGITI MUSCLES.



<sup>1</sup> Or *flexor perforatus* muscle.

<sup>2</sup> Or *flexor perforans* muscle.

<sup>3</sup> See note <sup>2</sup> to p. 324.

<sup>4</sup> What the author calls the *carpal head* of the *adductor pollicis* muscle is part of the *adductor pollicis obliquus* according to Cunningham, whilst what he calls the *metacarpal head* of the *adductor pollicis* is the *adductor pollicis transversus* of English anatomists. See note <sup>2</sup> to p. 324.

FIG. 573.—ATTACHMENT OF MUSCLES TO THE PALMAR SURFACE OF THE FOREARM AND THE HAND.

Musculi antibrachii—Muscles of the forearm.



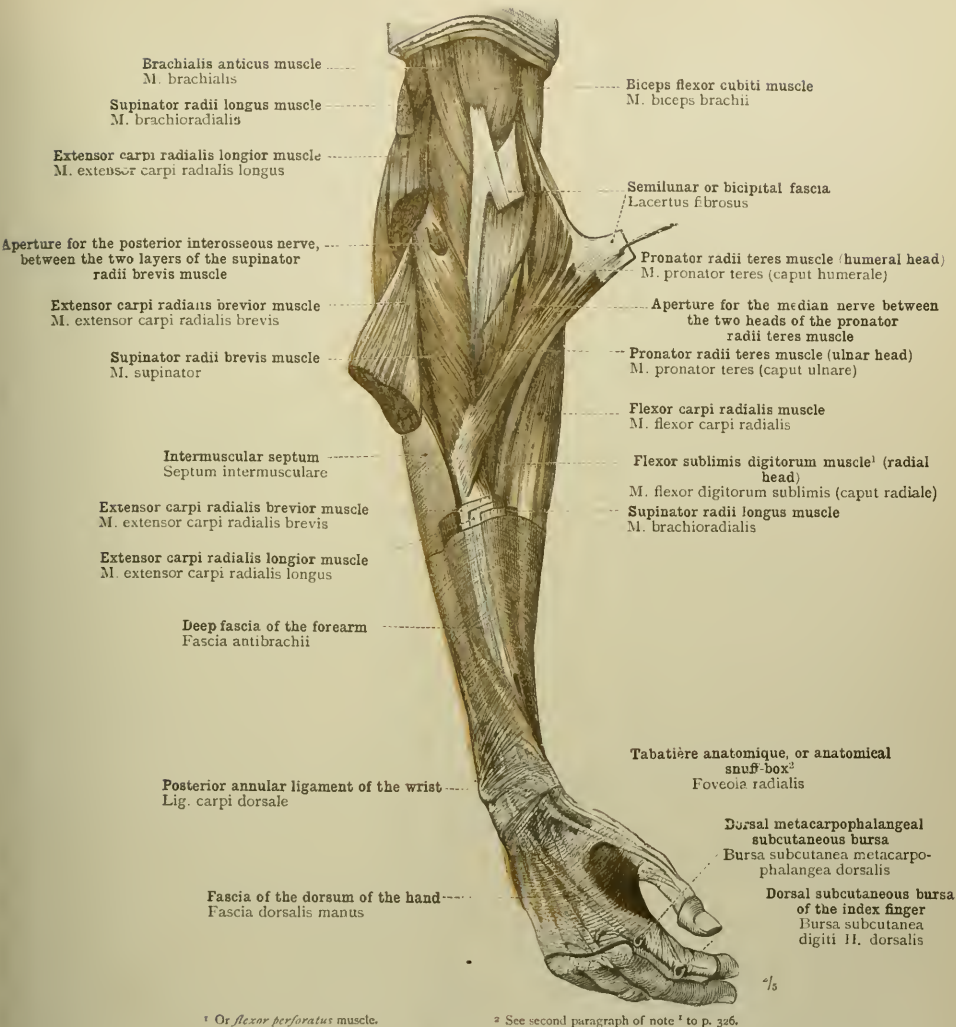
I have given the preference to the old names, as more distinctive and therefore more suitable, of the three extensor muscles of the thumb, *extensor ossis metacarpi pollicis*, *extensor primi internodii pollicis*, and *extensor secundi internodii pollicis*. Quain ("Anatomy," 10th ed.) has, however, adopted the Continental nomenclature in the case of the two latter muscles, which he terms respectively *extensor brevis pollicis* and *extensor longus pollicis*, whilst yet other names have been adopted by Macalister, who terms the extensor of the first phalanx, *extensor pollicis minor*, and the extensor of the second phalanx *extensor pollicis major*. The names used in the text are, however, more familiar to students, both in England and America, and there seems no good reason for any change.

While speaking of these muscles, it may be mentioned that their tendons, viz., those of the extensor ossis metacarpi pollicis and extensor primi internodii pollicis on the radial side, and that of the extensor secundi internodii pollicis on the ulnar side, bound the deep hollow to be seen on the outer (radial) side of the wrist and behind the metacarpal bone of the thumb, when this member is fully extended. This hollow is known as the *tabatière anatomique*, or *anatomical snuff-box* (called by Toldt *foveola radialis*, see Fig. 575). Beneath the tendons of the extensors of the thumb, and across the intervening hollow, the radial artery passes from the front to the back of the wrist, its direction being indicated by a line from the front of the styloid process of the radius to the proximal end of the first interosseous space; and the artery is crossed by the superficial radial vein, which usually forms a distinct prominence in the hollow between the tendons.—Tr.

<sup>2</sup> By English anatomists the supinator and extensor muscles are, like those of the front of the forearm, divided simply into two layers: a *superficial*, containing seven muscles, viz., the supinator radii longus, extensor carpi radialis longior, extensor carpi radialis breviar, extensor communis digitorum, extensor minimi digiti, extensor carpi ulnaris, and anconeus muscles; and a *deep* layer, containing five muscles, viz., the supinator radii brevis, extensor ossis metacarpi pollicis, extensor primi internodii pollicis, extensor secundi internodii pollicis, and extensor indicis muscles. The author's classification of these muscles is to be found in the description at the foot of Figs. 574, 575, and 576.—Tr.

FIG. 574.—THE SUPERFICIAL LAYER (see note <sup>2</sup> above) OF THE DORSAL GROUP OF MUSCLES OF THE RIGHT FOREARM: EXTENSOR COMMUNIS DIGITORUM, EXTENSOR CARPI ULNARIS, AND ANCONÆUS MUSCLES. THE RADIAL GROUP OF MUSCLES SEEN FROM THE DORSAL SIDE, AND THE DEEP LAYER OF MUSCLES OF THE DORSAL GROUP THAT ARE VISIBLE IN THE DISTAL PORTION OF THE FOREARM BETWEEN THE SUPERFICIAL LAYER OF DORSAL MUSCLES AND THE RADIAL MUSCLES: EXTENSOR CARPI RADIALIS LONGIOR AND EXTENSOR CARPI RADIALIS BREVIAR (MUSCLES OF THE RADIAL GROUP); EXTENSOR OSSIS METACARPI POLLICIS, EXTENSOR PRIMI INTERNODII POLLICIS, AND EXTENSOR SECUNDI INTERNODII POLLICIS (MUSCLES OF THE DEEP DORSAL LAYER). LIGAMENTUM CARPI DORSALE, THE POSTERIOR ANNULAR LIGAMENT OF THE WRIST.





<sup>1</sup> Or *flexor perforatus* muscle.

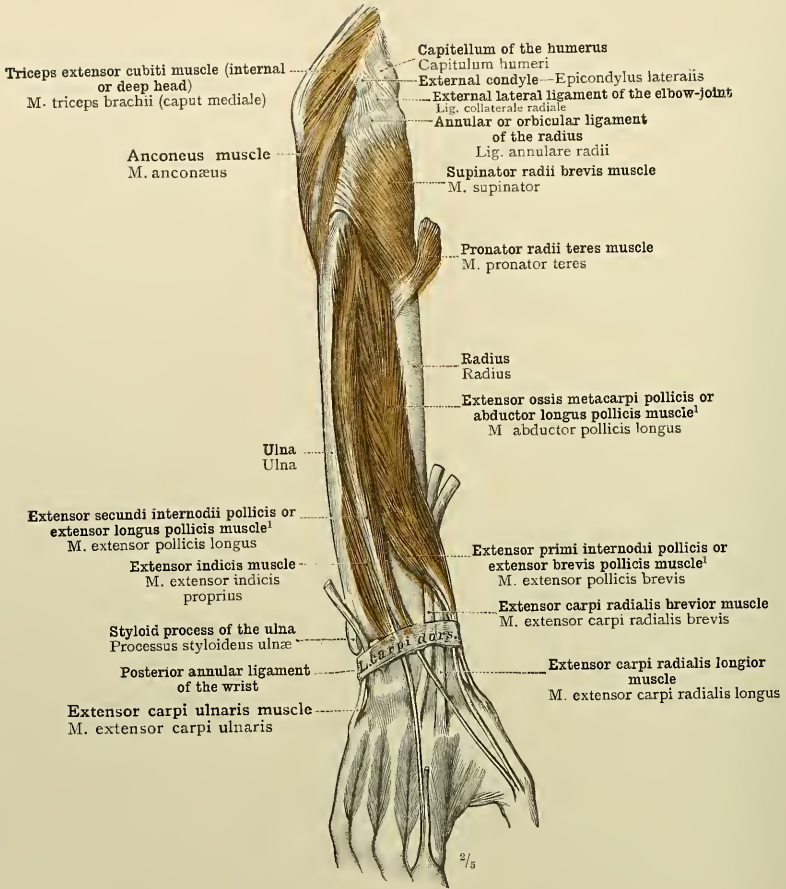
<sup>2</sup> See second paragraph of note <sup>1</sup> to p. 326.

FIG. 575.—THE ARRANGEMENT OF THE MUSCLES IN THE DEEPER PART OF THE ANTECUBITAL FOSSA WHEN THE HAND IS PRONATED.

The muscles of the radial group, with the exception of the deepest of these, the supinator radii brevis, have been partly removed. The semilunar or bicipital fascia has been cut across, and its distal extremity has been drawn inwards together with the pronator radii teres muscle, in order to display the ulnar head of this muscle. In this distal half of the forearm and on the back of the hand we see the deep fascia and the posterior annular ligament of the wrist.

Musculi antibrachii—Muscles of the forearm.





<sup>1</sup> See note to p. 326.

FIG. 576.—THE DEEP LAYER OF THE DORSAL GROUP OF MUSCLES OF THE RIGHT FOREARM, DISPLAYED BY THE REMOVAL OF THE EXTENSOR COMMUNIS DIGITORUM AND THE EXTENSOR CARPI ULNARIS MUSCLES: EXTENSOR OSSIS METACARPI POLLICIS, EXTENSOR PRIMI INTERNODII POLLICIS, EXTENSOR SECUNDI INTERNODII POLLICIS, AND EXTENSOR INDICIS MUSCLES.

In the proximal segment of the pronated forearm, the supinator radii brevis muscle and the anconeus muscle are seen.

Musculi antibrachii—Muscles of the forearm.



<sup>1</sup> See note <sup>2</sup> to p. 319.

<sup>2</sup> See note <sup>1</sup> to p. 316.

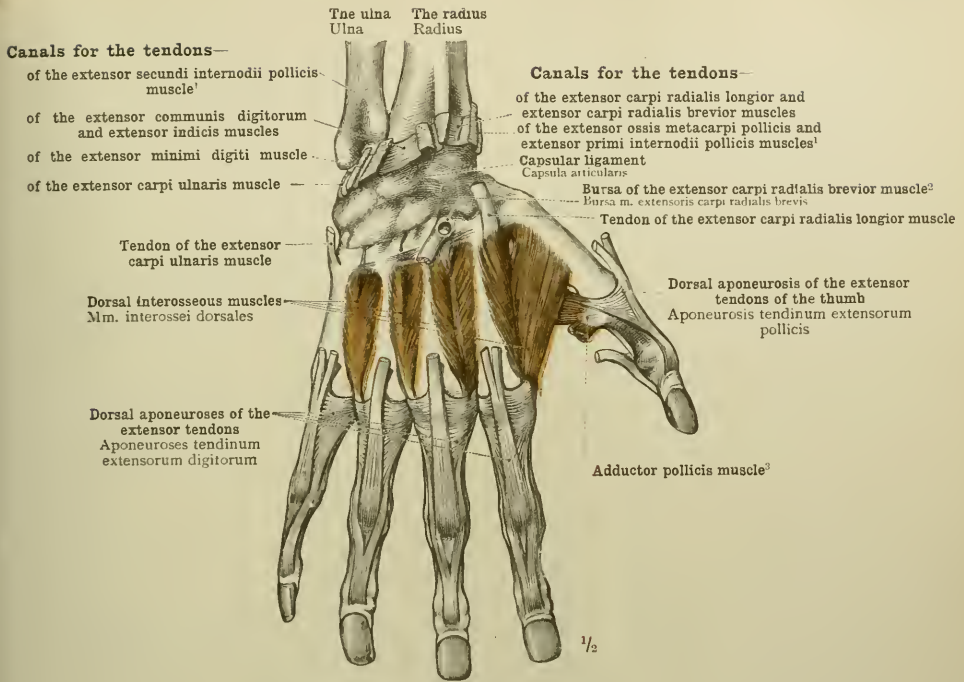
FIG. 577.—ATTACHMENT OF MUSCLES TO THE DORSAL SURFACE OF THE FOREARM AND THE HAND.

Musculi antiabrachii—Muscles of the forearm.



FIG. 578.—THE DISPOSITION OF THE EXTENSOR TENDONS AT THE BACK OF THE WRIST AND HAND, AND THE SYNOVIAL SHEATHS OF THESE TENDONS. RIGHT HAND. THE CONNEXIONS BETWEEN THE EXTENSOR TENDONS (VINCULA) ON THE DORSUM OF THE HAND, AND THE DORSAL APONEUROSES OF THE EXTENSOR TENDONS. THE INTERMETACARPOPHALANGEAL BURSE, THE DORSAL SUBCUTANEOUS METACARPOPHALANGEAL BURSE, AND THE DORSAL SUBCUTANEOUS BURSE OF THE FINGERS. THE DORSAL INTEROSSEOUS MUSCLES.

The synovial sheaths of the tendons were injected with strong alcohol before dissection. A portion of the posterior wall has been removed from the synovial sheath of the tendons of the extensor communis digitorum and extensor indicis muscles.



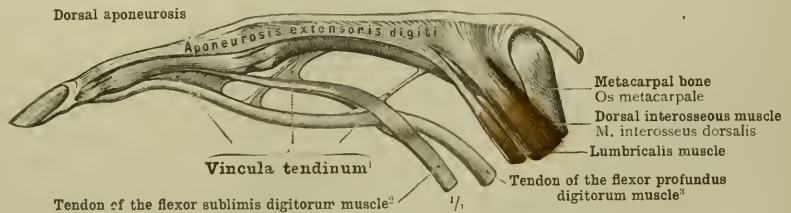
<sup>1</sup> See note <sup>1</sup> to p. 326.

<sup>2</sup> This bursa is situated beneath the tendon close to its insertion.—Tr.

<sup>3</sup> See note <sup>2</sup> to p. 324.

FIG. 579.—THE DORSAL APONEUROSES OF THE EXTENSOR TENDONS. RIGHT HAND. DORSAL INTEROSSEOUS MUSCLES.

The osseo-fibrous canals for the extensor tendons have been opened by the removal of the posterior annular ligament of the wrist. The distal extremity of the tendon of the extensor carpi radialis brevis muscle has been turned downwards, in order to display the bursa that lies beneath it.



<sup>1</sup> *Vincula Tendinum*.—These are folds of synovial membrane, connecting the flexor tendons to one another and to the phalanges. Their nomenclature is somewhat variable. Macalister writes (*op. cit.*, p. 308): "The synovial membrane of the digital sheath envelops the two tendons at first, and the deep tendon is tied to the bone by one or two flat bands (*retinacula*). Where the tendons pass each other they are generally free, but when the deep tendon has passed through, it is tied to the superficial tendon, now underlying it, by a soft round cord (*vinculum*). Finally the deep tendon is tied to the distal end of the second phalanx by a flat *retinaculum inferius*." According to Quain (*op. cit.*, vol. ii., p. 222), "The synovial membrane forms small folds (*vincula accessoria tendinum*) between the tendons and the bones. There are two sets of these: the one, *ligamenta brevia*, broad and membranous, passing between the tendons near their insertion and the lower part of the phalanx immediately above; the other, *ligamenta longa*, slender and less constant bands, joining the tendons at a higher level. Contained in the ligamentum breve of the deep flexor is a small band of yellow elastic tissue (*vinculum sub-Aasum*), which stretches from the tendon to the head of the second phalanx, and may assist in drawing down the tendon after flexion of the fingers."—Tr.

<sup>2</sup> Or *flexor perforatus* muscle.

<sup>3</sup> Or *flexor perforans* muscle.

FIG. 580.—THE DISTAL EXTREMITIES OF THE FLEXOR AND EXTENSOR TENDONS OF THE RIGHT MIDDLE FINGER SEEN FROM THE RADIAL SIDE. THE RELATION OF THE LUMBRICALIS AND OF THE INTEROSSEOUS MUSCLE TO THE DORSAL APONEUROSES OF THE EXTENSOR TENDON. VINCULA TENDINIUM (see note <sup>1</sup> above).

Musculi manus—Muscles of the hand.



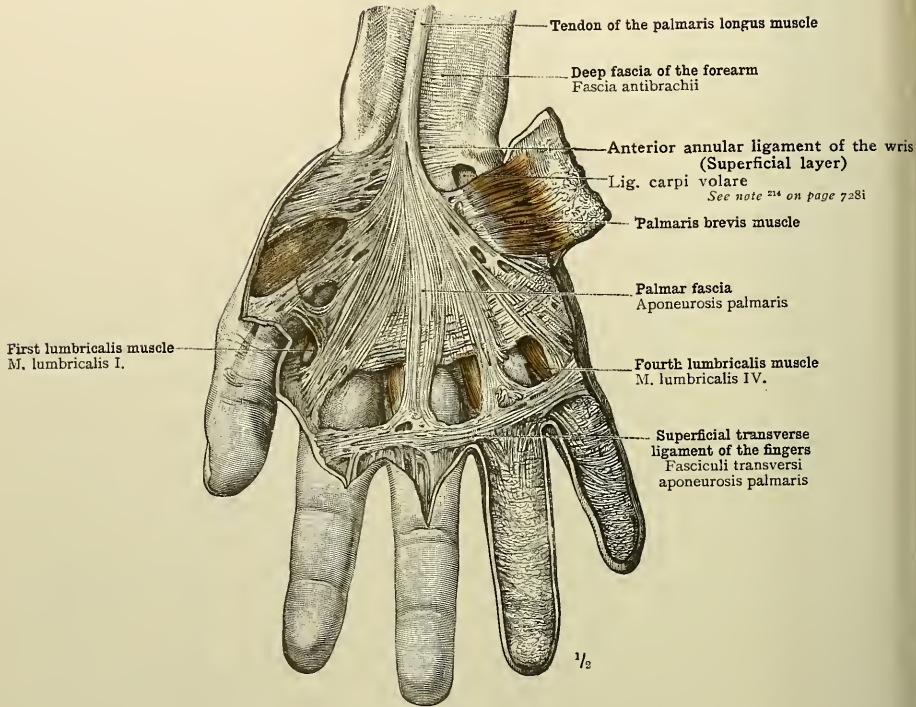


FIG. 581.—APONEUROSIS PALMARIS, DEEP FASCIA OF THE PALM, OR PALMAR FASCIA; THE INSERTION OF THE TENDON OF THE PALMARIS LONGUS MUSCLE INTO THIS FASCIA; THE PROCESSES PASSING FROM THE PALMAR FASCIA TO THE DIGITAL SHEATHS; THE SUPERFICIAL TRANSVERSE LIGAMENT OF THE FINGERS. PALMARIS BREVIS MUSCLE.

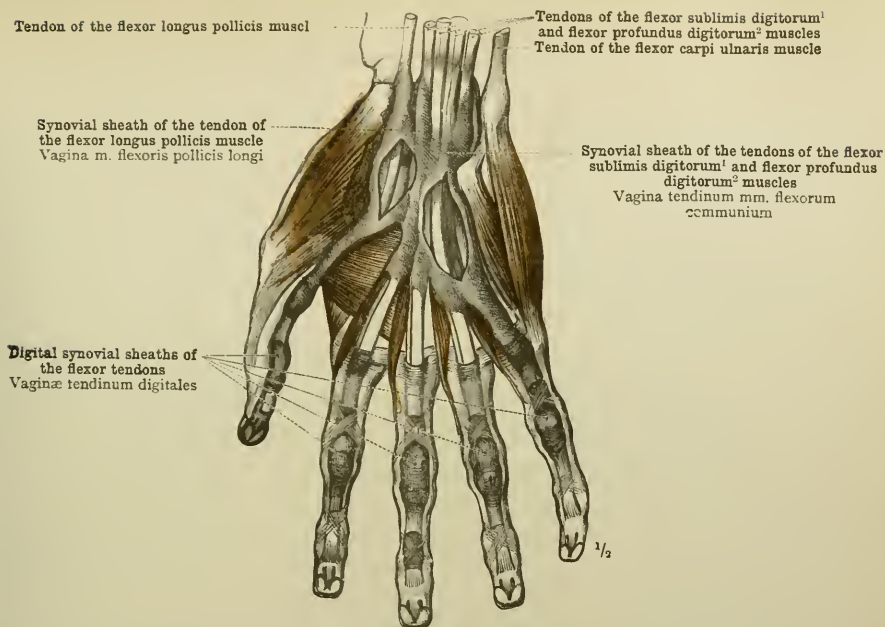


FIG. 582.—THE SYNOVIAL SHEATHS OF THE FLEXOR TENDONS,<sup>3</sup> PREPARED AFTER INJECTING THEM WITH ALCOHOL. RIGHT HAND.

The palmar fascia and the anterior annular ligament of the wrist have been removed.



<sup>1</sup> Or *flexor perforatus* muscle.

<sup>2</sup> Or *flexor perforans* muscle.

<sup>3</sup> The synovial sheath of the common flexors in the canal of the carpus beneath the anterior annular ligament of the wrist is sometimes known as the *great carpal bursa*. It extends upwards to the level of the radiocarpal articulation, and downwards about halfway along the metacarpal bones, ending in blind pouches in the case of the index, middle, and ring fingers, the digital sheaths of which are separate; in the case of the little finger, however, the digital sheath of the flexor tendon is continuous with the great carpal bursa. The sheath of the flexor longus pollicis is entirely distinct in the carpal canal from the sheath of the common flexors.—Fr.

<sup>4</sup> See note 1 to p. 326.

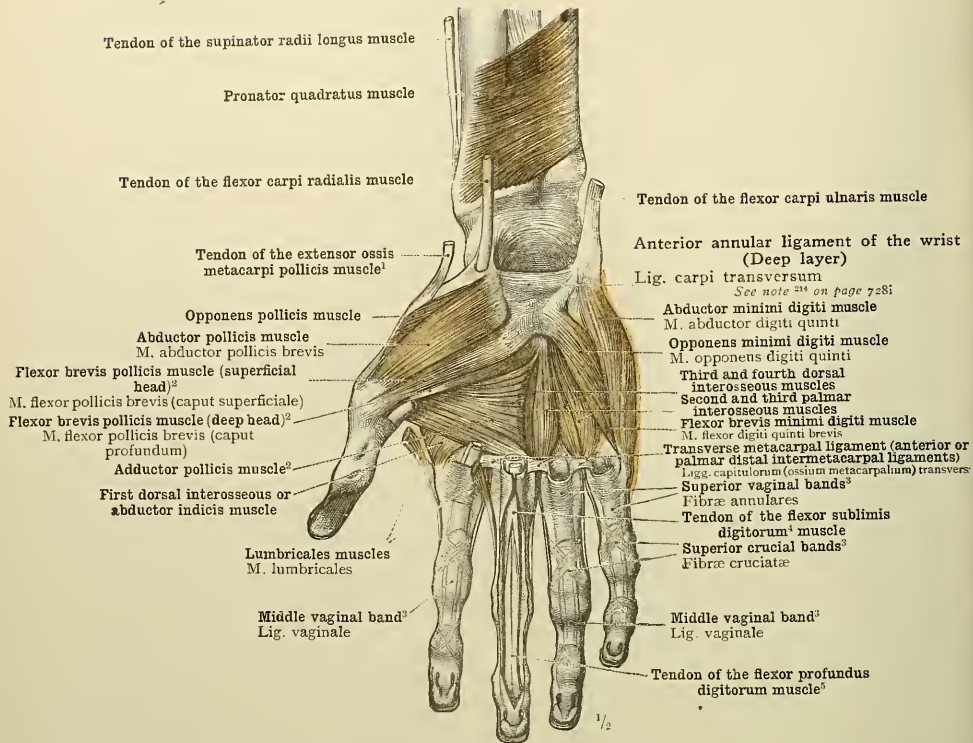
<sup>5</sup> This bursa is situated beneath the tendon close to its insertion.—Tr.

<sup>6</sup> *Mesotenon*.—This term is not used by English anatomists. The synovial sheath of the common flexors beneath the anterior annular ligament is in most cases divided by an incomplete septum attached to the middle finger tendon of the deep flexor. It is to this structure that the term *mesotenon* is applied.—Tr.

FIG. 583.—THE SYNOVIAL SHEATHS OF THE FLEXOR TENDONS, DISPLAYED, AFTER THE REMOVAL OF THE ANTERIOR ANNULAR LIGAMENT OF THE WRIST, BY TURNING DOWN THE FLEXOR TENDONS INTO THE PALM OF THE HAND. LEFT HAND.

The synovial sheaths and bursae have all been opened.

Musculi manus—Muscles of the hand.



<sup>1</sup> See note 1 to p. 326.

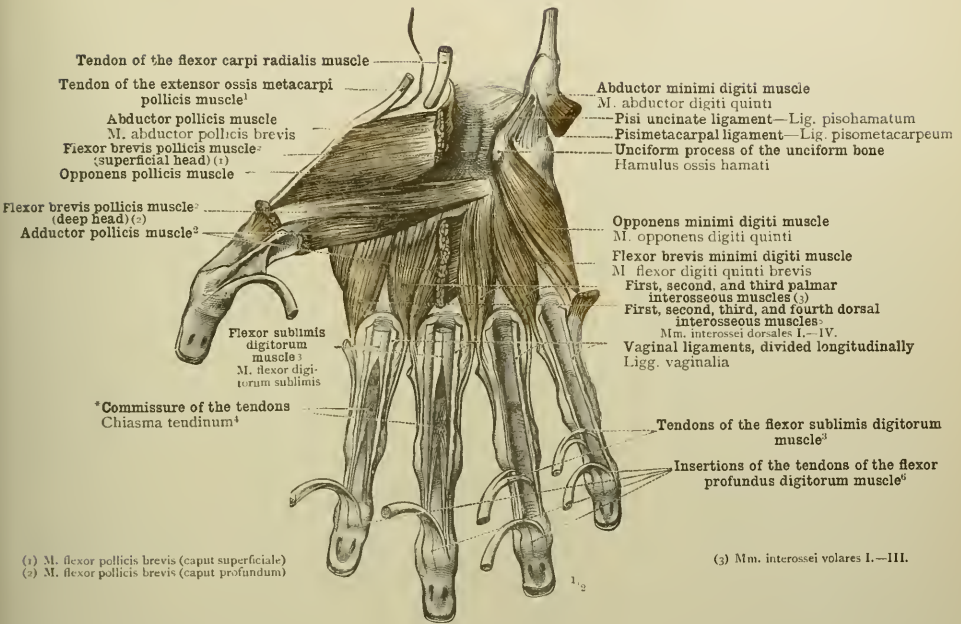
<sup>2</sup> See note 2 to p. 324.

<sup>3</sup> The author does not enumerate all the component parts of the anterior wall of the digital sheaths of the flexor tendons. These are: (1) *superior vaginal band* (called by Toldt *fibræ annulares*), strong transverse fibres crossing the tendon at the level of the upper half of the proximal phalanx (to the rough margins of the anterior surface of which bone the fibres are attached); (2) *superior crucial band* (called by Toldt *fibræ cruciatae*), X-shaped bands at the level of the distal end of the proximal phalanx; (3) *middle vaginal band*, a slight transverse slip at the level of the proximal interphalangeal articulation (called by Toldt *ligamentum vaginale*); (4) *oblique bands*, passing downwards and inwards across the proximal extremity of the medial phalanx; (5) *inferior vaginal band*, across the middle of the medial phalanx; (6) *inferior crucial band*, in front of the distal interphalangeal articulation.—Tr.

<sup>4</sup> Or *flexor perforatus* muscle.

<sup>5</sup> Or *flexor perforatus* muscle.

FIG. 584.—THE SUPERFICIAL LAYER OF MUSCLES OF THE THENAR EMINENCE: ABDUCTOR POLLICIS MUSCLE; THE SUPERFICIAL HEAD AND A PORTION OF THE DEEP HEAD OF THE FLEXOR BREVIS POLLICIS MUSCLE (*see note 2 to p. 324*). THE SUPERFICIAL MUSCLES OF THE HYPOTHENAR EMINENCE: ABDUCTOR MINIMI DIGITI AND FLEXOR BREVIS MINIMI DIGITI MUSCLES. ABDUCTOR POLLICIS MUSCLE (*see note 2 to p. 324*). THIRD AND FOURTH DORSAL INTEROSSEOUS AND SECOND AND THIRD PALMAR INTEROSSEOUS MUSCLES. PRONATOR QUADRATUS MUSCLE. VAGINAL LIGAMENTS (*see note 3 above*). RIGHT HAND.



- (1) M. flexor pollicis brevis (caput superficiale)
- (2) M. flexor pollicis brevis (caput profundum)

(3) Mm. interossei volares I.—III.

<sup>1</sup> See note 1 to p. 326.

<sup>2</sup> See note 2 to p. 324.

<sup>3</sup> Or *flexor perforans* muscle.

<sup>4</sup> *Chiasma Tendinum*.—This term is not commonly employed by English anatomists. It is applied by the author to the commissure by which the two divisions of the tendon of the superficial flexor, after splitting for the passage of the tendon of the deep flexor, are reunited for a short space; below this commissure the tendon of the superficial flexor divides once more into two parts, which pass to the lateral ridges of the medial phalanx.—Tr.

<sup>5</sup> The first dorsal interosseus muscle is also called the *abductor indicis* muscle.—Tr.

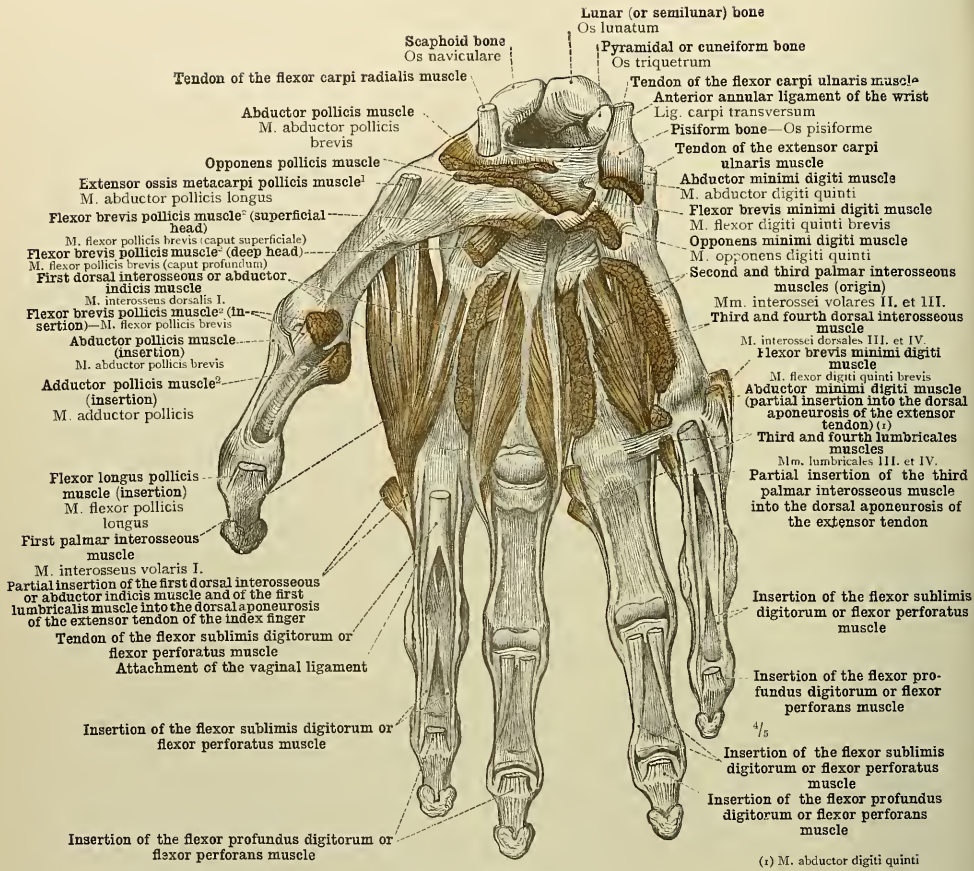
<sup>6</sup> Or *flexor perforans* muscle.

FIG. 585.—THE DEEP LAYER OF MUSCLES OF THE THENAR AND HYPOTHE-  
 NAR EMINENCES, DISPLAYED BY THE REMOVAL OF THE ABDUCTOR POLLICIS AND ABDUCTOR MINIMI DIGITI  
 MUSCLES, AND ALSO OF THE SUPERFICIAL HEAD OF THE FLEXOR BREVIS POLLICIS MUSCLE :  
 OPPONENS POLLICIS MUSCLE ; DEEP HEAD OF THE FLEXOR BREVIS POLLICIS MUSCLE (see  
 note <sup>2</sup> to p. 324) ; OPPONENS MINIMI DIGITI ; FLEXOR BREVIS MINIMI DIGITI.

By the removal of that portion of the adductor pollicis muscle which arises from the third metacarpal bone, the portion of this muscle arising from the carpal ligaments, and the dorsal and palmar interosseous muscles, are exposed to view. The vaginal ligaments of the flexor tendons have been opened, and in the index and middle fingers the commissure of the tendons (see note <sup>4</sup> above) of the superficial flexor is shown.

Musculi manus—Muscles of the hand.





<sup>1</sup> See note <sup>1</sup> to p. 326.

<sup>2</sup> See note <sup>2</sup> to p. 324.

FIG. 586.—ATTACHMENT OF MUSCLES TO THE PALMAR SURFACE OF THE HAND.

MUSCULI EXTREMITATIS  
INFERIORIS

THE MUSCLES  
OF THE LOWER EXTREMITY

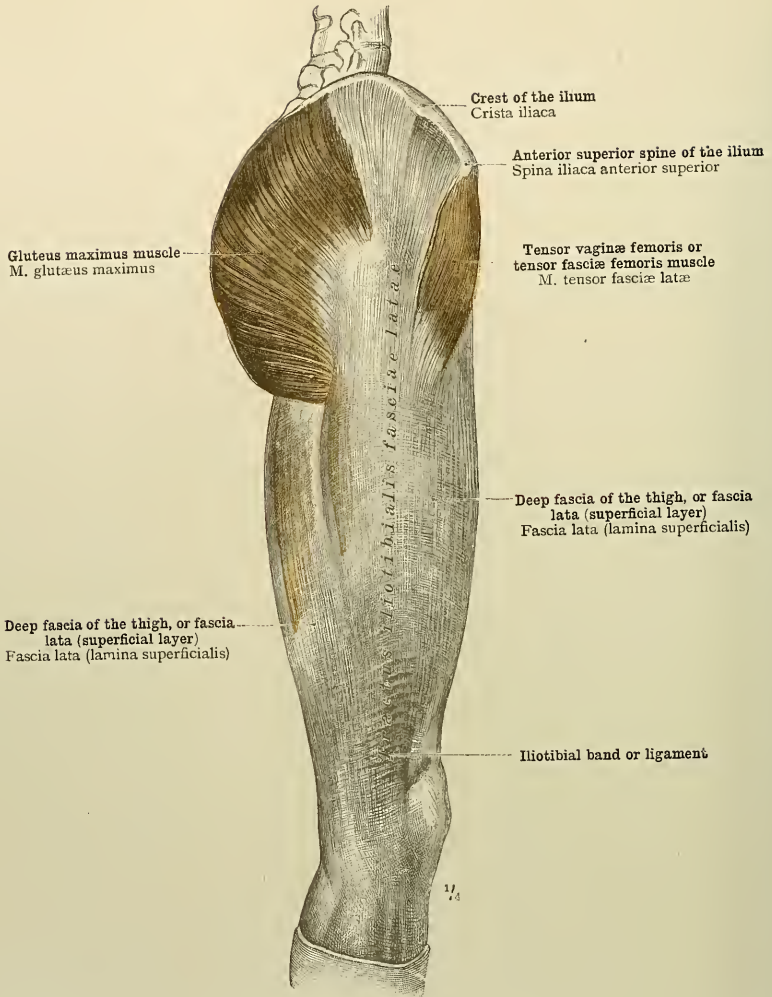


FIG. 587.—DEEP FASCIA OF THE THIGH, OR FASCIA LATA, SEEN FROM THE OUTER SIDE, WITH THE THICKENED PORTION OF THIS FASCIA, KNOWN AS THE ILIOTIBIAL BAND OR LIGAMENT; INSERTION OF THE TENSOR VAGINÆ FEMORIS (TENSOR FASCIÆ FEMORIS, TENSOR FASCIÆ LATÆ) MUSCLE AND PARTIAL INSERTION OF THE GLUTEUS MAXIMUS MUSCLE INTO THE ILIOTIBIAL BAND OR LIGAMENT. RIGHT THIGH.

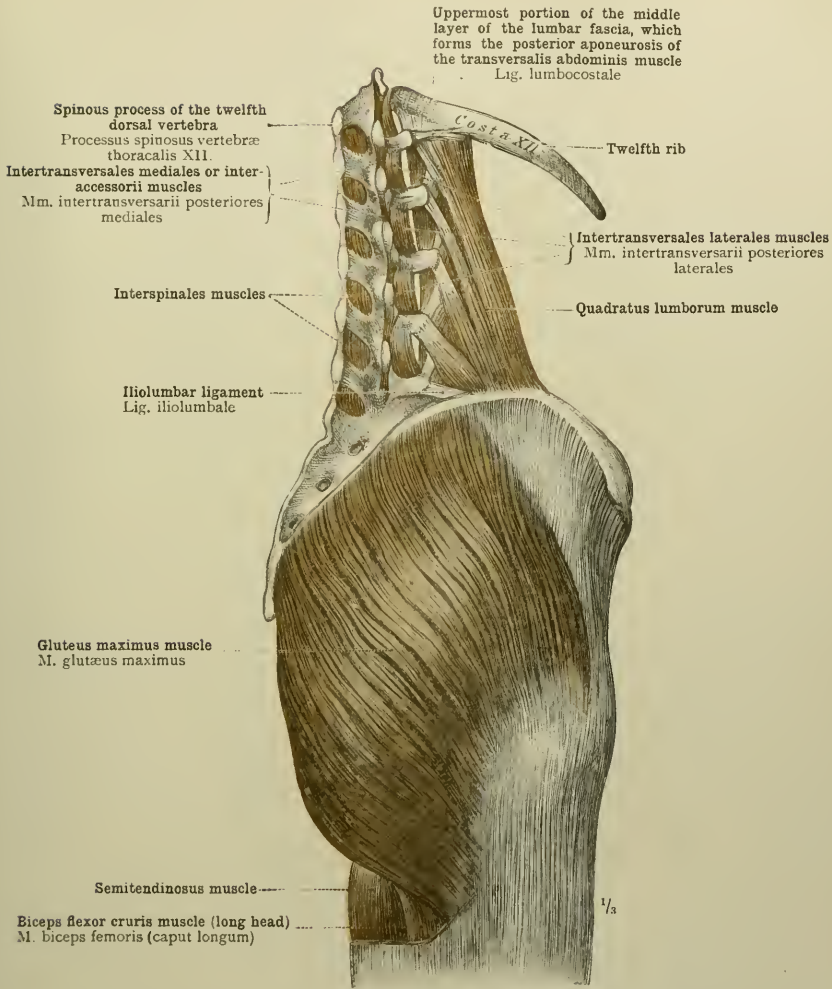
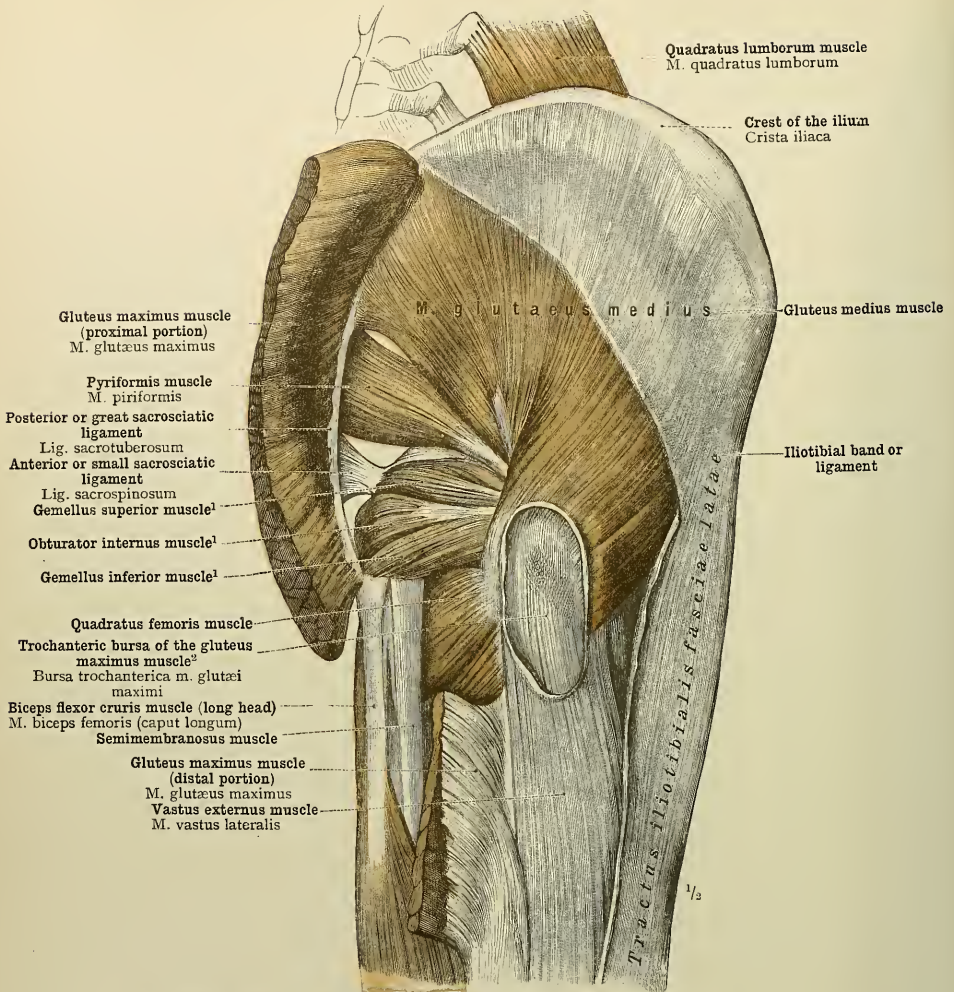


FIG. 588.—GLUTEUS MAXIMUS MUSCLE, SEEN OBLIQUELY FROM BEHIND AND WITHOUT, CONSTITUTING THE SUPERFICIAL LAYER OF THE EXTERNAL MUSCLES OF THE HIP. QUADRATUS LUMBORUM MUSCLE; INTERSPINALES, INTERTRANSVERSALES LATERALES, AND INTERTRANSVERSALES MEDIALES OR INTERACCESSORII MUSCLES OF THE LUMBAR REGION; SEEN FROM BEHIND. RIGHT SIDE.

Musculi coxæ—Muscles of the hip.

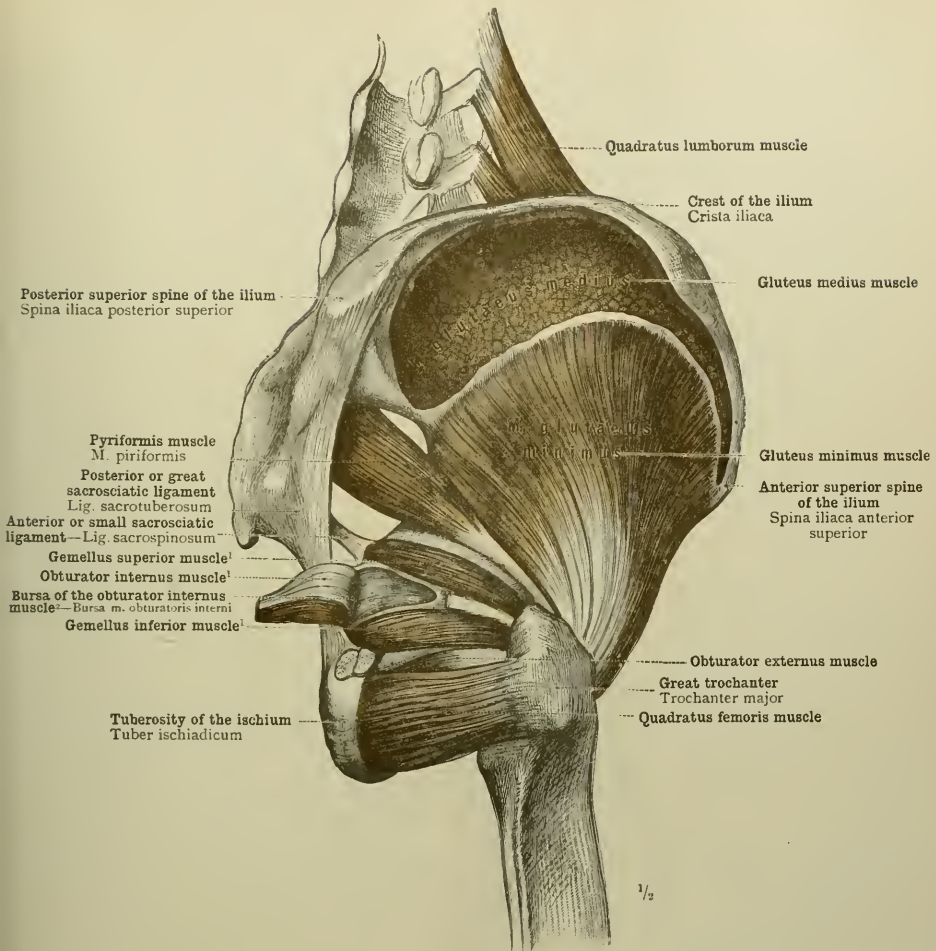




<sup>1</sup> The gemelli muscles may be regarded as portions of the obturator internus muscle arising outside the pelvis, and for this reason Macalister has given to the three muscles the name of *triceps rotator femoris muscle*, but the term is rarely used.—Tr.

<sup>2</sup> The *trochanteric bursa of the gluteus maximus muscle* is situated, as its name implies, between the fascial insertion of the gluteus maximus muscle and the great trochanter of the femur. In most cases it is a large compound or multilocular bursa, but is occasionally represented by several distinct smaller bursæ.—Tr.

FIG. 589.—SECOND LAYER OF THE EXTERNAL MUSCLES OF THE HIP, DISPLAYED BY THE DIVISION OF THE GLUTEUS MAXIMUS MUSCLE AND THE POSTERIOR PORTION OF THE FASCIA LATA: GLUTEUS MEDIUS MUSCLE; PYRIFORMIS MUSCLE; OBTURATOR INTERNUS AND GEMELLUS SUPERIOR AND INFERIOR MUSCLES; QUADRATUS FEMORIS MUSCLE. ORIGIN AND FEMORAL INSERTION OF THE GLUTEUS MAXIMUS MUSCLE. TROCHANTERIC BURSA OF THE GLUTEUS MAXIMUS MUSCLE. RIGHT HIP, SEEN FROM THE OUTER SIDE.



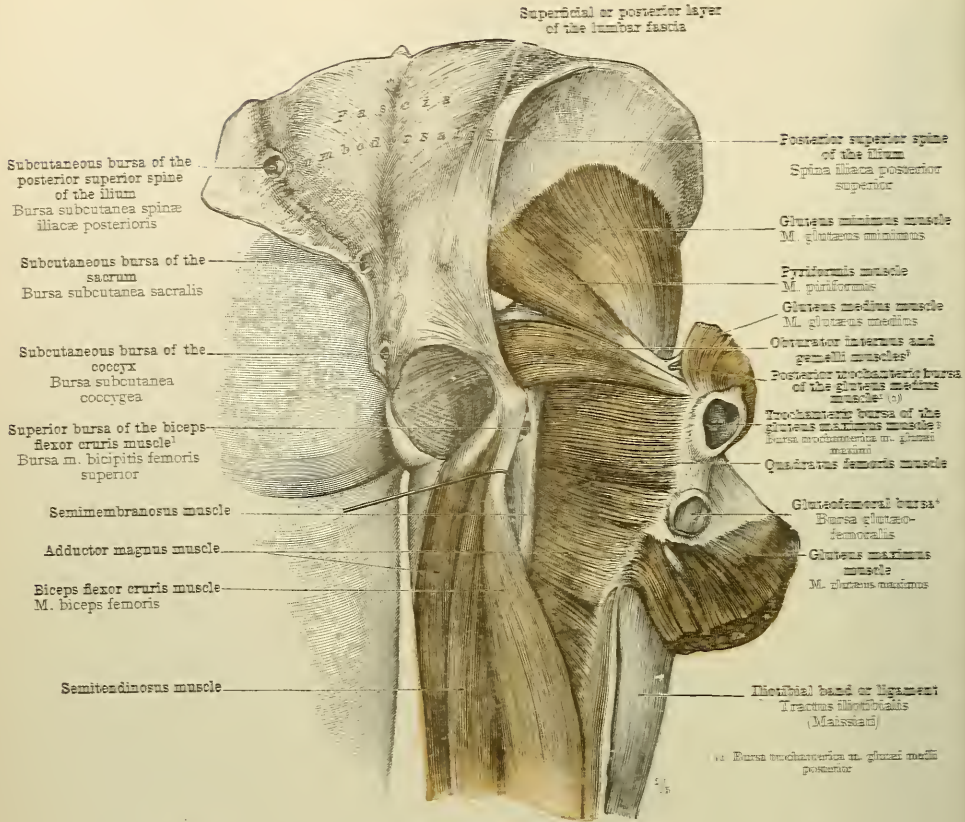
<sup>1</sup> See note <sup>1</sup> to p. 340.

<sup>2</sup> The bursa of the obturator internus muscle is situated between the tendon of the obturator internus muscle and the cartilage-covered trochanter surface or groove of the ischium (i.e., the hollowed portion of the bone between the spine and the tuberosity); a second bursa, long and narrow, lies between the tendon of the muscle and the capsule of the hip-joint: often, however, as in Fig. 590, these two bursae combine to form a single structure.—T.R.

FIG. 590.—DEEP EXTERNAL MUSCLES OF THE RIGHT HIP, DISPLAYED BY THE REMOVAL OF THE GLUTEUS MAXIMUS AND GLUTEUS MEDIUS MUSCLES: GLUTEUS MINIMUS MUSCLE; PYRIFORMIS MUSCLE. SEEN OBliquELY FROM THE RIGHT SIDE AND BEHIND.

The tendon of the obturator internus muscle has been divided, and the inner half has been turned inwards over the posterior or great sacrosciatic ligament, in order to display the bursa of the obturator internus muscle. The quadratus femoris muscle has been drawn downwards a little, and slightly separated from the gemellus inferior muscle, in order to bring into view between them a portion of the obturator externus muscle.

Musculi coxæ—Muscles of the hip.



<sup>1</sup> The superior bursa of the biceps flexor cruris muscle is situated between the tendon of the long head of that muscle and the origin of the semimembranosus muscle.—Tr.  
<sup>2</sup> The posterior trochanteric bursa of the gluteus medius muscle is a small bursa situated internal to the tendon of that muscle, between it and the insertion of the tendon of the pyramidal muscle.—Tr.  
<sup>3</sup> See note 2 to p. 340.  
<sup>4</sup> The gluteofemoral bursa is situated between the fascial insertion of the gluteus maximus muscle and the upper part of the vastus externus muscle.—Tr.  
<sup>5</sup> See note 2 to p. 340.

FIG. 591.—DEEP EXTERNAL MUSCLES OF THE RIGHT HIP SEEN FROM BEHIND, SHOWING THEIR RELATION TO THE POSTERIOR FEMORAL OR HAMSTRING MUSCLES AND TO THE ADDUCTOR MAGNUS MUSCLE. INSERTION OF THE GLUTEUS MAXIMUS INTO THE GLUTEAL RIDGE OF THE FEMUR AND INTO THE FASCIA LATA. BURSAE OF THE SACRAL AND GLUTEAL REGIONS.

The gemelli muscles have been left undisturbed in their close proximity to the obturator internus muscle.

Musculi coxæ—Muscles of the hip.



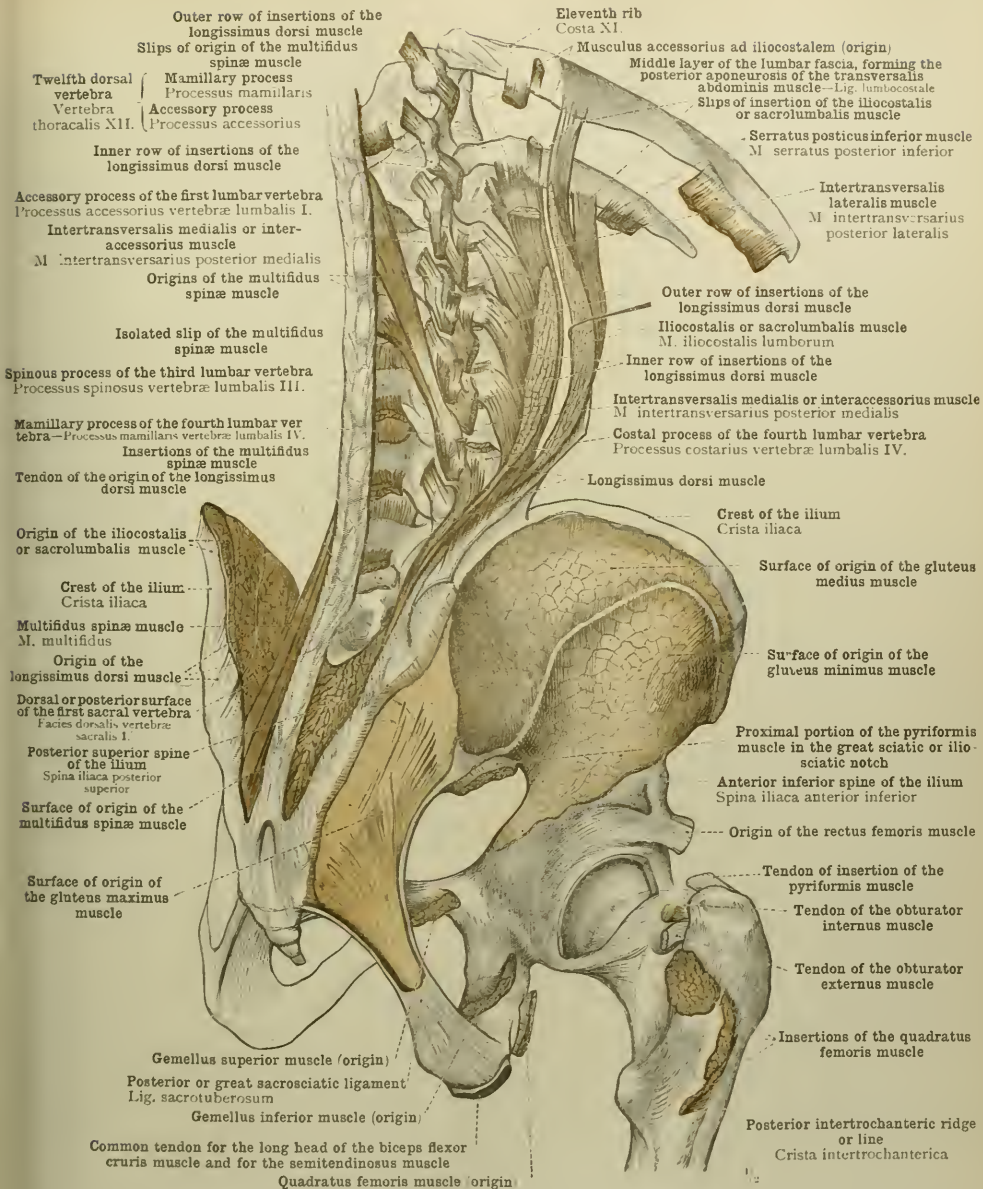
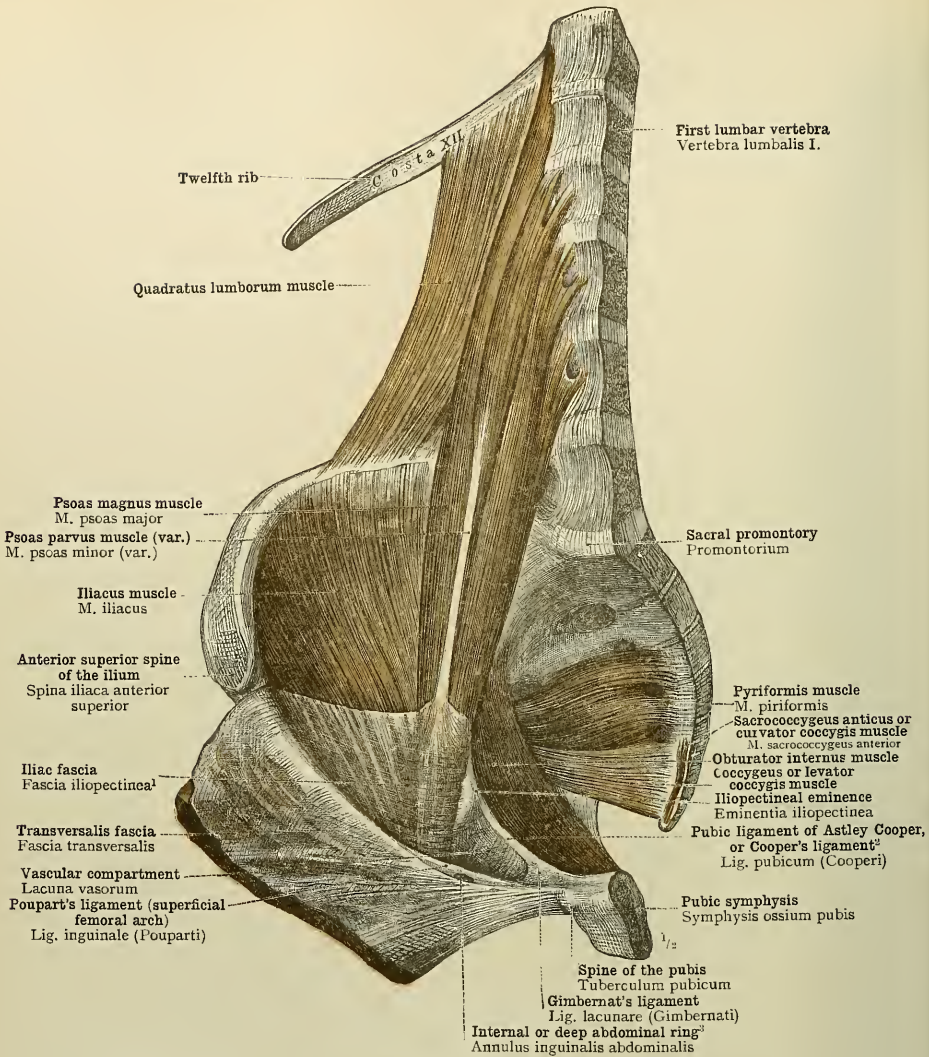


FIG. 592.—ATTACHMENT OF MUSCLES TO THE POSTERIOR SURFACE OF THE LUMBAR VERTEBRÆ AND OF THE HIP-BONE.

Musculi coxæ—Muscles of the hip.





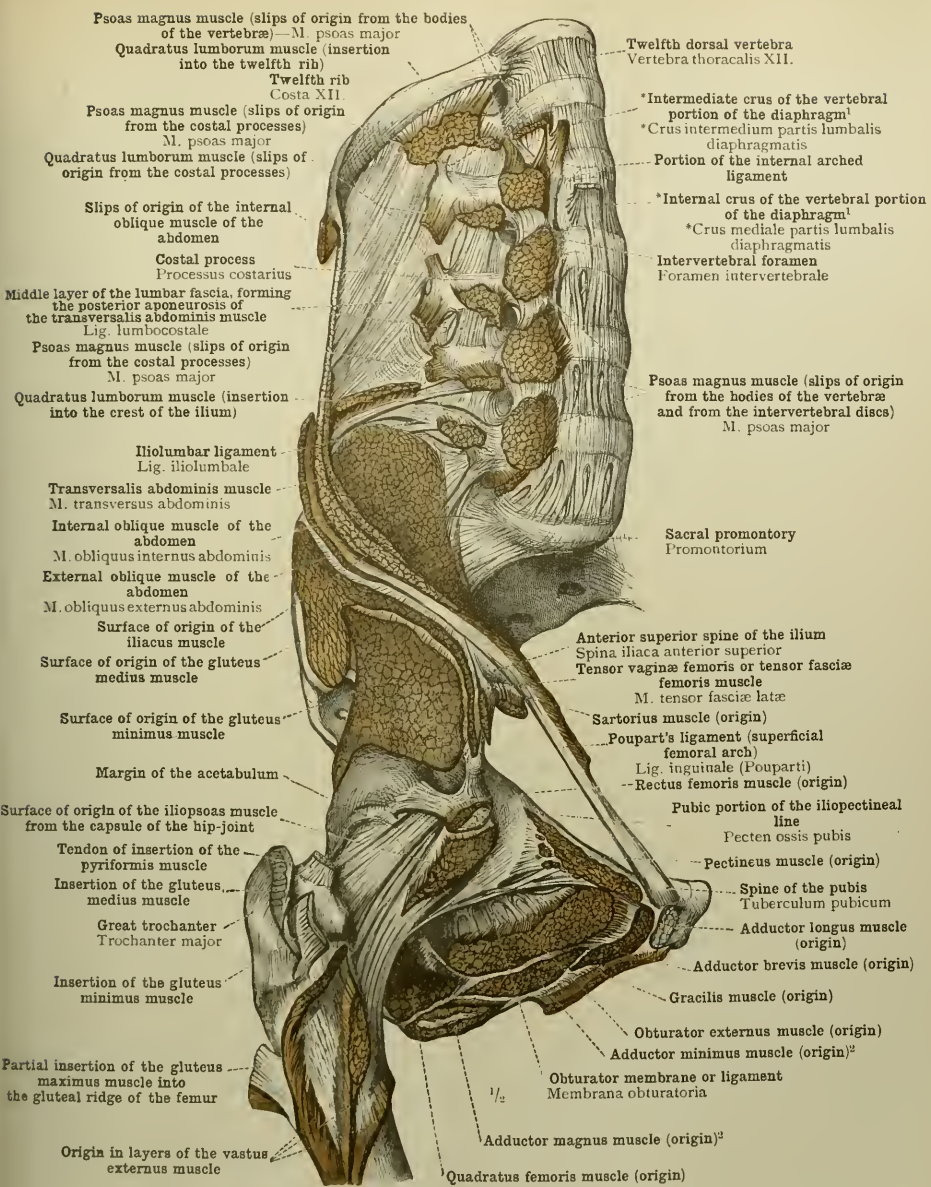
<sup>1</sup> See note <sup>1</sup> to p. 390.

<sup>2</sup> See note <sup>2</sup> to p. 390.

<sup>3</sup> Or internal inguinal aperture.

FIG. 593.—INTERNAL MUSCLES OF THE REGION OF THE HIP, SEEN SOMEWHAT OBLIQUELY FROM BEFORE: ILIOPSOAS MUSCLE; CONSISTING OF TWO PARTS—THE ILIACUS MUSCLE AND THE PSOAS MAGNUS MUSCLE; PSOAS PARVUS MUSCLE, THE TENDON OF WHICH BECOMES INCORPORATED WITH THE ILIAC FASCIA. OBTURATOR INTERNUS MUSCLE. PYRIFORMIS AND QUADRATUS LUMBORUM MUSCLES. LACUNA VASORUM, OR VASCULAR COMPARTMENT, OF THE SPACE BETWEEN POUPART'S LIGAMENT (SUPERFICIAL FEMORAL ARCH) AND THE CONCAVE ILIOPUBIC MARGIN OF THE HIP-BONE. RIGHT SIDE.

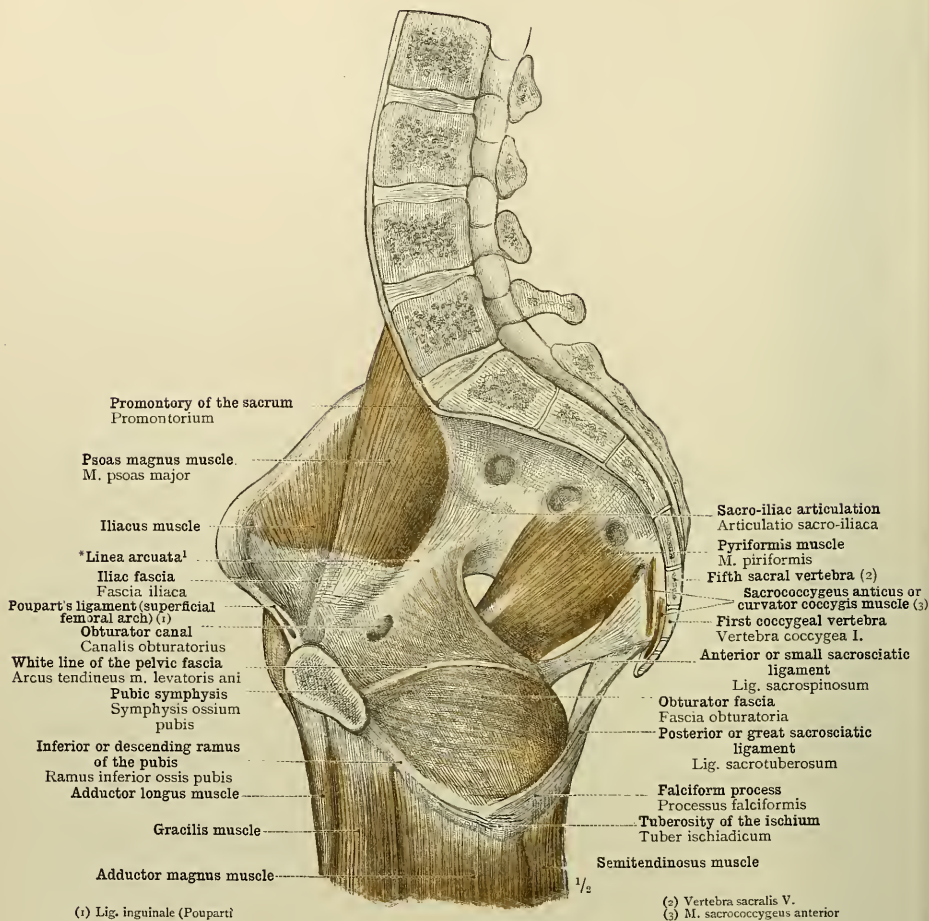
Musculi coxæ—Muscles of the hip.



<sup>1</sup> See note <sup>2</sup> to p. 286.

<sup>2</sup> *Adductor Minimus Muscle.*—This is by English anatomists usually regarded as the anterior and superior portion of the adductor magnus muscle, arising from the body of the pubis and the ischio-pubic rami, and inserted into the femur from the lower extremity of the insertion of the quadratus femoris muscle to the upper end of the linea aspera, and sometimes for a short distance along that line. The adductor magnus muscle of Continental writers, regarded by English anatomists as the posterior and inferior portion of the adductor magnus muscle, is much larger, arising from the inferior ramus of the ischium internal to the foregoing, and from the tuberosity of the ischium by a strong tendon which depends on the hinder surface of the muscle for a third of its length; this portion of the muscle is inserted into the whole length of the linea aspera, below the preceding portion and into the upper part of the internal supracondylar line, and by a tendon which passes below the opening for the femoral vessels to the adductor tubercle on the internal condyle of the femur.—Tr.

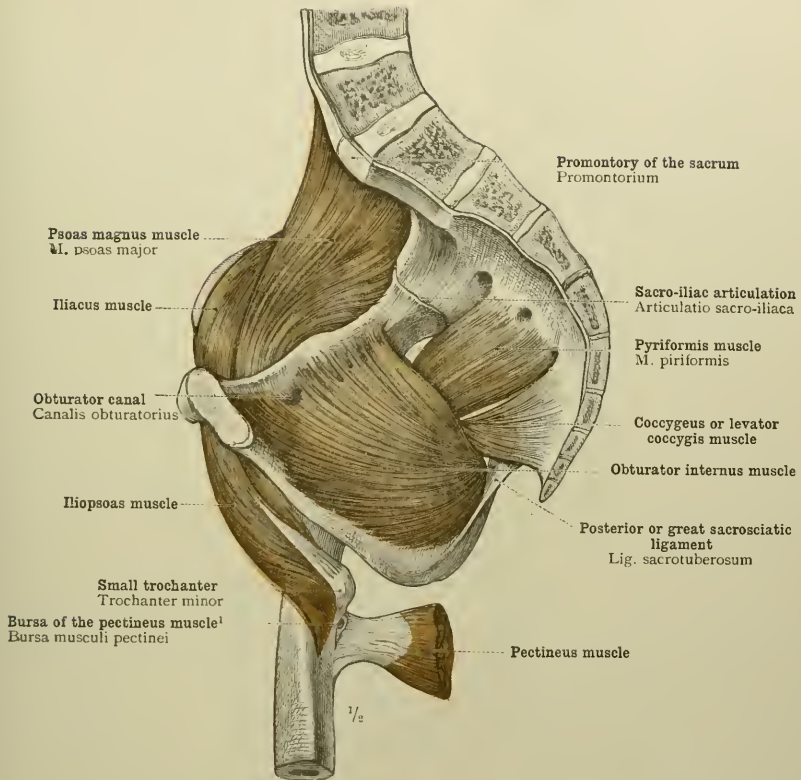
FIG. 594.—ATTACHMENT OF MUSCLES TO THE ANTERIOR SURFACE OF THE LUMBAR VERTEBRÆ AND OF THE HIP-BONE



<sup>1</sup> The *linea arcuata* marks the attachment of the iliac fascia along the brim of the pelvis to the iliopectineal line, where it is inseparably blended with the obturator fascia.—Tx.

FIG. 595.—INTERNAL MUSCLES OF THE REGION OF THE HIP, SEEN FROM THE INNER SIDE, WITH THE OBTURATOR FASCIA AND A PORTION OF THE ILIAC FASCIA: PYRIFORMIS MUSCLE; THE TWO PARTS OF THE ILIOPSOAS MUSCLE, VIZ., PSOAS MAGNUS AND ILIACUS MUSCLES. PROXIMAL EXTREMITIES OF THE INTERNAL FEMORAL OR ADDUCTOR MUSCLES, SHOWING THEIR MUTUAL RELATIONS. WHITE LINE OF THE PELVIC FASCIA. RIGHT SIDE.



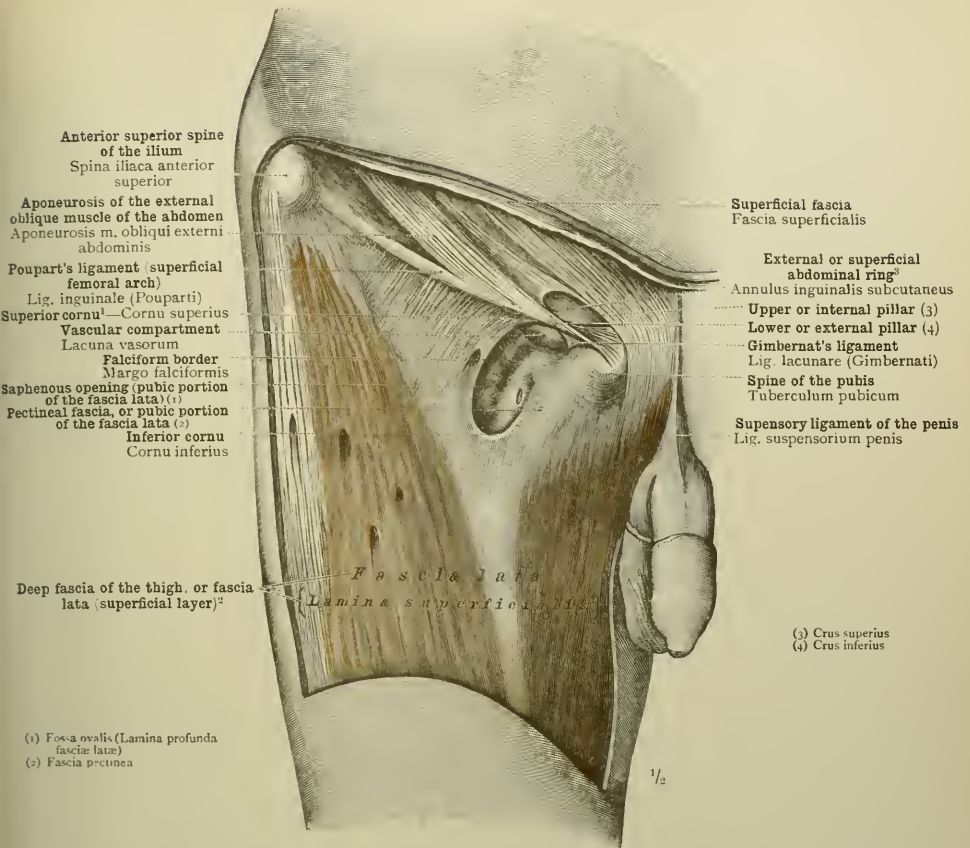


<sup>1</sup> Bursa of the Pectineus Muscle.—This bursa is situated anteriorly to the tendon of the pectineus muscle close to its insertion, between the tendon and the femur.—T.W.

FIG. 596.—THE INTERNAL MUSCLES OF THE REGION OF THE HIP, SEEN FROM THE INNER SIDE, THE OBTURATOR FASCIA HAVING BEEN REMOVED, AND THE ILIOPSOAS MUSCLE FULLY EXPOSED UP TO ITS INSERTION INTO THE SMALL TROCHANTER: PYRIFORMIS AND OBTURATOR INTERNUS MUSCLES. BURSA OF THE PECTINEUS MUSCLE.







- (1) Fossa ovalis (Lamina profunda fasciæ latæ)
- (2) Fascia pectinea

- (3) Crus superius
- (4) Crus inferius

<sup>1</sup> The superior cornu of the saphenous opening passes completely to the inner side of the femoral sheath to be attached to Gimbernat's ligament. This inner part of the superior cornu is termed the *femoral ligament* or *Hey's ligament*.—Tr.

<sup>2</sup> The upper part of this portion of the fascia lata, lying to the outer side of the saphenous opening, is termed the *iliac portion* of the fascia lata.—Ta.

<sup>3</sup> Or external inguinal aperture.

FIG. 598.—DEEP FASCIA OF THE THIGH OR FASCIA LATA OF THE RIGHT SIDE, SEEN FROM BEFORE; ITS CONNEXION WITH THE APONEUROSIS OF THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN THROUGH ITS ATTACHMENT TO POUPART'S LIGAMENT (SUPERFICIAL FEMORAL ARCH). THE EXTERNAL OR SUPERFICIAL ABDOMINAL RING (THE EXTERNAL INGUINAL APERTURE), LYING IMMEDIATELY ABOVE THE INNER EXTREMITY OF POUPART'S LIGAMENT, WHICH FORMS THE LOWER OR EXTERNAL PILLAR OF THE RING. THE SAPHENOUS OPENING (FOSSA OVALIS) WHICH FORMS THE FEMORAL APERTURE OF THE FEMORAL OR CRURAL CANAL. THE PUBIC PORTION OF THE FASCIA LATA, OR PECTINEAL FASCIA, ATTACHED ABOVE TO THE ILIOPECTINEAL LINE, FORMS THE FLOOR OF THE SAPHENOUS OPENING, AND, PASSING OUTWARDS, DIPS DEEPLY BENEATH THE FALCIFORM BORDER OF THE ILIAC PORTION OF THE FASCIA LATA AND BEHIND THE FEMORAL VESSELS TO FORM THE BACK OF THE FEMORAL OR CRURAL SHEATH, BY MEANS OF WHICH IT IS CONTINUED INTO THE ILIAC FASCIA.

The vessels that descend through the vascular compartment or lacuna vasorum beneath Poupart's ligament (femoral artery and femoral vein) have been removed.

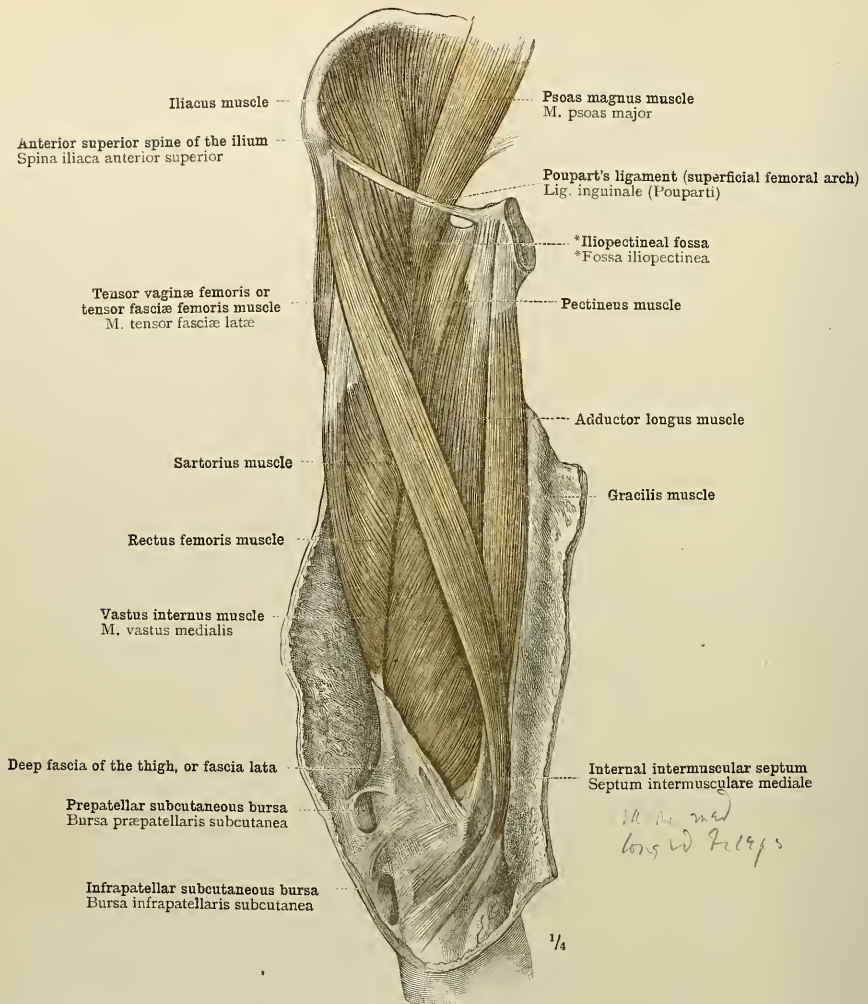
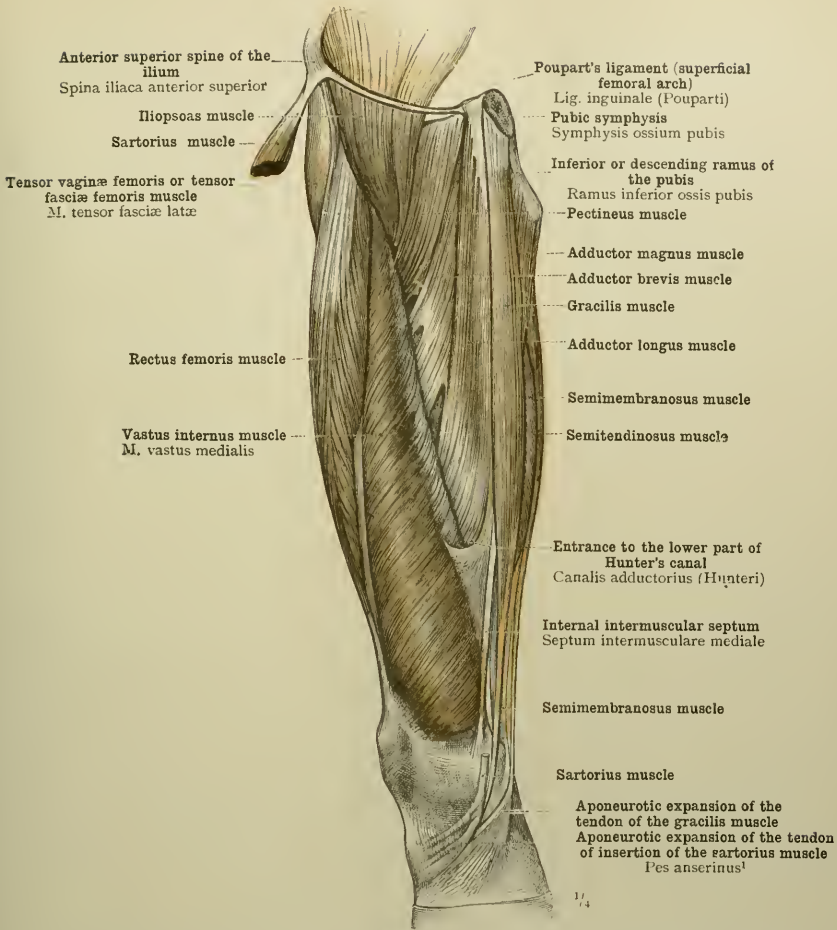


FIG. 599.—ANTERIOR AND INTERNAL MUSCLES OF THE RIGHT THIGH, AS SEEN FROM BEFORE WITH THE LIMB ROTATED OUTWARDS: SARTORIUS MUSCLE; PORTIONS OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE, OF THE INTERNAL FEMORAL OR ADDUCTOR MUSCLES, AND OF THE ILIOPSOAS MUSCLE. \*ILIOPECTINEAL FOSSA. THE TRIANGULAR AREA, THE BASE OF WHICH IS FORMED BY POUPART'S LIGAMENT, THE SIDES BY THE SARTORIUS AND ADDUCTOR LONGUS MUSCLES, RESPECTIVELY, AND THE FLOOR BY THE ILIOPSOAS AND PECTINEUS MUSCLES, IS KNOWN AS SCARPA'S TRIANGLE (FOSSA SCARPÆ MAJOR, TRIGONUM FEMORALE). PRÆPATELLAR AND INFRA-PATELLAR SUBCUTANEOUS BURSÆ.

In the region of the knee the fascia lata has not been removed.

Musculi femoris—Muscles of the thigh.





<sup>1</sup> *Pes Anserinus*.—The tendon of insertion of the sartorius muscle sends off from its upper border an aponeurotic expansion to join that of the common extensor over the front of the capsule of the knee-joint, and from its lower border another to the deep fascia of the leg; immediately below and behind this latter is a similar aponeurotic expansion from the tendon of insertion of the gracilis muscle to the deep fascia of the leg. From the resemblance of the aponeurotic expansions of the sartorius tendon to the foot of a goose, it is called by the author *pēs anserinus*, but it is to be noted that this name is given by English anatomists to an entirely different structure—to wit, the plexus formed in the substance of the parotid gland and on the side of the face by the freely communicating twigs of the temporofacial and cervicofacial branches of the facial nerve, known also as the "parotid plexus" (see Fig. 1314, p. 871, sect. vi. of this work).—TR.

FIG. 600.—ANTERIOR AND INTERNAL MUSCLES OF THE RIGHT THIGH, AS SEEN FROM BEFORE WITH THE LIMB ROTATED OUTWARDS, THE SARTORIUS MUSCLE HAVING BEEN REMOVED. OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE, WE SEE THE LONG HEAD, THE RECTUS FEMORIS MUSCLE, AND THE INNER HEAD, THE VASTUS INTERNUS MUSCLE; OF THE INTERNAL FEMORAL OR ADDUCTOR MUSCLES, WE SEE THE GRACILIS, ADDUCTOR LONGUS, ADDUCTOR BREVIS, AND PECTINEUS MUSCLES. BEHIND THE GRACILIS MUSCLES WE SEE PORTIONS OF THE POSTERIOR FEMORAL OR HAMSTRING MUSCLES: SEMIMEMBRANOSUS MUSCLE AND SEMITENDINOSUS MUSCLE. BENEATH THE SARTORIUS MUSCLE AND BETWEEN THE VASTUS INTERNUS MUSCLE, ON THE OUTER SIDE, AND THE ADDUCTOR LONGUS (ABOVE) AND THE ADDUCTOR MAGNUS (BELOW), ON THE INNER SIDE, LIES HUNTER'S CANAL (CANALIS ADDUCTORIUS (HUNTERII)), THE FASCIAL ROOF OF WHICH HAS BEEN REMOVED EXCEPT FOR A SHORT SPACE AT THE LOWER END OF THE CANAL.

Musculi femoris—Muscles of the thigh.



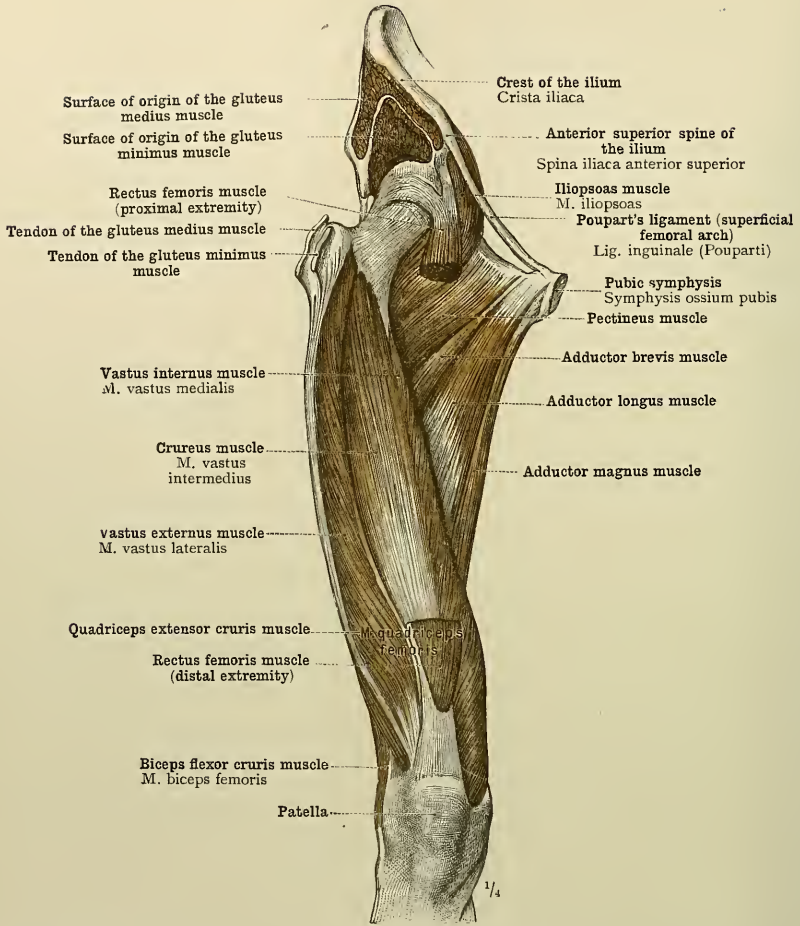
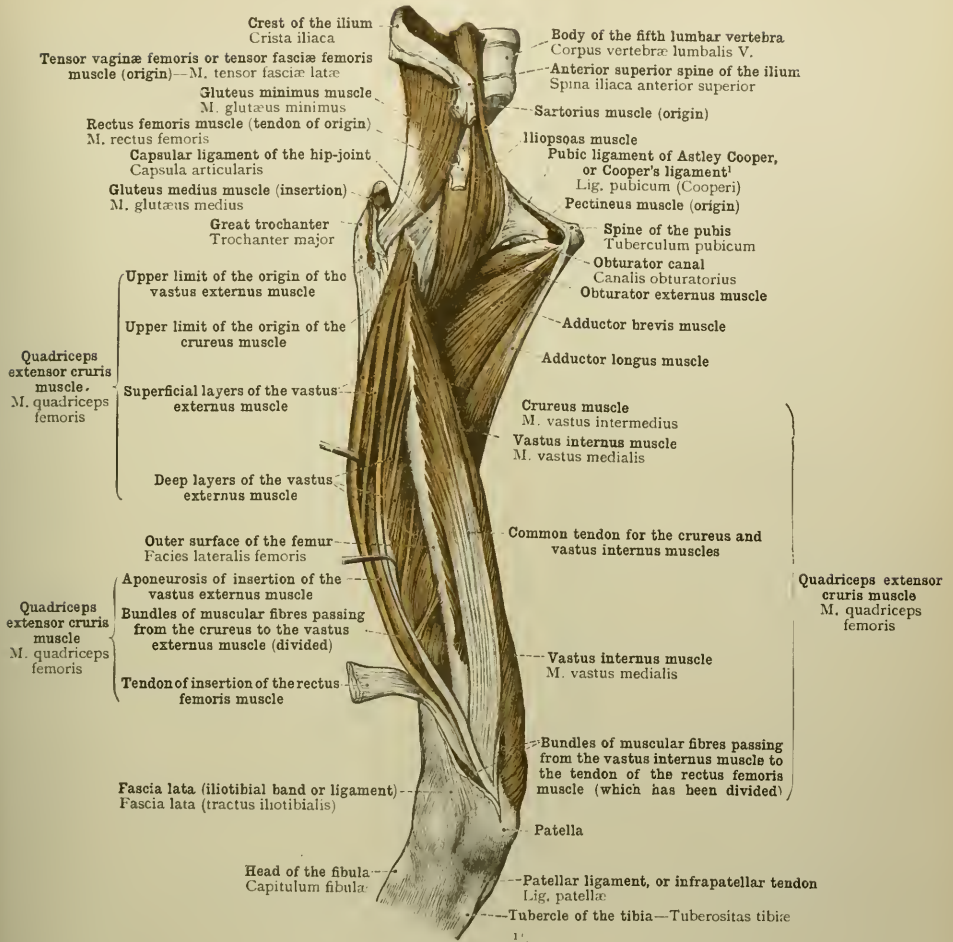


FIG. 601.—ANTERIOR AND INTERNAL MUSCLES OF THE RIGHT THIGH, WITH THE LIMB IN THE NORMAL POSITION, THE SARTORIUS, GRACILIS, AND RECTUS FEMORIS MUSCLES HAVING BEEN REMOVED. SEEN FROM BEFORE. VASTUS EXTERNUS, CRUREUS, AND VASTUS INTERNUS MUSCLES; THE OUTER, MIDDLE, AND INNER HEADS OF THE QUADRICEPS EXTENSOR CRURIS MUSCLES; ADDUCTOR LONGUS AND ADDUCTOR BREVIS MUSCLES, AND THE INNER PORTION OF THE ADDUCTOR MAGNUS MUSCLE; PECTINEUS MUSCLE.

Musculi femoris—Muscles of the thigh.



† See note \* to p. 350.

FIG. 602.—STRATIFICATION OF THE VASTUS EXTERNUS MUSCLE, AS SEEN AFTER THE REMOVAL OF THE RECTUS FEMORIS MUSCLE, THE LAYERS OF THE VASTUS EXTERNUS MUSCLE HAVING BEEN WELL SEPARATED FROM THE FEMUR. OUTER LIMIT OF ORIGIN OF THE CRUREUS (VASTUS INTERMEDIUS) MUSCLE. STRATIFICATION OF THE TENDONS (APONEUROSES) OF THE VASTUS EXTERNUS, CRUREUS, AND RECTUS FEMORIS MUSCLES ABOVE THE KNEE-JOINT.

The thigh, which has been rotated inwards, is seen from before. The bundles of the vastus externus muscle that arise from the fascia lata are shown in Fig. 616.

Musculi femoris—Muscles of the thigh.

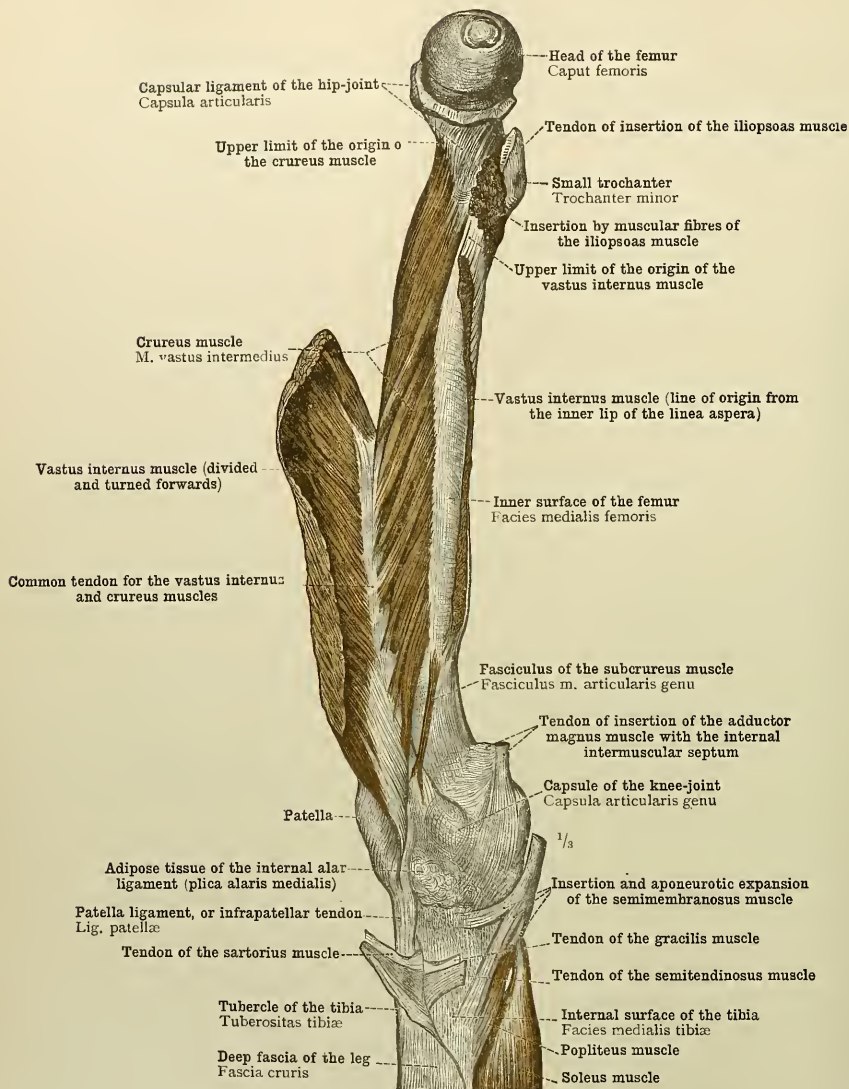
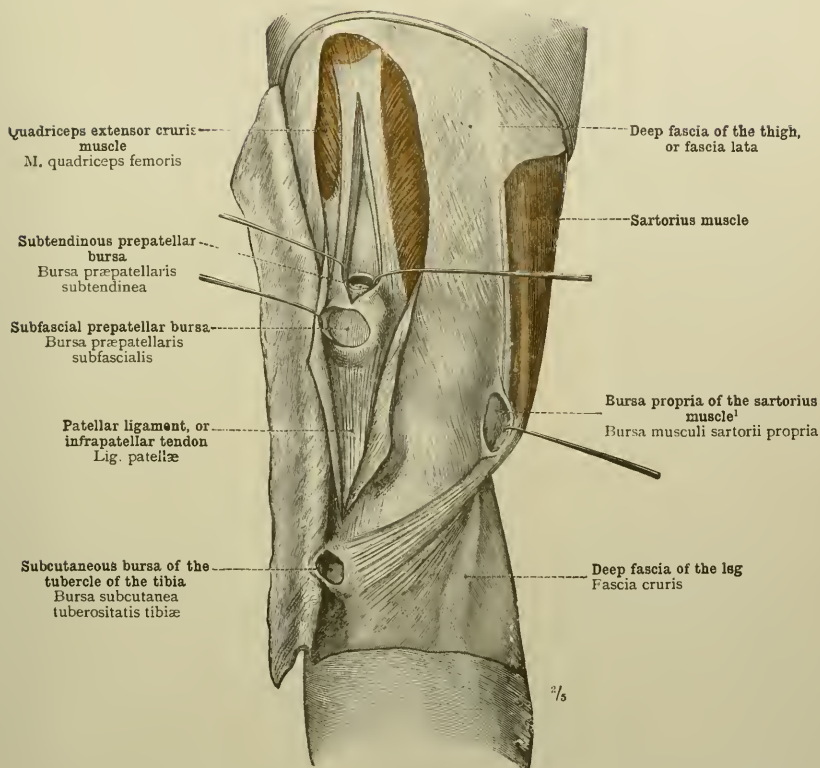


FIG. 603.—INNER LIMIT OF THE ORIGIN OF THE CRUREUS (VASTUS INTERMEDIUS) MUSCLE, AND THE BLENDING OF THE FASCICULI OF THAT MUSCLE WITH THOSE OF THE VASTUS INTERNUS (VASTUS MEDIALIS) MUSCLE IN THEIR INSERTION INTO THE DEEP APONEUROSIS OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE. RIGHT THIGH, SEEN FROM WITHIN.

The vastus internus muscle has been divided longitudinally throughout its entire length, and has been turned forwards.

Musculi femoris—Muscles of the thigh.

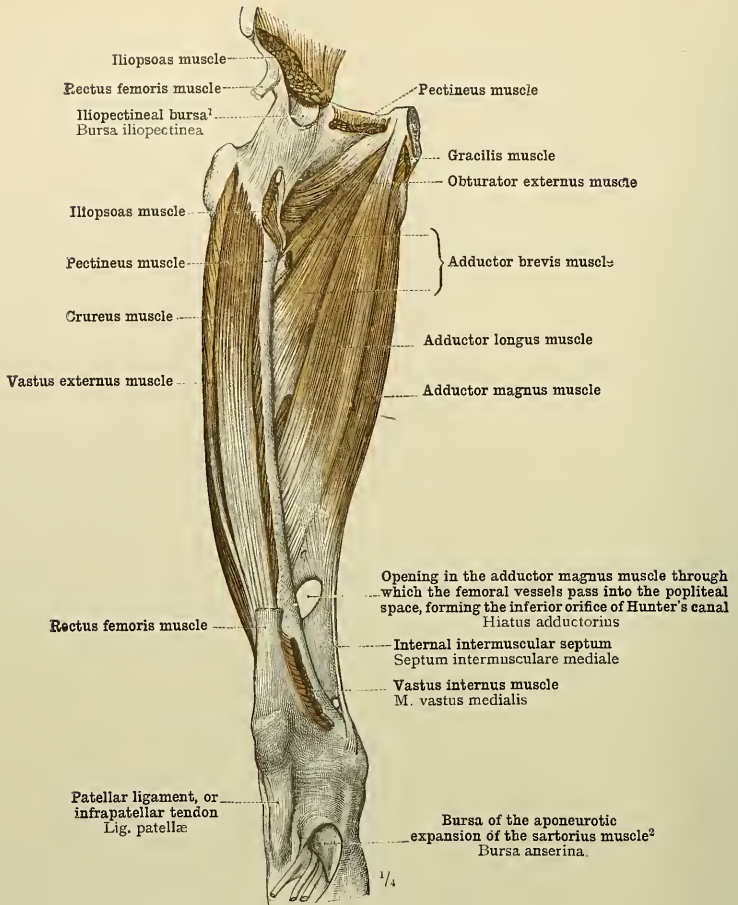


<sup>1</sup> The *bursa propria of the sartorius muscle* is situated between the sartorius muscle and the upper part of the capsule of the knee-joint at the point where the muscle becomes tendinous. It is to be distinguished from a more distally situated bursa beneath the aponeurotic expansion of the tendon of the sartorius, called by the author *bursa anserina*. See note <sup>1</sup> to p. 362.—TR.

FIG. 604.—DEMONSTRATION OF CERTAIN BURSÆ IN THE ANTERIOR REGION OF THE KNEE. BURSA PROPRIA OF THE SARTORIUS MUSCLE. SUBCUTANEOUS BURSA OF THE TUBERCLE OF THE TIBIA. REGION OF THE RIGHT KNEE, SEEN OBLIQUELY FROM BEFORE AND WITHIN.

The subfascial prepatellar bursa was opened by a longitudinal incision through the fascia lata over the front of the patella, and the subtendinous prepatellar bursa was opened by a longitudinal incision through the common tendon of the quadriceps extensor cruris muscle (subcrapatellar tendon) immediately above the patella.





¹ See note 5 to p. 343.

² See note 1 to p. 362.

FIG. 605.—INTERNAL FEMORAL OR ADDUCTOR MUSCLES, DISPLAYED BY THE REMOVAL OF THE SARTORIUS, GRACILIS, PECTINEUS, RECTUS FEMORIS, AND VASTUS INTERNUS MUSCLES, THE LIMB BEING ROTATED OUTWARDS. RIGHT THIGH, SEEN FROM BEFORE. ADDUCTOR BREVIS AND ADDUCTOR LONGUS MUSCLES; INNER PORTION OF THE ADDUCTOR MAGNUS MUSCLE, WITH THE INTERNAL INTERMUSCULAR SEPTUM, AND THE OPENING (HIATUS ADDUCTORIUS) THROUGH WHICH THE FEMORAL VESSELS PASS INTO THE POPLITEAL SPACE. (THIS OPENING CONSTITUTES THE INFERIOR ORIFICE OF HUNTER'S CANAL.) OBTURATOR EXTERNUS MUSCLE. BURSA OF THE APONEUROTIC EXPANSION OF THE SARTORIUS MUSCLE (BURSA ANSERINA) (see note 1 to p. 362).

Musculi femoris—Muscles of the thigh.

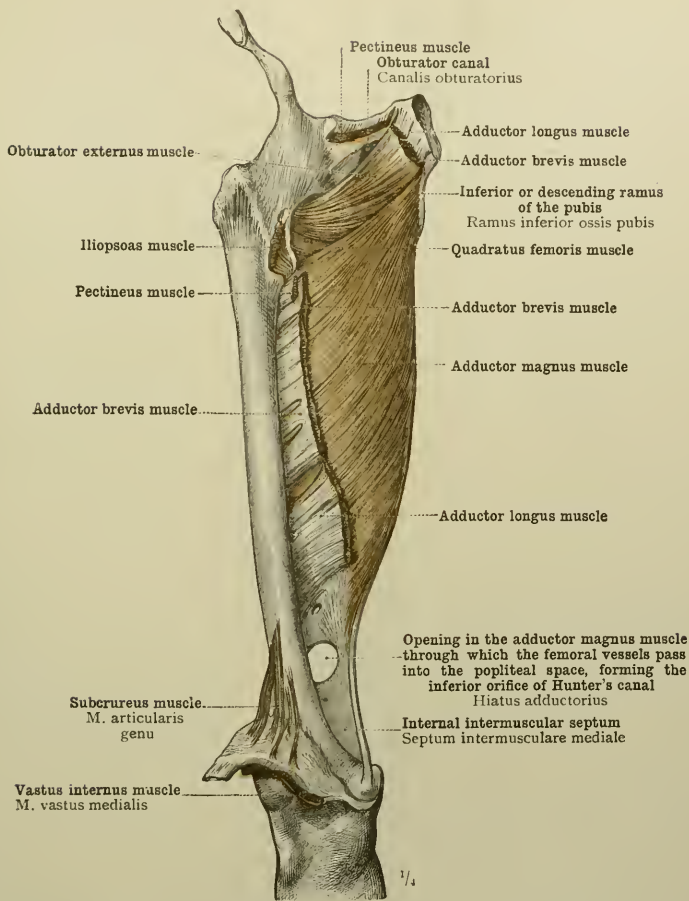
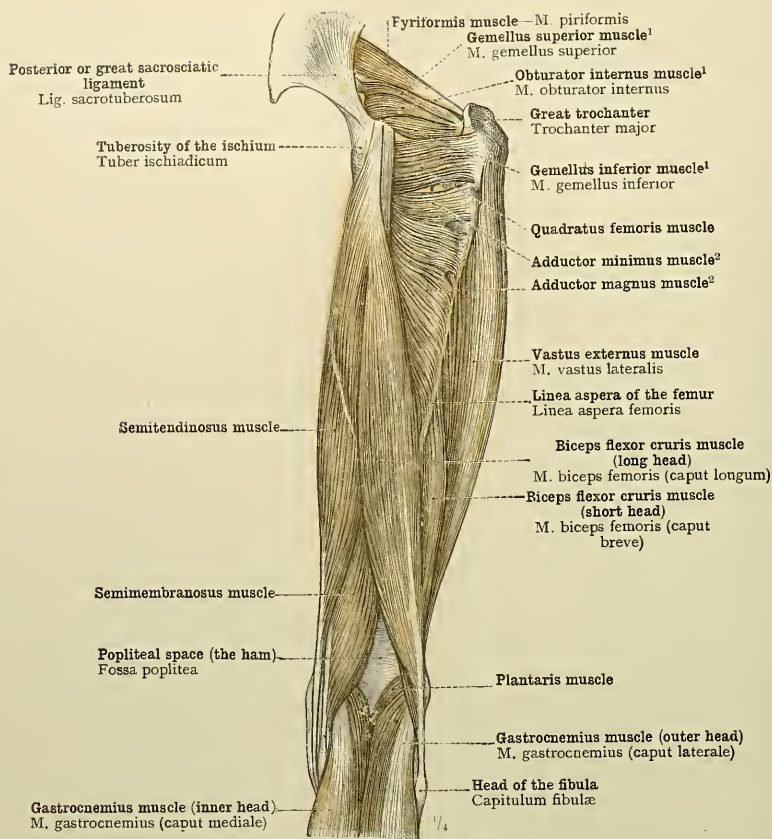


FIG. 606.—ADDUCTOR MAGNUS MUSCLE WITH THE INTERNAL INTERMUSCULAR SEPTUM AND THE OPENING (HIATUS ADDUCTORIUS) THROUGH WHICH THE FEMORAL VESSELS PASS INTO THE POPLITEAL SPACE. (THIS OPENING CONSTITUTES THE INFERIOR ORIFICE OF HUNTER'S CANAL.) RIGHT THIGH, SEEN FROM BEFORE. OBTURATOR EXTERNUS MUSCLE. SUBCRUREUS MUSCLE.

The quadriceps extensor cruris, pectineus, adductor longus, and adductor brevis muscles have been removed. The limb is in the position of external rotation.

Musculi femoris—Muscles of the thigh.

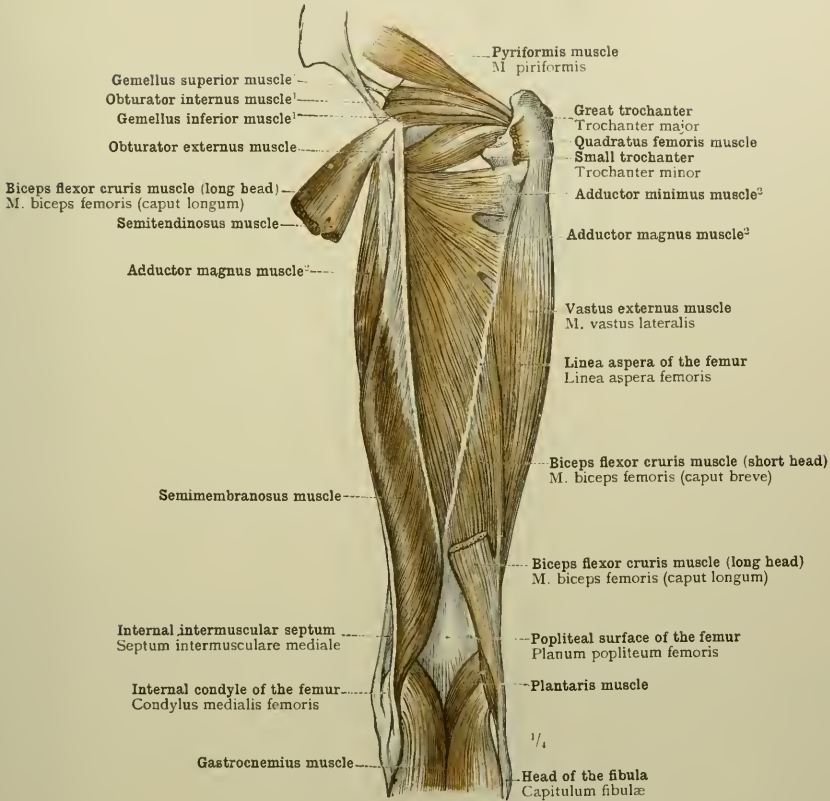


¹ See note ¹ to p. 340.

² See note ² to p. 345.

FIG. 607.—MUSCLES ON THE POSTERIOR AND OUTER SIDES OF THE RIGHT THIGH, THE LIMB BEING ROTATED INWARDS. SEEN FROM BEHIND. BICEPS FLEXOR CRURIS MUSCLE; SEMITENDINOSUS MUSCLE; DISTAL PORTION OF THE SEMIMEMBRANOSUS MUSCLE. RELATIONS OF THE GASTROCNEMIUS MUSCLE TO THESE MUSCLES. POPLITEAL SPACE (THE HAM). QUADRATUS FEMORIS MUSCLE, WITH THE ADDUCTOR MAGNUS MUSCLE (see note ² above) IN CONTACT WITH ITS LOWER BORDER. ADDUCTOR MINIMUS MUSCLE (see note ² above), NOT CLEARLY SEPARABLE ABOVE FROM THE ADDUCTOR MAGNUS MUSCLE (see note ² above). VASTUS EXTERNUS MUSCLE, THE OUTER HEAD OF THE QUADRICEPS EXTENSOR CRURIS MUSCLE.

Musculi femoris—Muscles of the thigh.



<sup>1</sup> See note <sup>1</sup> to p. 340.

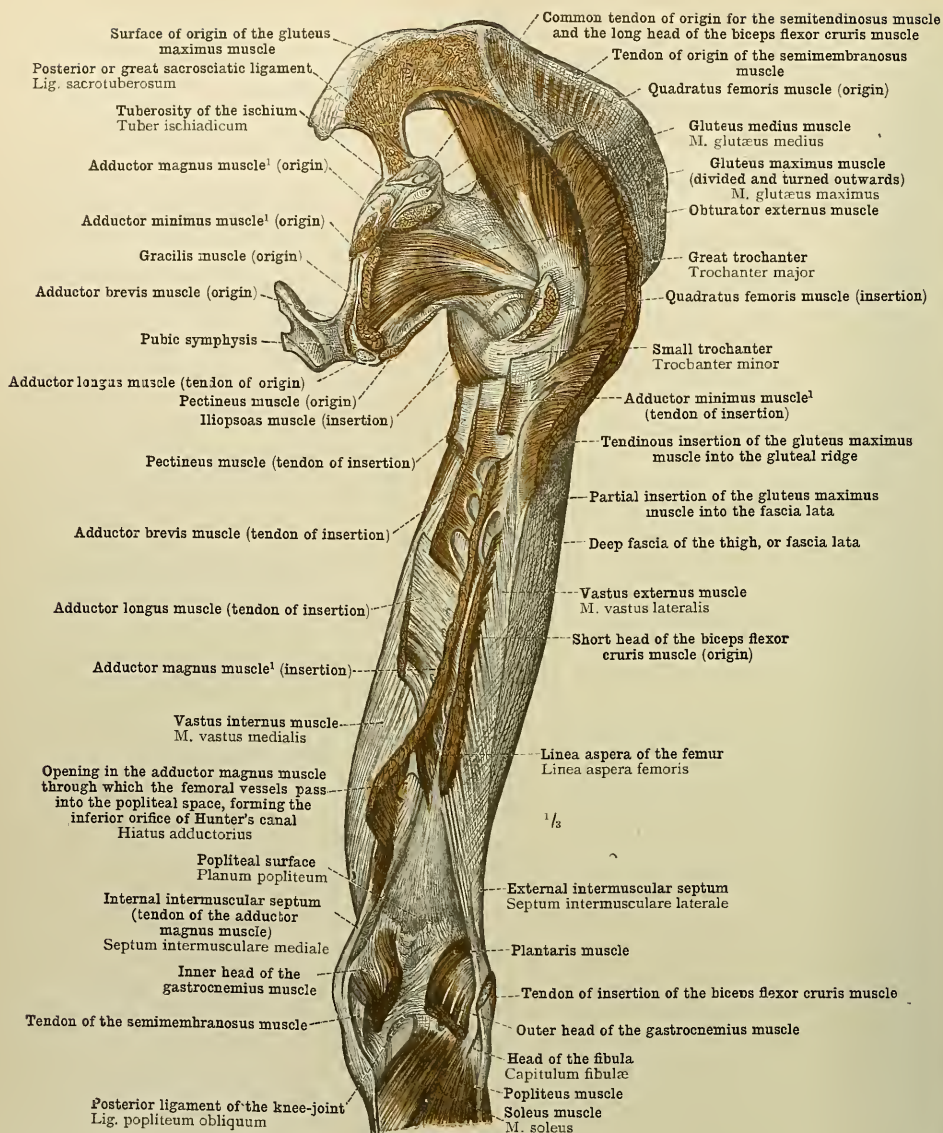
<sup>2</sup> See note <sup>2</sup> to p. 345.

FIG. 608.—MUSCLES AT THE BACK OF THE RIGHT THIGH, THE LIMB BEING ROTATED INWARDS, THE LONG HEAD OF THE BICEPS FLEXOR CRURIS AND THE SEMITENDINOSUS MUSCLE HAVING BEEN REMOVED. SEEN FROM BEHIND. SEMIMEMBRANOSUS MUSCLE; SHORT HEAD OF THE BICEPS FLEXOR CRURIS MUSCLE; ADDUCTOR MAGNUS (see note <sup>2</sup> above) AND ADDUCTOR MINIMUS (see note <sup>2</sup> above) MUSCLES; VASTUS EXTERNUS MUSCLE.

By the removal of the quadratus femoris muscle, the outer portion of the obturator externus muscle has been exposed.

Musculi femoris—Muscles of the thigh.

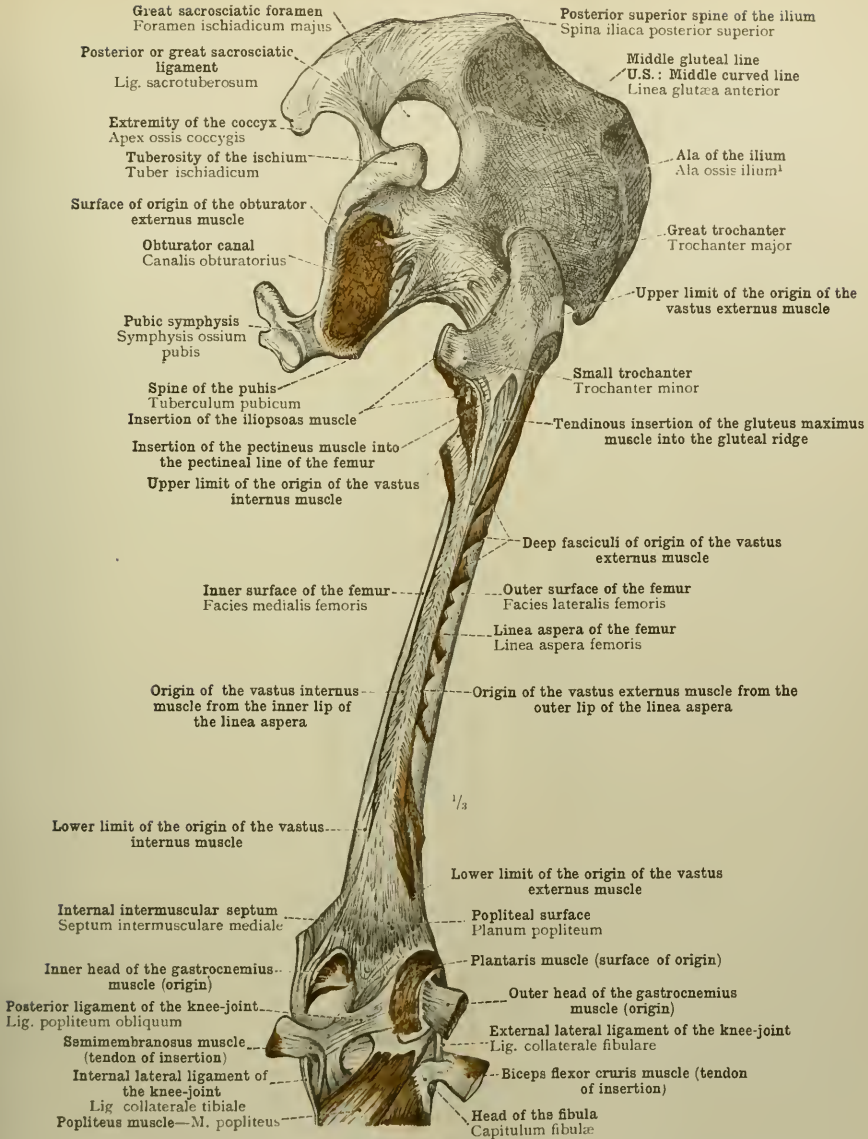




<sup>1</sup> See note <sup>2</sup> to p. 345.

FIG. 609.—ATTACHMENT OF MUSCLES (ORIGINS AND INSERTIONS) TO THE OUTER ASPECT OF THE HIP-BONE AND TO THE POSTERIOR ASPECT OF THE FEMUR. RIGHT SIDE, SEEN FROM BEHIND.

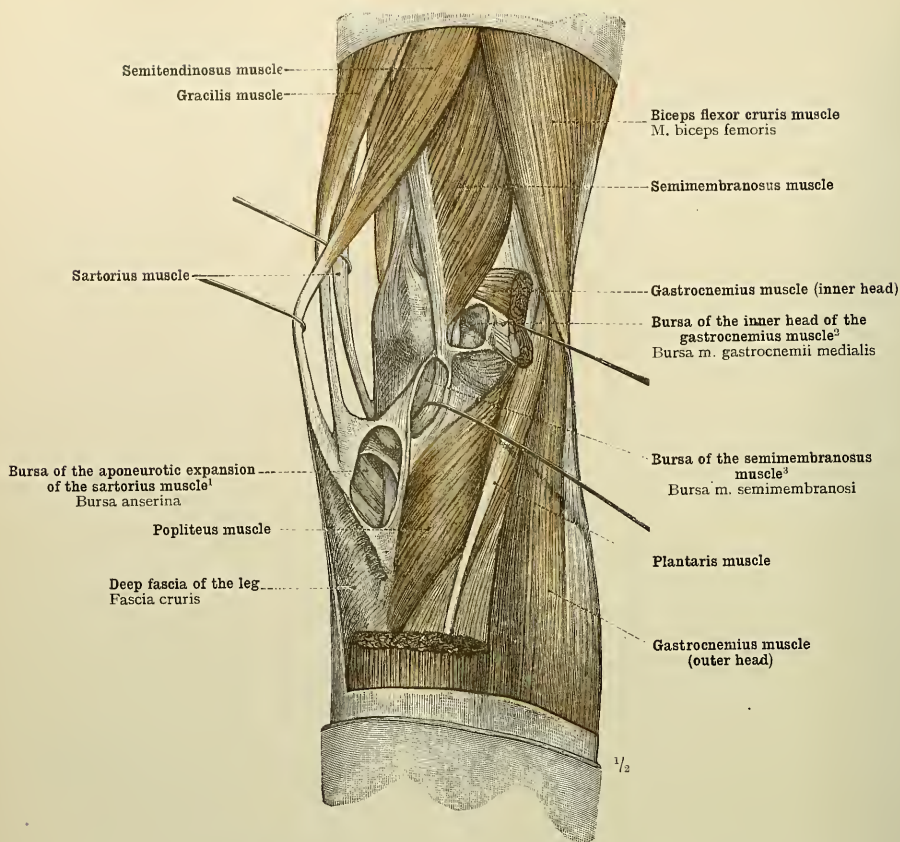
Musculi femoris—Muscles of the thigh.



<sup>1</sup> The author treats *ilium* as an indeclinable noun, and I have followed him here, as in the section on Osteology, in writing *ala ossis ilium* instead of *ala ossis ilii*. English anatomists, however, when using Latin terminology, generally decline *ilium*, speaking of *dorsum ilii*, etc.—Tx.

FIG. 610.—ATTACHMENT OF MUSCLES (ORIGINS AND INSERTIONS) TO THE POSTERIOR ASPECT OF THE RIGHT FEMUR.

Musculi femoris—Muscles of the thigh.



<sup>1</sup> The *bursa of the aponeurotic expansion of the sartorius muscle* (called by the author *bursa anserina*) is situated between the root of the aponeurotic expansion of the tendon of insertion of the sartorius muscle (*pes anserinus*, according to Toldt, see Fig. 600, p. 351, and note <sup>4</sup> on same page) and the subjacent tendons of insertion of the gracilis and semitendinosus muscles. A prolongation of the bursa passes more deeply between these latter tendons and the subjacent internal lateral ligament of the knee-joint.—Tr.

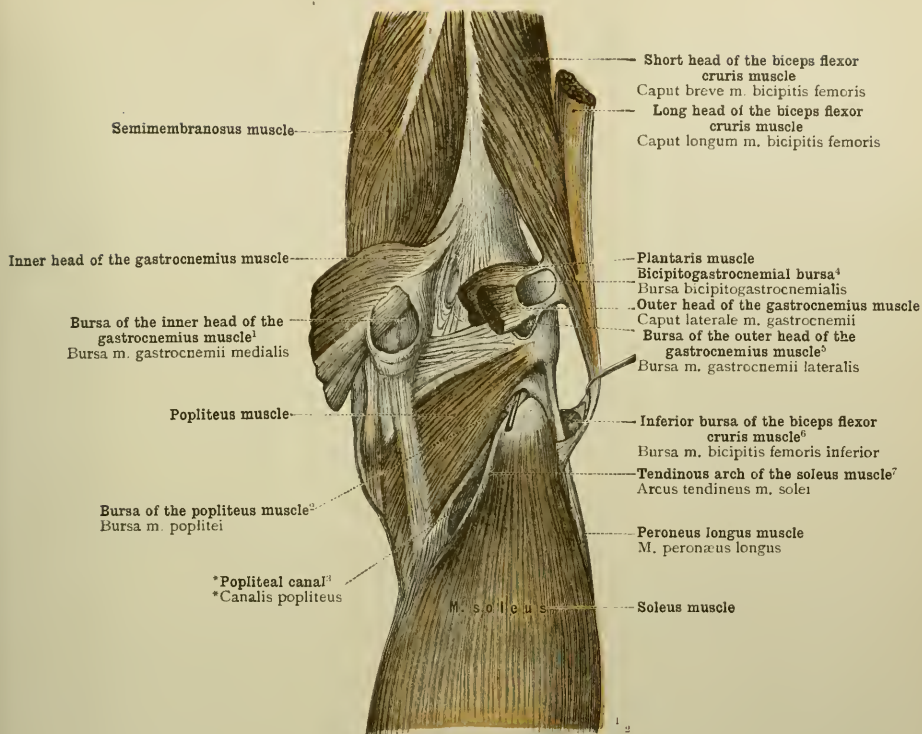
<sup>2</sup> The *bursa of the inner head of the gastrocnemius muscle* is situated between the inner head of origin of the gastrocnemius muscle and the tendon of the semimembranosus muscle. This bursa frequently communicates with the knee-joint. Higher up, between the tendon of the inner head of the gastrocnemius muscle and the femur, there is usually a second, smaller synovial bursa, which may also communicate with the knee-joint.—Tr.

<sup>3</sup> The *bursa of the semimembranosus muscle* is situated between the tendon of insertion of the semimembranosus muscle and the prominent upper margin of the groove on the internal tuberosity of the tibia into which the semimembranosus muscle is mainly inserted.—Tr.

FIG. 611.—REGION OF THE KNEE, SEEN OBLIQUELY FROM BEHIND AND WITHIN. RIGHT LIMB. BURSÆ (SUBTENDINOUS MUCOUS BURSÆ) IN THE INNER PART OF THE POSTERIOR REGION OF THE KNEE, AS SEEN AFTER DIVISION OF THE INNER HEAD OF THE GASTROCNEMIUS MUSCLE: BURSA OF THE INNER HEAD OF THE GASTROCNEMIUS MUSCLE, BURSA OF THE SEMIMEMBRANOSUS MUSCLE, BURSA OF THE APONEUROTIC EXPANSION OF THE SARTORIUS MUSCLE (BURSA ANSERINA).

Bursæ mucosæ regionis genu posterioris—Bursæ of the posterior region of the knee.





<sup>1</sup> See note <sup>2</sup> to p. 362.

<sup>2</sup> The bursa of the popliteus muscle (so-called) is an expansion of the synovial cavity of the knee-joint passing downwards between the tendon of origin of the popliteus muscle and the back of the outer tuberosity of the tibia.—TK.

<sup>3</sup> \*Popliteal Canal.—This name is not used by English anatomists. It is given by the author to the space beneath (anterior to) the tendinous arch of the soleus muscle (see note <sup>7</sup> on this page) through which the posterior tibial vessels and nerve pass from the popliteal space beneath the soleus muscle.—TK.

<sup>4</sup> The bicipitogastrocnemial bursa is situated between the biceps flexor cruris muscle and the outer head of the gastrocnemius muscle.—TK.

<sup>5</sup> The bursa of the outer head of the gastrocnemius muscle is situated beneath the tendon of origin of the outer head of the gastrocnemius muscle, between that tendon and the femur.—TK.

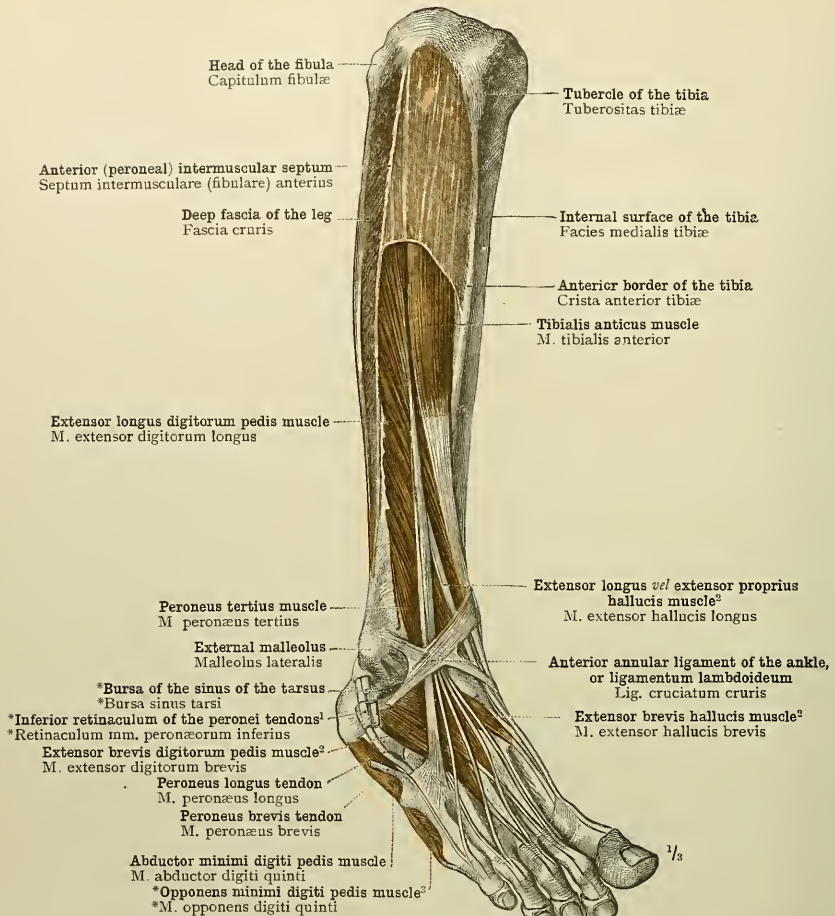
<sup>6</sup> The inferior bursa of the biceps flexor cruris muscle is situated between the tendon of insertion of that muscle and the external lateral ligament of the knee-joint.—TK.

<sup>7</sup> The tendinous arch of the soleus muscle, passing from the upper part of the back of the fibula obliquely downwards and inwards to the upper part of the back of the tibia, arches over the tibial vessels and nerve, and serves for the origin of the middle fibres of the soleus muscle.—TK.

FIG. 612.—REGION OF THE KNEE, SEEN FROM BEHIND. RIGHT LIMB. BURSÆ (SUBTENDINOUS MUCOUS BURSÆ) IN THE OUTER PART OF THE POSTERIOR REGION OF THE KNEE, AS SEEN AFTER REMOVAL OF BOTH HEADS OF THE GASTROCNEMIUS MUSCLE: BICIPITOGASTROCNEMIAL BURSA, BURSA OF THE OUTER HEAD OF THE GASTROCNEMIUS MUSCLE, INFERIOR BURSA OF THE BICEPS FLEXOR CRURIS MUSCLE, BURSA OF THE POPLITEUS MUSCLE, BURSA OF THE INNER HEAD OF THE GASTROCNEMIUS MUSCLE. TENDINOUS ARCH OF THE SOLEUS MUSCLE, AND BENEATH IT (ANTERIORLY) THE ENTRANCE TO THE \*POPLITEAL CANAL.

Bursæ mucosæ regionis genu posterioris—Bursæ of the posterior region of the knee.





<sup>1</sup> Immediately behind and below the external malleolus the tendons of the peroneus longus and brevis muscles are contained in a single synovial sheath, the fibrous strand which binds them down, passing from the point of the outer malleolus to the outer side of the calcaneum, being called by the author *retinaculum mm. peroneorum superius* (see Fig. 615, p. 366), and by English anatomists the *external annular ligament of the ankle*. More distally, on the outer side of the calcaneum, each tendon has its own sheath, the two being separated by a fibrous septum and by the trochlear process or peroneal spine of the calcaneum, when that process exists. The fibrous band which binds the two tendons to the calcaneum has received no special name from English anatomists, but is called by the author *retinaculum mm. peroneorum inferius* (see Fig. 613, *supra*, Fig. 615, p. 366, and Fig. 621, p. 372).—Tr.

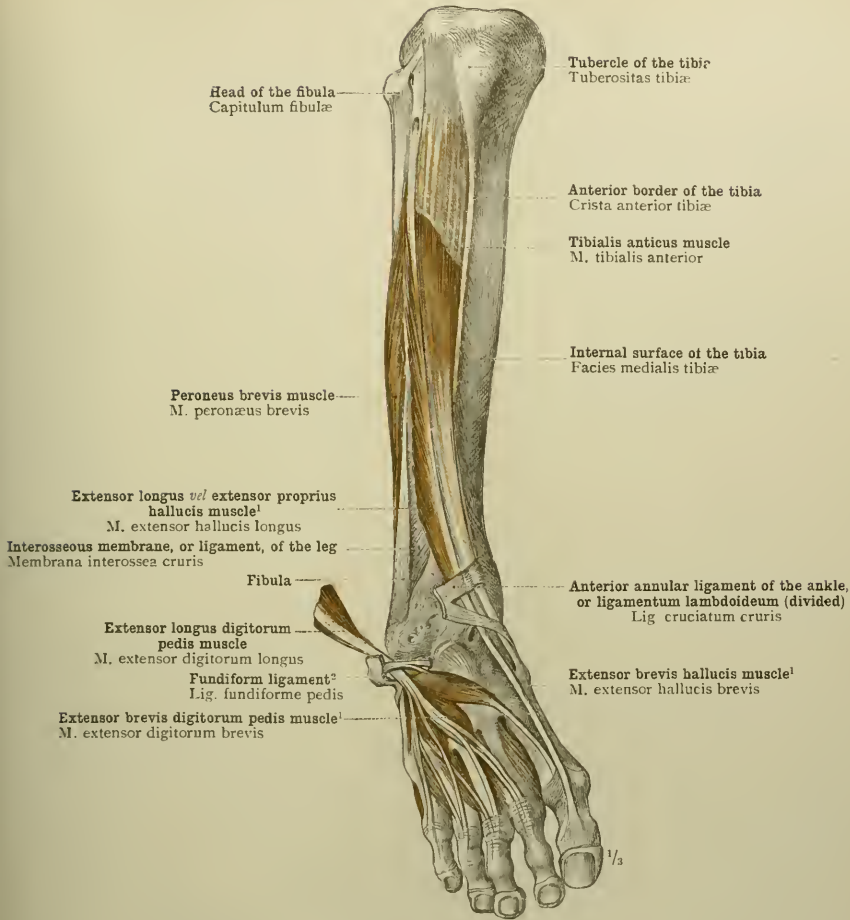
<sup>2</sup> By many English anatomists the *extensor brevis hallucis* muscle is regarded, not as an independent muscle, but merely as the innermost slip of the *extensor brevis digitorum pedis* muscle, and under these circumstances the *extensor longus hallucis* muscle is termed *extensor proprius hallucis*.—Tr.

<sup>3</sup> The name *opponens minimi digiti (pedis)* is sometimes given to that portion of the *flexor brevis minimi digiti pedis* muscle which is inserted into the fifth metatarsal bone (the bulk of the muscle being inserted into the base and external border of the proximal phalanx. Occasionally (3/4 per cent.) this portion of the muscle is entirely separate from the rest; while somewhat more frequently (to per cent.) the insertion of the *flexor brevis minimi digiti* into the metatarsal bone is entirely wanting).—Tr.

FIG. 613.—MUSCLES ON THE FRONT OF THE RIGHT LEG: TIBIALIS ANTICUS MUSCLE; EXTENSOR LONGUS DIGITORUM PEDIS MUSCLE, WITH THE PERONEUS TERTIUS MUSCLE; EXTENSOR LONGUS *VEL* EXTENSOR PROPRIUS HALLCUS MUSCLE (see note <sup>2</sup> above). ANTERIOR (PERONEAL) INTERMUSCULAR SEPTUM. EXTENSOR BREVIS DIGITORUM MUSCLE (see note <sup>2</sup> above). BURSA OF THE SINUS OF THE TARSUS.

That portion of the deep fascia of the leg from which numerous fasciculi of the two first-named muscles arise has been retained, also that portion which covers the peronei muscles on the outer side of the leg, and the anterior annular ligament of the ankle (ligamentum lamboideum, ligamentum cruciatum cruris).

### Musculi cruris—Muscles of the leg.

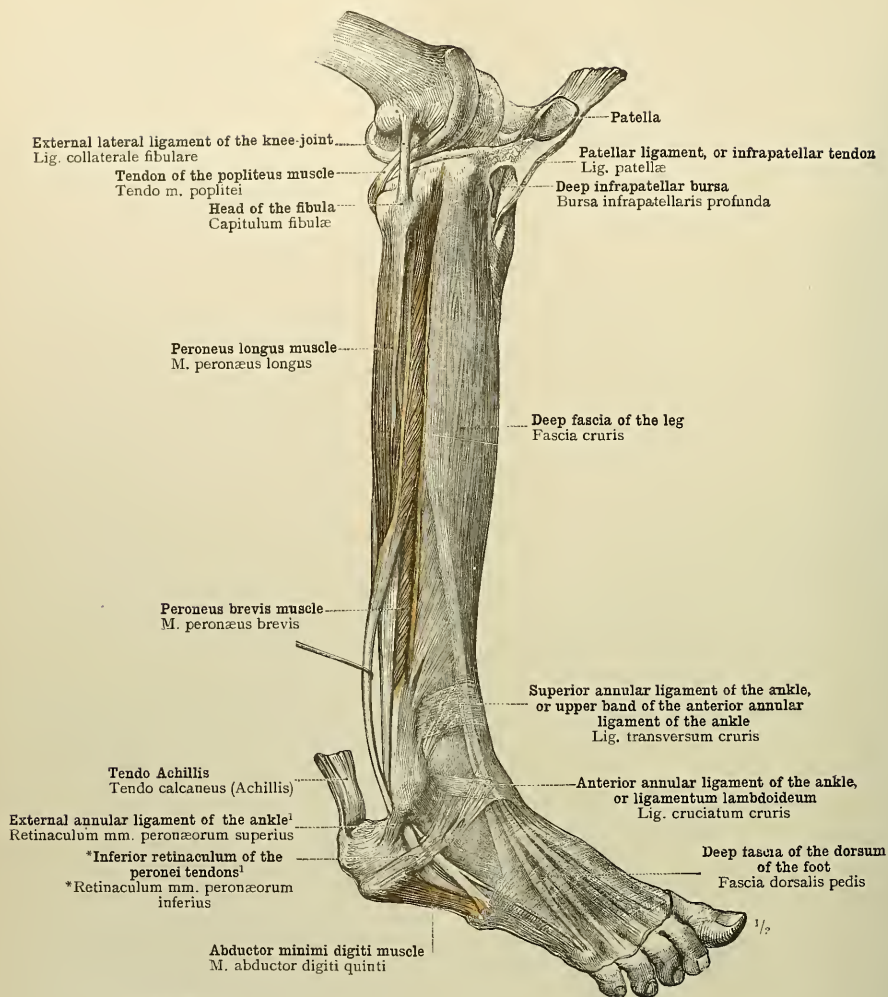


<sup>1</sup> See note <sup>2</sup> to p. 364.

<sup>2</sup> The *fundiform ligament* of Retzius is the name given to the single outer half of the  $\leftarrow$ -shaped lower band of the anterior annular ligament of the ankle; attached externally to the calcaneum, it projects upwards and inwards, forming a loop through which the tendons of the extensor longus digitorum pedis and peroneus tertius muscles pass from the front of the leg to the dorsum of the foot.—Tr.

FIG. 614.—MUSCLES ON THE FRONT OF THE RIGHT LEG, THE EXTENSOR LONGUS DIGITORUM PEDIS AND PERONEUS TERTIUS MUSCLES HAVING BEEN REMOVED: EXTENSOR LONGUS VEL EXTENSOR PROPRIUS HALLUCIS MUSCLE; TIBIALIS ANTICUS MUSCLE.

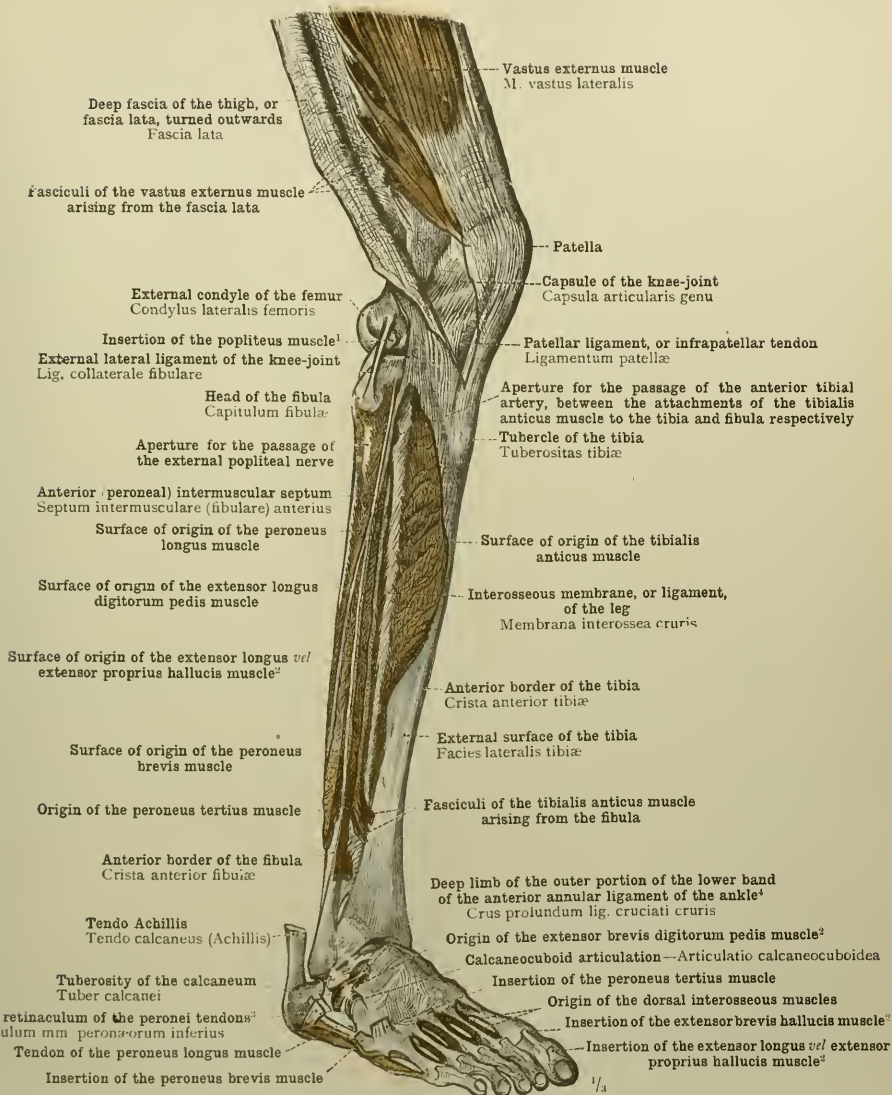
By the removal of the peroneus longus muscle, the fleshy belly of the peroneus brevis muscle has been laid bare. The anterior annular ligament of the ankle (ligamentum lamboideum, ligamentum cruciatum cruris) has been divided between the tendons of the extensor longus digitorum pedis and the extensor longus vel extensor proprius hallucis muscles, and the outer portion of this ligament has been turned downwards, in order to demonstrate the loop of the fundiform ligament of Retzius (*see note<sup>2</sup> above*) surrounding the tendons of the extensor longus digitorum pedis and peroneus tertius muscles.



<sup>1</sup> See note <sup>1</sup> to p. 364.

<sup>2</sup> According to English anatomists, the femoral attachment of the popliteus is the origin of that muscle, and the tibial attachment its insertion.—TR.

FIG. 615.—MUSCLES ON THE OUTER SIDE OF THE RIGHT LEG: PERONEUS LONGUS MUSCLE; PERONEUS BREVIS MUSCLE. TENDON OF INSERTION OF THE POPLITEUS MUSCLE (see note <sup>2</sup> above). DEEP INFRAPATELLAR BURSA. DEEP FASCIA OF THE LEG AND DEEP FASCIA OF THE DORSUM OF THE FOOT. SUPERIOR ANNULAR LIGAMENT OF THE ANKLE (LIGAMENTUM TRANSVERSUM CRURIS) AND ANTERIOR ANNULAR LIGAMENT OF THE ANKLE (LIGAMENTUM LAMBOIDEUM, LIGAMENTUM CRUCIATUM CRURIS).



¹ See note ² to p. 366.

² See note ² to p. 364.

³ See note ¹ to p. 364.

⁴ This is the deep limb of the *fundiform ligament* of *KetZius*, the loop surrounding the tendons of the extensor longus digitorum pedis and peroneus tertius muscles (see Fig. 614, p. 365, and note ² to same page)—14.

FIG. 616.—ORIGIN OF MUSCLES FROM THE FRONT AND OUTER SIDE OF THE LEG AND FROM THE DORSUM OF THE FOOT. FASCICULI OF THE VASTUS EXTERNUS MUSCLE ARISING FROM THE FASCIA LATA.

Musculi cruris—Muscles of the leg.



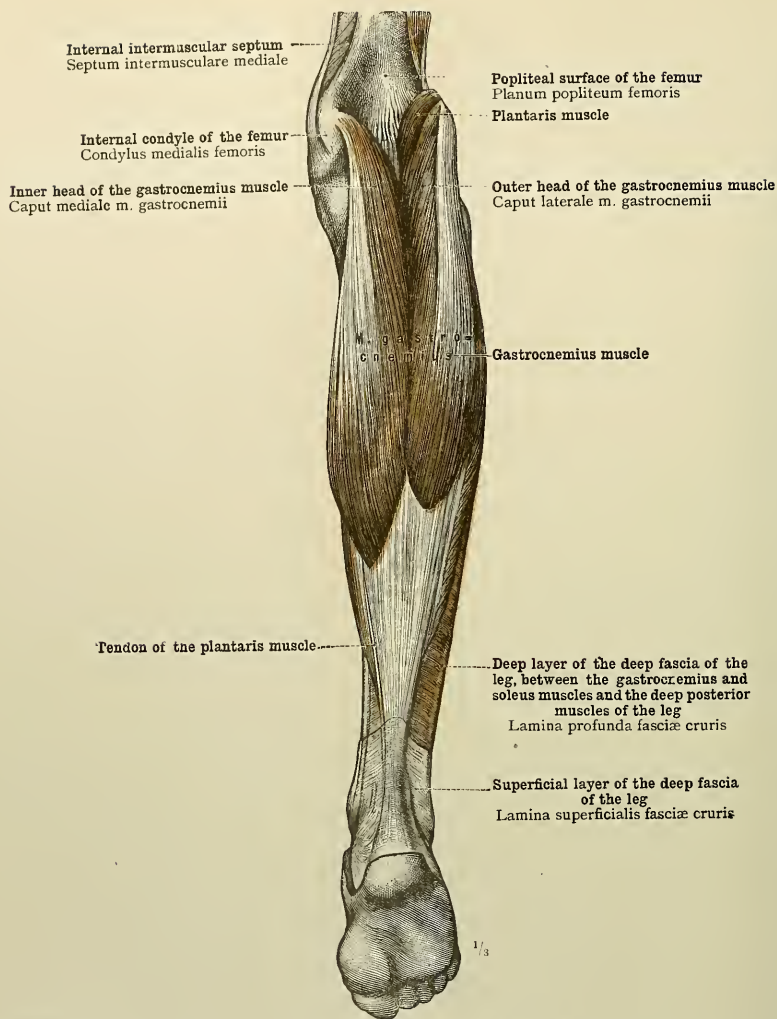


FIG. 617.—SUPERFICIAL GROUP<sup>1</sup> OF THE POSTERIOR MUSCLES OF THE RIGHT LEG, FIRST PORTION: GASTROCNEMIUS MUSCLE, CONSTITUTING THE TWO SUPERFICIAL HEADS OF THE \*TRICEPS SURÆ MUSCLE.<sup>2</sup>

Of the deep fascia of the leg, the lower portion of the superficial layer, which binds down the tendo Achillis, and the deep layer, which passes from side to side between the superficial and the deep posterior muscles of the leg, have been retained. The plantaris muscle and its tendon are partially visible.

<sup>1</sup> The author divides the posterior muscles of the leg into three groups or layers, the first, most superficial, consisting of the gastrocnemius muscle; the second consisting of the plantaris and soleus muscles; and the third, deepest, consisting of the popliteus, flexor longus hallucis, flexor longus digitorum pedis (or flexor perforans), and tibialis posticus muscles. This arrangement appears a very artificial one, and I have therefore adhered to the arrangement usually adopted by English anatomists, according to which the muscles are grouped in two layers only: a superficial, consisting of the gastrocnemius, soleus, and plantaris muscles; and a deep, consisting of the muscles already enumerated as making up the author's third layer.—Tr.

<sup>2</sup> *Triceps Suræ Muscle*.—This name is given by the author to the gastrocnemius and soleus, considered as a single three-headed muscle. The name is not usually employed in England.—Tr.

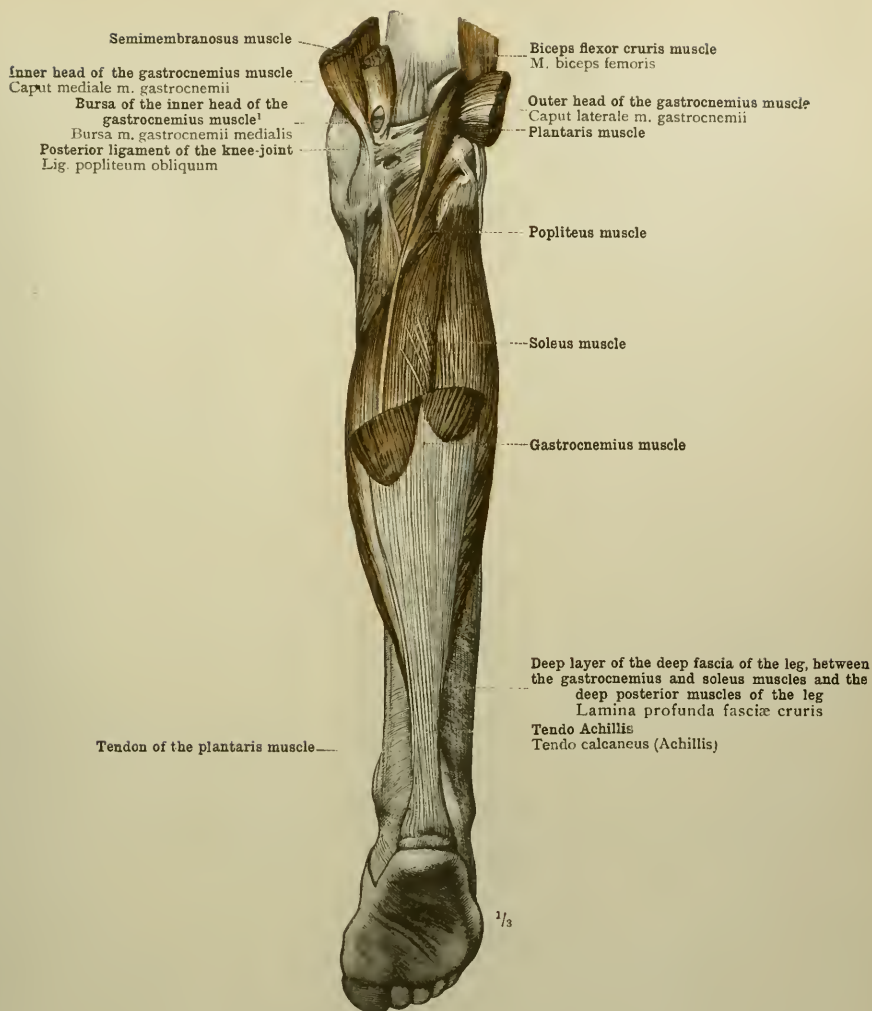


FIG. 618.—SUPERFICIAL GROUP OF THE POSTERIOR MUSCLES OF THE RIGHT LEG, SECOND PORTION (see note <sup>1</sup> to p. 368), AS SEEN AFTER THE REMOVAL OF THE TWO SUPERFICIAL HEADS OF THE \*TRICEPS SURÆ MUSCLE (*i.e.*, THE UPPER PART OF THE GASTROCNEMIUS MUSCLE): SOLEUS MUSCLE; PLANTARIS MUSCLE. TENDO ACHILLIS, THE COMMON TENDON OF THE THREE HEADS OF THE \*TRICEPS SURÆ MUSCLE (*i.e.*, THE TENDON FORMED BY THE UNION OF THE FLAT TENDONS OF THE GASTROCNEMIUS AND SOLEUS MUSCLES). OF THE DEEP GROUP OF POSTERIOR MUSCLES OF THE LEG, THE POPLITEUS MUSCLE IS PARTLY VISIBLE. DEEP LAYER OF THE DEEP FASCIA OF THE LEG, WHICH PASSES FROM SIDE TO SIDE BETWEEN THE SUPERFICIAL AND THE DEEP POSTERIOR MUSCLES OF THE LEG.

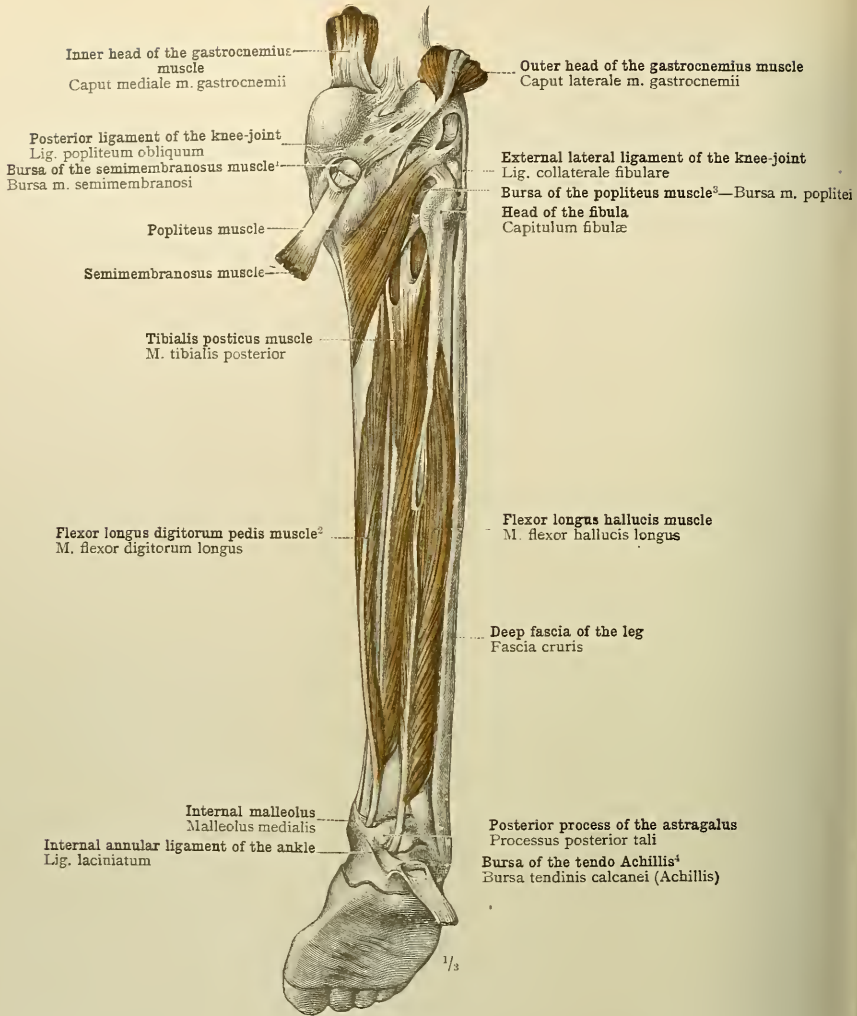
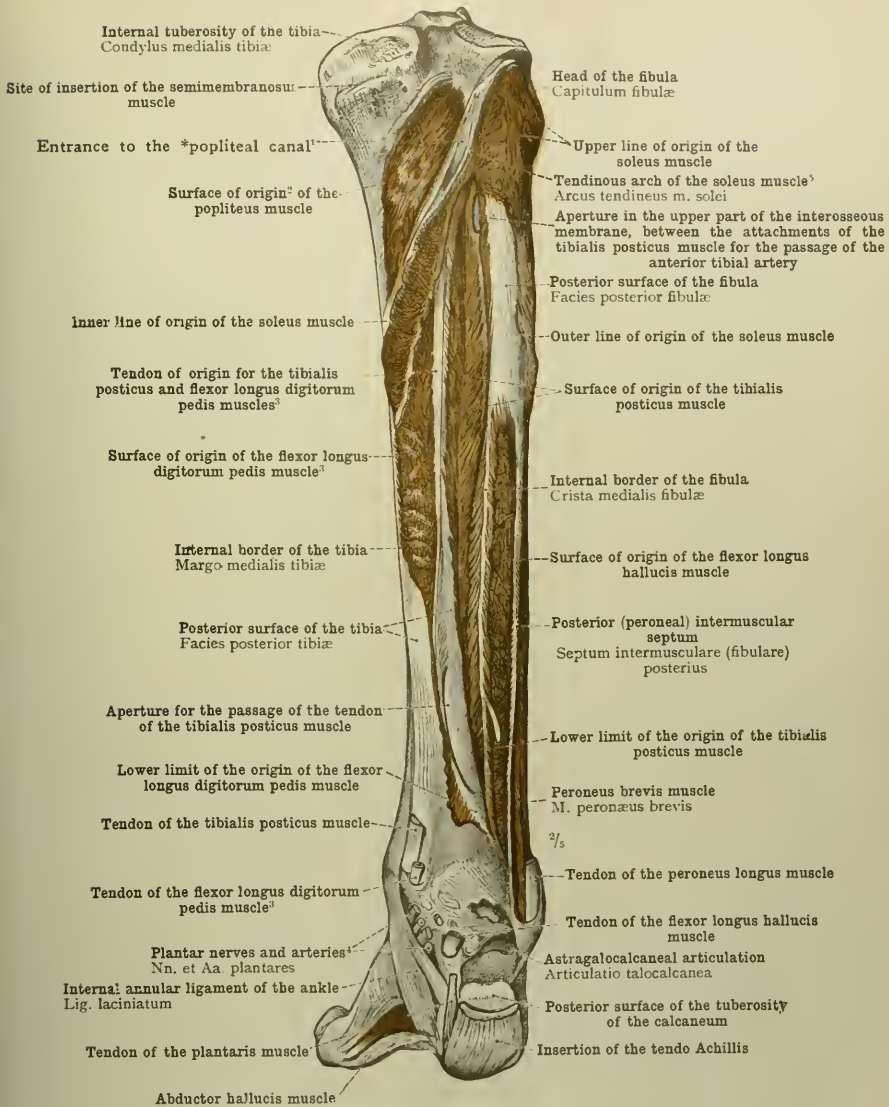
<sup>1</sup> See note 3 to p. 362.<sup>2</sup> Or *flexor perforans* muscle.<sup>3</sup> See note 2 to p. 363.<sup>4</sup> The bursa of the tendo Achillis is situated between that tendon and the upper part of the tuberosity of the calcaneum.—TR

FIG. 619.—DEEP GROUP OF THE POSTERIOR MUSCLES OF THE RIGHT LEG (see note <sup>1</sup> to p. 368), AS SEEN AFTER THE REMOVAL OF ALL THREE HEADS OF THE "TRICEPS SURÆ MUSCLE (THAT IS, OF THE GASTROCNEMIUS AND SOLEUS MUSCLE), THE PLANTARIS MUSCLE, AND THE DEEP LAYER OF THE DEEP FASCIA OF THE LEG, WHICH COVERS THE DEEP MUSCLES BENEATH THE GASTROCNEMIUS AND SOLEUS MUSCLES: FLEXOR LONGUS HALLUCIS MUSCLE; TIBIALIS POSTICUS MUSCLE; FLEXOR LONGUS DIGITORUM PEDIS MUSCLE (see note <sup>2</sup> above); POPLITEUS MUSCLE. BURSA OF THE TENDO ACHILLIS, BURSA OF THE POPLITEUS MUSCLE, BURSA OF THE SEMIMEMBRANOSUS MUSCLE.

In the region of the peronei muscles the deep fascia of the leg, with the posterior (peroneal) intermuscular septum, has been retained.



<sup>1</sup> See note 3 to p. 363.

<sup>2</sup> See note 2 to p. 366.

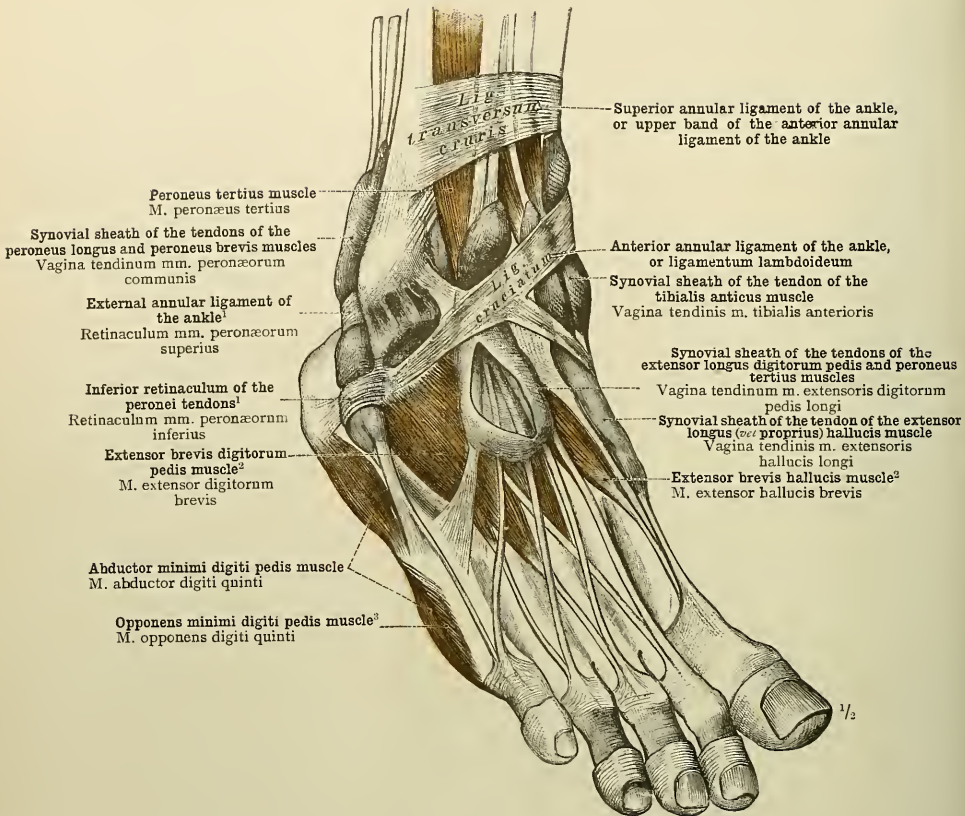
<sup>3</sup> Or *flexor perforans* muscle.

<sup>4</sup> It is unusual for the posterior tibial nerve and artery to divide into the external and internal plantar until they have passed beneath the internal annular ligament of the ankle.—Tr.

<sup>5</sup> See note 7 to p. 363.

FIG. 620.—SURFACES OF ORIGIN OF THE POSTERIOR MUSCLES OF THE LEG.





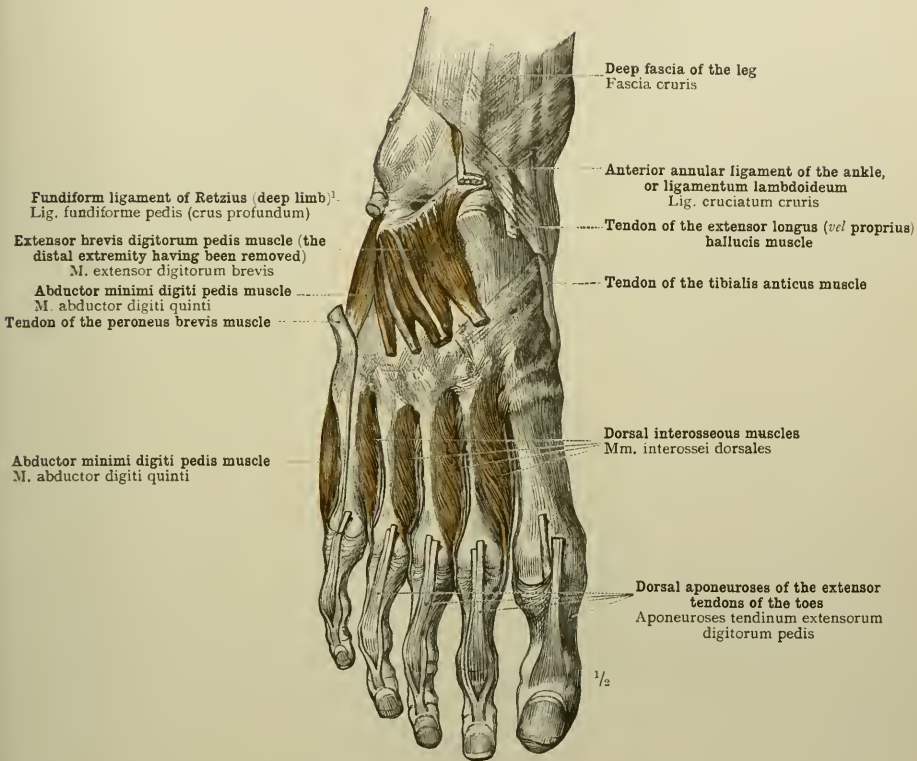
1 See note 1 to p. 364.

2 See note 2 to p. 364.

3 See note 3 to p. 364.

FIG. 621.—MUSCLES OF THE DORSUM AND OF THE OUTER BORDER OF THE FOOT: EXTENSOR BREVIS DIGITORUM MUSCLE (see note 2 to p. 364); EXTENSOR BREVIS HALLUCIS MUSCLE (see note 2 to p. 364); ABDUCTOR MINIMI DIGITI PEDIS MUSCLE; OPONENS MINIMI DIGITI PEDIS MUSCLE (see note 3 to p. 364). SYNOVIAL SHEATHS OF THE TENDONS ON THE DORSUM OF THE FOOT AND IN THE EXTERNAL RETROMALLEOLAR REGION, AS SEEN AFTER INJECTION WITH STRONG ALCOHOL. RETINACULA TENDINUM MUSCULORUM PERINEORUM, SUPERIUS ET INFERIUS (EXTERNAL ANNULAR LIGAMENT OF THE ANKLE AND INFERIOR RETINACULUM OF THE PERONEI TENDONS—see note 1 to p. 364). RIGHT FOOT.

Musculi pedis—Muscles of the foot.



\* See note 2 to p. 365 and note 4 to p. 367.

FIG. 622.—MUSCLES OF THE DORSUM OF THE FOOT, AFTER REMOVAL OF THE TENDONS OF THE LONG AND SHORT EXTENSORS OF THE TOES AND THE SUPERFICIAL LIMB OF THE FUNDIFORM LIGAMENT OF RETZIUS. PARTIAL ORIGIN OF THE EXTENSOR BREVIS DIGITORUM PEDIS MUSCLE FROM THE DEEP LIMB OF THE FUNDIFORM LIGAMENT OF RETZIUS. DORSAL INTEROSSEOUS MUSCLES. APONEUROTIC EXPANSIONS OF THE EXTENSOR TENDONS ON THE DORSAL SURFACE OF THE TOES. RIGHT FOOT.

Musculi pedis—Muscles of the foot.

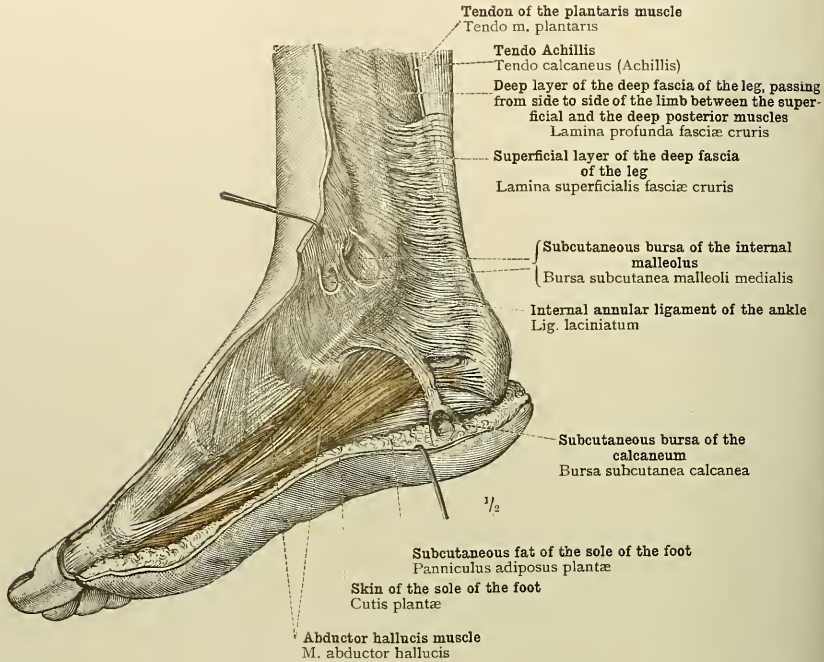


FIG. 623.—INTERNAL MALLEOLAR AND INTERNAL RETROMALLEOLAR REGIONS OF THE RIGHT FOOT, WITH THE SUPERFICIAL LAYER OF THE DEEP FASCIA OF THE LEG, THE INTERNAL ANNULAR LIGAMENT OF THE ANKLE, AND THE SUBCUTANEOUS BURSA OF THE INTERNAL MALLEOLUS. THE INNER BORDER OF THE FOOT WITH THE ABDUCTOR HALLUCIS MUSCLE. SUBCUTANEOUS BURSA OF THE CALCANEUM. SEEN FROM THE INNER SIDE.

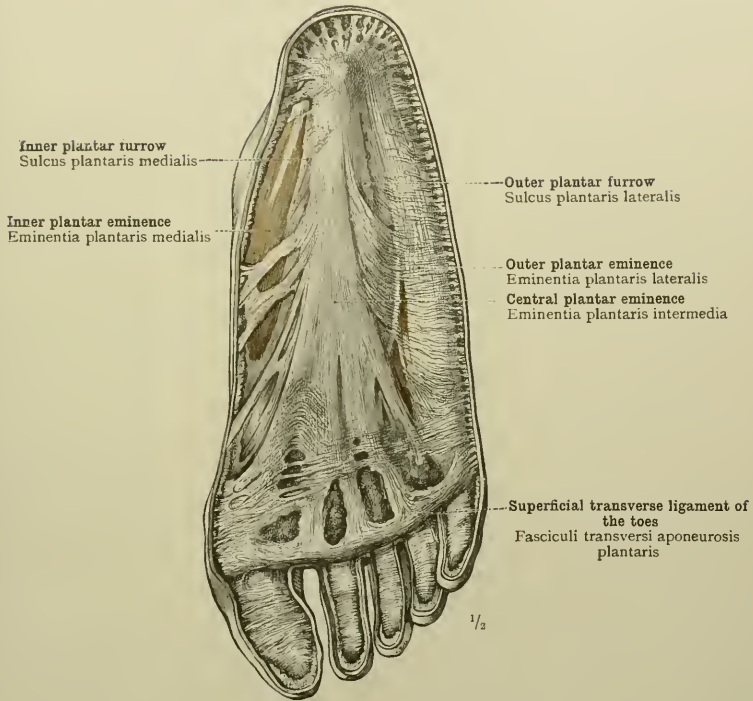
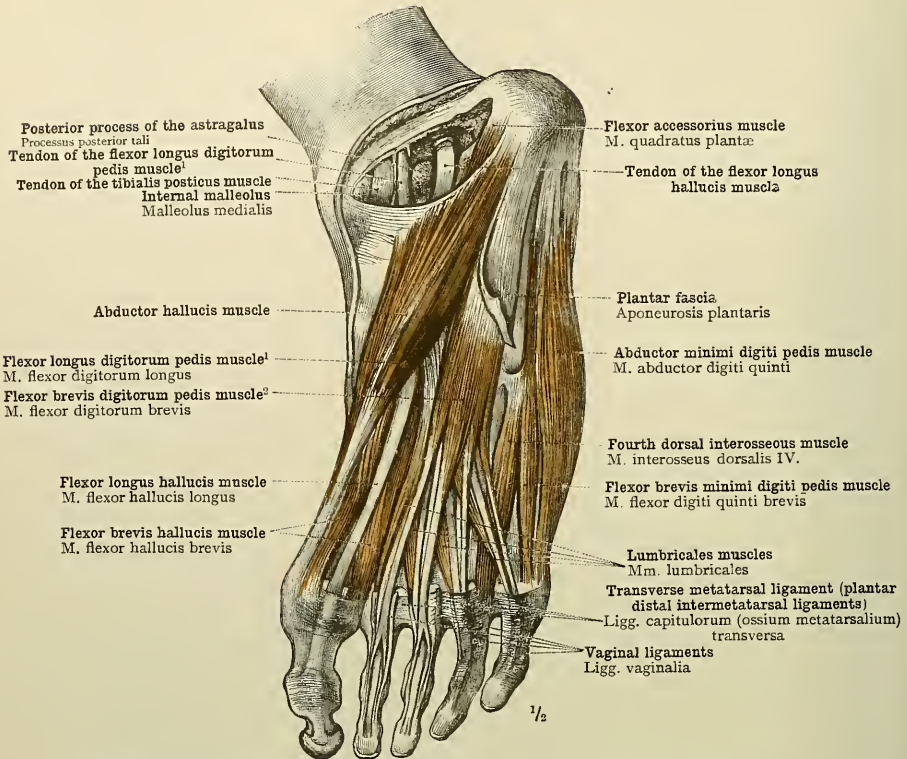


FIG. 624.—APONEUROSIS PLANTARIS, DEEP FASCIA OF THE SOLE, OR PLANTAR FASCIA, WITH THE SUPERFICIAL TRANSVERSE LIGAMENT OF THE TOES; THE FIBRES PASSING FROM THE PLANTAR FASCIA TO THE SKIN, AND THE PROCESSES TO THE DIGITAL SHEATHS; THE PLANTAR EMINENCES AND FURROWS (EMINENTIÆ PLANTARES ET SULCÆ PLANTARES) DEPENDENT ON THE DISPOSITION OF THE MUSCLES AND THE INTERMUSCULAR SEPTA. RIGHT FOOT.

Musculi pedis—Muscles of the foot.





<sup>1</sup> Or *flexor perforans* muscle.

<sup>2</sup> Or *flexor perforatus* muscle.

<sup>3</sup> Like the author, English anatomists group the muscles of the sole in four layers, but the two classifications are not entirely identical. That of the author is given in the description at the foot of Figs. 625 to 628. According to English anatomists, the *first* or superficial layer consists of the flexor digitorum (or flexor perforatus), abductor hallucis and abductor minimi digiti muscles; the *second* layer consists of the tendons of the flexor longus digitorum (or flexor perforans) and flexor longus hallucis muscles, together with the flexor accessorius and lumbricales muscles; the *third* layer consists of the flexor brevis hallucis, abductor obliquus hallucis, abductor transversus hallucis, and flexor brevis minimi digiti muscles; and the *fourth* layer consists of the dorsal and plantar interosseous muscles, together with the tendons of the tibialis posticus and peroneus longus muscles.—T.R.

FIG. 625.—FIRST OR SUPERFICIAL LAYER OF THE MUSCLES OF THE SOLE (see note <sup>3</sup> above), UPON WHICH THE THREE PLANTAR EMINENCES DEPEND, AS SEEN AFTER REMOVAL OF THE PLANTAR FASCIA. OF THIS LATTER, THE MIDDLE PORTION ONLY AT THE BACK OF THE SOLE HAS BEEN RETAINED, IN SO FAR AS IT GIVES ORIGIN TO THE MUSCLES. ABDUCTOR HALLUCIS MUSCLE; FLEXOR BREVIS HALLUCIS MUSCLE; FLEXOR BREVIS DIGITORUM PEDIS MUSCLE (see note <sup>2</sup> above); FLEXOR BREVIS MINIMI DIGITI PEDIS MUSCLE; ABDUCTOR MINIMI DIGITI PEDIS MUSCLE. RIGHT FOOT, EXTENDED. PLANTAR ASPECT.

The sheath of the flexor tendons of the toes (vaginal ligament) has been opened longitudinally in the second and third toes, but in the others has been left intact.

Musculi pedis—Muscles of the foot.

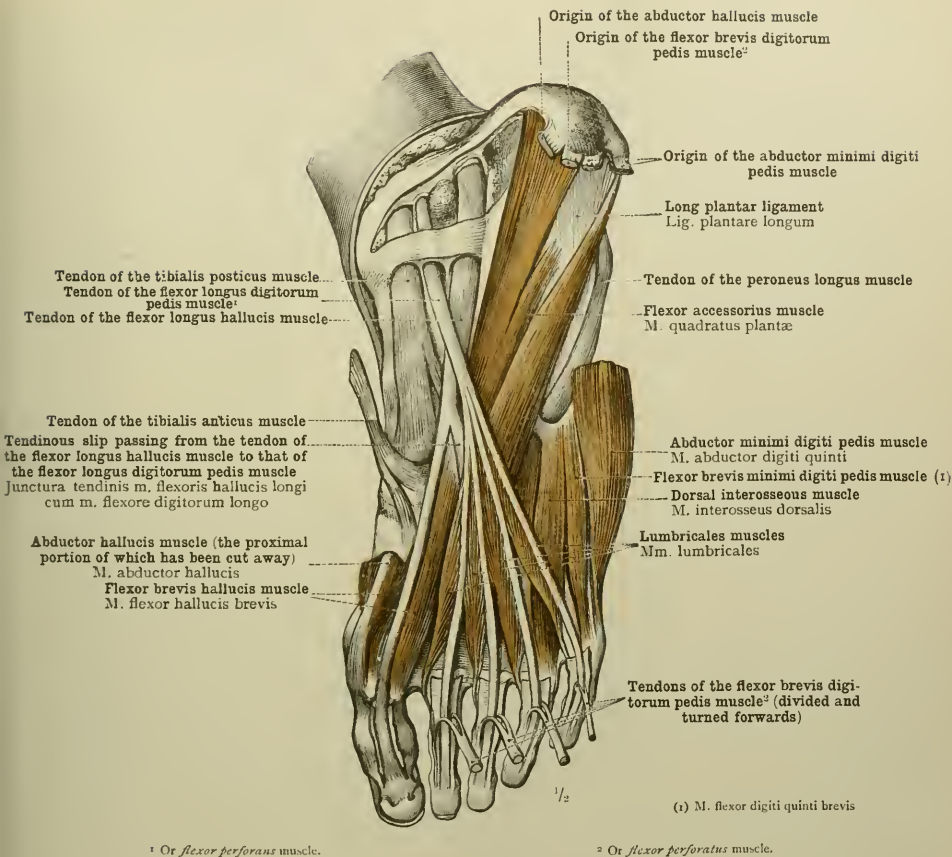
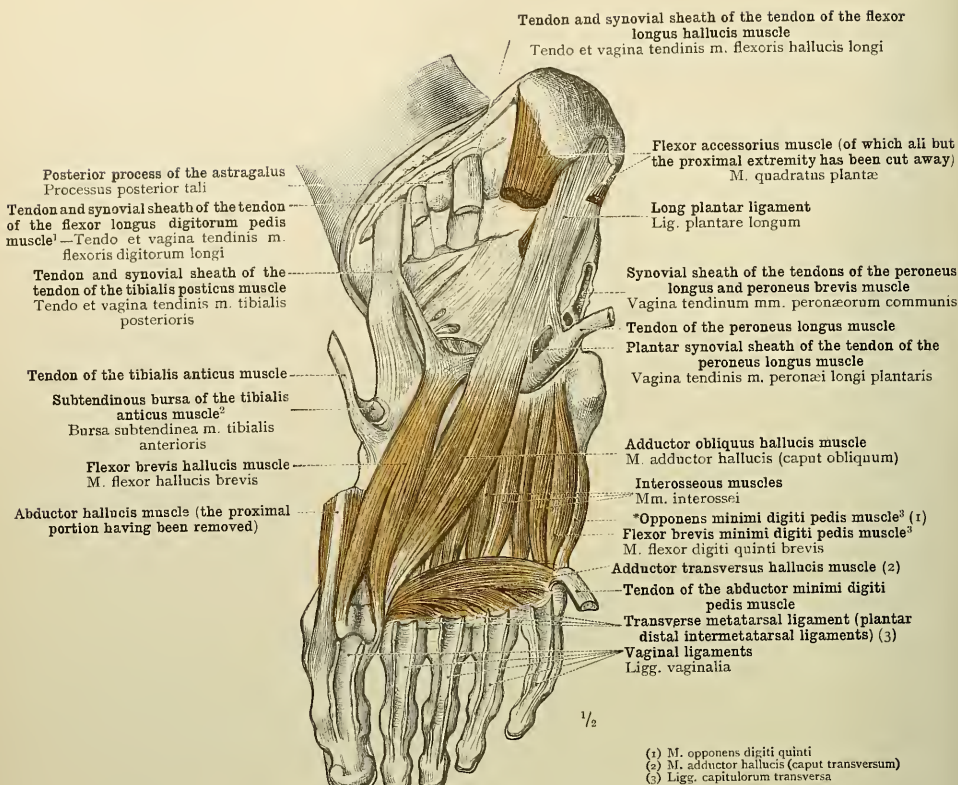


FIG. 626.—SECOND LAYER OF THE MUSCLES OF THE SOLE WITH THE TENDONS OF THE DEEP POSTERIOR MUSCLES OF THE LEG, AS SEEN AFTER THE PARTIAL REMOVAL OF THE MUSCLES OF THE FIRST LAYER: TENDON OF THE FLEXOR LONGUS DIGITORUM PEDIS MUSCLE (see note <sup>1</sup> above) AND ITS DIVISION INTO FOUR TENDONS PASSING TO THE FOUR SMALLER TOES; FLEXOR ACCESSORIUS (QUADRATUS PLANTÆ) AND LUMBRICALES MUSCLES; TENDON OF THE FLEXOR LONGUS HALLUCIS MUSCLE AND ITS SLIP TO THE TENDON OF THE FLEXOR LONGUS DIGITORUM PEDIS MUSCLE; INSERTION OF THE TIBIALIS ANTICUS AND TIBIALIS POSTICUS MUSCLES; FLEXOR BREVIS HALLUCIS MUSCLE; FLEXOR BREVIS MINIMI DIGITI PEDIS MUSCLE. RIGHT FOOT.



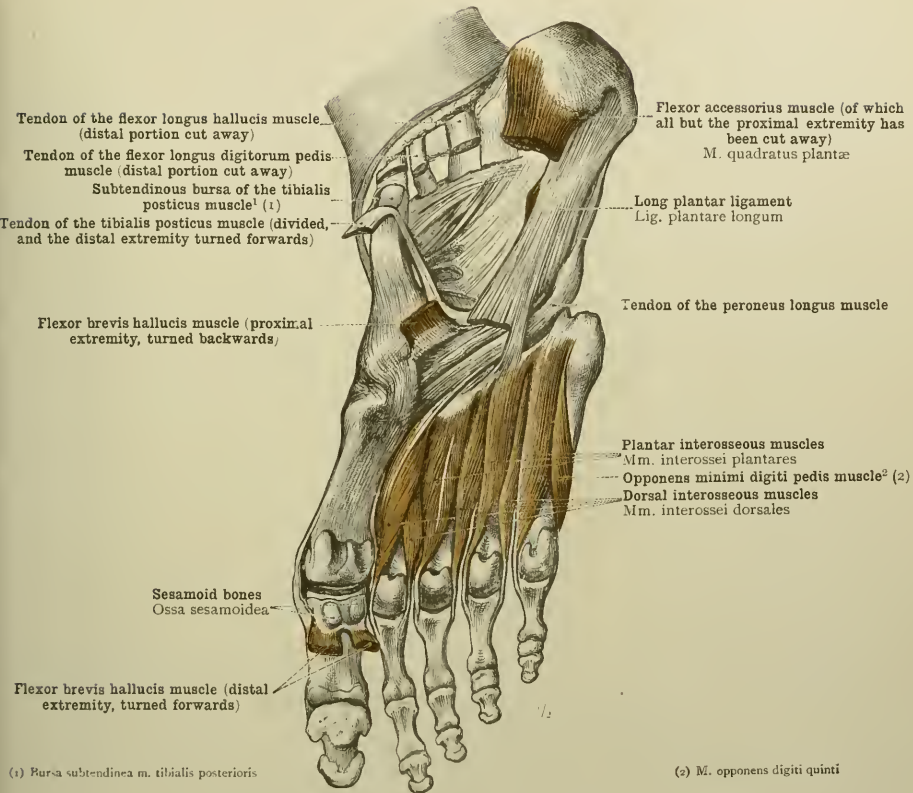
<sup>1</sup> Or *flexor perforans* muscle.

<sup>2</sup> The subtendinous bursa of the *tibialis anticus* muscle is situate beneath the tendon close to its insertion.—Tr.

<sup>3</sup> See note 3 to p. 364.

FIG. 627.—THIRD LAYER OF THE MUSCLES OF THE SOLE: M. ADDUCTOR HALLUCIS, CAPUT OBLIQUUM ET CAPUT TRANSVERSUM, OR, ACCORDING TO ENGLISH ANATOMISTS, ADDUCTOR OBLIQUUS HALLUCIS AND ADDUCTOR TRANSVERSUS HALLUCIS MUSCLES; FLEXOR BREVIS HALLUCIS MUSCLE; FLEXOR BREVIS MINIMI DIGITI PEDIS AND OPONENS MINIMI DIGITI PEDIS MUSCLES (see note <sup>3</sup> to p. 364). SYNOVIAL SHEATHS OF THE TENDONS OF THE TIBIALIS POSTICUS, FLEXOR LONGUS DIGITORUM PEDIS, FLEXOR LONGUS HALLUCIS, AND PERONEUS LONGUS MUSCLES. SUBTENDINOUS BURSA OF THE TIBIALIS ANTICUS MUSCLE. RIGHT FOOT.

The vaginal ligaments of the toes have been opened, and their connexion with the transverse metatarsal ligament (plantar distal intermetatarsal ligaments) is displayed.



<sup>1</sup> The subtendinous bursa of the tibialis posticus muscle is situate beneath the tendon close to its insertion.—Tr.  
<sup>2</sup> See note 1 to p. 354.

FIG. 628.—FOURTH OR DEEPEST LAYER OF THE MUSCLES OF THE SOLE, AS SEEN AFTER THE REMOVAL OF THE FLEXOR BREVIS HALLUCIS, ADDUCTOR OBLIQUUS HALLUCIS, ADDUCTOR TRANSVERSUS HALLUCIS, AND FLEXOR BREVIS MINIMI DIGITI PEDIS MUSCLES: PLANTAR AND DORSAL INTEROSSEOUS MUSCLES. RELATION OF THE INSERTION OF THE TWO BELLIES OF THE FLEXOR BREVIS HALLUCIS MUSCLE TO THE SESAMOID BONES ON THE PLANTAR SURFACE OF THE METATARSOPHALANGEAL ARTICULATION OF THE GREAT TOE. SUBTENDINOUS BURSA OF THE TIBIALIS POSTICUS MUSCLES. RIGHT FOOT.

In order to demonstrate the course of the tendon of the peroneus longus muscle through the sole of the foot and the insertion of this tendon into the outer side of the tuberosity of the first metatarsal bone, the anterior portions of the long plantar ligament have been removed.



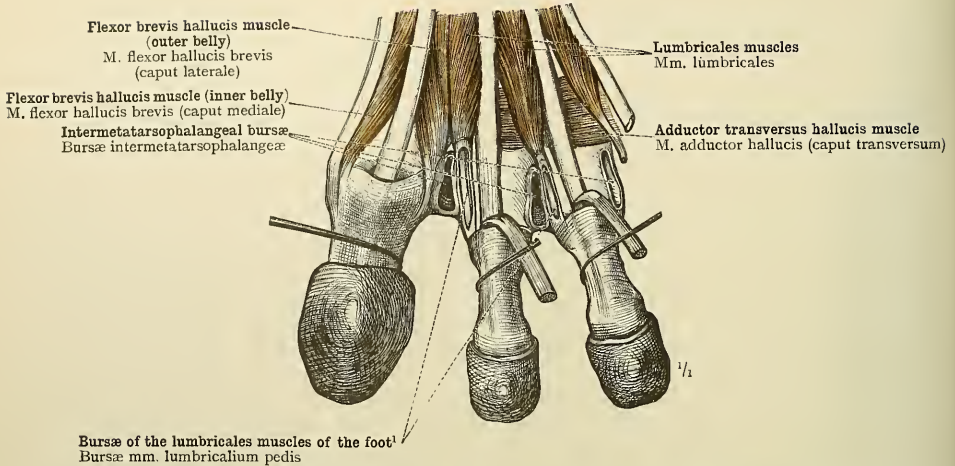
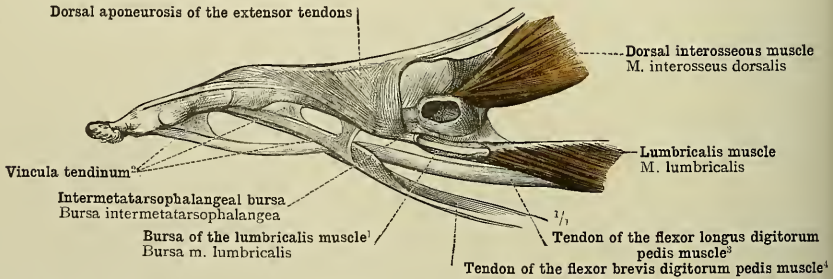


FIG. 629.—BURSÆ OF THE LUMBRICALES MUSCLES OF THE FOOT AND INTERMETATARSOPHALAN-GEAL BURSÆ, AS SEEN FROM THE PLANTAR SURFACE. THE BURSÆ HAVE BEEN OPENED. FIRST THREE TOES OF THE RIGHT FOOT, WIDELY SEPARATED.



<sup>1</sup> The bursæ of the lumbricales muscles of the foot are situate between the tendons of the lumbricales muscles and the bases of the proximal phalanges.—Tr.  
<sup>2</sup> The arrangement of the flexor tendons of the toes, with their vincula, closely resembles that of the flexor tendons of the fingers. See Fig. 580 on p. 334, and note <sup>1</sup> on that page.—Tr.  
<sup>3</sup> Or flexor perforans muscle.  
<sup>4</sup> Or flexor perforatus muscle.

FIG. 630.—DISTAL EXTREMITIES OF THE EXTENSOR AND FLEXOR TENDONS OF THE SECOND TOE OF THE RIGHT FOOT, SEEN FROM THE INNER SIDE. DORSAL APONEUROSIS OF THE EXTENSOR TENDONS. BURSA OF THE LUMBRICALIS MUSCLE OF THE FOOT AND INTERMETATARSOPHALAN-GEAL BURSA. VINCULA TENDINUM.

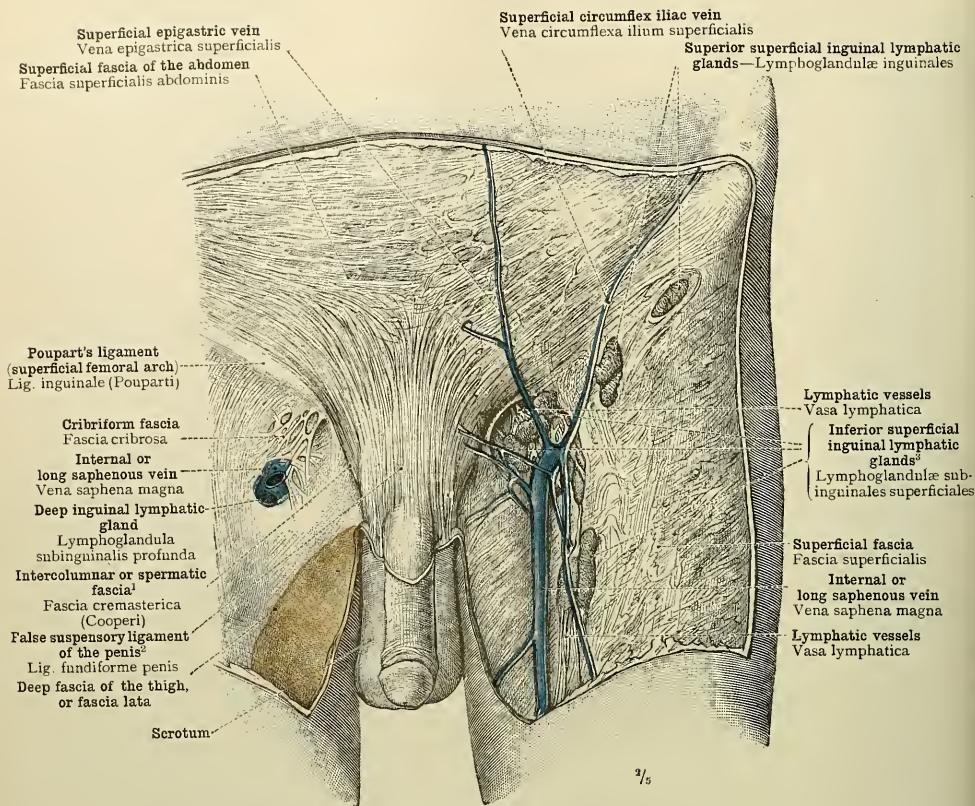
Musculi pedis—Muscles of the foot.

SUPPLEMENT TO THE MYOLOGY

CANALIS INGUINALIS,  
THE INGUINAL CANAL,

AND

CANALIS FEMORALIS,  
THE FEMORAL OR CRURAL CANAL



<sup>1</sup> *Fascia Cremasterica (Cooperi)*.—This is not the cremasteric fascia of English anatomists, nor is it the fascia propria of Astley Cooper, but the intercolumnar or spermatic fascia. See note <sup>4</sup> to p. 501 in Part IV.—Tr.

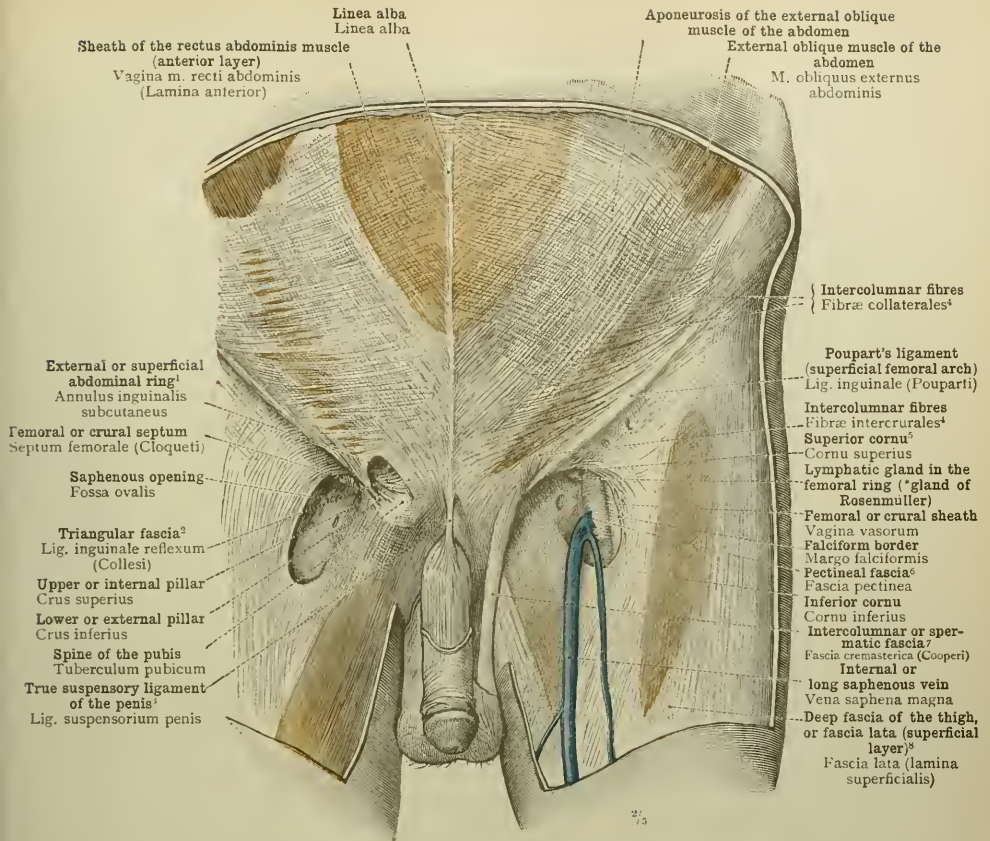
<sup>2</sup> The suspensory ligament of the penis consists of two parts: a superficial, the false suspensory ligament; and a deep, the true suspensory ligament. The former, called by the author *ligamentum fundiforme penis*, when artificially separated from the fascia of the abdomen and the dorsum of the penis (of which it forms a part), is a flattened piece of connective tissue with edges directed laterally and the surfaces directed forwards and backwards, respectively. The latter, called by the author *ligamentum suspensorium penis*, when dissected out, has an anterior free edge, a postero-superior edge attached to the front of the pubic symphysis, and a postero-inferior edge attached to the dorsum of the penis, whilst its surfaces look to right and to left (see Fig. 632). The false suspensory ligament contains many yellow elastic fibres; the true consists of white fibres only.—Tr.

<sup>3</sup> Often called the femoral lymphatic glands.

FIG. 631.—SUPERFICIAL FASCIA OF THE ANTERIOR WALL OF THE ABDOMEN, WITH THE FALSE SUSPENSORY LIGAMENT OF THE PENIS (LIGAMENTUM FUNDIFORME PENIS) AND THE CREMASTERIC FASCIA (FASCIA CREMASTERICA COOPERI) COVERING THE SPERMATIC CORD. IN THE PORTION OF THE LEFT THIGH FROM WHICH THE SKIN HAS BEEN REMOVED WE SEE THE SUPERFICIAL FASCIA WITH THE SUPERFICIAL INGUINAL AND FEMORAL LYMPHATIC GLANDS AND THE SUBCUTANEOUS VEINS. IN THE RIGHT THIGH THE SUPERFICIAL FASCIA, THE SUPERFICIAL LYMPHATIC GLANDS, AND THE SUBCUTANEOUS VEINS, HAVE BEEN REMOVED, AND THE FASCIA LATA AND THE CRIBRIFORM FASCIA ARE LAID BARE.

Subcutaneous Structures of the Hypogastric and Inguinal Regions.





<sup>1</sup> Or external inguinal aperture.

<sup>2</sup> The *triangular fascia*, or *ligamentum inguinale reflexum Collesi*, consists of some of the fibres of Gimbernat's ligament and of the outer pillar of the external abdominal ring which pass upwards and inwards beneath the spermatic cord in front of, and incorporated with, the anterior layer of the sheath of the rectus abdominis muscle to reach the middle line, where they interlace with the fibres of the opposite side. The development of this fascia is variable, being inversely proportional to that of the pyramidalis muscle, of the sheath of which it forms a specialized part.—1R.

<sup>3</sup> See note <sup>2</sup> to p. 382.

<sup>4</sup> *Intercolumnar fibres*.—The author distinguishes the lower *intercolumnar fibres*, those which cross the gap between the pillars of the external or superficial abdominal ring, as *fibræ intercrurales*; whilst those *intercolumnar fibres* which are situate entirely above the ring, he calls *fibræ collaterales*.

<sup>5</sup> See note <sup>1</sup> to p. 349.

<sup>6</sup> Or *pubic portion of the fascia lata*.

<sup>7</sup> See note <sup>1</sup> to p. 382.

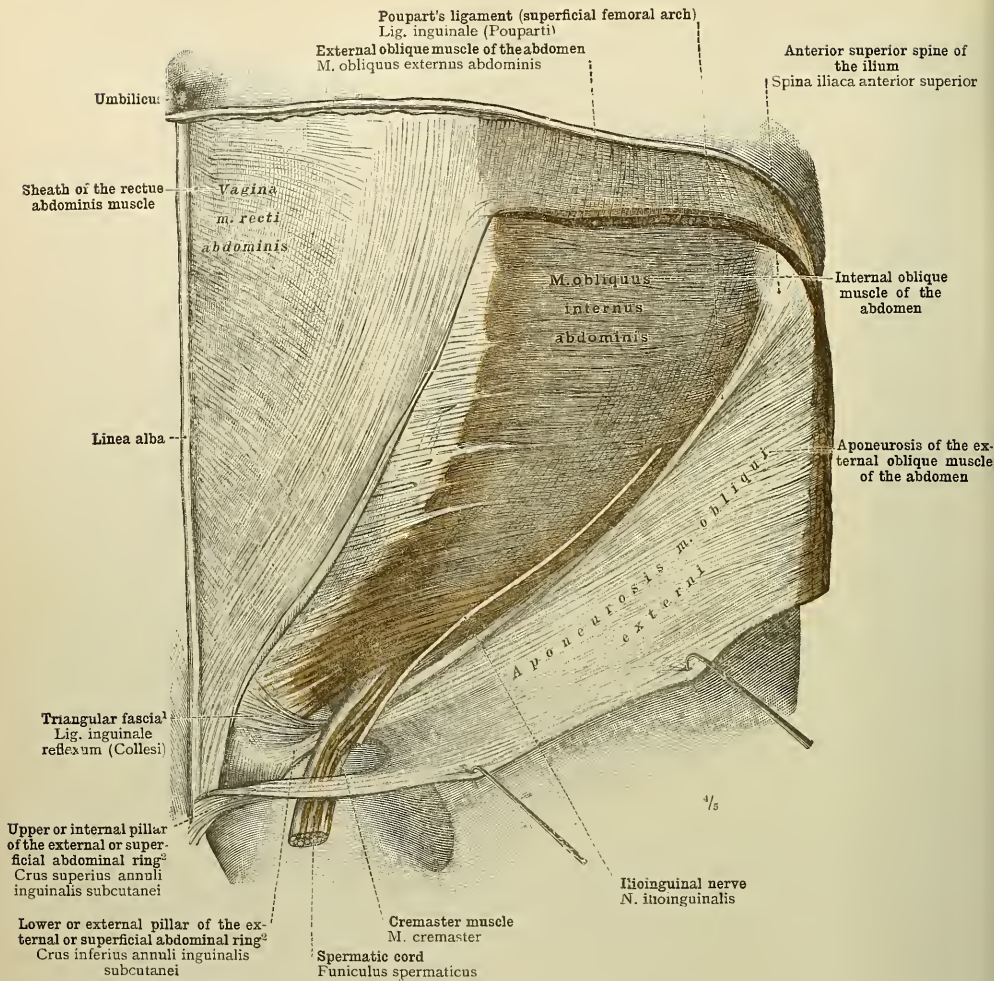
<sup>8</sup> See note <sup>2</sup> to p. 349.

FIG. 632.—IN THE HYPOGASTRIC REGION, BY THE REMOVAL OF THE SUPERFICIAL FASCIA, THE APONEUROSIS OF THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN AND THE ANTERIOR LAYER OF THE SHEATH OF THE RECTUS ABDOMINIS MUSCLE HAVE BEEN LAID BARE. IN THE INGUINAL REGION, ON THE RIGHT SIDE OF THE BODY, WE SEE THE EXTERNAL OR SUPERFICIAL ABDOMINAL RING (EXTERNAL INGUINAL APERTURE) WITH ITS TWO PILLARS, UPPER OR INTERNAL, AND LOWER OR EXTERNAL, RESPECTIVELY, WHICH ARE FULLY DISPLAYED BY THE REMOVAL OF THE SPERMATIC CORD; ON THE LEFT SIDE, ON THE OTHER HAND, THE SPERMATIC CORD WITH ITS COVERINGS HAS BEEN LEFT INTACT, AND THE EXTERNAL ABDOMINAL RING IS, CONSEQUENTLY, CLOSED. IN THE SUBINGUINAL REGION, THE CRIBRIFORM FASCIA HAVING BEEN REMOVED, THE SAPHENOUS OPENING (FOSSA OVALIS), FEMORAL APERTURE OF THE FEMORAL OR CRURAL CANAL) IS LAID BARE, WITH ITS FALCIFORM BORDER AND SUPERIOR AND INFERIOR CORNUA, ON THE LEFT SIDE ALSO WITH THE INTERNAL OR LONG SAPHENOUS VEIN AND THE FEMORAL OR CRURAL SHEATH, WHILST ON THE RIGHT SIDE THE FEMORAL ARTERY AND VEIN HAVE BEEN REMOVED.

The relation of the external abdominal ring to the spermatic cord and to the saphenous opening is to be noted.

Annulus inguinalis subcutaneus—External or superficial abdominal ring.  
Fossa ovalis—Saphenous opening.





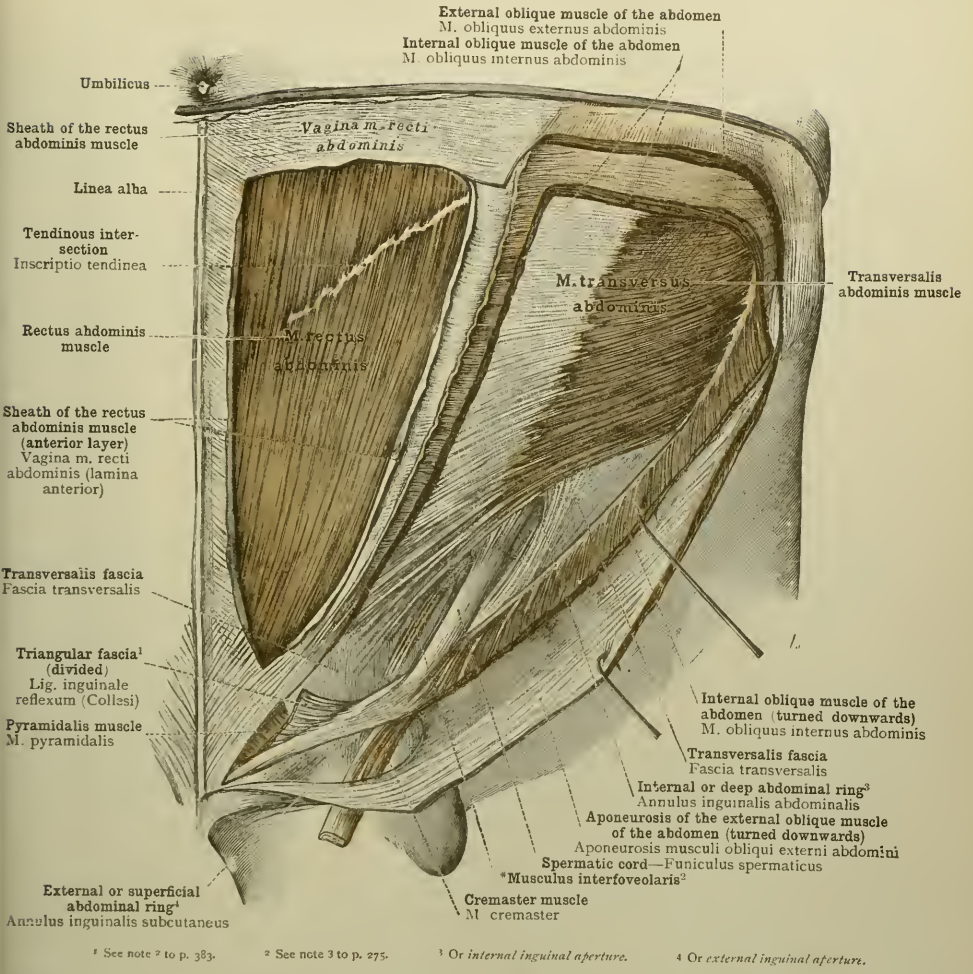
<sup>1</sup> See note <sup>2</sup> to p. 383.

<sup>2</sup> Or external inguinal aperture.

FIG. 633.—INNER PORTION OF THE LEFT INGUINAL CANAL, FROM THE EXTERNAL OR SUPERFICIAL ABDOMINAL RING (EXTERNAL INGUINAL APERTURE) TO THE APERTURE FOR THE SPERMATIC CORD IN THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN, DISPLAYED BY THE REMOVAL OF A PORTION OF THE EXTERNAL OBLIQUE MUSCLE OF THE ABDOMEN. CONTINUITY OF THE CREMASTER MUSCLE WITH THE LOWERMOST FASCICULI OF THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN. TRIANGULAR FASCIA, OR LIGAMENTUM INGUINALE REFLEXUM (COLLESI).

The lower part of the aponeurosis of the external oblique muscle of the abdomen, together with the upper or internal pillar of the external abdominal ring, has been turned downwards.

Canalis inguinalis—Inguinal canal.



<sup>1</sup> See note <sup>2</sup> to p. 383.

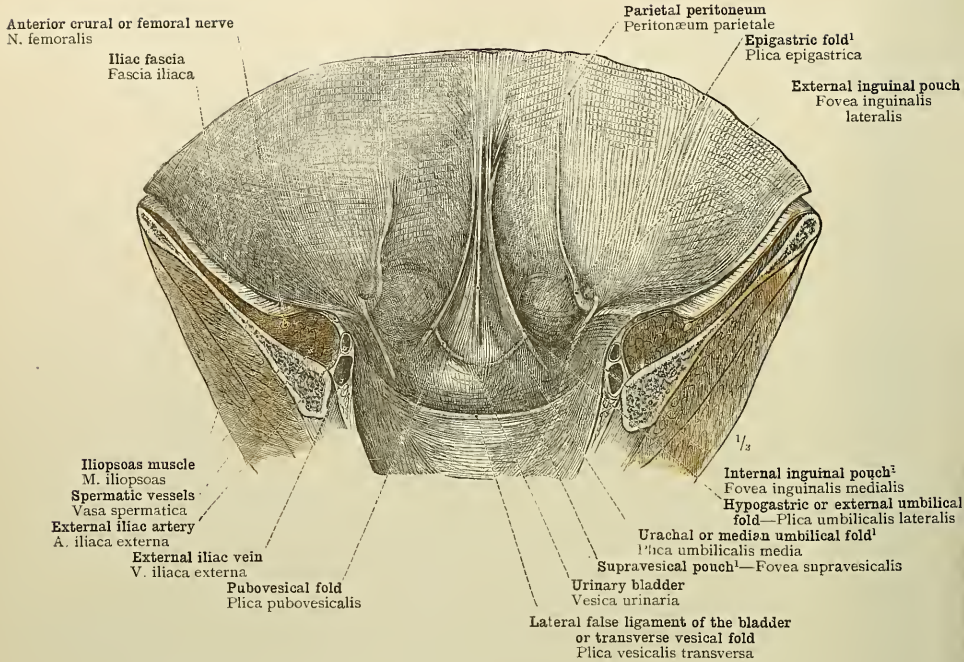
<sup>2</sup> See note 3 to p. 275.

<sup>3</sup> Or internal inguinal aperture.

<sup>4</sup> Or external inguinal aperture.

FIG. 634.—OUTER PORTION OF THE LEFT INGUINAL CANAL, FROM THE APERTURE FOR THE SPERMATIC CORD IN THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN TO THE INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE), DISPLAYED BY THE REMOVAL OF A PORTION OF THE INTERNAL OBLIQUE MUSCLE OF THE ABDOMEN. MUSCULUS INTERFOVEOLARIS (see note <sup>3</sup> to p. 275), THE FIBRES OF WHICH LIE IN FRONT OF THE LIGAMENTUM INTERFOVEOLARE OR LIGAMENT OF HESSELBACH (see note <sup>1</sup> to p. 387), WHICH IS ITSELF NOT DEFINED IN THE FIGURE.

Canalis inguinalis—Inguinal canal.



<sup>1</sup> By some authorities the space between the urachal fold and the hypogastric fold (called here *supravesical pouch*) is termed *internal inguinal pouch*; and the space between the hypogastric fold and the epigastric fold (called here *external inguinal pouch*) is termed *middle inguinal pouch*. The author's nomenclature is to be preferred. The epigastric fold, on the outer side, and a line drawn on the inner surface of the anterior abdominal wall corresponding to the outer margin of the rectus abdominis muscle, on the inner side, form the sides, while Poupart's ligament forms the base, of a triangular space, usually called the *triangle of Hesslbach*, through which a direct inguinal hernia passes.—Tr.

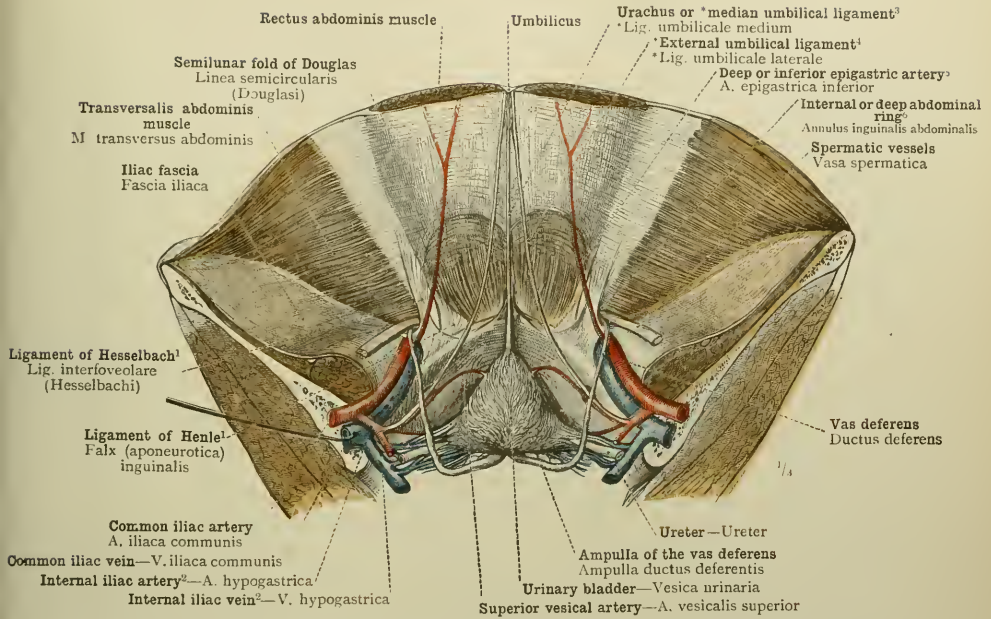
<sup>2</sup> Also called the *superior false ligament*, or *suspensory ligament*, of the bladder.

FIG. 635.—LOWER PORTION OF THE ANTERIOR WALL OF THE ABDOMEN SEEN FROM BEHIND, SHOWING THE PARIETAL PERITONEUM WITH ITS FOLDS AND POUCHES: PLICA UMBILICALIS LATERALIS, THE HYPOGASTRIC OR EXTERNAL UMBILICAL FOLD; PLICA UMBILICALIS MEDIA, THE URACHAL OR MEDIUM UMBILICAL FOLD (see note <sup>2</sup> above); PLICA EPIGASTRICA, THE EPIGASTRIC FOLD. FOVEÆ INGUINALES, LATERALIS ET MEDIA, THE EXTERNAL AND INTERNAL INGUINAL POUCHES; FOVEA SUPRAVESICALIS, THE SUPRAVESICAL POUCH. PLICA VESICALIS TRANSVERSA, THE LATERAL FALSE LIGAMENT OF THE BLADDER OR TRANSVERSE VESICAL FOLD. PLICÆ PUBOVESICALES, THE PUBOVESICAL FOLDS.

(Coronal section through the lower part of the trunk.)

Plicæ umbilicales—The umbilical folds.—Foveæ inguinales—The inguinal pouches.



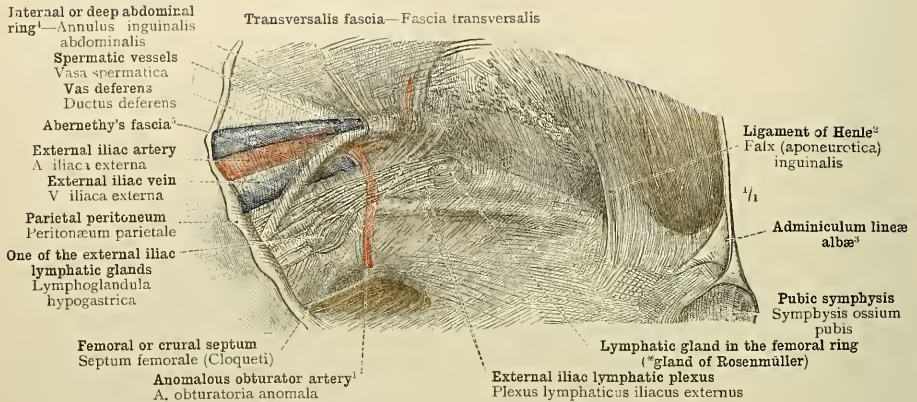


<sup>1</sup> The conjoined tendon of the internal oblique muscle of the abdomen and the transversalis abdominis muscle is often divided, or can be readily divided by dissection, into two parts. The outer of these is called the *ligament of Hesselbach*, or *ligamentum interfoveolare*, and the inner is known as the *ligament of Henle*, or *falx inguinalis*.—Tr.  
<sup>2</sup> The *internal iliac artery and vein* are in the Continental nomenclature known as *hypogastric artery and vein* respectively.—Tr.  
<sup>3</sup> The *median umbilical ligament* consists of a fibrous cord, the *urachus*, extending from the apex of the bladder to the umbilicus, and, when covered by peritoneum, constitutes the *urachal or median umbilical fold*. See Fig. 635, p. 386.—Tr.  
<sup>4</sup> The *external umbilical ligament* consists of a fibrous cord, the remains of the obliterated hypogastric artery, extending from the superior vesical artery (close to its origin from the internal iliac artery) near the side of the bladder and along the anterior wall of the abdomen to the umbilicus, and, when covered by peritoneum, constitutes the *hypogastric or external umbilical fold*. See Fig. 635, p. 386.—Tr.  
<sup>5</sup> The *deep or inferior epigastric artery* extends from the external iliac artery along the anterior wall of the abdomen, external to and parallel with the obliterated hypogastric artery, and, when covered with peritoneum, constitutes the *epigastric fold*. See Fig. 635, p. 386.—Tr.  
<sup>6</sup> Or *internal inguinal aperture*.

FIG. 636.—LOWER PORTION OF THE ANTERIOR WALL OF THE ABDOMEN AND THE ANTERIOR WALL OF THE PELVIS, WITH THE URINARY BLADDER, SEEN FROM BEHIND, THE PARIETAL PERITONEUM AND THE TRANSVERSALIS FASCIA HAVING BEEN REMOVED. LIGAMENT OF HESSELBACH (LIGAMENTUM INTERFOVEOLARE); \*MEDIAN (see note <sup>3</sup> above) and \*EXTERNAL (see note <sup>4</sup> above) UMBILICAL LIGAMENTS; DEEP OR INFERIOR EPIGASTRIC ARTERY. INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE). LIGAMENT OF HENLE (FALX APONEUROTICA INGUINALIS). VAS DEFERENS.

\*Ligamenta umoilcalia—\*Umbilical ligaments.





<sup>1</sup> *Anomalous Obturator Artery*.—The normal origin of the obturator artery is from the internal iliac artery, and it sends an anastomotic branch to the deep epigastric artery; but quite frequently this anastomotic branch becomes the main trunk, so that the obturator artery arises, as here, from the external iliac in common with the deep epigastric. When the anomalous obturator artery takes the course shown in the figure, directly downwards across the internal iliac vein to reach the obturator canal, the anomaly is of little practical importance; but in some cases (once in fifty-eight bodies, and more often in males than females) the anomalous obturator artery courses first inwards, and then arches backwards on the inner side of the femoral ring, so that it is in danger of being cut when dividing the stricture in cases of strangulated femoral hernia.—Tr.

<sup>2</sup> See note <sup>1</sup> to p. 387.

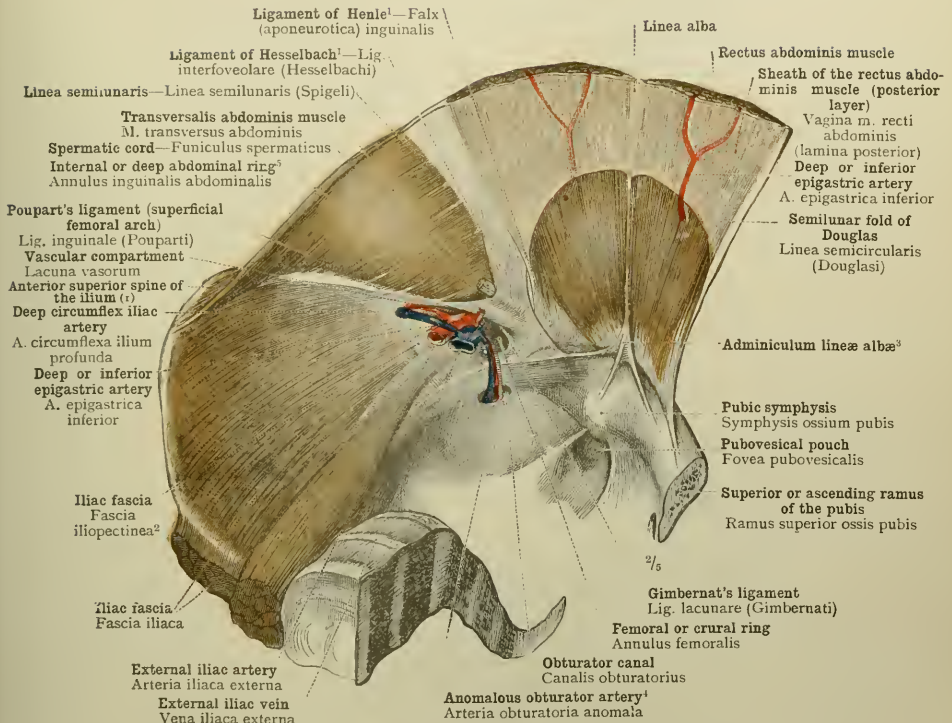
<sup>3</sup> *Admiriculum Lineæ Albæ*.—This name is given to the triangular expansion which spreads out to the right and the left of the lower end of the linea alba, by means of which expansion the linea alba is attached on each side to the crest of the pubis behind the outer head of the rectus abdominis muscle.—Tr.

<sup>4</sup> Or *internal inguinal aperture*.

<sup>5</sup> The fascia covering the external iliac vessels is known as *Abernethy's fascia*.—Tr.

FIG. 637.—REGION OF THE INGUINAL POUCHES, FOVÆ INGUINALES, AS SEEN AFTER THE PARIETAL PERITONEUM HAS BEEN STRIPPED FROM THE ABDOMINAL WALL. LEFT SIDE OF THE BODY. RELATION OF THE TRANSVERSALIS FASCIA TO THE INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE) AND TO THE FEMORAL OR CRURAL RING. CONNEXION OF THE TRANSVERSALIS FASCIA WITH THE SHEATH OF THE EXTERNAL ILIAC ARTERY AND VEIN (see note <sup>5</sup> above); SEPTUM FEMORALE (CLOQUETI), THE FEMORAL OR CRURAL SEPTUM. PROLONGATION OF THE TRANSVERSALIS FASCIA FROM THE INTERNAL ABDOMINAL RING ON TO THE SPERMATIC VESSELS AND THE VAS DEFERENS (INFUNDIBULIFORM FASCIA). RELATIONS OF THE EXTERNAL ILIAC LYMPHATIC PLEXUS AND OF THE \*LYMPHATIC GLAND OF ROSENMÜLLER TO THE FEMORAL (OR CRURAL) RING, OCCLUDED BY THE FEMORAL (OR CRURAL) SEPTUM.

Abdominal Apertures of the Inguinal and Femoral Canals.



<sup>1</sup> See note 4 to p. 387.

<sup>2</sup> See note 4 to p. 388.

<sup>3</sup> See note 1 to p. 390.

<sup>4</sup> See note 3 to p. 388.

<sup>5</sup> Or internal inguinal aperture.

FIG. 638.—ANNULUS INGUINALIS ABDOMINALIS, INTERNAL OR DEEP ABDOMINAL RING (INTERNAL INGUINAL APERTURE), AND ANNULUS FEMORALIS, FEMORAL OR CRURAL RING, LAID BARE ON THE LEFT SIDE OF THE BODY BY THE REMOVAL OF THE PARIETAL PERITONEUM AND THE TRANSVERSALIS FASCIA; SEEN FROM BEHIND. LIGAMENTUM INTERFOVEOLARE (HESSELBACHI), LIGAMENT OF HESSELBACH, AND FALX (APONEUROTICA) INGUINALIS, LIGAMENT OF HENLE. RELATION OF THE OBTURATOR ARTERY, WHICH IN THIS INSTANCE ARISES FROM THE DEEP EPIGASTRIC ARTERY, TO THE FEMORAL OR CRURAL RING.

Abdominal Apertures of the Inguinal and Femoral Canals.

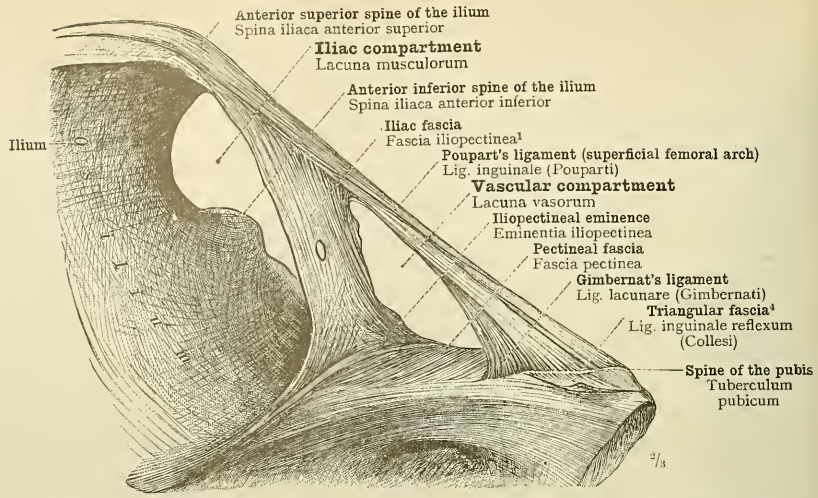


FIG. 639.—LACUNA MUSCULORUM ET LACUNA VASORUM, ILIAC COMPARTMENT AND VASCULAR COMPARTMENT. SEEN FROM BEHIND.

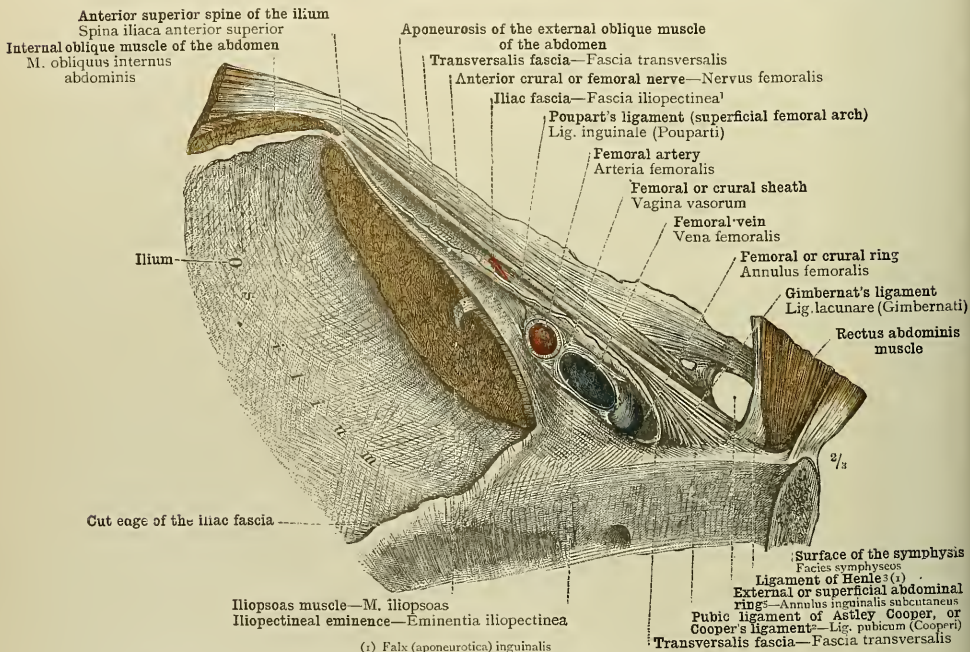


FIG. 640.—PARTS BENEATH POUPART'S LIGAMENT, THE CONTENTS OF THE LACUNA MUSCULORUM OR ILIAC COMPARTMENT AND LACUNA VASORUM OR VASCULAR COMPARTMENT, AND THEIR MUTUAL RELATIONS. LEFT SIDE; SEEN FROM BEHIND.

Lacuna musculorum, or iliac compartment.—Lacuna vasorum, or vascular compartment.

<sup>1</sup> *Fascia Iliopectinea*.—The author distinguishes by this name that portion of the *iliac fascia* (of English anatomists) which, covering the iliopsoas muscle as it passes beneath Poupart's ligament, forms the septum between the *iliac compartment* and the *vascular compartment* of the space beneath that ligament, and passing inwards behind the femoral vessels to form the posterior layer of the femoral or crural sheath, becomes continuous with the *pubic portion* of the *fascia lata* of the thigh, or *pectineal fascia* (see description at foot of Fig. 598), p. 349. From the fact that this portion serves to connect the iliac with the pectineal fascia arises the name "*iliopectinea fascia*."  
<sup>2</sup> *Pubic Ligament of Astley Cooper, or Cooper's Ligament*.—This name is given to a thickened bundle of transverse fibres at the upper part of the pectineal fascia, along its attachment to the innermost portion of the iliopectineal line. The fibres are closely connected with, and in part derived from, Gimbernat's ligament.—Tr.  
<sup>3</sup> See note <sup>1</sup> to p. 387.      <sup>4</sup> See note <sup>2</sup> to p. 383.      <sup>5</sup> Or *external inguinal aperture*.

INDEX

TO THE

MYOLOGY

AND TO

THE SUPPLEMENT ON THE ANATOMY OF HERNIA





# INDEX

## TO THE MYOLOGY

### AND TO THE SUPPLEMENT ON THE ANATOMY OF HERNIA

Certain names in this Index have an asterisk (\*) prefixed: these, as more fully explained in the Translator's Preface, being terms that form part of the English nomenclature used in this work, but which are not commonly employed by English anatomists. To other names a dagger (†) is prefixed; these are Latin names used by the author in the original work, but not included in the official nomenclature of the "Anatomische Gesellschaft."

#### A.

- ADMINICULUM lineæ albæ, 388, 389  
 Annulus femoralis, 389, 390  
   inguinalis abdominalis, 275, 276, 344, 385, 387-389.  
   subcutaneous, 274, 249, 383, 385  
 Antagonists, 263  
 Aperture, inguinal, external, 349, 383, 385  
   internal, 344, 385, 387-389  
 †Aponeuroses tendinum extensorum digitorum (manus),  
   331  
 †Aponeuroses tendinum extensorum digitorum (pedis), 373,  
   380  
 Aponeurosis (see also "Fascia"), 262  
   dorsal, of the extensor tendons of the fingers,  
     329-331  
     of the extensor tendons of the thumb,  
       331  
     of the extensor tendons of the toes, 373,  
       380  
   epicranial, 300, 302  
   of the external oblique muscle of the abdomen,  
     274, 383, 385  
   intercostal, anterior or external, 274  
     posterior or internal, 280  
   m. obliqui externi abdominis, 274, 383, 385  
   occipitofrontal, 300, 302  
   palmaris, 322, 332  
   plantaris, 375, 376  
   vertebral, 267  
 \*Arch, axillary, 283  
   of the soleus muscle, 363, 371, and note to p. 363  
 Arcus lumbocostalis lateralis [Haller], 286  
   medialis [Haller], 286  
   tendineus m. levatoris ani, 346  
     solei, 363, 371  
 Armpit, the, 283  
 Axilla, the, 283

#### B.

- Band, crucial, inferior, 334 and note  
   superior, 334 and note  
 iliotal, 338, 340, 342  
 oblique, 334 and note  
 vaginal, inferior, 334 and note  
   middle, 334 and note  
   superior, 334 and note  
 Belly (of muscle), 262  
 Border, falciform, 349, 383  
 Buccal fat-pad, 299  
 Bursa or bursa:  
   of the aponeurotic expansion of the sartorius muscle,  
     356, 362 and note  
   of the biceps flexor cruris muscle, inferior, 363 and  
     note  
   of the biceps flexor cruris muscle, superior, 342 and  
     note  
   bicipitogastrocnemial, 363 and note  
   bicipitoradial, 316, 321 and note  
   of the coracobrachialis muscle, 314 and note  
   of the extensor carpi radialis brevis muscle, 331 and  
     note

#### Bursa or bursa:

- of the flexor carpi radialis muscle, 323 and note  
 of the flexor carpi ulnaris muscle, 333 and note  
 of the gastrocnemius muscle, inner head, 362 and  
   note, 363, 369  
 of the gastrocnemius muscle, outer head, 363 and  
   note  
 gluteofemoral, 342 and note  
 of the hamular process, 297  
 ilipectineal, 348 and note, 356  
 of the iliopsoas tendon, 348 and note  
 infrapatellar, deep, 366  
   subcutaneous, 350  
 of the infraspinatus muscle, 312 and note  
 intermetacarpophalangeal, 330  
 intermetatarsophalangeal, 380  
 interosseous of the elbow, 321 and note  
 intratendinous of the olecranon, 320 and note  
 of the latissimus dorsi muscle, 314 and note  
 of the lumbricalis muscle, 380 and note  
 of the obturator internus muscle, 341 and note  
 of the pectineus muscle, 347 and note, 370  
 of the popliteus muscle, 363 and note  
 prepatellar, subcutaneous, 350  
   subfascial, 355  
   subtendinous, 355  
 propria of the sartorius muscle, 355 and note  
 of the pyramidalis muscle, 348 and note  
 of the rectus femoris muscle, 348 and note  
 of the semimembranosus muscle, 362 and note,  
   370  
 \* of the sinus of the tarsus, 364  
 of the sternohyoid muscle, 294 and note  
 of the sternothyroid muscle, 294 and note  
 subacromial, 312  
 of the subscapularis muscle, 313 and note, 314  
 subcutaneous of the acromion, 311  
   of the calcaneum, 374  
   of the chin, 282  
   of the coccyx, 342  
   of the fingers, dorsal, 327, 330  
   of the index-finger, dorsal, 327  
   of the internal condyle of the humerus,  
     320  
   of the internal malleolus, 374  
   of the laryngeal prominence, 282  
   metacarpophalangeal, dorsal, 327, 330  
   of the olecranon, 314, 320  
   of the posterior superior spine of the  
     ilium, 342  
   of the sacrum, 342  
   of the tubercle of the tibia, 355  
 subdeltoid, 312  
 subtendinous, 261  
   of the olecranon, 320 and note  
   of the tibialis anticus muscle, 378 and  
     note  
   of the tibialis posticus muscle, 379 and  
     note  
 of the tendo Achillis, 370 and note  
 of the teres major muscle, 314 and note  
 of the thyrohyoid muscle, 294

**Bursa or bursæ :**

- trochanteric, of the gluteus maximus muscle, 340 and note, 342
- of the gluteus medius muscle, anterior, 348 and note
- of the gluteus medius muscle, posterior, 342 and note
- of the gluteus minimus muscle, 348 and note

**Bursa vel bursæ :**

- anserina, 356, 362
- bicipitogastroneumialis, 363
- bicipitoradialis, 316, 321
- cubitalis interossea, 321
- glutæofemoralis, 342
- iliaca subtendinea, 348
- iliopectinea, 348, 356
- infrapatellaris profunda, 366
  - subcutanea, 350
- intermetacarpophalangeæ, 330
- intermetatarsophalangeæ, 380
- intradendinea olecrani, 320
- mucosa subtendinea, 261
- musculi bicipitis femoris inferior, 363
  - superior, 342
- coracobrachialis, 314
- extensoris carpi radialis brevis, 331
- flexoris carpi radialis, 323
  - ulnaris, 333
- gastrocnemii lateralis, 363
  - medialis, 362, 363, 369
- infraspinati, 312
- latissimi dorsi, 314
- lumbricalis, 380
- obturatoris interni, 341
- pectinei, 347
- piriformis, 348
- poplitei, 363, 370
- recti femoris, 348
- sartorii propria, 355
- senimembranosi, 362, 370
- sternohyoidei, 291
- subscapularis, 313, 314
- tensoris veli palatini, 297
- teretis majoris, 314
- thyreohyoidei, 291
- musculorum lumbricalium pedis, 380
- præpatellaris subcutanea, 350
  - subfascialis, 355
  - subtendinea, 355
- sinus tarsi, 364
- subacromialis, 312
- subcutanea acromialis, 311
  - calcanea, 374
  - coccygea, 342
  - epicondylî (humeri) medialis, 320
  - malleoli medialis, 374
  - olecrani, 314, 320
  - præmentalis, 282
  - prominentiæ laryngæe, 282
  - sacralis, 342
  - spinæ iliacæ posterioris, 342
  - tuberositatis tibiæ, 355
- subcutaneæ digitorum dorsales, 327, 330
  - metacarpophalangeæ dorsales, 327, 330
- subdeltoidea, 311
- subtendinea m. tibialis anterioris, 378
  - posterioris, 379
  - olecrani, 320
- tendinis calcanei (Achillis), 370
- trochanterica m. glutæi maximi, 340, 342
  - medii anterior, 348
  - posterior, 342
  - minimi, 348

**C.**

- Canal, crural, 381-390
  - femoral, 381-390
  - Hunter's, 351, 356, 357, 360
  - obturator, 346, 347, 357, 361, 389

- \*Canal, popliteal, 363 and note, 371
- Canalis adductorius [Hunteri], 354
  - femoralis, 381-390
  - inguinalis, 381-390
  - obturatorius, 346, 347, 357, 361, 389
  - popliteus, 363, 371

**†**

- Canals for the extensor tendons of the fingers, 331
- Caput (musculi), 262
  - commune, 263
- Centrum tendineum, 286, 287
- Chiasma tendinum, 335 and note
- Chorda obliqua, 317
- \*Commissure of the tendons of the flexor sublimis digitorum, 325 and note
- Compartment, iliac, 390
  - vascular, 344, 349, 389, 390
- Cord, spermatic, 274-276, 384, 385, 389
- Cornu inferius (marginis falciformis), 349, 383
  - superius (marginis falciformis), 349, 383
- Corpus adiposum buccæ, 290
- Cross-striated contractile substance, 260
- Crura (see also "Pillars") :
  - of the diaphragm, 286 and note, 345
- Crus inferius annuli inguinalis, 349, 383
  - superius annuli inguinalis, 349, 383

**D.**

- Diaphragm, the, 286, 287
  - costal portion, 281, 286, 287
  - crura, 286 and note, 345
  - sternal portion, 281, 286, 287
  - vertebral portion, 286, 287
- Diaphragma, 286, 287
  - crus intermedium, 286, 345
    - laterale, 286
    - mediale, 286, 345
  - pars costalis, 281, 286, 287
  - lumbalis, 286, 287
  - sternalis, 281, 286, 287
- † oris, 294, 295

**E.**

- Elementary constituents of muscle, 260, 261
- Eminence, hypothenar, 322-324
  - plantar, central, 375
    - inner, 375
    - outer, 375
  - thenar, 322, 324

**†**

- Eminentia plantares, 375
- Endomysium, 260, 261
- Epimysium, 261
- Expansion, aponeurotic, of the tendon of the sartorius muscle, 351 and note
- Expansion, aponeurotic, of the tendon of the gracilis muscle, 351 and note

**F.**

- Falx (aponeurotica) inguinalis, 387-390, and note to p. 387
- Fascia (see also "Aponeurosis"), 264
  - Abernethy's, 388 and note
  - axillary, 282, 283
  - bicipital, 315, 322, 327
  - brachial, 264, 282, 314, 383
  - buccopharyngeal, 302
  - cervical, deep, 266, 267, 282, 291-293
  - cremasteric, 382, note
  - cremasterica (Cooperi), 382 and note, 383
  - cribriform, 382
  - of the dorsum of the foot, deep, 366
  - of the dorsum of the hand, 327
  - of the forearm, deep, 314, 320, 327, 332
  - gluteal portion of the fascia lata, 266, 267
  - iliac, 285, 346, 349, 383, 387, 389, 390 and note
  - iliopectineal, 349, 383, 390 and note
  - infraspinosus, 266, 267
  - intercolumnar, 382 and note, 383
  - lata, 338, 339, 350, 355, 360, 382, 383
    - iliac portion, 349, note
    - pubic portion, 349, 383, 390 and note

- Fascia**, of the latissimus dorsi muscle, 283  
 of the leg, deep, 354, 362, 364, 366, 368-370, 374  
   deep layer, 368, 369, 374  
   superficial layer, 368, 369, 374  
 lumbar, middle layer, 270, 271, 285, 286, 343, 345  
   superficial or posterior layer, 266-269, 273,  
     285, 342  
 masseteric, 291, note (see also "Fascia parotideomasseterica")  
 obturator, 288, 346  
 palmar, 322, 332  
 parotid, 291, note (see also "Fascia parotideomasseterica")  
 pectineal, 349, 383, 390  
 pectoral, 282, 283, 291  
 pelvic, white line of the, 346  
 plantar, 375, 376  
 prevertebral, 292  
 propria of Astley Cooper, 382, note  
 semilunar, 315, 322, 327  
 of the sole, deep, 375, 376  
 spermatic, 382 and note, 383  
 supraspinous, 267  
 temporal, 302, 303, 306  
   deep layer, 303, 306  
   superficial layer, 302, 303  
 of the thigh, deep, 338, 339, 350, 355, 360, 382, 383  
 triangular, 383 and note, 384, 385, 390
- Fascia**  
 antibrachii, 314, 320, 327, 332  
 axillaris, 282, 283  
 brachii, 264, 282, 283, 314  
 buccopharyngea, 302  
 colli, 282, 291-293  
 coracoclavicularis, 282  
 cremasterica [Cooperi], 382 and note, 383  
 cribrosa, 382  
 cruris, 355, 362, 364, 366, 368-370, 374  
 dorsalis manus, 327  
   pedis, 366
- †  
 glutæa, 266, 267  
 iliaca, 285, 346, 386, 387, 389, 390  
 iliopectinea, 344, 389, 390  
 infraspinata, 266, 267  
 lata, 338, 339, 350, 355, 360, 382, 383  
 lumbalis, 285 (see also notes to pp 267 and 285)
- †  
 lumbodorsalis, 266-269, 273, 285, 342
- †  
 m. latissimi dorsi, 283  
 nuchæ, 266, 267  
 obturatoria, 288, 346  
 parotideomasseterica, 291, 300  
 pectinea, 349, 383, 390  
 pectoralis, 282, 283, 291  
 prævertebralis, 292  
 superficialis, 264  
   abdominis, 382  
 supraspinata, 267  
 temporalis, 302, 303, 306  
   lamina profunda, 303, 306  
   superficialis, 302, 303
- Fasciculi of muscular fibres, 260, 261  
 transversi aponurosis palmaris, 332  
 plantaris, 375
- Fat pad, buccal, 260
- † Fibræ annulares, 334  
 † collaterales, 383  
 † cruciate, 334  
 † intercurales, 383
- Fibres, intercolumnar, 383 and note  
 muscular, 260, 261
- Fold (see also "Plica"):  
 of the axilla, anterior, 283  
   posterior, 283  
 epigastric, 386, 387, note  
 hypogastric, 386, 387, note  
 pubovesical, 386  
 semilunar, of Douglas, 275, 276, 387, 389  
 transverse vesical, 386  
 umbilical, external, 386, 387, note  
   median, 386, 387, note
- Fold, urachal, 386, 387, note
- Foramen quadratum, 286, 287  
 venæ cavæ, 286, 287
- Fossa, antecubital, 322  
 axillaris, 283  
 cubitalis, 322  
 iliopectinea, 350  
 ovalis, 274, 276, 349, 383  
 poplitea, 358  
 scarpæ major, 350  
 Fovea inguinalis lateralis, medialis, 386  
 supravesicalis, 386
- † Foveola radialis, 327
- Funiculus spermaticus, 274-276, 384, 385, 389
- Furrow (see also "Sulcus"):  
 bicipital, inner, 315  
   outer, 326  
 of the forearm, radial, 322  
   ulnar, 322  
 plantar, inner, 375  
   outer, 375
- G.**
- Galea aponeurotica, 300, 302
- Groove (see also "Furrow" and "Sulcus"):  
 deltoidopectoral, 282  
 for the subclavian artery, 299
- H.**
- Ham, the, 358
- Head (of muscle), 262  
 common, 263
- Hiatus adductorius, 356, 357, 360  
 aorticus, 286, 287  
 œsophageus, 286, 287
- Hollow, bicipital, 321, note
- Hypothernar, 322-324
- I.**
- Inscriptio tendinea, 262
- Inscriptiones tendineæ m. recti abdominis, 276, 385
- Intersection, tendinous, 262
- Intersection, tendinous, of the rectus abdominis muscle,  
 276, 385
- J.**
- Juncturæ tendinum, 330
- L.**
- Lacertus fibrosus, 315, 322, 327
- Lacuna musculorum, 390  
 vasorum, 344, 349, 389, 390
- Lamina profunda fasciæ, 264  
 superficialis fasciæ, 264
- Layer, muscular, of the trunk:  
 appendicular, 284 and note  
 dorsal, deep, 284 and note  
   superficial, 284 and note  
 ventral, intercostal, 284 and note  
 subcostal, 284 and note
- Ligament or ligaments (see also "Ligamentum"):  
 annular, of the ankle, anterior, 364, 366, 372, 373  
   external, 364, note, 372  
   internal, 370, 371, 374  
   superior, 366, 372  
 of wrist, anterior, 322, 324, 332, 334  
   posterior, 326-328, 330  
 arched, external, 286  
   internal, 286  
 of the bladder, superior false, or suspensory,  
 386, note  
 Cooper's, 344, 353, 390 and note  
 cricoid, thyroid, middle, 294  
 femoral, 349, note  
 of the fingers, superficial transverse, 332  
 fundiform, of the penis, 382 and note  
   (of Retzius), 365 and note, 373



## Ligament or ligaments :

- Gimbernat's, 344, 349, 389, 390  
 of Henle, 387 and note, 388-390  
 of Hesselbach, 385, 387 and note, 389  
 Hey's, 349, note  
 iliotibial, 338, 340, 342  
 intermetacarpal, distal, anterior or palmar, 334  
 intermetatarsal, plantar distal, 376, 378  
 interosseous, of the forearm, 324, 325, 329  
 of the leg, 365, 367  
 lamboideum, 364, 366, 372, 373  
 metatarsal, transverse, 376, 378  
 oblique (radio-ular), 317  
 obturator, 345  
 palpebral, internal, 300  
 patellar, 353, 355, 356, 366, 367  
 Poppart's, 274, 276, 344, 345, 349, 382, 383, 389, 390  
 pterygomandibular, 297, 307  
 pterygomaxillary, 297, 307  
 pubic, of Astley Cooper, 344, 353, 390 and note  
 sacrosciatic, anterior, 340, 341, 346  
   great, 340, 341, 343  
   posterior, 340, 341, 343  
   small, 340, 341, 346  
 stylohyoid, 292-294, 296  
 suspensory, of the penis, 274, 276, 349, 382, 383, "true" and "false," 382, note  
 tarsal, internal, 300  
 thyrohyoid, middle, 294  
 of the toes, superficial transverse, 375  
 transverse metacarpal, 334  
 vaginal (of the fingers), 334-336, and note to p. 334  
 of the toes, 376, 378
- Ligamentum *vel* ligamenta :
- arcuatum externum, 286  
 internum, 286  
 brevia, 331, note  
 capitulum (ossium metacarpalium) trans-versa, 334  
   of (ossium metatarsalium) trans-versa, 376  
 carpi dorsale, 326-328, 330  
   transversum, 324, 334  
   volare, 322, 332  
 cricothyroideum (medium), 294  
 cruciatum cruris, 364, 366, 372, 373  
 fundiforme pedis, 365, 373  
 † penis, 382  
 inguinale [Poupart], 274, 276, 344, 345, 349, 382, 383, 389, 390  
   reflexum [Collesi], 383-385, 399, and note to p. 383  
 interfoveolare [Hesselbachii], 385, 387 and note, 389  
 intercostalia externa, 274  
   interna, 280  
 laciniatum, 370, 371, 374  
 lacunare [Gimbernati], 344, 349, 389, 390  
 longa, 331, note  
 lumbocostale, 270, 271, 285, 286, 343, 345  
 nuchae, 267, 268  
 palpebrale mediale, 300  
 patellae, 353, 355, 356, 366, 367  
 pubicum [Cooper], 344, 353, 390  
 sacrospinosum, 340, 341, 346  
 sacrotuberosum, 340, 341, 343  
 stylohyoideum, 292-294, 296  
 suspensorium penis, 274, 276, 349, 383  
 transversum cruris, 366, 372  
 umbilicale laterale, medium, 387  
 vaginale digitorum (pedis), 334-336 (pedis), 376, 378
- Linea alba, 274, 276, 383-385, 389  
 † arcuata, 346 and note  
   semicircularis [Douglasi], 275, 276, 387, 389  
   semilunaris [Spigeli], 276, 389  
 Line, white, of the pelvic fascia, 346

## M.

- Margo falciformis, 349, 393  
 Membrana hyothyroidea, 294  
 interossea antibrachii, 324, 325, 329  
   cruris, 367  
 obturatoria, 345  
 Membre, 326  
 Membrane, 282  
 cricothyroid, 294  
 interosseous, of the forearm, 324, 325, 329  
   of the leg, 365, 367  
 obturator, 345  
 thyrohyoid, 294  
 † Mesotenon, 333 and note  
 Muscle or muscles (see also Latin names under "Musculus *vel* musculi") :
- of the abdomen, 274-276, 278, 279, 281  
 abductor hallucis, 371, 374, 376  
   indicus, 323, 324, 331, 336  
   minimi digiti (manus), 323, 324, 334, 336 (pedis), 364, 366, 372, 373, 376, 377  
 pollicis brevis, 324, 334, 336  
   longus, 326, 328-330, and note to p. 326  
 accessorius ad sacrolumbalem, 268, 269, 272, 273, 343  
 adductor brevis, 345, 351-353, 356, 357, 360  
   longus, 345, 346, 350-353, 356, 357, 360  
   magnus, 345 and note, 346, 351, 352, 354, 356-360  
   mimus, 345 and note, 358-360  
 obliquus hallucis, 378  
   pollicis, note to p. 324  
 pollicis, 324, 325, 334-336, and note to p. 324  
 transversus hallucis, 378, 380  
   pollicis, note to p. 324
- anconeus, 318, 319, 326, 328, 329  
 antagonistic, of the arm, 263, 315-320  
 atollens auriculum, 266, 300  
 attrahens auriculum, 300  
 auricularis anterior, 300  
   posterior, 266, 302  
   superior, 266, 300  
 of the back, 266-273  
 biceps flexor cruris, 352, 358-363  
   cubiti, 314, 315, 317, 325  
 bipenniform, 262  
 brachialis anticus, 315-317, 319, 321, 325  
 broad, 262  
 buccinator, 297, 303, 304, 306, 307  
 canine, 297, 300-304  
 ceratopharyngus, 296  
 cervicalis ascendens, 268, 269, 272, 273  
 chondroglossus, 296  
 chondropharyngus, 296  
 circumflexus palati, 295, 297, 308  
 coccygeus, 288, 347  
 complexus, 267-279, 272, 273, 278, 308  
 compressor naris, 301-303, and note to p. 301  
 constrictor of the pharynx, inferior, 297  
   middle, 293, 296  
   superior, 297
- coracobrachialis, 314-317  
 corrugator supercilii, 300, 301  
 cremaster, 274-276, 384, 385  
 cricothyroid, 294, 296  
 crureus, 352-354, 356  
 cucullaris, see "Muscle, trapezius"  
 curvator coccygis, 288, 344, 346  
 deltoid, 266, 269, 274, 275, 310, 317, 319  
 depressor alae nasi, 301-305, and note to p. 301  
   anguli oris, 290, 293, 297, 300, 303, 306  
   labii inferioris, 300, 302-304, 306  
 digastric, 262, 292, 297, 298, 307, 308  
 double-headed, 262  
 elementary constituents, 260  
 epitrochleo-anconeus, 320 and note

## Muscle or muscles:

- extensor brevis digitorum pedis, 364 and note, 365, 367, 372, 373  
     hallucis, 364 and note, 365, 367, 372  
     pollicis, 326, 328-330, and note to p. 326  
 carpi radialis brevis, 317, 321, 326-329  
     longior, 317, 319, 321, 322, 326-329  
     ulnaris, 318, 325, 326, 328, 329  
 coccygis, 288  
 communis digitorum, 326-329  
 indicis, 326, 328-330  
 longus digitorum pedis, 364, 365, 367  
     hallucis, 364 and note, 365, 367  
     pollicis, 326, 328-330, and note to p. 326  
     minimi digiti, 326  
     ossis metacarpi pollicis, 326, 328-330, and note to p. 326  
     primi internodii pollicis, 326, 328-330, and note to p. 326  
     proprius hallucis, 364 and note, 365, 367  
     secundi internodii pollicis, 326, 328-330, and note to p. 326  
 external oblique, of the abdomen, 266-269, 274-276, 278, 279, 384, 385  
 of the face, 300-307  
 of facial expression, difference between the author's grouping of these and that usual in England, note to p. 303  
 flexor accessorius, 376-378  
     brevis digitorum pedis, 376  
     hallucis, 376-378  
     minimi digiti (manus), 324, 325, 334-336 (pedis), 374 and note, 376-378  
     pollicis, 324, 325, 334, 336, and note to p. 324  
 carpi radialis, 317, 322, 323, 325  
     ulnaris, 317-320, 322, 323, 325  
 longus digitorum pedis, 370, 371, 376, 377  
     hallucis, 370, 371, 376, 377  
     pollicis, 322, 324, 325, 336  
 perforans (manus), 324, 325, 331, 335, 336 (pedis), 370, 371, 376, 377  
 perforatus (manus), 317, 321-323, 325, 331, 335, 336 (pedis), 376  
 profundus digitorum, 324, 325, 331, 335, 336  
 subitimus digitorum, 317, 321-323, 325, 331, 335  
 of the foot, 372-380  
 of the forearm, 321-329  
     forms of, 262  
     frontalis, 300  
     fusiform, 262  
     gastrocnemius, 358-363, 368, 369  
     gemellus inferior, 340 and note, 341, 343, 358, 359  
     superior, 340 and note, 341, 343, 358, 359  
     general considerations, 259-264  
     genioglossus, 295, 296, 307  
     geniohyoglossus, 295, 296, 307  
     geniohyoid, 294-296, 307  
     gluteus maximus, 338-340, 342, 343, 360  
     medius, 340, 343, 345, 353  
     minimus, 341-343, 345, 353  
     gracilis, 345, 346, 350, 351, 354, 360, 362  
     of the hand, 330-336  
     of the head, 295-297, 300-308  
     of the head and neck, 289-308  
     of the hip, 338-349  
 Horner's, see "Tensor tarsi" and notes 3 and 4 to p. 301  
 iliocostalis, see under "Musculus"  
 iliacus, 344, 346, 347, 350  
 iliopsoas, 344, 346-348, 350, 353, 354, 360, 361, 386, 390  
 incisivus, inferior, 303, 304, 306  
     superior, 303, 304  
 inferior lingual, 290

## Muscle or muscles:

- infraspinatus, 312, 318, 319  
 insertion, 261  
 intercostal, external, 268, 271, 274, 276-280  
     internal, 275-281  
 internal oblique, of the abdomen, 267-270, 274-276, 384, 385  
 interosseous, dorsal, of the foot, 373-379  
     of the hand, 329, 331, 334-336  
     palmar, 334-336  
     plantar, 376, 379  
 interspinales, 270-272, 279, 339  
 intertransversales, 270-273, 299, 339, 343  
 latissimus dorsi, 266, 267, 269, 277, 278, 317  
 of the leg, 364-371  
 levator anguli oris, 297, 300-304  
     scapulae, 266, 267, 269, 277, 278, 293, 298, 319  
     ani, 288  
     coccygis, 288, 347  
     labii inferioris, 303, 304, 306  
     superioris alaeque nasi, 300 and note, 301  
     proprius, 300 and note, 302  
     menti, 303, 304, 306  
     palati, 295, 297, 308  
 lingualis inferior, 296  
 longissimus, see under "Musculus"  
 of the lower extremity, 337-380  
 lumbricales (manus), 324, 326, 332, 336 (pedis), 376, 377  
 masseter, 293, 302  
     deep portion, 303, 306, 308  
     superficial portion, 302, 306, 308  
 of mastication, 306, 307  
 multifidus spinae, 270, 273, 343  
 mylohyoid, 292-295, 297, 307  
 of the neck, 290-299  
 oblique, of the abdomen, external, 266-269, 274-276, 278, 279, 384, 385  
     internal, 267-270, 274-276, 384, 385  
 obliquus capitis inferior, 270-272, 278, 279  
     superior, 268, 270-272, 278, 279, 308  
 obturator externus, 341, 343, 345, 353, 356, 357, 359-361  
 internus, 340 and note, 341, 342, 344, 347, 358, 359  
 occipitalis, 266, 278, 302  
 occipitofrontalis, 300, 302  
 omohyoid, 277, 292, 293, 314, 317, 319  
 opponens minimi digiti (manus), 325, 334-336 (pedis), 364 and note, 372, 378  
     pollicis, 325, 334-336  
 orbicularis oris, 303-305  
     palpebrarum, 300-302, and notes 3 and 4 to p. 301  
     pars lachrymalis, or lachrymal portion, see "Tensor tarsi" and notes 3 and 4 to p. 301  
     pars orbitalis, or orbital portion, 300, 301  
     pars palpebralis, or palpebral portion, 300, 301  
 origin, 261  
 palmaris brevis, 322, 332  
     longus, 332  
 pectineus, 345, 347, 350-353, 357, 360, 361  
 pectoralis major, 274, 275, 317  
     abdominal portion, 274  
     clavicular portion, 274, 275, 317  
     sternocostal portion, 274, 275, 278  
     minor, 274, 275, 278, 317  
 penniform, 262  
 peroneus brevis, 364-367, 371, 373  
     longus, 364, 366, 367, 379  
     tertius, 364, 367, 372  
 plantaris, 282, 290, 291, 300, 302, 306  
 plantaris, 358-362, 368, 369, 371  
 popliteus, 360-363, 366, 369-371  
 pronator quadratus, 323-325, 333, 334  
     radii teres, 317, 322, 325, 327, 328

## Muscle or muscles:

- psoas magnus, 286, 344-347, 350  
     parvus, 344  
 pterygoid, external, 295, 307, 308  
     internal, 295, 307, 308  
 pyramidalis nasi, 300, 301  
 pyriformis, 340-347, 358, 359  
 quadratus femoris, 340-343, 345, 346  
     labii superioris, 300, 302, and note to p. 300  
     lumborum, 339, 344, 345  
     menti, 300, 302-304, 306  
 quadriceps extensor cruris, 350-353, 355, 360  
 rectus abdominis, 275, 276, 278, 385, 387, 389, 390  
 capitis anticus major, 277, 293, 294, 298, 308  
     minor, 299, 308  
     lateralis, 271, 272, 279, 298, 299, 308  
     posticus (major and minor), 271, 272, 279, 308  
         femoris muscle, 343, 345, 350-353  
 retrahens auriculam, 266, 300  
 rhomboideus major, 267, 269, 319  
     minor, 267, 269, 319  
 risorius, 290, 300, 303  
 rotatores dorsi, 271-273  
 sacrocoxygeus anticus, 288, 344, 346  
     posticus, 288  
 sacrolumbalis, see "Musculus iliocostalis"  
 sacrospinalis, see "Musculus iliocostalis"  
 sartorius, 345, 350, 351, 353-355, 362  
 scalenus anticus, 277, 279, 293, 298, 299  
     medius, 270, 277, 278, 293, 298, 299  
     pleuralis, 279  
     posticus, 268, 269, 277, 278, 298, 299  
 semimembranosus, 351, 354, 358-363  
 semispinalis, see under "Musculus"  
     colli, 270, 272, 273  
     semitendinosus, 351, 354, 358, 360, 362  
 serratus magnus, 267, 268, 274-278, 317, 319  
     posticus inferior, 267-269, 278, 343  
     superior, 267, 269, 278  
 of the shoulder, 310-313  
 soleus, 363, 369, 371  
 spinalis, see under "Musculus"  
     cervicis, 268, 273  
 splenius capitis, 266-269, 277, 278, 293, 308  
     colli, 267-269  
 sternalis, 282  
 sternocleidomastoid, 278, 292, 293, 308, 317  
 sternohyoid, 281, 292-294  
 sternomastoid, 278, 292, 293, 308, 317  
 sternothyroid, 277, 281, 292, 293  
 strap-shaped, 262  
 structure, 260, 261  
 stylohyoid, 278, 292, 297, 308  
 stylopharyngeus, 293, 297, 308  
 subclavius, 274, 275, 278, 299, 311, 314, 317  
 subcostal, 280  
 subcurreus, 354, 357  
 subscapularis, 277, 313, 315-317  
 supinator radii brevis, 317, 319, 321, 323-325, 327-329  
     longus, 317, 319, 321-323, 325-327, 329  
 supraspinatus, 310, 312, 313, 319  
 synergistic, 263  
 temporal, 306-308  
 tensor fasciae femoris, 338, 345, 350, 351, 353  
     latæ, 338, 345, 350, 351, 353  
     palati, 295, 297, 308  
     tarsi, 301, 302, and notes 3 and 4, p. 301  
     vaginæ femoris, 338, 345, 350, 351, 353  
 teres major, 266, 269, 311, 313, 316-319  
 of the thorax, 274, 275, 277-283  
 thyrohyoid, 277, 292-294, 296  
 thyropharyngeus, 293, 294  
 tibialis anticus, 364, 365, 367, 377, 378  
     posticus, 370, 371, 377, 379  
 trachelomastoid, 268, 270, 272, 273, 278, 308  
 transversalis abdominis, 269-271, 275, 276, 281, 385, 387, 389  
     cervicis, 268, 270, 272, 273  
     linguæ, 296

## Muscle or muscles:

- transverse, of the tongue, 296  
 transversus menti, 300, 304  
     nuchæ, 266, 302  
 trapezius, 266, 269, 278, 292, 293, 308, 319  
 triangularis menti, 290, 293, 297, 300, 303, 306  
     sterni, 281  
 triceps extensor cubiti, 266, 310-320, 329  
     rotator femoris, 340, note  
     suræ, 368 and note, 369  
 of the trunk, 265-288  
 of the upper arm, 315-320  
 of the upper extremity, 309-336  
 vastus externus, 345, 352, 353, 356, 358-361  
     internus, 348, 350-354, 360, 361, 367  
 zygomaticus major, 290, 297, 300, 302, 303  
     minor, 300 and note  
 Musculus *vel* muscili (see also English names under "Muscle or muscles"):  
 abdominis, 274-276, 278, 279, 281  
 abductor digiti quinti (manus), 323, 324, 334, 335  
     (pedis), 364, 366, 372, 373, 376, 377  
     hallucis, 371, 374, 379  
     pollicis brevis, 324, 334, 336  
     longus, 326, 328-330  
 adductor brevis, 345, 351-353, 356, 357, 360  
     hallucis, 378, 380  
     longus, 345, 346, 350-353, 356, 357, 360  
     magnus, 345, 346, 351, 352, 354, 356-360  
     minimus, 345, 358-360  
     pollicis, 324, 325, 334-336  
 anconeus, 318, 319, 326, 328, 329  
 antibrachii, 321-329  
 articularis genu, 354, 357  
 articulationis humeri, 310-313  
 auricularis anterior, 300  
     posterior, 266, 302  
     superior, 266, 300  
 biceps, 262  
     brachii, 314, 315, 317, 325  
     femoris, 352, 358-363  
 bipennatus, 262  
 biventer, 262  
 brachialis, 315-317, 319, 321, 325  
 brachii, 315-320  
 brachioradialis, 317, 319, 321-323, 325-327, 329  
 buccinator, 297, 303, 304, 306, 307  
 caninus, 297, 300-304  
 capitis, 295-297, 300-308  
 ceratopharyngeus, 296  
 chondroglossus, 296  
 chondropharyngeus, 296  
 coccygeus, 288, 347  
 colli, 290-299  
     et capitis, 289-308  
 constrictor pharyngis inferior, 297  
     medius, 293, 296  
     superior, 297  
 coracobrachialis, 314-317  
 corrugator supercilii, 300, 301  
 coxæ, 338-349  
 cremaster, 274-276, 384, 385  
 cricothyroideus, 294, 296  
 cruris, 364-371  
 deltoideus, 266, 269, 274, 275, 310, 317, 319  
 depressor septi, 303-305  
 digastricus, 292, 297, 298, 307, 308  
 dorsi, 266-273  
 epicranium, 300, 302  
 epitrochleo-anconeus, 320  
 extensor carpi radialis brevis, 317, 321, 326-329  
     longus, 317, 319, 321, 322, 326-329  
     ulnaris, 318, 325, 326, 328, 329  
 digiti quinti proprius, 326  
 digitorum brevis, 364, 365, 367, 372, 373  
     communis, 326-329  
     longus, 364, 365, 367

Musculus *vel* musculi:

- extensor hallucis brevis, 364, 365, 367, 372  
     longus, 364, 365, 367  
     indicus proprius, 326, 328-330  
     pollicis brevis, 326, 328-330  
         longus, 326, 328-330  
 extremitatis inferioris, 337-380  
     superioris, 309-336  
 faciei, 300-307  
 femoris, 350-361  
 flexor carpi radialis, 317, 322, 323, 325  
     ulnaris, 317-320, 322, 323, 325  
 digiti quinti brevis (manus), 324, 325,  
     334-336  
     (pedis), 376, 378  
 digitorum brevis, 376  
     longus, 370, 371, 376, 377  
     profundus, 324, 325, 331, 335, 336  
     sublimis, 317, 321-323, 325, 331,  
     335, 336  
 hallucis brevis, 376-378  
     longus, 370, 371, 376, 377  
 pollicis brevis, 324, 325, 334, 336  
     longus, 322, 324, 325, 336  
 frontalis, 300  
 fusiformis, 262  
 gastrocnemius, 358-363, 368, 369  
 gemellus (inferior, superior), 340 and note, 341,  
     343, 358, 359  
 genioglossus, 295, 296, 307  
 geniohyoideus, 294-296, 307  
 glutæus maximus, 338-340, 342, 343, 360  
     medius, 340, 343, 345, 353  
     minimus, 341-343, 345, 353  
 gracilis, 345, 346, 350, 351, 354, 360, 362  
 Horneri, 301, 302  
 hyoglossus, 293, 296  
 iliacus, 344, 346, 347, 350  
 iliocostalis, 268, 269, 273, 343  
     cervicis, 268, 269, 272, 273  
     dorsi, 268, 269, 272, 273, 343  
     lumborum, 268, 269, 273, 343  
 iliopsoas, 344, 346-348, 350, 353, 354, 360, 361, 386, 390  
 incisivus labii inferioris, 303, 304, 306  
     superioris, 303, 304  
 infraspinatus, 312, 318, 319  
 interfoveolaris, 275 and note, 385  
 intercostales externi, 268, 271, 274, 276-280  
     interni, 275-281  
 interossei dorsales (manus), 329, 331, 334-336  
     (pedis), 373-379  
     plantares, 376, 379  
     volares, 334-336  
 interossei dorsalis I. (manus), 323, 324, 331, 336  
 interspinales, 270-272, 279, 339  
 intertransversarii anteriores, 299  
     posteriores, 271, 272, 299  
         laterales, 270, 271,  
         273, 339, 343  
         mediales, 271, 273,  
         339, 343  
         339, 343  
 latissimus dorsi, 266, 267, 269, 277, 278, 317  
 levator ani, 288  
     scapulae, 266, 267, 269, 277, 278, 293, 298, 319  
     veli palatini, 295, 297, 308  
 levatores costarum breves, 270, 271, 273  
     longi, 270, 271, 273  
 longissimus, 268, 273  
     capitis, 268, 270, 272, 273, 278, 308  
     cervicis, 268, 270, 272, 273  
     dorsi, 268-270, 272, 273, 343  
 longitudinalis inferior (linguae), 296  
 longus capitis, 277, 293, 294, 298, 308  
     colli, 278, 293, 295, 298, 299  
 lumbricales (manus), 324, 330, 332, 336  
     (pedis), 376, 377  
 manus, 330-336  
 masseter, 293, 302  
     profunda, 303, 306, 308  
     pars superficialis, 302, 306, 308

Musculus *vel* musculi:

- †  
 masticatorii, 306, 307  
 mentalis, 303, 304, 306  
 multifidus, 270-273, 343  
 mylohyoideus, 292-295, 297, 307  
 nasalis, 301-304  
     pars alaris, 302-304  
         transversa, 302, 303  
 obliquus capitis inferior, 270-272, 278, 279  
     superior, 268, 270-272, 278, 279,  
     308  
 externus abdominis, 266-269, 274-276,  
     278, 279, 354, 385  
 internus abdominis, 267-270, 274-276,  
     384, 385  
 obturator externus, 341, 343, 345, 353, 356, 357,  
     359, 361  
     internus, 340-342, 344, 347, 358, 359  
 occipitalis, 266, 278, 302  
 omohyoideus, 277, 292, 293, 314, 317, 319  
 opponens digiti quinti (manus), 325, 334-336  
     (pedis), 364, 372, 378  
     pollicis, 325, 334-336  
 orbicularis oculi, 300-302  
     pars lacrimalis [M. Horneri], 301, 302  
     orbitalis, 300, 301  
     palpebralis, 300, 301  
 orbicularis oris, 303-305  
 palmaris brevis, 322, 332  
     longus, 322  
 pectineus, 345, 347, 350-353, 357, 360, 361  
 pectoralis major, 274, 275, 317  
     pars abdominalis, 274  
     clavicularis, 274, 275, 317  
     sternocostalis, 274, 275, 278  
 pectoralis minor, 274, 275, 278, 317  
 pedis, 372-380  
 peronæus brevis, 364-367, 371, 373  
     longus, 364, 366, 367, 379  
     tertius, 364, 367, 372  
 piriformis, 340-347, 358, 359  
 plantaris, 358-362, 364, 369, 371  
 popliteus, 360-363, 366, 369-371  
 procerus, 300, 301  
 pronator quadratus, 323-325, 333, 334  
     teres, 317, 322, 325, 327, 328  
 psoas major, 286, 344-347, 350  
     minor, 344  
 pterygoideus externus, 295, 307, 308  
     internus, 295, 307, 308  
 pyramidalis, 275, 276, 385  
 quadratus femoris, 340-343, 345, 346  
     labii inferioris, 300, 302-304, 306  
     superioris, 300-302  
         caput angulare, 300, 301  
         infra-orbitale, 300, 302  
         zygomaticum, 300  
 quadratus lumborum, 339, 344, 345  
     planta, 376-378  
 quadriceps femoris, 350-353, 355, 360  
 rectus abdominis, 275, 276, 278, 385, 387, 389, 390  
     capitis anterior, 299, 308  
     lateralis, 271, 272, 279, 298, 299,  
     308  
     posterior (major, minor), 271, 272,  
     279, 308  
     femoris, 343, 345, 350-353  
 rhomboideus (major, minor), 267, 269, 319  
 risorius, 290, 300, 303  
 rotatores breves, 271-273  
     longi, 271-273  
 sacrococcygeus anterior, 288, 344, 346  
     posterior, 288  
 sacrospinalis, 268, 273, 285  
 sartorius, 345, 350, 351, 353-355, 362  
 scalenus anterior, 277-279, 293, 298, 299  
     medius, 270, 277, 278, 293, 298, 299  
     minimus, 279  
     posterior, 268, 269, 277, 278, 298, 299  
 semimembranosus, 351, 354, 358-363



**Musculus** *vel* **musculi**:  
 semispinalis, 270  
   capitis, 267-270, 272, 273, 278, 308  
   cervicis, 270, 272, 273  
   dorsi, 270, 273  
 semitendinosus, 351, 354, 358, 360, 362  
 serratus anterior, 268, 274-278, 317, 319  
   posterior inferior, 267-269, 273, 343  
   superior, 267, 269, 278  
 soleus, 363, 369, 371  
 spinalis, 268  
   cervicis, 268, 273  
 spinalis dorsi, 268, 273  
 splenius capitis, 266-269, 277, 278, 293, 308  
   cervicis, 267-269  
 sternalis, 282  
 sternocleidomastoideus, 278, 292, 293, 308, 317  
 sternohyoideus, 281, 292-294  
 sternothyroideus, 277, 281, 292, 293  
 styloglossus, 292, 293, 296, 297, 308  
 stylohyoideus, 278, 292, 297, 308  
 stylopharyngeus, 293, 297, 308  
 subclavius, 274, 275, 278, 299, 311, 314, 317  
 subcostales, 280  
 subscapularis, 277, 313, 315-317  
 supinator, 317, 319, 321, 323-325, 327-329  
 supraspinatus, 310, 312, 313, 319  
 temporalis, 306-308  
 tensor fasciæ latae, 338, 345, 350, 351, 353  
   veli palatini, 295, 297, 308  
 teres major, 266, 269, 311, 313, 316-319  
   minor, 311-314, 318, 319  
 thoracis, 274, 275, 277-283  
 thyrohyoideus, 277, 292-294, 296  
 thyropharyngeus, 293, 294  
 tibialis anterior, 364, 365, 367, 377, 378  
   posterior, 370, 371, 377, 379  
 transversus abdominis, 269-271, 275, 276, 281, 385, 387, 389  
   linguae, 296  
   menti, 300, 304  
   nuchæ, 266, 302  
   thoracis, 281  
 trapezius, 266, 269, 278, 292, 293, 308, 319  
 triangularis, 290, 293, 297, 300, 303, 306  
 triceps brachii, 310-320, 329  
   suræ, 308, 369  
 trunci, 265-288  
 unipennatus, 262  
 vastus intermedius, 352-354, 356  
   lateralis, 345, 352, 353, 356, 358-361  
   medialis, 348, 350-354, 360, 361, 367  
 zygomaticus, 290, 297, 300, 302, 303  
**Muscular fibres**, 260, 261  
**Myology**, general considerations, 259, 264

**N.**

**Nuclei of the muscular fibres**, 260

**O.**

Opening in adductor magnus for femoral vessels, 356, 357, 360  
 Opening (in the diaphragm), aortic, 286, 287  
   caval, 286, 287  
   oesophageal, 286, 287  
 Opening, saphenous, 274, 276, 349, 383  
 Orifice, inferior, of Hunter's canal, 356, 357, 360

**P.**

Perieranium, 300, 302, 303  
 Perimysium, 260, 261  
   externum, 261  
 Peritonæum parietale, 275, 386, 388  
 Peritoneum, parietal, 275, 386, 388  
 Pes anserinus, 351 and note  
 Pillar of the external or superficial abdominal ring:  
   lower or external, 349, 383  
   upper or internal, 349, 383  
 Pillars of the diaphragm, see "Diaphragm"

Platysma, 282, 290, 291, 300, 302, 306  
   myoides, 282, 290, 291, 300, 302, 306  
 Pleura, cervical, 279  
 Plica (see also "Fold"):  
   axillaris anterior, 283  
   posterior, 283  
 epigastrica, 386  
 hypogastrica, 275, 387  
 pubovesicalis, 386  
 umbilicalis lateralis, 386  
   media, 386  
 urachi, 386  
 vesicalis transversa, 386  
 Portion of the diaphragm, costal, 286, 287  
   sternal, 286, 287  
   vertebral, 286, 287  
 Pouch, inguinal, external, 386 and note  
   internal, 386 and note  
   middle, 386 and note  
   supravesical, 386 and note  
 Process, falciform, 346

**R.**

Raphe, median, of the mylohyoid muscle, 295  
 musculi mylohyoidæ, 295  
 pterygomandibularis, 297, 307  
 Retinacula, 331, note  
 Retinaculum m.m. peronæorum inferius, 364, 366, 372  
   superius, 372  
   of the peronei tendons, inferior, 364 and note,  
   366, 372  
   superior, see "Ligament, annular, of the ankle, external"  
 Ring, abdominal, external or superficial, 274, 349, 383, 385  
   internal or deep, 275, 276, 344, 385, 387-389  
   crural, 389, 390  
   femoral, 389, 390

**S.**

Sarcolemma, 260, 261  
 Segment, thoracic, diagram of, 284 and note  
 Septum, crural, 383, 388  
   femoral, 383, 388  
   femorale [Cloqueti], 383, 388  
   intermuscular, 264  
     of the forearm, 329  
   peroneal, anterior, 364, 367  
     posterior, 370, 371  
   of the thigh, external, 360  
     internal, 350, 351, 353,  
     356, 357, 359  
   of the upper arm, external, 311, 319  
     internal, 314-317,  
     319  
 intermusculare, 264  
   femoris laterale, 360  
   mediale, 350, 351, 353, 356,  
   357, 359  
   fibulare anterius, 364, 367  
   posterius, 370, 371  
   humeri laterale, 311, 319  
   mediale, 314-317, 319  
 Sheath of the rectus abdominis muscle, 274-276, 281, 285, 385,  
 389  
 Sheath or sheaths, synovial, of the tendon or tendons (see  
 also "Vagina *vel* vagina—tendinis *vel* tendonum"):  
   of the extensor carpi radialis longior and extensor  
   carpi radialis brevior muscles, 330  
   of the extensor carpi ulnaris muscle, 330  
   of the extensor communis digitorum and extensor  
   inducis muscles, 330  
   of the extensor longus digitorum pedis and peroneus  
   tertius muscles, 372  
   of the extensor longus *vel* proprius hallucis muscle,  
   372  
   of the extensor longus pollicis muscle, 330  
   of the extensor minimi digiti muscle, 330

- Sheath of the extensor ossis metacarpi pollicis and extensor primi internodii pollicis muscles, 330, 333  
 of the extensor secundi internodii pollicis muscle, 330  
 of the flexor carpi radialis muscle, 333  
 of the flexors of the fingers, 333  
 of the flexor longus digitorum pedis muscle, 378  
 of the flexor longus hallucis muscle, 378  
 of the flexor longus pollicis muscle, 333  
 of the flexor sublimis and flexor profundus digitorum muscles, 333  
 of the peroneus longus muscle (plantar region), 378  
 of the peroneus longus and peroneus brevis muscles, 372, 378  
 of the tibialis anticus muscle, 372  
 of the tibialis posticus muscle, 378  
 "Snuff-box, anatomical," 326 and note, 327  
 \*Space, axillary, external, 312 and note, 313  
 internal, 312 and note, 313  
 Mohrenheimer's, 274, 282, 293  
 popliteal, 358  
 scalene, 277 and note  
 Stratification of the muscles of the trunk and their associated fascia, 284, 285  
 Structure of muscle, 260, 261  
 "Sucking-pad," 290, note  
 Sulci plantares, 375  
 Sulcus (see also "Furrow" and "Hollow"):  
 † antibrachii radialis, 322  
 ulnaris, 322  
 bicipitalis lateralis, 326  
 medialis, 315  
 † deitoidopectoralis, 282  
 subclaviae, 299  
 Synergists, 263

## T.

- Tabatière anatomique*, 326, note, 327  
 Tendo, 261, 262  
 Achilles, 366, 367, 369, 371  
 calcaneus [Achillis], 366, 367, 369, 371  
 Tendon, 261, 262  
 common, for the origin of the palmar muscles of the forearm, 317, 321, 325  
 of diaphragm, central, 286, 287  
 cordiform, 286, note<sup>2</sup>  
 trefoil, 286, note<sup>2</sup>  
 infrapatellar, 353, 355, 356, 366, 367

- Thenar, 322, 324  
 Tractus iliotibialis [Maissiati], 338, 340, 342  
 Triangle, infraclavicular, 274, 282, 293  
 of Petit, 266, 267  
 Scarpa's, 350  
 Trigonum deltoideopectoralae, 274, 282, 293  
 femorale, 350  
 lumbale [Petiti], 266, 267

## V.

- Vagina musculi recti abdominis, 274-276, 281, 285, 385, 389  
 Vagina *vel* vagina—tendinis *vel* tendinum:  
 digitales (manus), 333  
 m. extensoris carpi ulnaris, 330  
 digiti quinti, 330  
 digitorum pedis longi, 372  
 hallucis longi, 372  
 pollicis longi, 330  
 † m. flexoris carpi radialis, 333  
 digitorum (pedis) longi, 378  
 hallucis longi, 378  
 pollicis longi, 333  
 m. peronæi longi plantaris, 378  
 m. tibialis anterioris, 372  
 posterioris, 378  
 mm. abductoris longi et extensoris brevis pollicis, 330, 333  
 mm. extensorum carpi radialis, 330  
 mm. extensoris digitorum communis et extensoris indicis, 330  
 mm. flexorum communium, 333  
 mm. peronæorum communis, 372, 378  
 Venter (musculi), 262  
 Vincula of the extensor tendons of the fingers, 330, 331 and note  
 of the toes, 380  
 tendinum (digitorum manus), 331  
 (digitorum pedis), 380  
 Vinculum subflavum, 331, note  
 Wall of the axilla, anterior, 283  
 posterior, 283  
 White line of the pelvic fascia, 346



AN ATLAS  
OF  
HUMAN ANATOMY  
FOR STUDENTS AND PHYSICIANS

BY  
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Adapted to English and American and International Terminology

BY  
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FOURTH SECTION  
E. SPLANCHNOLOGY  
(FIGURES 641 TO 932 AND INDEX)

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SPLANCHNOLOGIA

SPLANCHNOLOGY



## SPLANCHNOLOGY—GENERAL CONSIDERATIONS



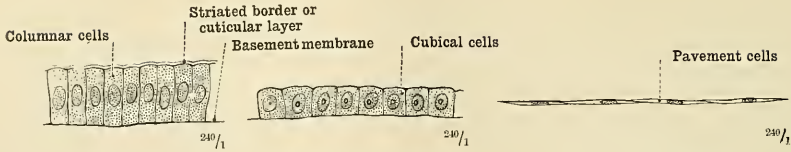


FIG. 641.—COLUMNAR, OR CYLINDER, EPITHELIUM.

FIG. 642.—CUBICAL EPITHELIUM.

FIG. 643.—PAVEMENT EPITHELIUM.

SIMPLE EPITHELIUM<sup>1</sup> IN VERTICAL SECTION.

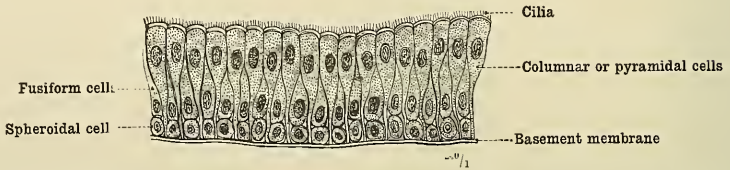


FIG. 644.—TRANSITIONAL<sup>1</sup> COLUMNAR CILIATED EPITHELIUM IN VERTICAL SECTION.

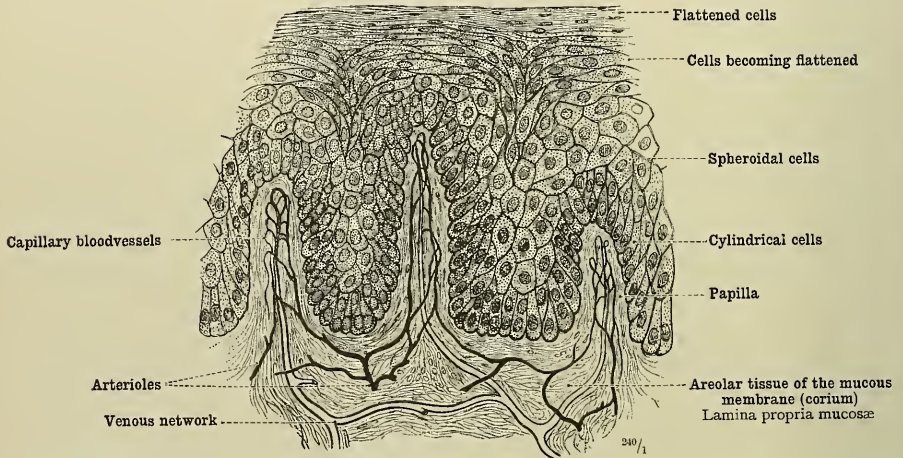


FIG. 645.—STRATIFIED EPITHELIUM<sup>1</sup> IN VERTICAL SECTION (MUCOUS MEMBRANE OF THE LOWER LIP).

The bloodvessels of the mucous membrane have been artificially injected.

<sup>1</sup> *Classification of Epithelia.*—An epithelium consisting of a single layer of cells is called a *simple* epithelium, in contradistinction to a *stratified* epithelium, which consists of numerous layers of cells. Where two or three layers of cells only are found, the cells nearer the basement membrane being usually smaller, and dovetailed among the bases of the superficial cells, the epithelium is called *transitional*. Transitional and stratified epithelium are grouped together as *compound* epithelia.—Tr.

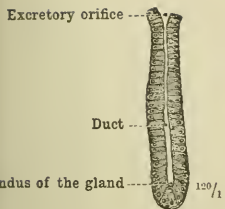


FIG. 646.—SIMPLE TUBULAR GLAND.

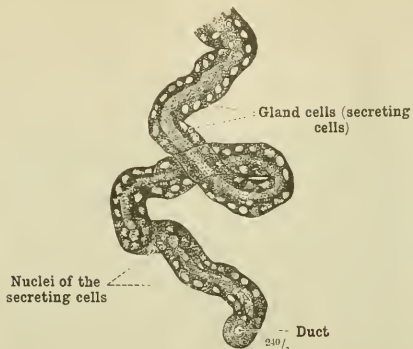


FIG. 647.—CONVOLUTED TUBULAR GLAND.

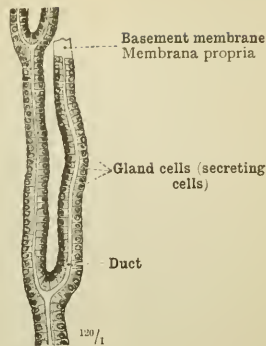


FIG. 648.—BRANCHED TUBULAR GLAND.

GLANDULÆ TUBULOSÆ—TUBULAR GLANDS.

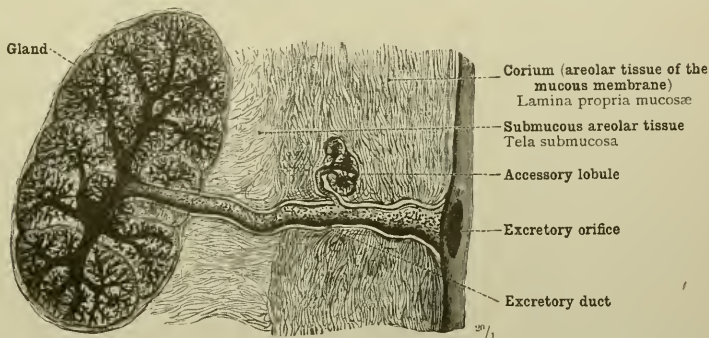


FIG. 649.—RACEMOSE OR ACINOUS GLAND (GLANDULA ALVEOLARIS SIMPLEX<sup>1</sup>), THE DUCTS OF WHICH HAVE BEEN INJECTED (LABIAL GLAND).

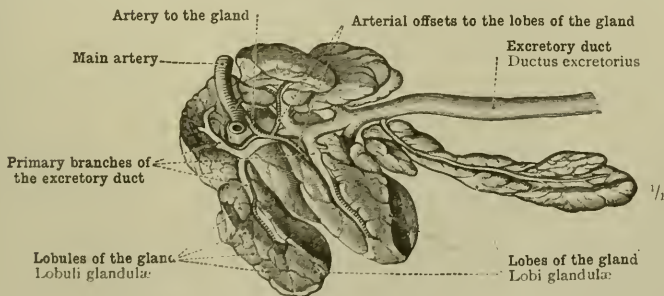


FIG. 650.—RACEMOSE OR ACINOUS GLAND (GLANDULA ALVEOLARIS COMPOSITA<sup>1</sup>), THE LOBES OF WHICH HAVE BEEN ARTIFICIALLY ISOLATED AND DRAWN APART (THE SUBMAXILLARY GLAND).

<sup>1</sup> Though the labial gland shown in Fig. 649 is called by the author *glandula alveolaria simplex*, and the submaxillary gland shown in Fig. 650 *glandula alveolaria composita*, both are *compound glands* according to the English terminology, in which a gland is regarded as *simple* only when it consists of a single, unbranched cavity, tubular or saccular, as the case may be.—Vn.

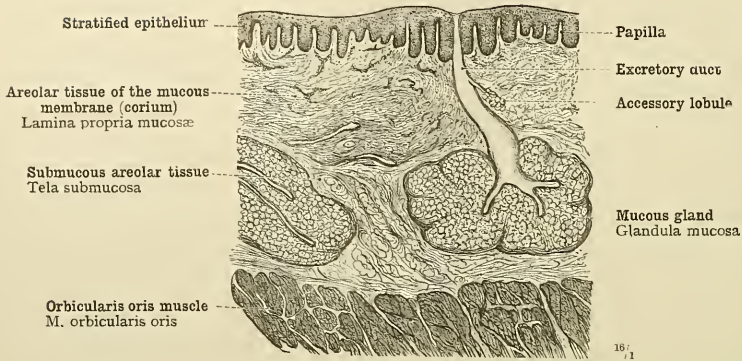


FIG. 651.—MUCOUS MEMBRANE, WITH PAPILLÆ, STRATIFIED EPITHELIUM, AND RACEMOSE GLANDS, IN VERTICAL SECTION (MUCOUS MEMBRANE OF THE LOWER LIP).

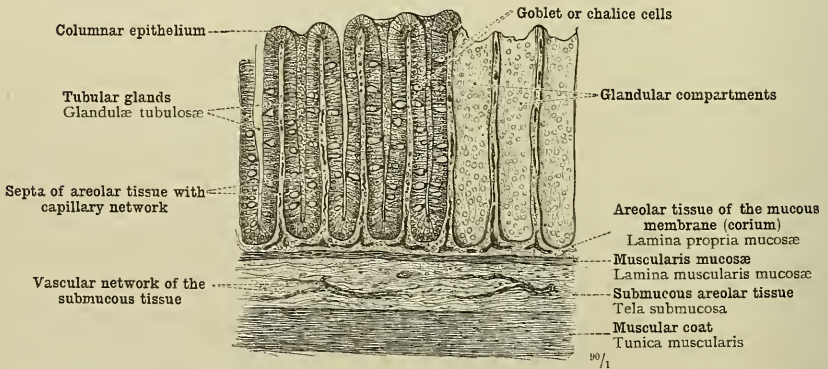


FIG. 652.—MUCOUS MEMBRANE WITH COLUMNAR EPITHELIUM AND TUBULAR GLANDS IN VERTICAL SECTION (MUCOUS MEMBRANE OF THE LARGE INTESTINE).

On the right side of the preparation three of the glands have fallen out, bringing into view the areolar tissue of the mucous membrane (corium) with its compartments for the glands.

Tunica mucosa—Mucous membrane.



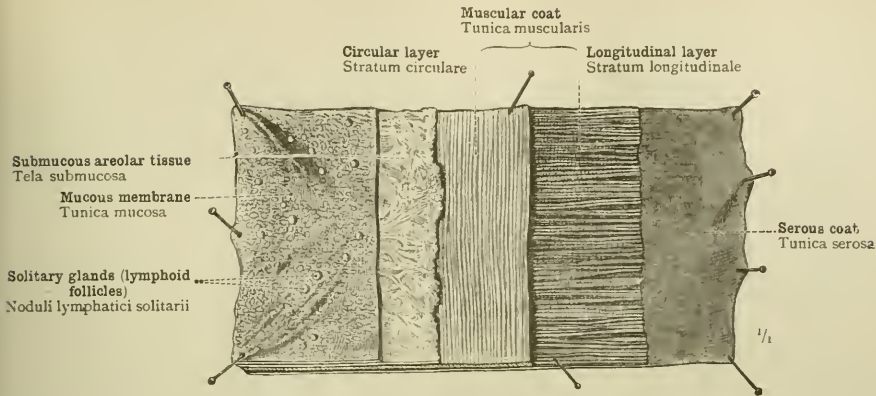


FIG. 653.—THE LAYERS OF THE INTESTINAL WALL SHOWN BY THE REMOVAL OF THE SUCCESSIVE COATS IN A PORTION STRETCHED OUT FLAT.

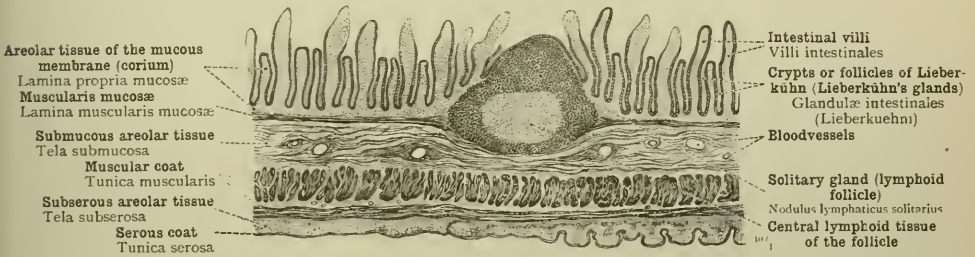


FIG. 654.—VERTICAL SECTION THROUGH THE WALL OF THE SMALL INTESTINE (INTESTINUM ILEUM) IN THE DIRECTION OF ITS LENGTH. NODULUS LYMPHATICUS SOLITARIUS, SOLITARY GLAND (LYMPHOID FOLLICLE). GLANDULÆ INTESTINALES (LIEBERKUEHNI), CRYPTS OR FOLLICLES OF LIEBERKÜHN (LIEBERKÜHN'S GLANDS).



FIG. 655.—VERTICAL SECTION THROUGH THE WALL OF THE DUODENUM IN THE DIRECTION OF ITS LENGTH. GLANDULÆ DUODENALES (BRUNNERI), BRUNNER'S GLANDS (DUODENAL GLANDS).



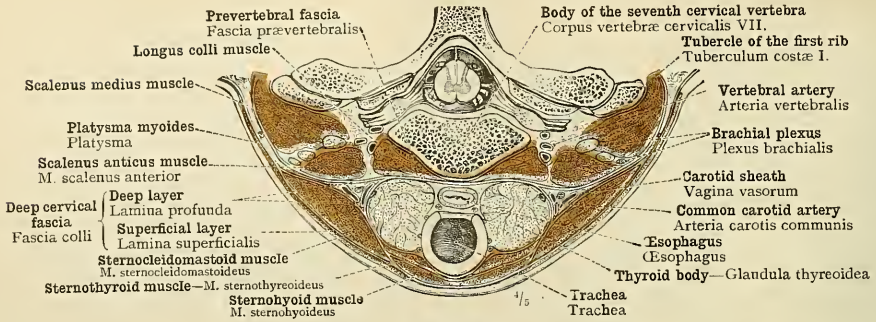


FIG. 656.—VISCUS, THE OUTER SURFACE OF WHICH IS THROUGHOUT CONNECTED WITH THE WALL OF THE BODY-CAVITY (CÆLOM) BY MEANS OF AREOLAR TISSUE. HORIZONTAL SECTION THROUGH THE LOWER PART OF THE NECK. SEMI-DIAGRAMMATIC.

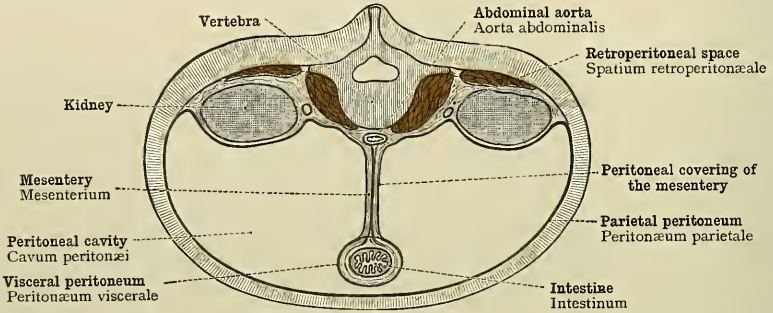


FIG. 657.—PORTION OF INTESTINE, FREELY MOBILE, THE OUTER SURFACE HAVING A SEROUS INVESTMENT (TUNICA SEROSA). CONNECTED WITH THE WALL OF THE BODY-CAVITY (CÆLOM) BY MEANS OF A FREE MESENTERY. PARIETAL AND VISCERAL LAYERS OF THE PERITONEUM. DIAGRAMMATIC.

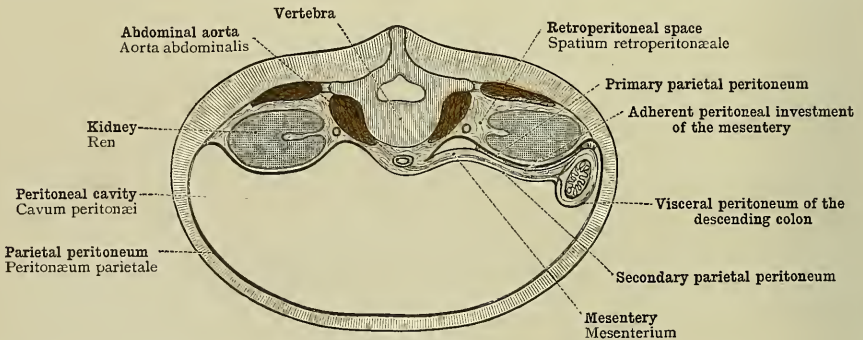
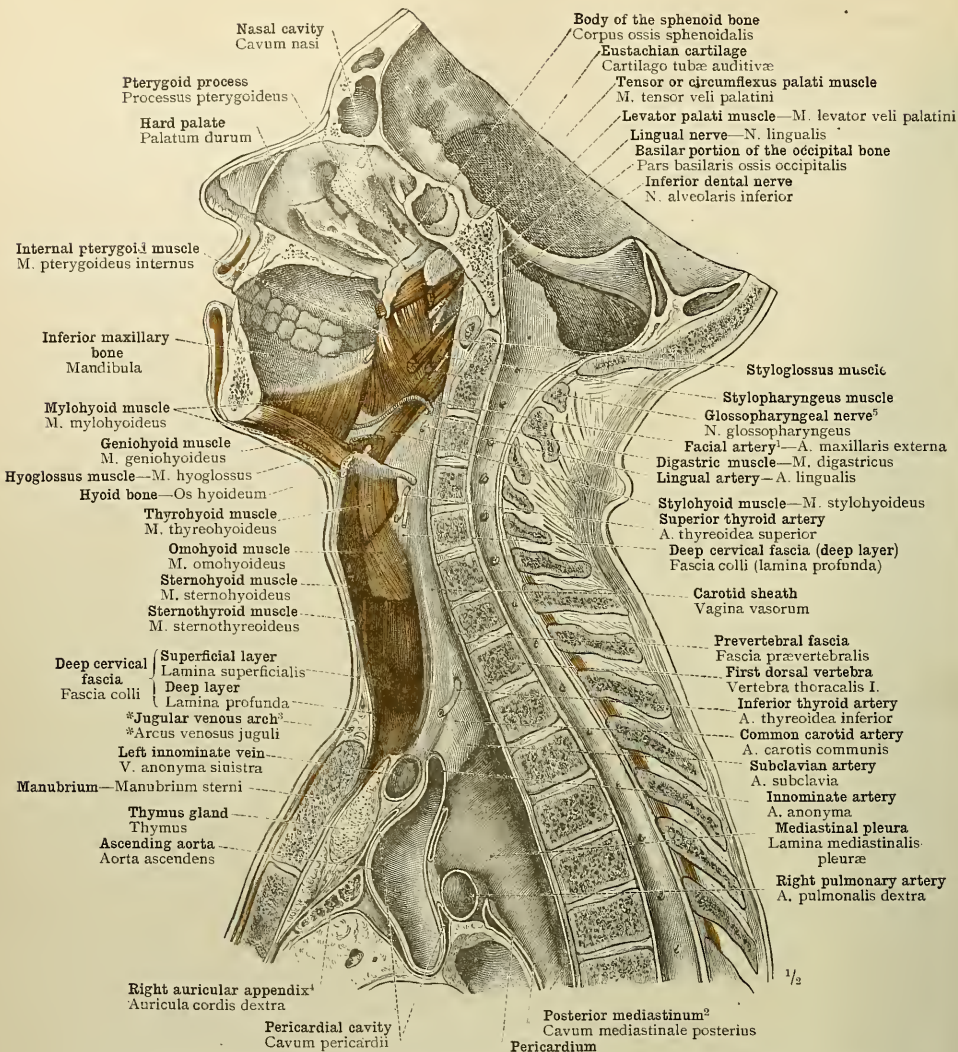


FIG. 658.—SECONDARY ADHESION TO THE BODY-WALL OF A PORTION OF INTESTINE, ORIGINALLY FREELY MOBILE. PRIMARY AND SECONDARY PARIETAL PERITONEUM. DIAGRAMMATIC.

Relations of the Viscera to the Body-Wall.

APPARATUS DIGESTORIUS  
THE ORGANS OF DIGESTION

CEPHALIC AND CERVICAL PORTIONS  
OF THE  
DIGESTIVE ORGANS



<sup>1</sup> *Facial Artery*.—Quain gives *external maxillary* and Macalister *external mandibular* as an alternative name for this artery, but it is so rarely in England called anything but the *facial* artery, that I have not thought it necessary to mention these synonyms in the text.—Tr.

<sup>2</sup> *Mediastinum*.—The word *mediastinum* (*per medium tensum*, "stretched through the middle") properly denotes the bilaminar median partition between the right and left pleural cavities; the space between these layers, *cavum mediastinale*, should, strictly, be spoken of as the *mediastinal cavity* or *space*. In England, however, it is customary, when speaking of the various divisions of this cavity, to call them, by metonymy, simply *anterior mediastinum*, *middle mediastinum*, *posterior mediastinum*, and *superior mediastinum*.—Tr.

<sup>3</sup> *Jugular Venous Arch*.—This term is not used by English anatomists. It is applied by Todd to the communicating branch in the suprasternal space (*spatium interaponeuroticum suprasternale*, or Burns's space) between the two anterior jugular veins, and to those portions of the anterior jugular veins below the communicating branch, which run outwards on each side behind the origin of the sternocleidomastoid muscle to open into the lower end of the external jugular vein. A transverse venous arch is thus formed at the root of the neck between the external jugular veins.—Tr.

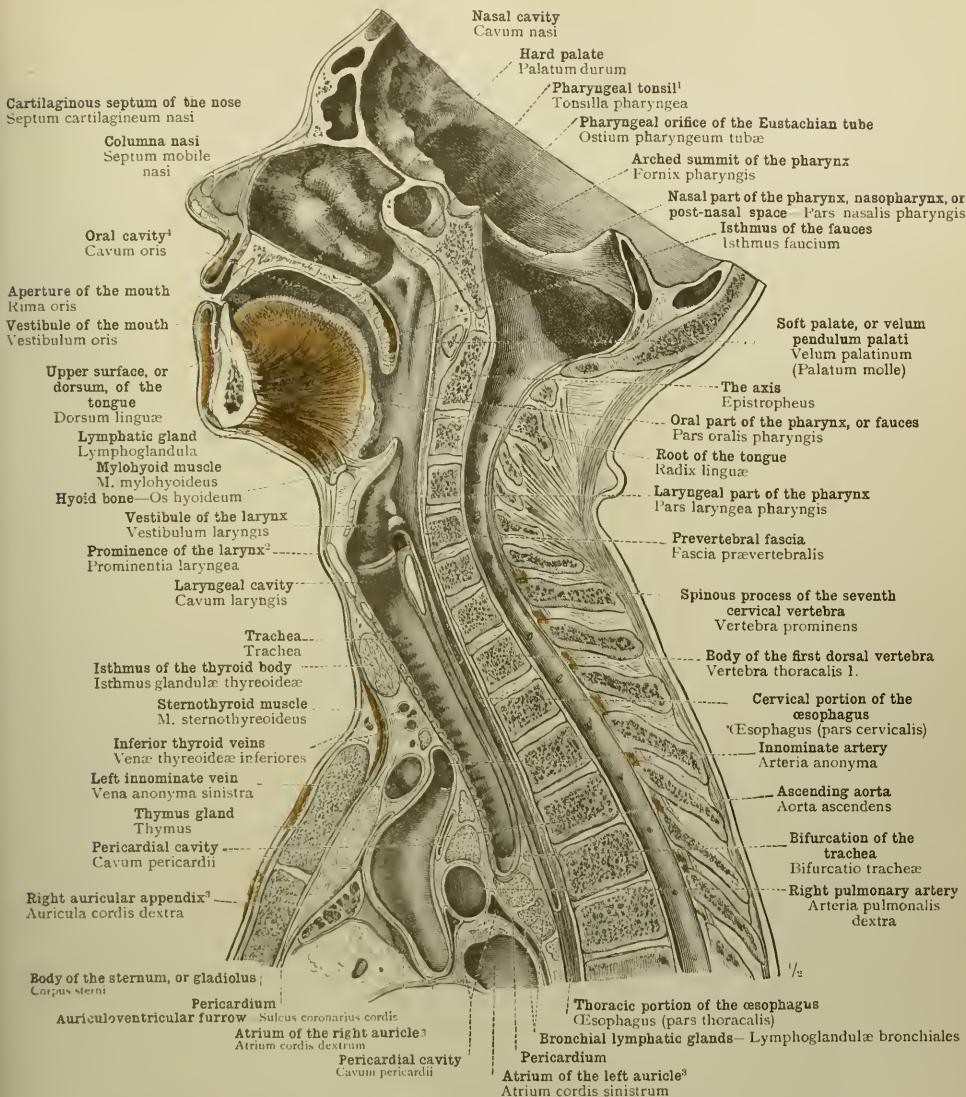
<sup>4</sup> See note 3 to p. 411.

<sup>5</sup> Or ninth cranial nerve.

FIG. 659.—VISCERAL CAVITY (CÆLOM) OF THE HEAD AND NECK, AND ITS CONNEXION WITH THE VISCERAL CAVITY (CÆLOM) OF THE THORAX, IN MEDIAN SAGITTAL SECTION. FROM A WELL-HARDENED BODY, DIVIDED SAGITTALLY IN THE MEDIAN PLANE, WITH THE VISCERA REMOVED. RIGHT SIDE.

Cavum viscerale capitis et colli—Visceral cavity (cælom) of the head and neck.





<sup>1</sup> Known also as *Luschka's gland* or *Luschka's tonsil* (third tonsil). This combines with the *tonsils proper* (amygdalæ, tonsillæ palatinæ) and the *lingual tonsil* (fourth tonsil, see note 4 to p. 416) to form a ring of lymphoid tissue round the commencement of the fauces, the continuity of which in the earlier stages of development is almost unbroken. It has been called by Waldeyer the *lymphoid faucial ring*.—TR.

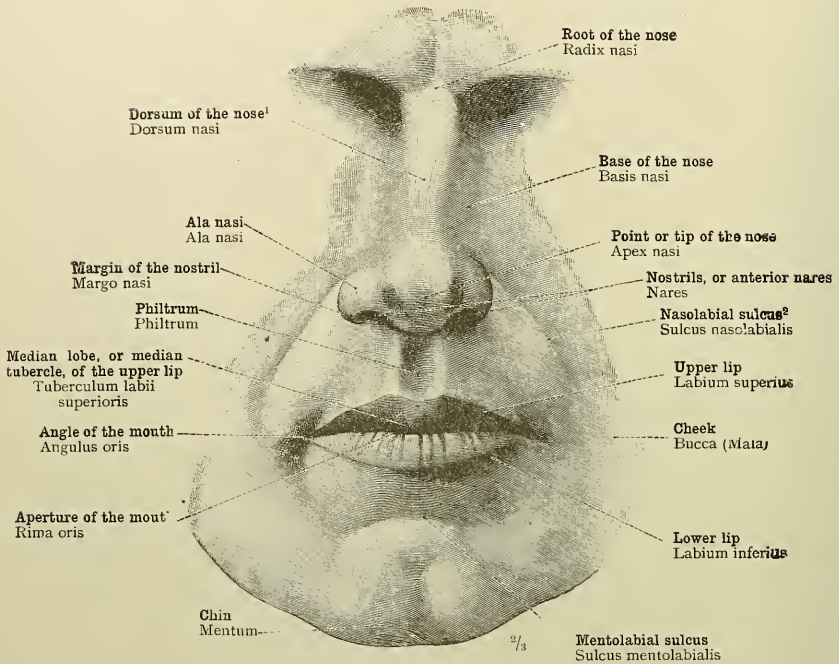
<sup>2</sup> Cf. *Johnson Adams*.

<sup>3</sup> On the Continent, the significance of the term *auricula* is restricted to its proper and primitive meaning, denoting what in England is usually called the *auricular appendix*; whilst the main cavity, in England usually misnamed *auricle*, is by the author called *atrium*. As the name *auricle* was originally given to the *appendix* owing to its resemblance in shape to the triangular external ear with pointed tip of many animals, it is obvious that the Continental usage is to be preferred.—TR.

<sup>4</sup> See note 3 to p. 414.

FIG. 690.—CEPHALIC AND CERVICAL VISCERA, AND THEIR PASSAGE INTO THE THORACIC CAVITY, IN MEDIAN SAGITTAL SECTION.





<sup>1</sup> The upper or bony part of the dorsum of the nose is often spoken of as the *bridge*.—Tr.

<sup>2</sup> At its upper extremity the nasolabial sulcus is continued on to the side of the nose, above the ala, and is here termed the *alar sulcus*.—Tr.

FIG. 661.—PARTS OF THE FACE HAVING RELATION TO THE VISCERA. FROM THE PHOTOGRAPH OF A YOUNG MAN.

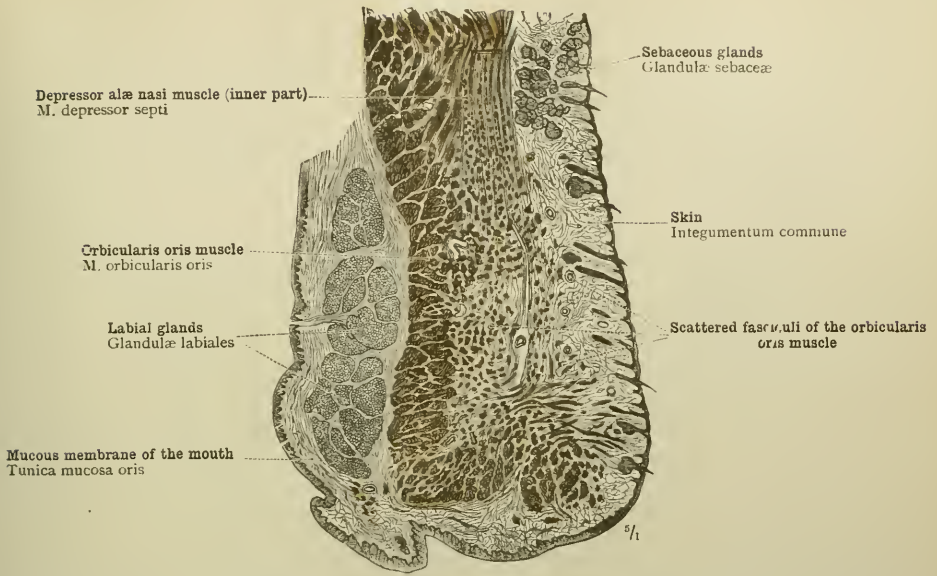
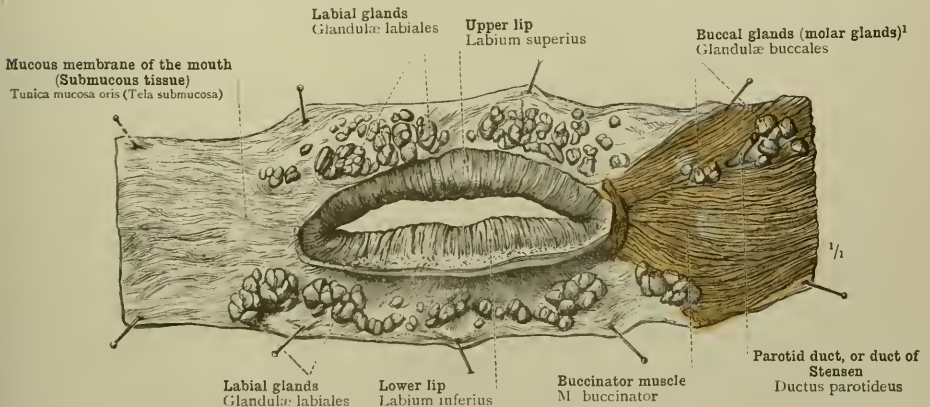


FIG. 662.—SAGITTAL SECTION THROUGH THE MIDDLE OF THE UPPER LIP, SHOWING ITS LAYERS, AND THE TRANSITION OF THE SKIN INTO THE MUCOUS MEMBRANE OF THE MOUTH.

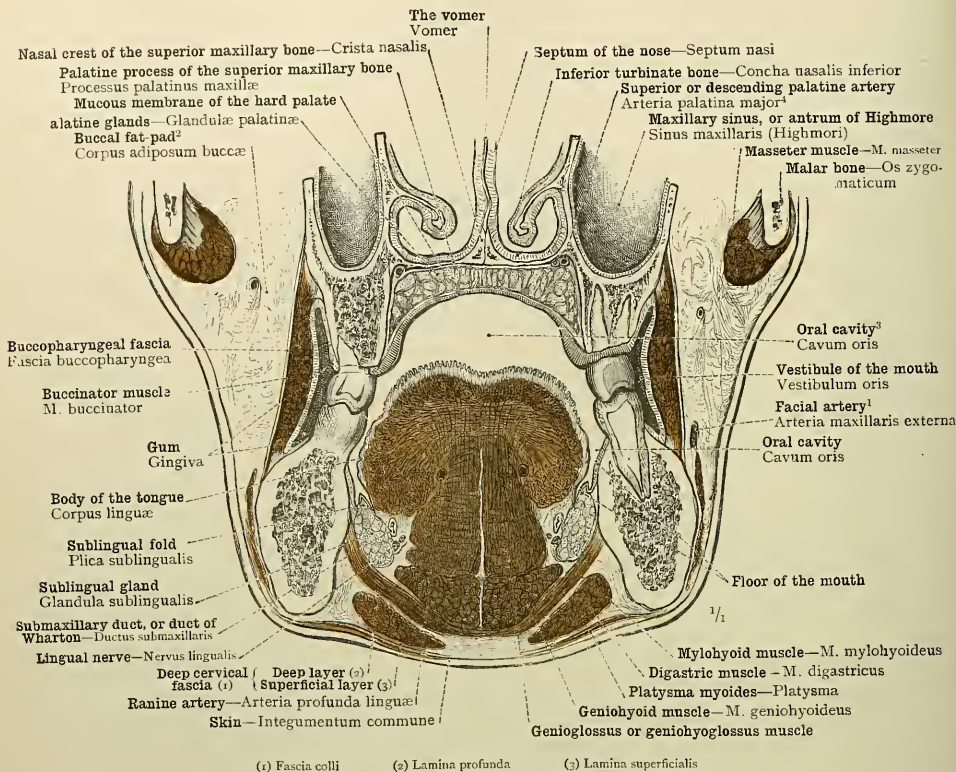


<sup>1</sup> Some of the buccal glands lie between the buccinator muscle and the mucous membrane and the cheek. Those here figured, however, larger than the rest, are between the buccinator and masseter muscles. They open by separate ducts near the last molar tooth, and are distinguished as molar glands.—Tr.

FIG. 663.—MUCOUS GLANDS OF THE LIPS AND THE CHEEKS, LABIAL AND BUCCAL (MOLAR) GLANDS, LAID BARE BY THE REMOVAL OF THE SKIN, THE ORBICULARIS ORIS, AND THE ADJACENT MUSCLES. THE MUCOUS MEMBRANE IS SEEN FROM BEFORE.

On the left side the buccinator muscle has not been removed.

Labia oris—The lips.

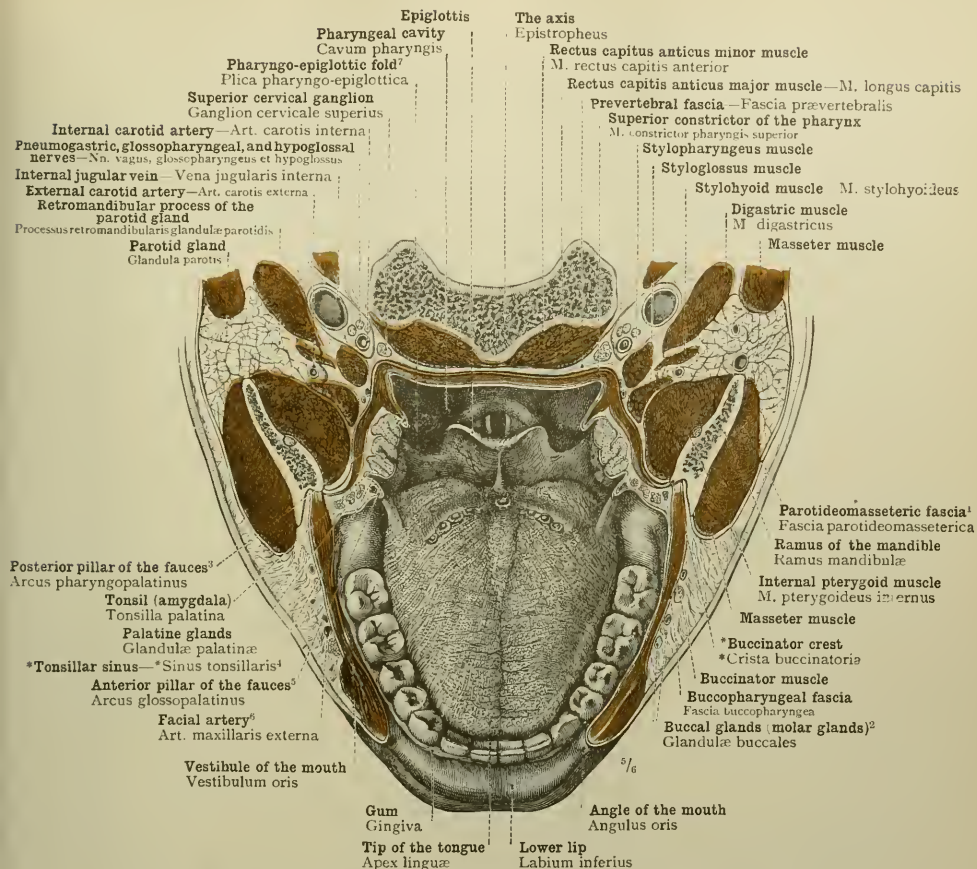


1 See note 1 to p. 410.  
 2 Sometimes, but inappropriately, named the *sucking-pad*.—Tr.  
 3 A large cavity, such as is here represented, does not usually exist in the mouth. Normally when the mouth is closed the dorsum of the tongue is almost in apposition with the palate, being separated from it only by a narrow slit.—Tr.  
 4 *Arteria Palatina Major*.—This name is given by the author to the *superior or descending palatine artery, arteria palatina descendens*, after its emergence on to the inferior surface of the hard palate.—Tr.

FIG. 664.—CORONAL SECTION THROUGH THE FACE BETWEEN THE FIRST AND SECOND MOLAR TEETH. WALLS OF THE ORAL CAVITY: UPPER WALL, OR ROOF OF THE MOUTH, CONSISTING OF THE HARD PALATE, PALATUM DURUM; LOWER WALL, OR FLOOR OF THE MOUTH, WITH THE SUBLINGUAL GLAND; LATERAL WALLS OF THE MOUTH, FORMED BY THE MUCOUS MEMBRANE OF THE CHEEKS. CAVUM ORIS, ORAL CAVITY, THE INTERIOR OF THE MOUTH (see note 3 above); VESTIBULUM ORIS, THE VESTIBULE OF THE MOUTH. THE DIAPHRAGMA ORIS, FORMED BY THE TWO MYLOHYOID MUSCLES AND STRENGTHENED BY THE TWO GENIOHYOID MUSCLES. SEEN FROM BEFORE.

Cavum oris—The oral cavity.





<sup>1</sup> In England the portion of the deep cervical fascia covering the parotid gland is usually distinguished as the *parotid fascia*; that covering the masseter muscle, as the *masseteric fascia*.—Tr.

<sup>2</sup> See note <sup>1</sup> to p. 413.

<sup>3</sup> Also known as the *posterior palatine*, or *pharyngopalatine*, arch.

<sup>4</sup> *Sinus tonsillar*.—"The tonsil, in the foetus, develops in a depression between the pillars of the fauces, called the "tonsillar sinus." As a rule this depression is not completely filled by the tonsil when that organ has attained its full size, and there usually remains above the tonsil a triangular hollow, the *supra-tonsillar fossa*, which persists through out adult life. In front of and behind the tonsil the pillars of the fauces may either remain distinct, with a groove of variable depth, the remains of the *tonsillar sinus*, between them and the tonsil; or else the tonsil may become united with one or both the pillars, in which case a portion of the latter, becoming converted into lymphoid tissue, comes to form an actual constituent part of the tonsil."—Von Langer and Toldt's "Anatomy," 7th ed., p. 320. (Fig. 671, p. 418, shows such an adhesion between the tonsil and the posterior pillar of the fauces).—Tr.

<sup>5</sup> Known also as the *anterior palatine*, or *glossopalatine*, arch.

<sup>6</sup> See note <sup>1</sup> to p. 410.

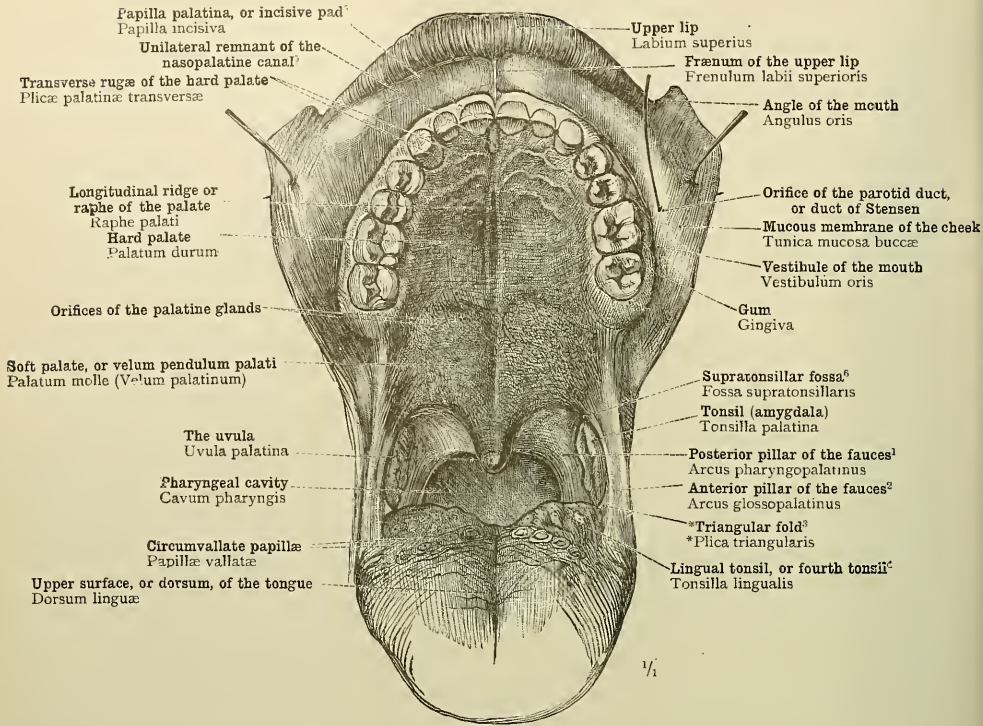
<sup>7</sup> *Plica Pharyngo-epiglottica*.—Three folds of mucous membrane pass from each side of the epiglottis to adjacent structures. The *lateral glosso-epiglottic fold* (Fig. 673, p. 410, and Fig. 778, p. 461) passes forwards to the side of the tongue; the *aryteno-epiglottic fold* (Fig. 778, p. 461) passes backwards and inwards to the epiglottis; and the *pharyngo-epiglottic fold*, between these, passes outwards to the lateral wall of the pharynx. It forms the boundary between the oral and the laryngeal part of the pharynx. Beneath the mucous membrane is a thin strand of fibrous tissue, connecting the side of the epiglottis with the lower border of the Eustachian cartilage. This is the *pharyngo-epiglottic ligament*.—Tr.

FIG. 665.—LOWER WALL OF THE ORAL CAVITY, OR FLOOR OF THE MOUTH, WITH THE TONGUE AND THE LOWER LIP, AND THE MIDDLE OR ORAL PORTION OF THE PHARYNX (FAUCES), SEEN FROM ABOVE.

The cheeks, the tonsils with the palatine arches (pillars of the fauces), and the lateral and posterior walls of the pharynx, have been divided horizontally, likewise the rami of the mandible with the muscles attached thereto, and the parotid glands.

Cavum oris—The oral cavity.





<sup>1</sup> Also known as the *posterior palatine*, or *pharyngopalatine*, arch.

<sup>2</sup> Also known as the *anterior palatine*, or *glossopalatine*, arch.

<sup>3</sup> \**Triangular Fold*.—This is included between the two limbs into which the anterior pillar of the fauces divides as it approaches the side of the tongue. It should be noted that the name *plicæ triangularis* has been applied to another fold of mucous membrane, viz., to that covering the *fossa supratonsillaris*.—Tr.

<sup>4</sup> *Lingual Tonsil*.—This name is sometimes given to the group of lymphoid follicles found on each side of the dorsum of the tongue at its base, behind the row of circumvallate papillæ. See also note 1 to p. 415.—Tr.

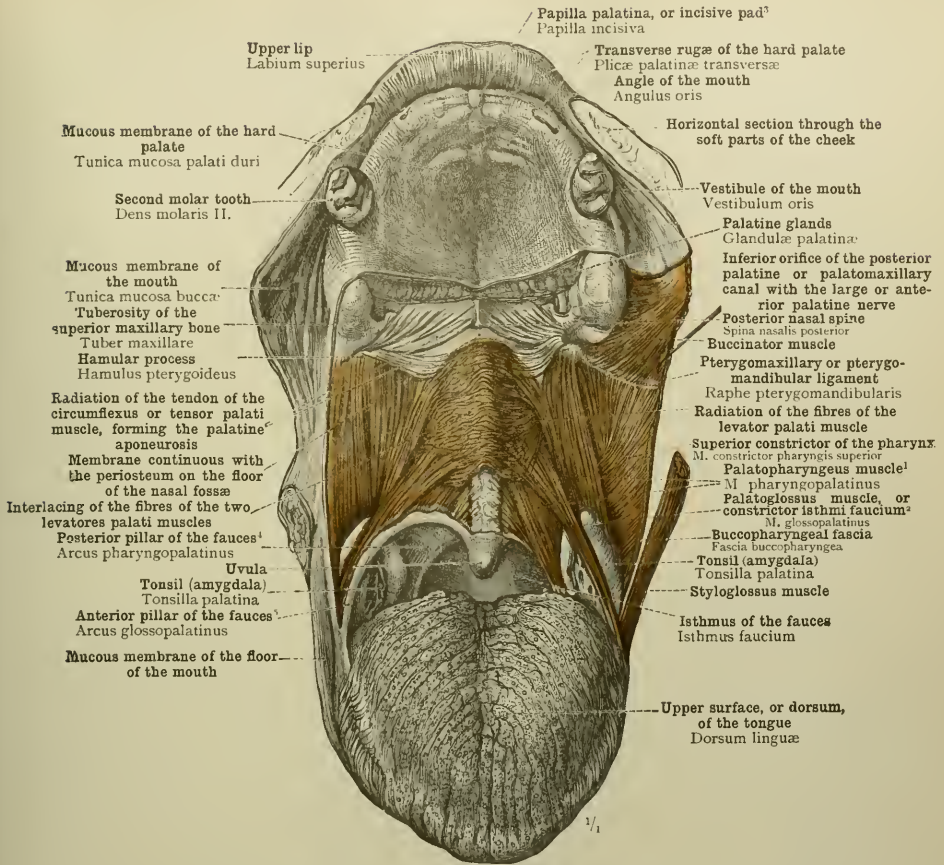
<sup>5</sup> On the *papilla palatina* or *incisive pad* may be found on one or both sides a blind recess, constituting the remnant of the canal which in many animals in this situation leads from the mouth to the nose, and known variously as the *incisor canal*, *nasopalatine canal*, *canal of Stensen*, or *ductus incisivus*. In man this canal is usually represented by a strand of connective tissue which runs from the recess in the incisive pad upwards through the incisive or anterior palatine canal (canal of Stensen) of the superior maxillary bone to the floor of the nasal fossæ.—Tr.

<sup>6</sup> See note 4 to p. 415.

FIG. 566.—UPPER WALL OF THE ORAL CAVITY, OR ROOF OF THE MOUTH, WITH THE UPPER LIP, AND THE PASSAGE (ISTHMUS FAUCIUM) FROM THE MOUTH INTO THE ORAL PORTION OF THE PHARYNX (THE FAUCES). PALATUM DURUM, THE HARD PALATE; PALATUM MOLLE, THE SOFT PALATE, OR VELUM PENDULUM PALATI, WITH THE UVULA; ARCUS GLOSSOPALATINUS, THE ANTERIOR PILLAR OF THE FAUCES, KNOWN ALSO AS THE ANTERIOR PALATINE OR GLOSSOPALATINE ARCH; ARCUS PHARYNGOPALATINUS, THE POSTERIOR PILLAR OF THE FAUCES, KNOWN ALSO AS THE POSTERIOR PALATINE OR PHARYNGOPALATINE ARCH; TONSILLA PALATINA, THE TONSIL (AMYGDALA).

After the removal of the lower jawbone, the palate was placed in an almost vertical position, and the tongue drawn downwards as far as possible; hence the anterior pillar of the fauces is much stretched.

Cavum oris—The oral cavity.



<sup>1</sup> This muscle occupies the posterior pillar of the fauces.—Tr.  
<sup>2</sup> This muscle occupies the anterior pillar of the fauces.—Tr.  
<sup>3</sup> See note 5 to p. 416.

<sup>4</sup> Known also as the *posterior palatine*, or *pharyngopalatine*, arch.  
<sup>5</sup> Known also as the *anterior palatine*, or *glossopalatine*, arch.

FIG. 667.—MUSCLES OF THE SOFT PALATE AND OF THE PILLARS OF THE FAUCES OR PALATINE ARCHES, SEEN FROM BEFORE. APONEUROTIC EXPANSION OF THE TENDON OF THE CIRCUMFLEXUS OR TENSOR PALATI MUSCLE (ATTACHED IN FRONT TO THE TRANSVERSE RIDGE ON THE LOWER SURFACE OF THE PALATE BONE, AND FORMING POSTERIORLY THE PALATINE APONEUROSIS); RETIFORM INTERLACEMENT OF THE FIBRES OF THE TWO LEVATORES PALATI MUSCLES.

On the left side the mucous membrane has been removed to show the connexion of the buccinator muscle with the superior constrictor of the pharynx through the intermediation of the pterygomaxillary or pterygomandibular ligament. The parts were prepared as in Fig. 666.

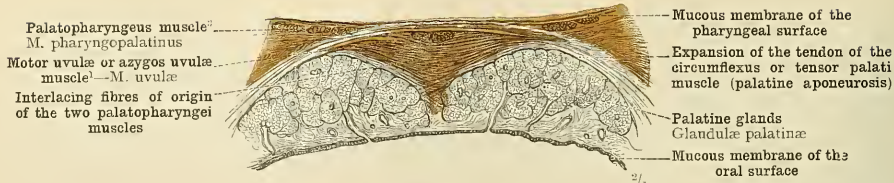


FIG. 668.—TRANSVERSE SECTION THROUGH THE UPPERMOST PORTION OF THE SOFT PALATE, IN THE REGION OF THE APONEUROTIC EXPANSION OF THE CIRCUMFLEXUS OR TENSOR PALATI MUSCLE.

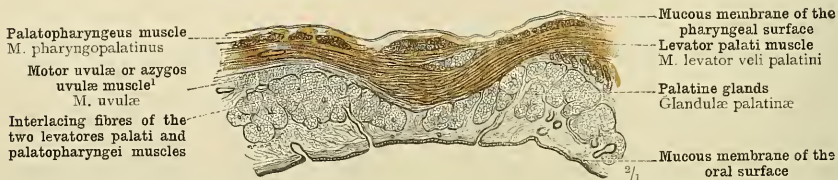


FIG. 669.—TRANSVERSE SECTION THROUGH THE SOFT PALATE MIDWAY BETWEEN ITS ATTACHED AND FREE EXTREMITIES, IN THE REGION OF THE LEVATOR PALATI MUSCLE.

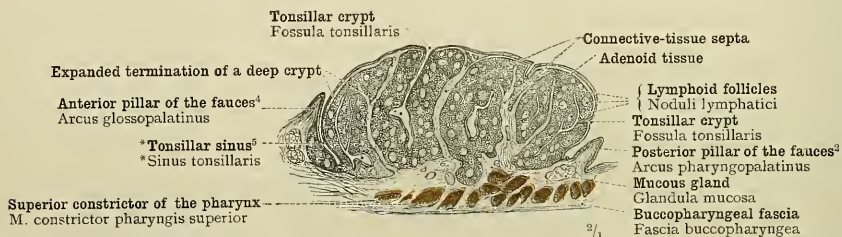


FIG. 670.—HORIZONTAL SECTION THROUGH A LARGE PROJECTING TONSIL (TONSILLA PALATINA) AND THROUGH THE PILLARS OF THE FAUCES. (FROM AN EXECUTED MALE CRIMINAL, AGED TWENTY-TWO YEARS.)

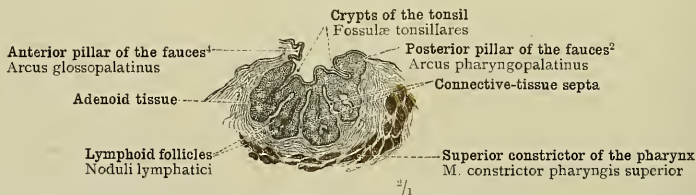


FIG. 671.—HORIZONTAL SECTION THROUGH A SMALL SUNKEN TONSIL (TONSILLA PALATINA) AND THROUGH THE PILLARS OF THE FAUCES. (FROM A FEMALE, AGED FIFTY-TWO YEARS.)

The posterior pillar is united with the tonsil.<sup>5</sup>

<sup>1</sup> The name *motor uvulae*, suggested by Macalister, is to be preferred to the old and more familiar name *azygos uvulae*, which was given to the muscle when it was erroneously supposed to be a single median muscle.—TR.

<sup>2</sup> Known also as the *posterior palatine*, or *pharyngopalatinus*, *arch*.

<sup>3</sup> See note <sup>1</sup> to p. 417.

<sup>4</sup> Known also as the *anterior palatine*, or *glossopalatinus*, *arch*.

<sup>5</sup> See note <sup>4</sup> to p. 415.

Cavum oris—The oral cavity.



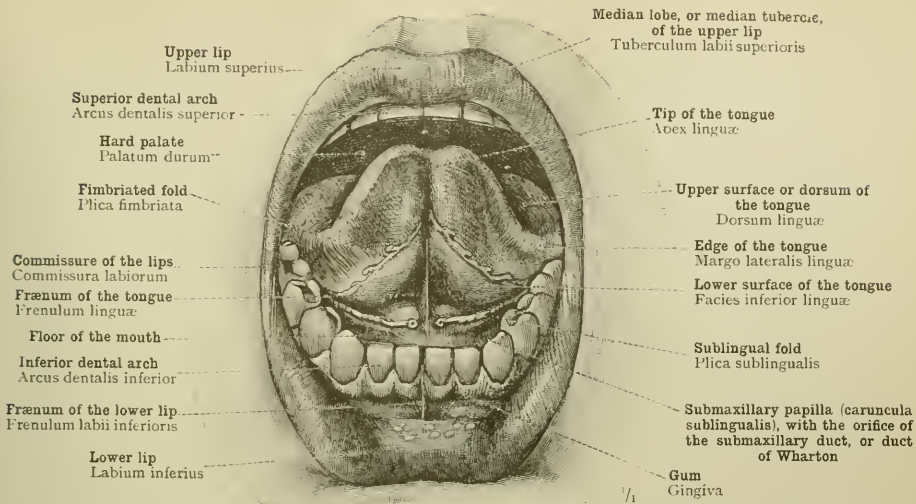
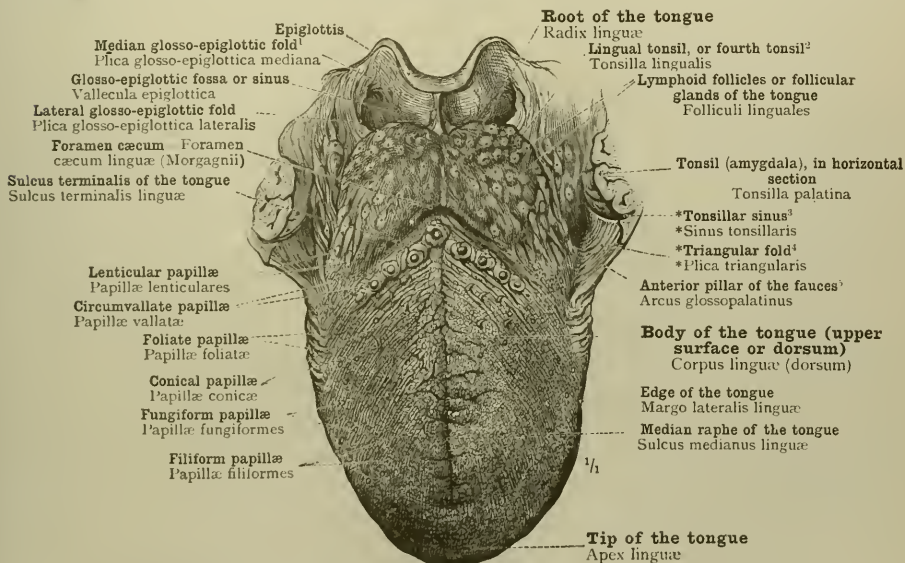


FIG. 672.—THE MOUTH, WIDELY OPENED, WITH THE TIP OF THE TONGUE DRAWN UPWARDS, TO SHOW THE FRÆNUM LINGUÆ, THE SUBLINGUAL FOLD, THE SUBMAXILLARY PAPILLA (CARUNCULA SUBLINGUALIS), AND THE FIMBRIATED FOLD.



<sup>1</sup> Or *frenum epiglottidis*.

<sup>4</sup> See note 3 to p. 416.

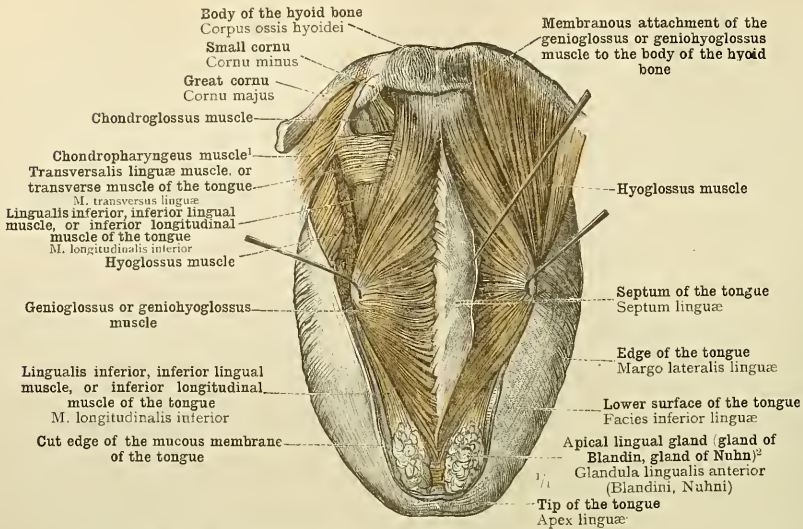
<sup>2</sup> See note 4 to p. 416, and note 4 to p. 411.

<sup>5</sup> Known also as the *anterior palatine*, or *glossopalatine*, arch.

<sup>3</sup> See note 4 to p. 415.

FIG. 673.—THE TONGUE, LINGUA, WITH THE EPIGLOTTIS: RADIX LINGUÆ, THE ROOT OF THE TONGUE; DORSUM LINGUÆ, THE UPPER SURFACE OF THE TONGUE; APEX LINGUÆ, THE TIP OF THE TONGUE.

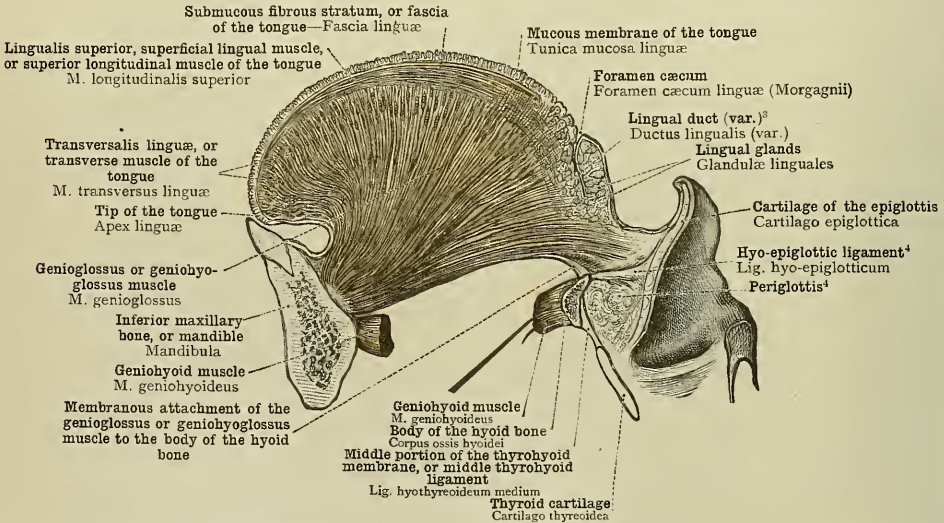




<sup>1</sup> *Chondropharyngeus* Muscle.—See Fig. 706, p. 433, and note <sup>1</sup> of same page.  
<sup>2</sup> This is not a single gland on each side, but a group of glands aggregated into a small oblong mass. Most of the glands are acinotubular.—Tr.

FIG. 674.—MUSCLES OF THE TONGUE WITH THE SEPTUM LINGUÆ AND THE APICAL LINGUAL GLANDS (GLANDS OF BLANDIN OR NUHN, GLANDULÆ LINGUALES ANTERIORES).

On the left side the hyoglossus muscle has been removed, to display the chondroglossus and transversalis linguae muscles.



<sup>3</sup> See Appendix, note 1.

<sup>4</sup> See Appendix, note 2.

FIG. 675.—THE TONGUE, WITH THE INFERIOR MAXILLARY BONE, THE HYOID BONE, AND THE EPIGLOTTIS, IN SAGITTAL SECTION. MUSCLES AND MUCOUS MEMBRANE OF THE TONGUE; GLANDULÆ LINGUALES, LINGUAL GLANDS; DUCTUS LINGUALIS, LINGUAL DUCT.

The larynx has been drawn somewhat away from the tongue.

Cavum oris—The oral cavity.

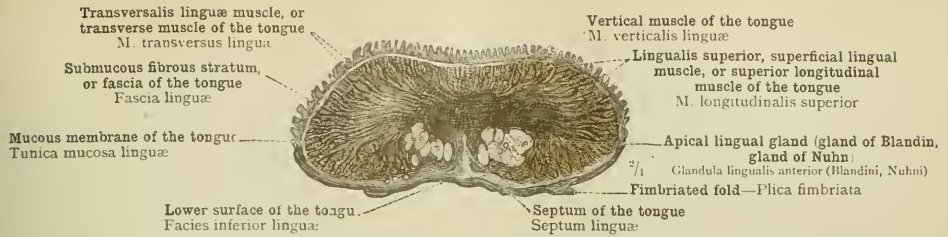


FIG. 676.—CORONAL SECTION THROUGH THE TIP OF THE TONGUE. GLANDULA LINGUALIS ANTERIOR, APICAL LINGUAL GLAND (GLAND OF BLANDIN, GLAND OF NUHN).

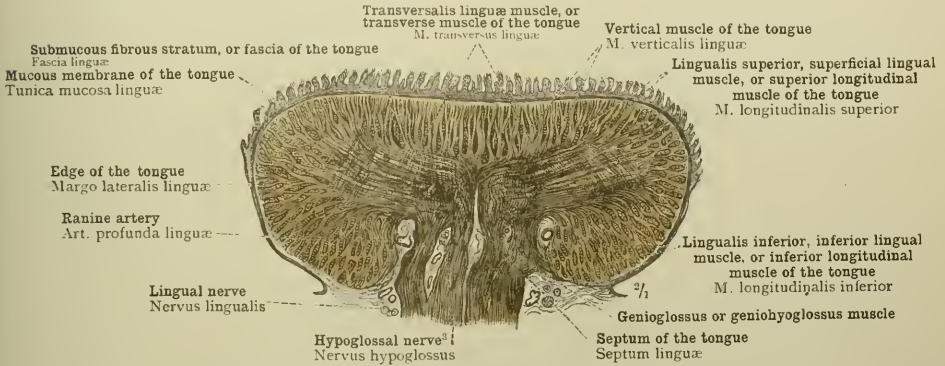


FIG. 677.—CORONAL SECTION THROUGH THE BODY OF THE TONGUE.

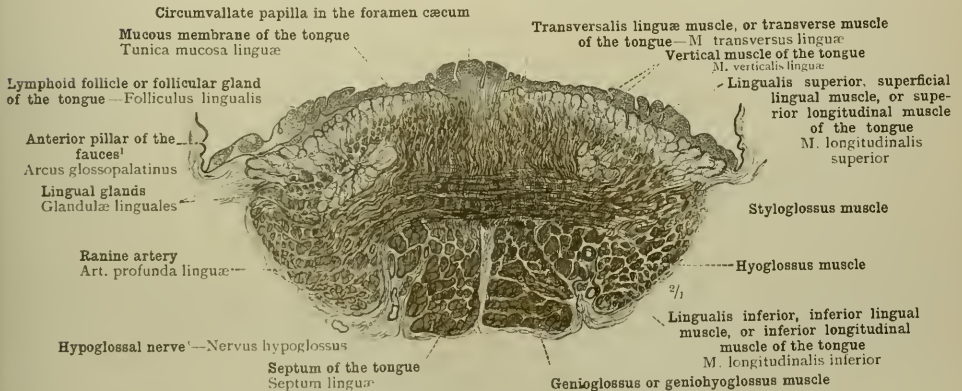


FIG. 678.—CORONAL SECTION THROUGH THE MOST ANTERIOR PORTION OF THE ROOT OF THE TONGUE. LINGUAL GLANDS.

The section passes through a circumvallate papilla which in this specimen occupies the site of the foramen cæcum.

THE ARRANGEMENT OF THE MUSCLES OF THE TONGUE, AS DISPLAYED BY CORONAL SECTIONS THROUGH THE ORGAN.<sup>2</sup>

<sup>1</sup> Known also as the anterior palatine, or glossopalatine, arch.

<sup>2</sup> Macalister speaks of the intrinsic muscles of the tongue as *strata*, four in number, viz., *stratum longitudinale inferius*, *stratum longitudinale superius*, *stratum transversum*, and *stratum perpendicularare*. Th.

<sup>3</sup> Or *twelfth cranial nerve*, in Semering's enumeration; *ninth cranial nerve*, in that of Willis. Sometimes known as the *lingual motor nerve*.—Th.

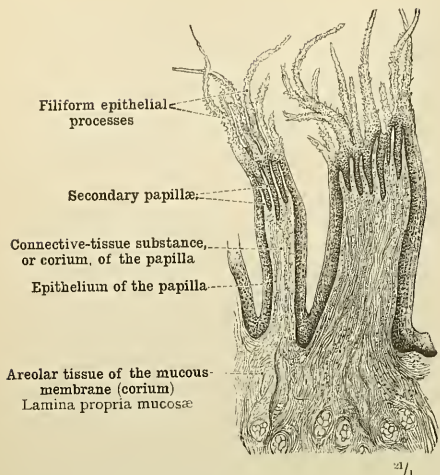


FIG. 679.—PAPILLÆ FILIFORMES, FILIFORM PAPILLÆ OF THE TONGUE. VERY LARGE FORM, WHICH PROJECTS MARKEDLY FROM THE SURFACE. LONGITUDINAL SECTION.

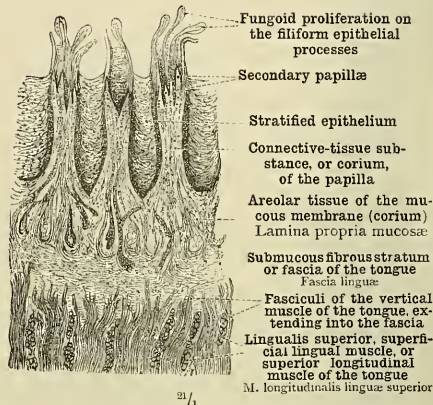


FIG. 680.—PAPILLÆ FILIFORMES, FILIFORM PAPILLÆ OF THE TONGUE. SMALL FORM, WHICH PROJECTS BUT SLIGHTLY FROM THE SURFACE. LONGITUDINAL SECTION.

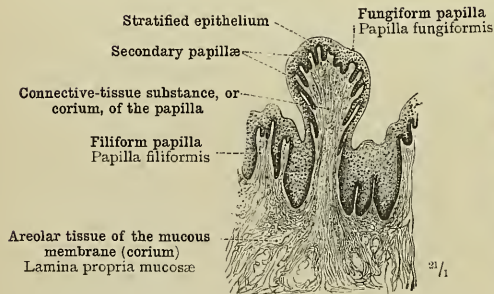


FIG. 681.—PAPILLA FUNGIFORMIS, FUNGIFORM PAPILLA OF THE TONGUE, IN LONGITUDINAL SECTION.

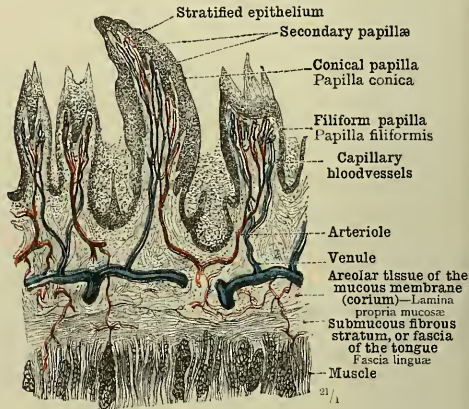


FIG. 682.—PAPILLA CONICA, CONICAL PAPILLA OF THE TONGUE, AMONG FILIFORM PAPILLÆ, IN LONGITUDINAL SECTION.

The bloodvessels of the mucous membrane have been injected: the arteries, red; the veins, blue.

Cavum oris—The oral cavity.



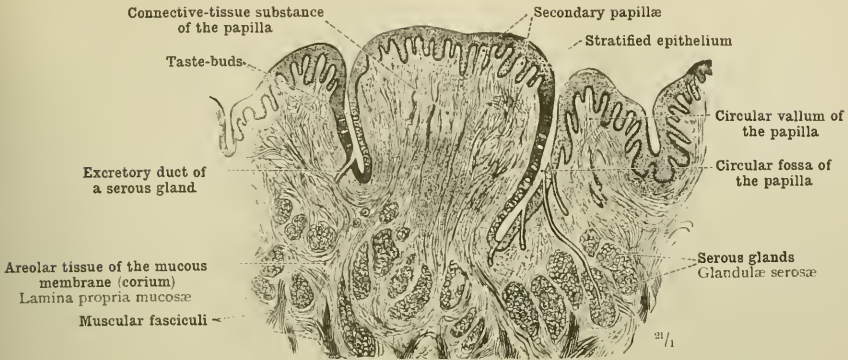


FIG. 683.—PAPILLA VALLATA, CIRCUMVALLATE PAPILLA OF THE TONGUE, IN LONGITUDINAL SECTION.

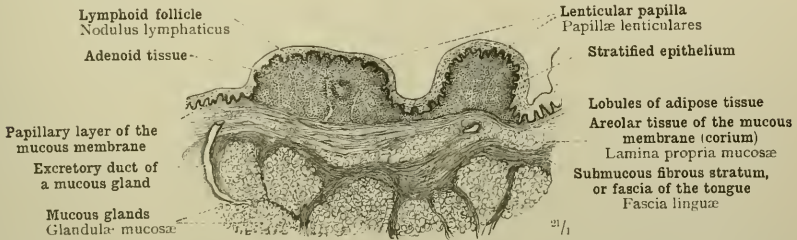


FIG. 684.—TWO LENTICULAR PAPILLÆ OF THE TONGUE, IN LONGITUDINAL SECTION.

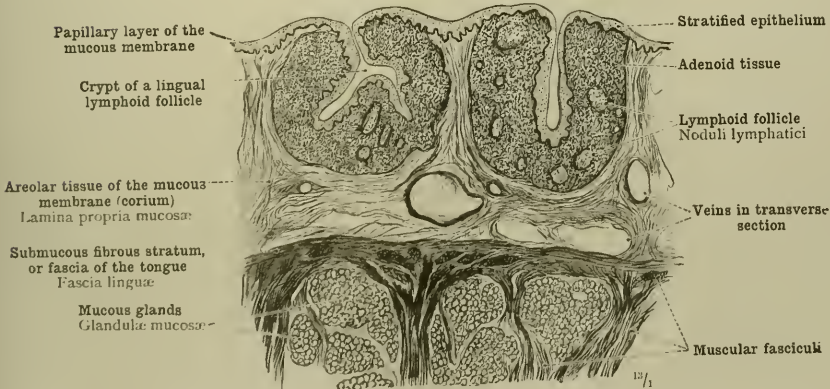
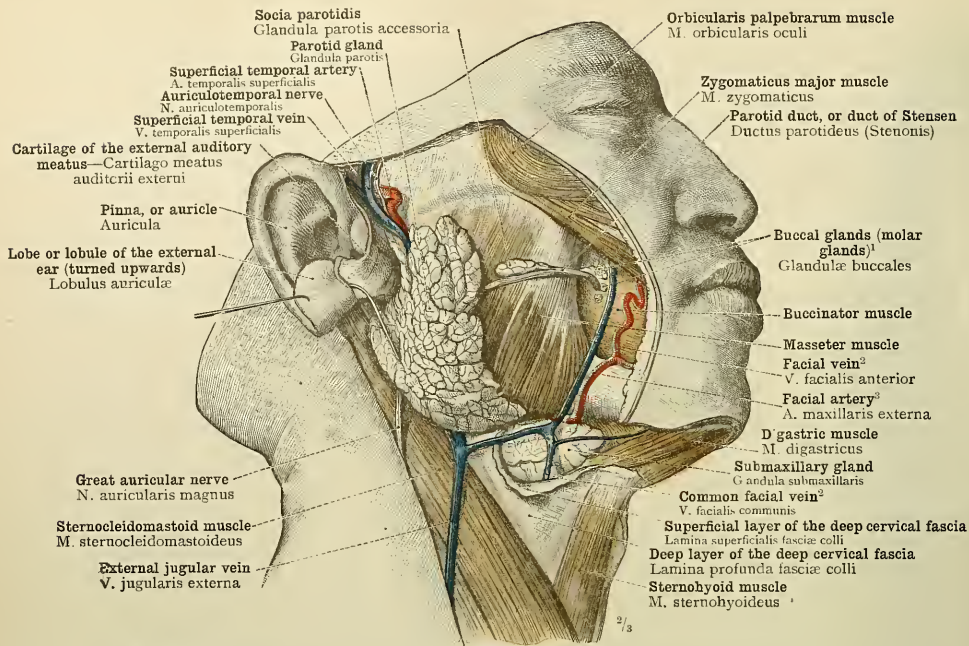


FIG. 685.—TWO LINGUAL LYMPHOID FOLLICLES, OR FOLLICULAR GLANDS OF THE TONGUE, IN LONGITUDINAL SECTION.

Cavum oris—The oral cavity.



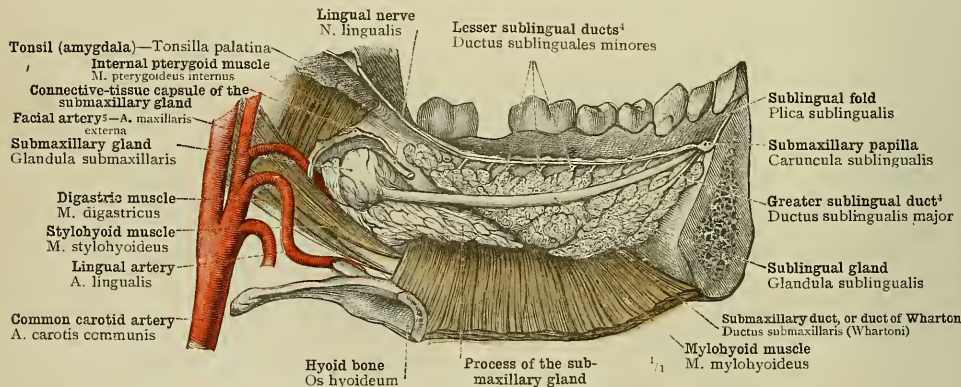


<sup>1</sup> See note <sup>2</sup> to p. 473.

<sup>2</sup> In the author's nomenclature, the *facial vein* and the *temporomaxillary vein* of English anatomists are termed *anterior* and *posterior facial*, respectively, and the short trunk formed by the union of the facial vein with the anterior division of the temporomaxillary vein is termed the *common facial vein*.—T.R.

<sup>3</sup> See note <sup>1</sup> to p. 470.

FIG. 66b.—GLANDULA PAROTIS, THE PAROTID GLAND; GLANDULA SUBMAXILLARIS, THE SUBMAXILLARY GLAND. RIGHT SIDE.

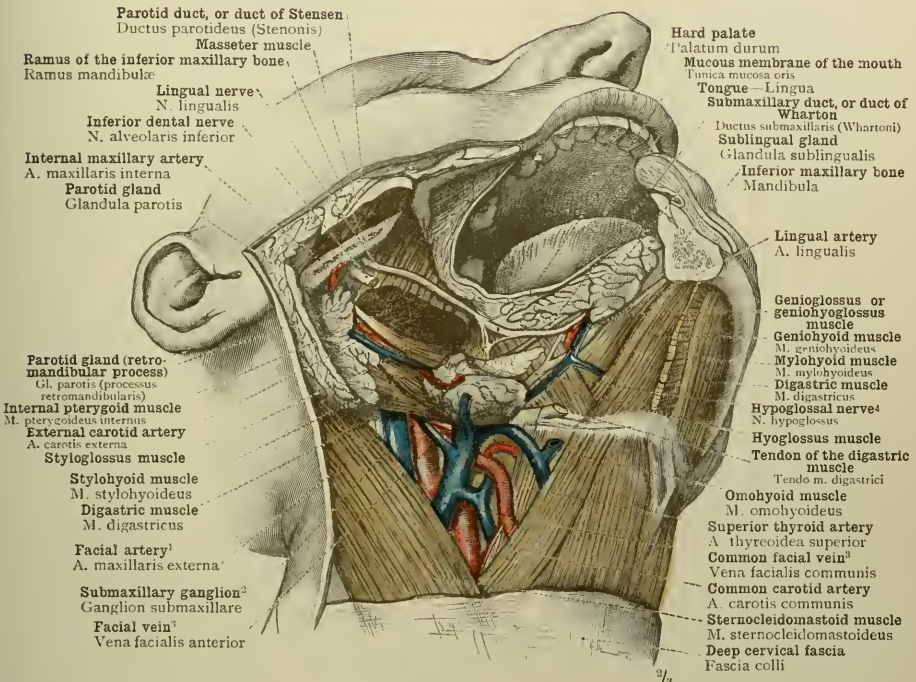


<sup>4</sup> See Appendix, note 3.

<sup>5</sup> See note <sup>1</sup> to p. 470.

FIG. 687.—GLANDULA SUBLINGUALIS, THE SUBLINGUAL GLAND, WITH A PORTION OF THE SUBMAXILLARY GLAND, SEEN FROM THE INNER (ORAL) SIDE. EXCRETORY DUCTS OF THESE GLANDS. LEFT SIDE.

Glandulae salivales—Salivary glands.



Parotid duct, or duct of Stensen  
Ductus parotidens (Stenonis)

Masseter muscle

Ramus of the inferior maxillary bone,  
Ramus mandibulae

Lingual nerve,  
N. lingualis

Inferior dental nerve,  
N. alveolaris inferior

Internal maxillary artery  
A. maxillaris interna  
Parotid gland  
Glandula parotis

Hard palate  
Palatum durum  
Mucous membrane of the mouth  
Tunica mucosa oris

Tongue—Lingua  
Submaxillary duct, or duct of Wharton

Ductus submaxillaris (Whartoni)  
Sublingual gland  
Glandula sublingualis  
Inferior maxillary bone  
Mandibula

Lingual artery  
A. lingualis

Genioglossus or  
geniohyoglossus  
muscle

Geniohyoid muscle  
M. geniohyoideus

Mylohyoid muscle  
M. mylohyoideus

Digastric muscle  
M. digastricus

Hypoglossal nerve<sup>4</sup>  
N. hypoglossus

Hyoglossus muscle  
Tendon of the digastric  
muscle

Tendo m. digastrici

Omohyoid muscle  
M. omohyoideus

Superior thyroid artery  
A. thyroidea superior

Common facial vein<sup>3</sup>  
Vena facialis communis

Common carotid artery  
A. carotis communis

Sternocleidomastoid muscle  
M. sternocleidomastoideus

Deep cervical fascia  
Fascia colli

Parotid gland (retro-  
mandibular process)  
Gl. parotis (processus  
retromandibularis)

Internal pterygoid muscle  
M. pterygoideus internus

External carotid artery  
A. carotis externa

Styloglossus muscle

Stylohyoid muscle  
M. stylohyoideus

Digastric muscle  
M. digastricus

Facial artery<sup>1</sup>  
A. maxillaris externa

Submaxillary ganglion<sup>2</sup>  
Ganglion submaxillare

Facial vein<sup>3</sup>  
Vena facialis anterior

<sup>1</sup> See note <sup>1</sup> to p. 410.

<sup>2</sup> Sometimes known as the *lingual ganglion*.

<sup>3</sup> See note <sup>2</sup> to p. 424.

<sup>4</sup> Or *twelfth cranial nerve*, in Sumner's enumeration; *ninth cranial nerve*, in that of Willis. Sometimes known as the *lingual motor nerve*.—T.R.

FIG. 688.—GLANDULA SUBLINGUALIS, THE SUBLINGUAL GLAND; GLANDULA SUBMAXILLARIS, THE SUBMAXILLARY GLAND; GLANDULA PAROTIS, THE PAROTID GLAND: DISPLAYED ON THE RIGHT SIDE OF THE BODY AFTER THE REMOVAL OF A PORTION OF THE INFERIOR MAXILLARY BONE. RELATIONS OF THESE GLANDS TO MUSCLES, VESSELS, AND NERVES.

The anterior edge of the parotid gland with the adjoining portion of the parotid duct has been removed.

Glandulae salivales—Salivary glands.

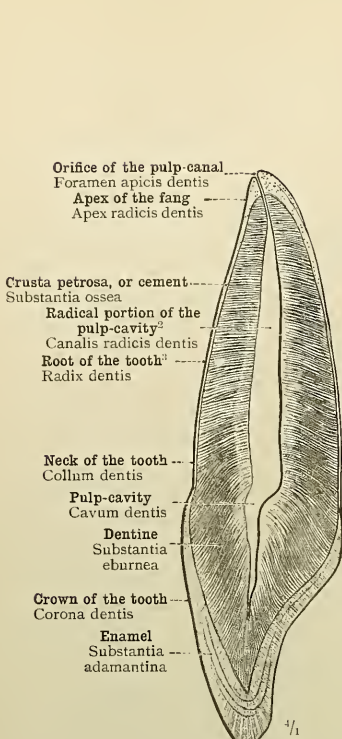


FIG. 689.—DENS INCISIVUS SUPERIOR MEDIALIS, UPPER CENTRAL OR MESIAL INCISOR TOOTH, IN SAGITTAL SECTION. SUBSTANTIA EBURNEA, THE DENTINE; SUBSTANTIA ADAMANTINA, THE ENAMEL; SUBSTANTIA OSSEA, THE CEMENT OR CRUSTA PETROSA; CAVUM DENTIS, THE PULP-CAVITY; CANALIS RADICIS DENTIS, THE PULP-CANAL.<sup>1</sup>

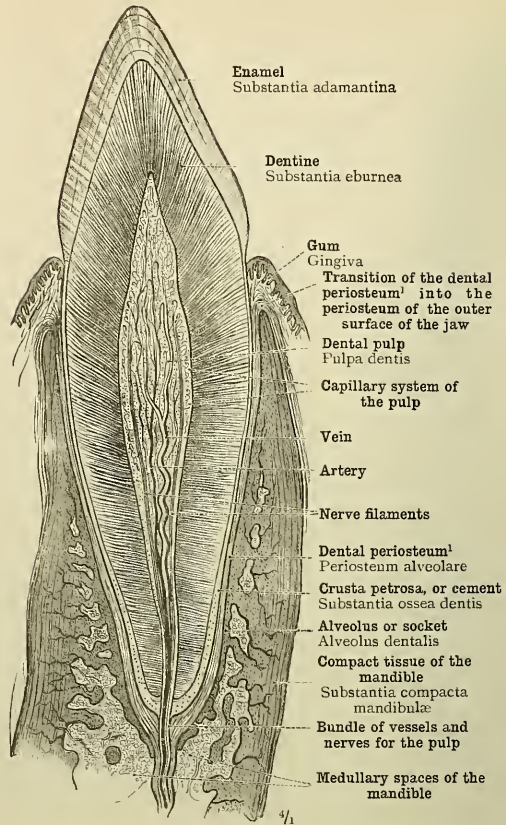


FIG. 690.—DENS CANINUS INFERIOR, LOWER CANINE TOOTH, WITH THE ALVEOLAR PORTION OF THE MANDIBLE, THE GUM, THE DENTAL PERIOSTEUM, AND THE DENTAL PULP, IN LONGITUDINAL SECTION.



FIG. 691.—THE ROOT OF THE UPPER CENTRAL OR MESIAL INCISOR TOOTH WITH THE ALVEOLUS AND THE DENTAL PERIOSTEUM, IN TRANSVERSE SECTION.

<sup>1</sup> The soft vascular tissue between the crusta petrosa or cement of the root and the bone, called here simply *dental periosteum*, is sometimes divisible into two layers; an outer, the *alveolar periosteum*, and an inner, the *peri-odontal membrane*. By some, also, the dental periosteum is named the *pericemental membrane*.—Tr.

<sup>2</sup> The term *pulp-canal*, which is in England applied to the minute canal by which the pulp-cavity is entered through the root of the tooth, does not appear to correspond strictly to the author's term *canalis radialis dentis*, which is applied by him alike to the *pulp-canal* and to the *radical portion of the pulp-cavity*.—Tr.

<sup>3</sup> The term *root* is applied to all that portion of a tooth which is sunk in the alveolus. This root may consist of one or more *fangs*.—Tr.



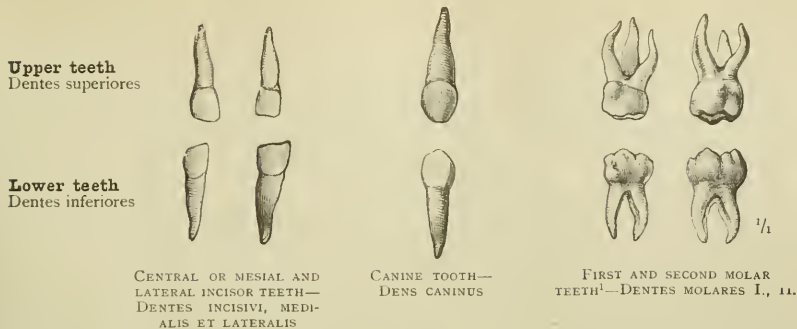


FIG. 692.—DENTES DECIDUI, TEMPORARY OR DECIDUOUS TEETH, OR MILK-TEETH, SEEN FROM THEIR OUTER (LABIAL AND BUCCAL) SIDES.

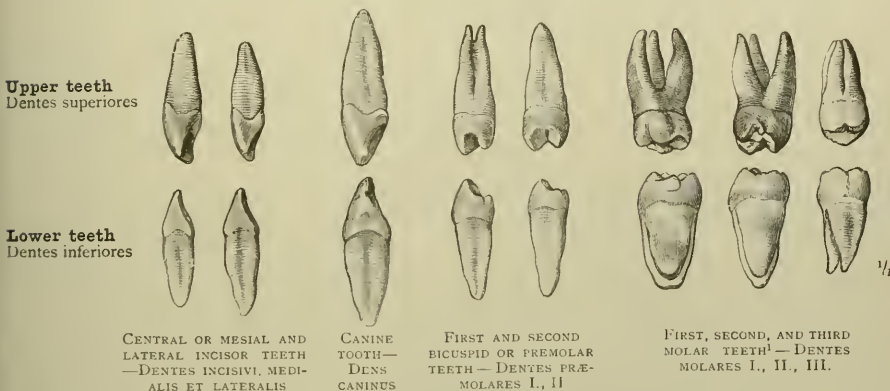


FIG. 693.—DENTES PERMANENTES, PERMANENT TEETH, SHOWING THE OUTER EDGE OF THE INCISORS AND CANINES, AND THE POSTERIOR SURFACE OF THE PREMOLARS AND MOLARS.

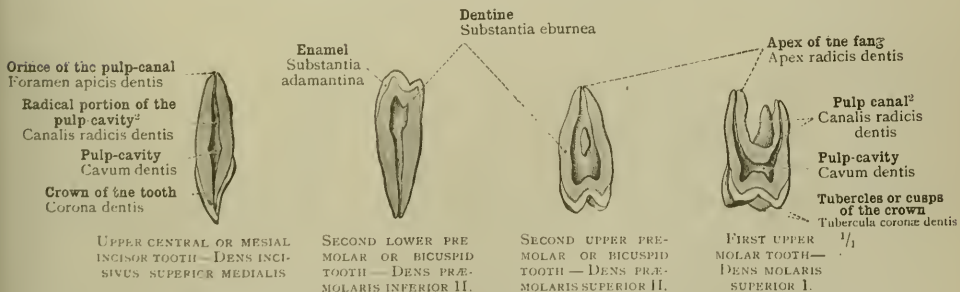


FIG. 694.—PULP-CAVITY AND PULP-CANAL AS SEEN IN TEETH DIVIDED LONGITUDINALLY.

<sup>1</sup> Known also as *grinders* or *multicuspids*.

<sup>2</sup> See note <sup>2</sup> to p. 426.



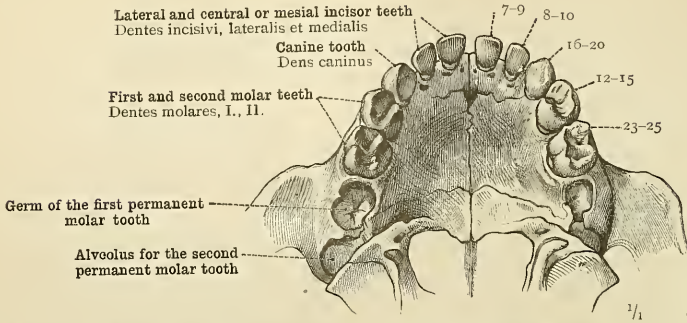


FIG. 695.—DENTES DECIDUI, TEMPORARY OR DECIDUOUS TEETH, OR MILK-TEETH, OF THE UPPER JAW OF A BOY AGED THREE YEARS.

The Arabic numerals indicate the months of life in which the eruption of the individual teeth usually occurs.

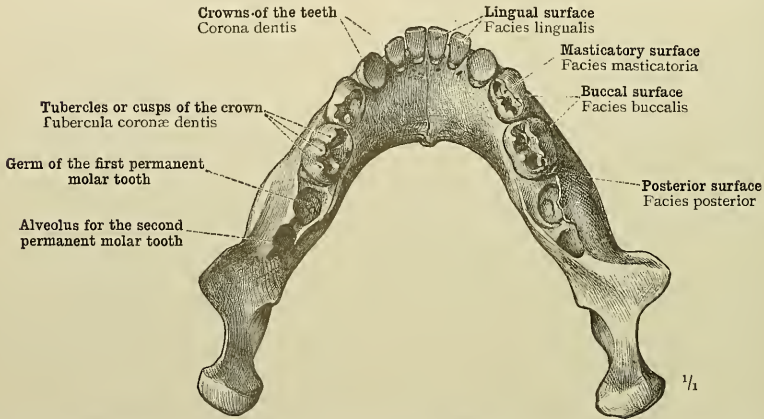


FIG. 696.—DENTES DECIDUI, TEMPORARY OR DECIDUOUS TEETH, OR MILK-TEETH, OF THE LOWER JAW OF A BOY AGED THREE YEARS.

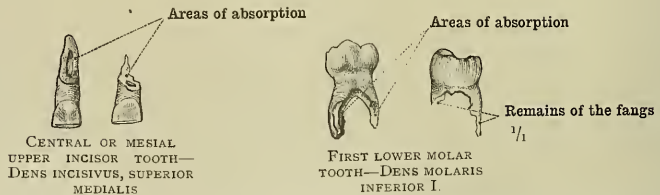


FIG. 697.—DENTES DECIDUI, TEMPORARY OR DECIDUOUS TEETH, OR MILK-TEETH, IN VARIOUS STAGES OF ABSORPTION, PREPARATORY TO THEIR BEING SHED AND REPLACED BY THE PERMANENT TEETH.

Dentes—Teeth.

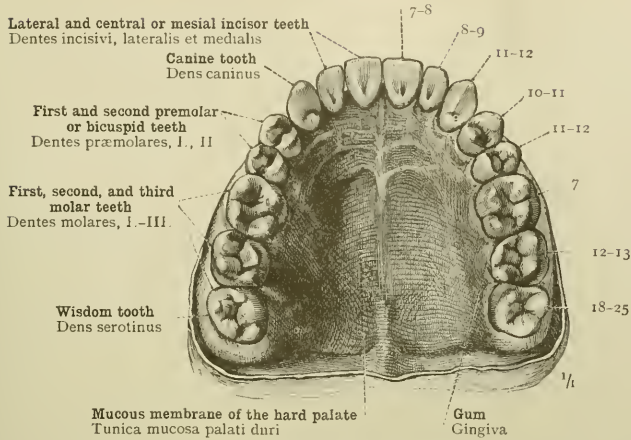


FIG. 698.—DENTES PERMANENTES, PERMANENT TEETH, OF THE UPPER JAW OF A MAN AGED TWENTY-SIX YEARS, WITH THE GUMS. FACIES MASTICATORIÆ, MASTICATORY SURFACES.

The Arabic numerals indicate the years of life in which the eruption of the individual teeth usually occurs.

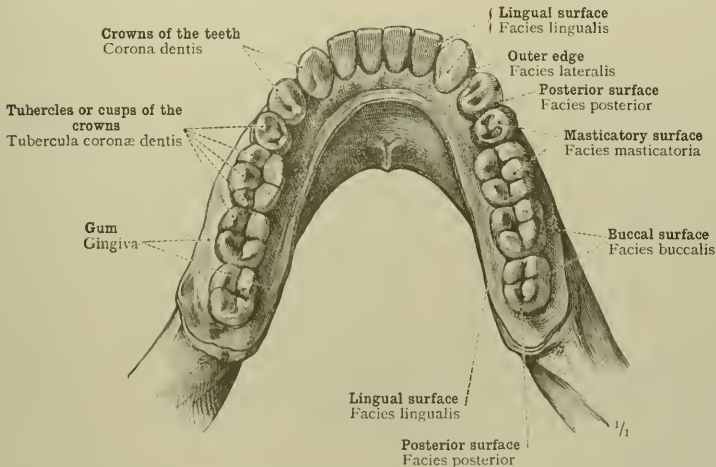


FIG. 699.—DENTES PERMANENTES, PERMANENT TEETH, OF THE LOWER JAW OF A MAN AGED TWENTY-SIX YEARS, WITH THE GUMS. FACIES MASTICATORIÆ, MASTICATORY SURFACES.

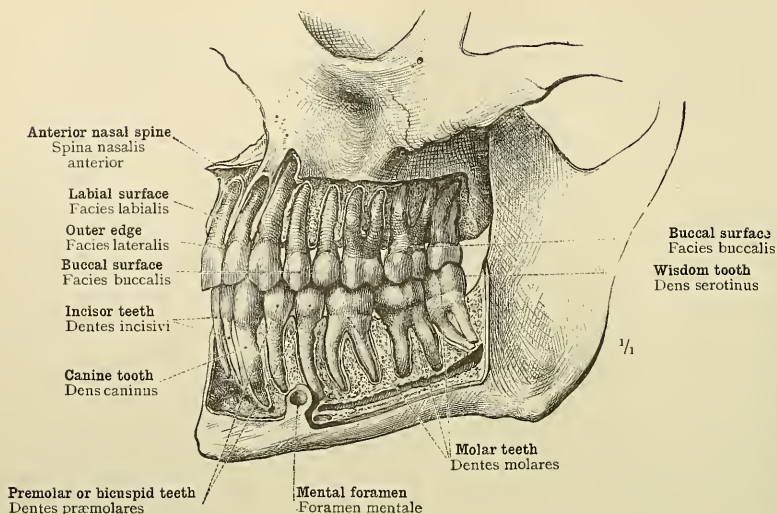


FIG. 700.—LEFT HALF OF THE PERMANENT TEETH, WITH THE ROOTS LAID BARE, SEEN FROM THEIR OUTER (LABIAL AND BUCCAL) SIDES. NORMAL RELATIVE POSITIONS OF UPPER AND LOWER ROWS.

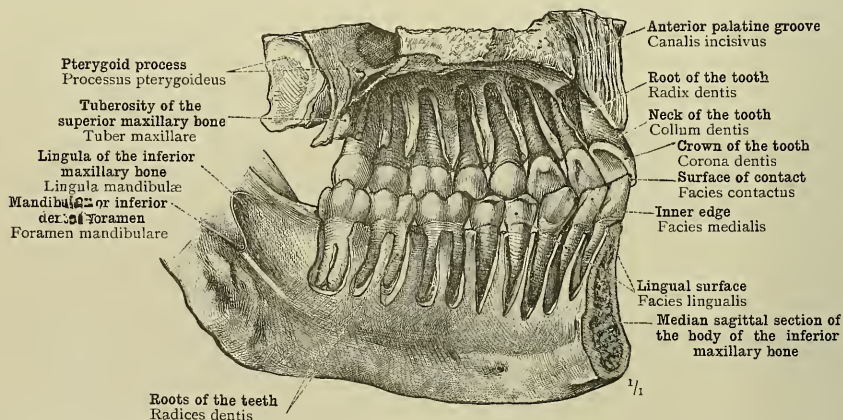


FIG. 701.—LEFT HALF OF THE PERMANENT TEETH, WITH THE ROOTS LAID BARE, SEEN FROM THEIR INNER (LINGUAL) SIDES. NORMAL RELATIVE POSITIONS OF UPPER AND LOWER ROWS.

Dentes—Teeth.

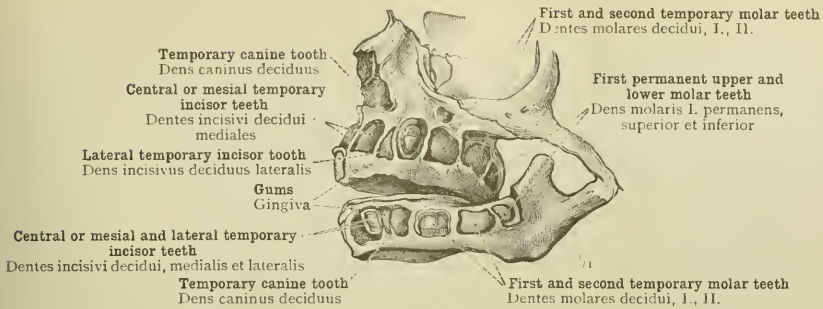


FIG. 702.—DENTAL GERMS (DENTAL SACS) OF AN INFANT BORN AT FULL TERM, DISPLAYED BY THE REMOVAL OF THE WALLS OF THE ALVEOLI ON THE LEFT SIDE OF THE FACE.

The dental sacs of the upper canine, the lower central incisor, and the first lower molar temporary teeth have been opened, in order to show the teeth developing in their interior.

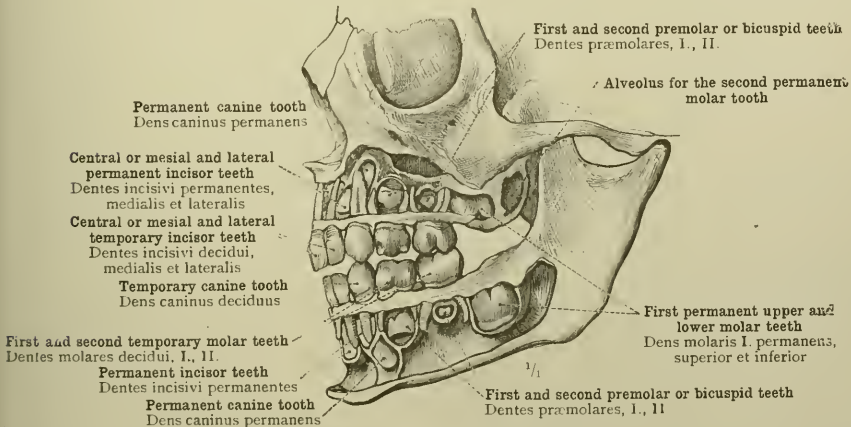


FIG. 703.—LEFT HALF OF THE TEMPORARY OR DECIDUOUS TEETH, OR MILK-TEETH, OF A BOY AGED TWO AND A HALF YEARS.

By the removal of the appropriate portions of the alveolar walls, the germs of the permanent teeth have been exposed, and the relation of these germs to the roots of the temporary teeth has been made manifest.



FIG. 704.—STAGES OF DEVELOPMENT OF THE LATERAL PERMANENT INCISOR TOOTH AND OF THE SECOND LOWER PERMANENT MOLAR TOOTH.

The fourth tooth of each series was already cut.

Dentes—Teeth.



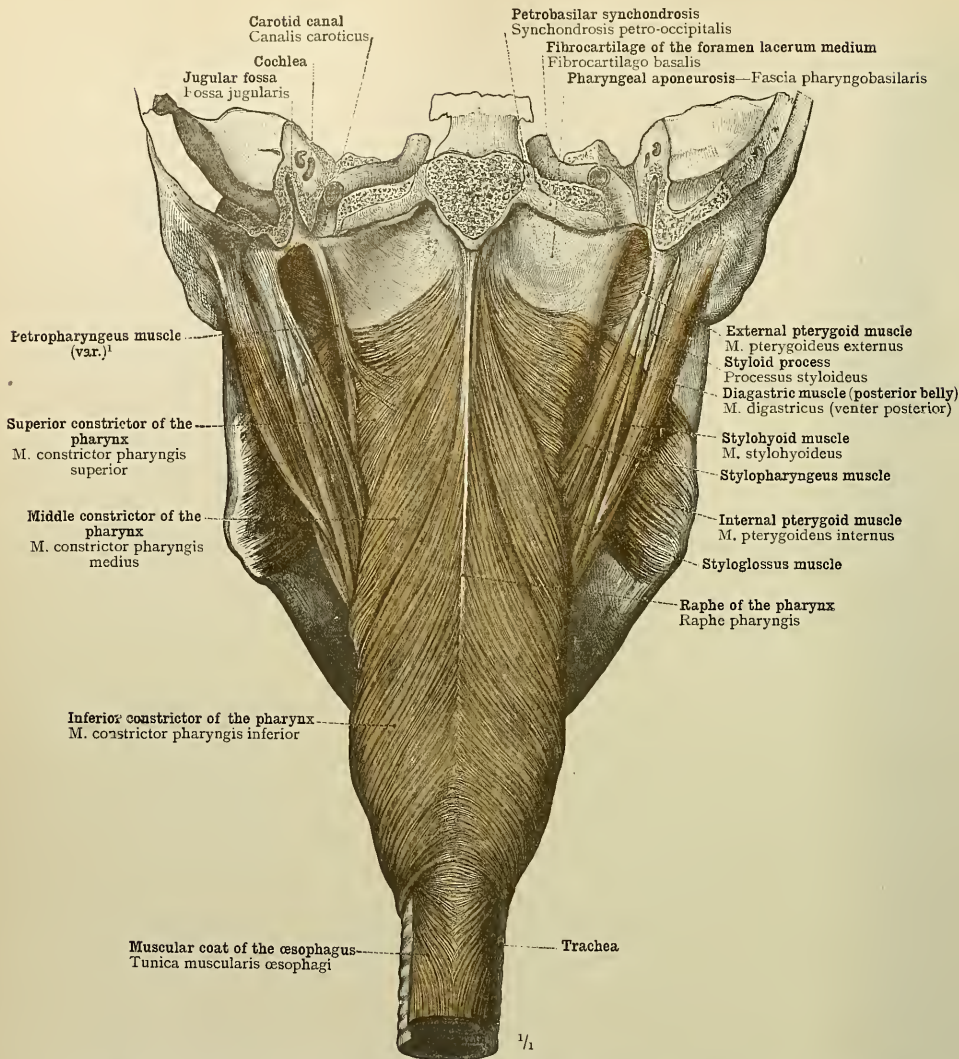
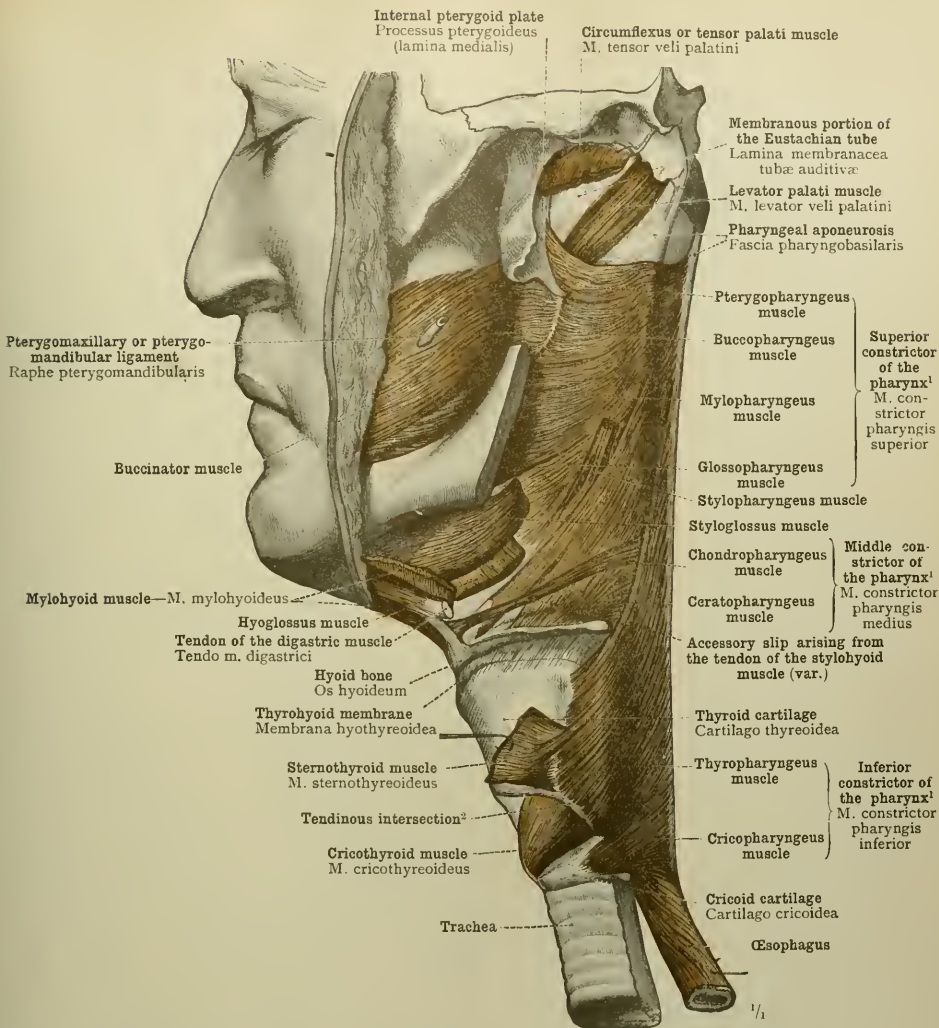


FIG. 705.—THE PHARYNX, AND ITS TRANSITION INTO THE OESOPHAGUS, SEEN FROM BEHIND. BY THE REMOVAL OF THE TUNICA ADVENTITIA PHARYNGIS,<sup>2</sup> THE OUTER MUSCULAR LAYER OF THE PHARYNX HAS BEEN LAID BARE: MUSCULI CONSTRICTORES PHARYNGIS, SUPERIOR, MEDIUS, ET INFERIUS; THE SUPERIOR, MIDDLE, AND INFERIOR CONSTRICTORS OF THE PHARYNX. THE MUSCLES ARISING FROM THE STYLOID PROCESS, AND THE POSTERIOR BELLY OF THE DIGASTRIC MUSCLE. THE PHARYNGEAL APONEUROSIS.

<sup>1</sup> *Petropharyngeus Muscle*.—This, the commonest of the supernumerary elevators of the pharynx, arises from the under surface of the petrous bone in front of the carotid canal, or from the vaginal process of the temporal bone. Others, less often met with, are the *splenopharyngeus*, arising from the spine of the sphenoid; *petropharyngeus externus*, arising from the bamlum process; *occipitopharyngeus*, arising from the biclar process; and the *mastio-pharyngeus* (very rare), arising from the mastoid process. They are inserted variably into one or other of the constrictors, or, passing between these muscles, directly into the fibrous layer of the pharynx (pharyngeal aponeurosis). Another occasional accessory slip is the *azygos pharyngis*, passing from the pharyngeal tubercle of the occipital bone to the raphe or to the posterior wall of the pharynx.—Fr.

<sup>2</sup> See note <sup>1</sup> to p. 466.

### The Pharynx.

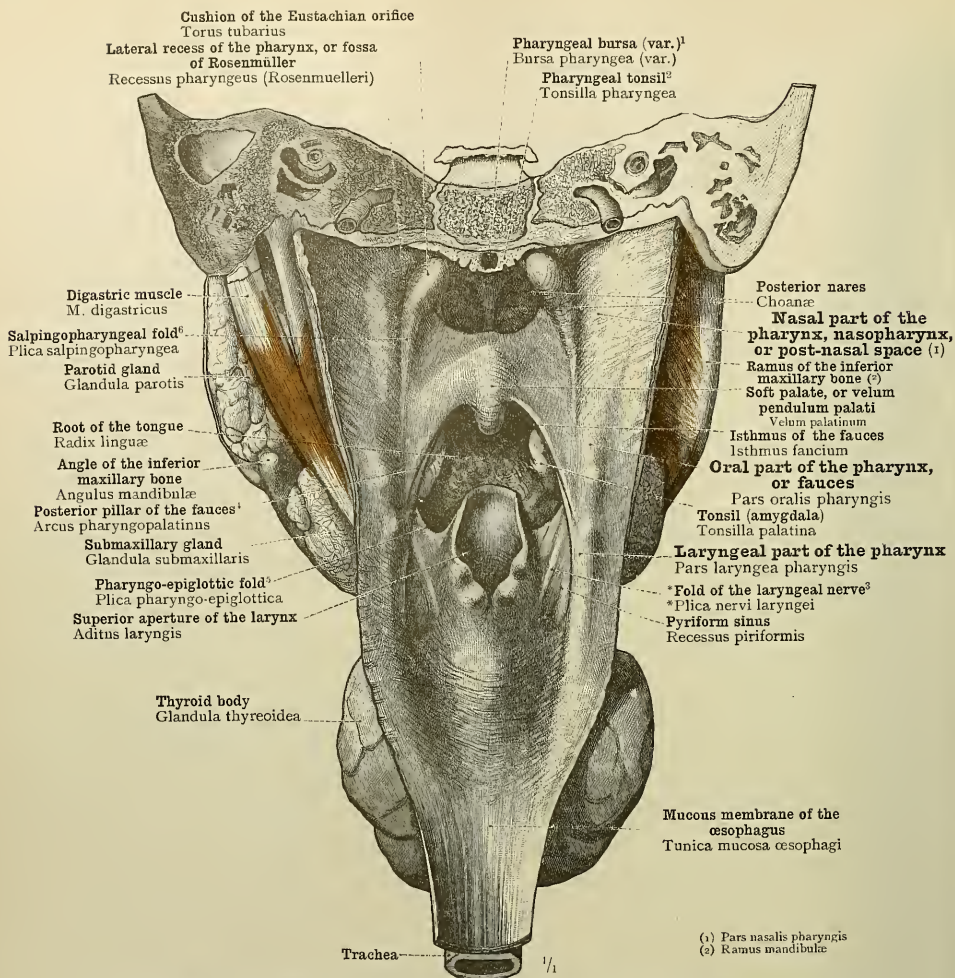


<sup>1</sup> *Constrictors of the Pharynx.*—As the names given by the author to the different portions of these muscles are not often used in England, it seems expedient to explain their signification. Of the *superior constrictor*: the *ptyerygopharyngeus* is that portion which arises from the lower third of the hinder edge of the internal pterygoid plate and from the hamular process; the *buccopharyngeus* is that portion which arises from the pterygomaxillary ligament, by means of which it is connected with the origin of the buccinator muscle; the *mylopharyngeus* is that portion which arises from the posterior fifth of the internal oblique line or mylohyoid ridge of the inferior maxillary bone; and the *glossopharyngeus* is that portion which arises from the side of the tongue. Of the *middle constrictor*: the *chondropharyngeus* is that portion which arises from the small cornu of the hyoid bone and the stylohyoid ligament; and the *ceratopharyngeus* is that portion which arises from the great cornu of the hyoid bone. Of the *inferior constrictor*: the *thyrohyoid* is that portion which arises from the inferior cornu, oblique line or ligament, and superior tubercle of the thyroid cartilage; and the *cricopharyngeus* is that portion which arises from a flat ridge on the side of the cricoid cartilage.—*Tr.*

<sup>2</sup> *Tendinous Intersection.*—Some of the superficial fibres of the cricopharyngeus muscle are almost always continuous with those of the inferior constrictor of the pharynx. Commonly, however, as here, a tendinous intersection across these fibres marks the boundary between the two muscles.—*Tr.*

FIG. 706.—OUTER MUSCULAR LAYER OF THE PHARYNX, LAID BARE ON THE LEFT SIDE, BY THE REMOVAL OF THE RAMUS OF THE INFERIOR MAXILLARY BONE, THE MUSCLES ARISING FROM THE STYLOID PROCESS, THE POSTERIOR BELLY OF THE DIGASTRIC MUSCLE, AND THE MYLOHYOID MUSCLE: MUSCULI CONSTRICTORUM PHARYNGIS, THE THREE CONSTRICTORS OF THE PHARYNX, WITH THEIR VARIOUS SUBDIVISIONS (see note <sup>1</sup> above). CONNEXION OF THE BUCCINATOR MUSCLE WITH THE SUPERIOR CONSTRICTOR OF THE PHARYNX BY MEANS OF THE PTERYGOMAXILLARY OR PTERYGOMANDIBULAR LIGAMENT.

The Pharynx.



<sup>1</sup> The *pharyngeal bursa*, or *mesial recess of the pharynx*, is a flask-shaped pit in the mucous membrane, constant in the fetus and the infant, and occasionally persistent in the adult. Its narrow orifice is on the posterior wall of the nasopharynx, immediately beneath the pharyngeal tonsil, and looks downwards and forwards. Widening within, the cavity passes upwards and then curves forwards through the substance of the pharyngeal tonsil, and terminates blindly in the median line immediately above the summit of the pharynx, its fundus being just below the pharyngeal tubercle.—T.

See note <sup>1</sup> to p. 411.

<sup>5</sup> *Fold of the Laryngeal Nerve*.—"Within the pyriform sinusa a fold of mucous membrane running obliquely downwards and inwards is occasionally to be seen. This fold is occupied by the superior laryngeal nerve, and is therefore called *plica nervi laryngis*—the fold of the laryngeal nerve."—Von Langer and Toldt's "Anatomy," 7th ed., p. 301.

<sup>4</sup> Known also as the *posterior palatine*, or *pharyngopalatine*, arch.

<sup>6</sup> See Appendix, note 4.

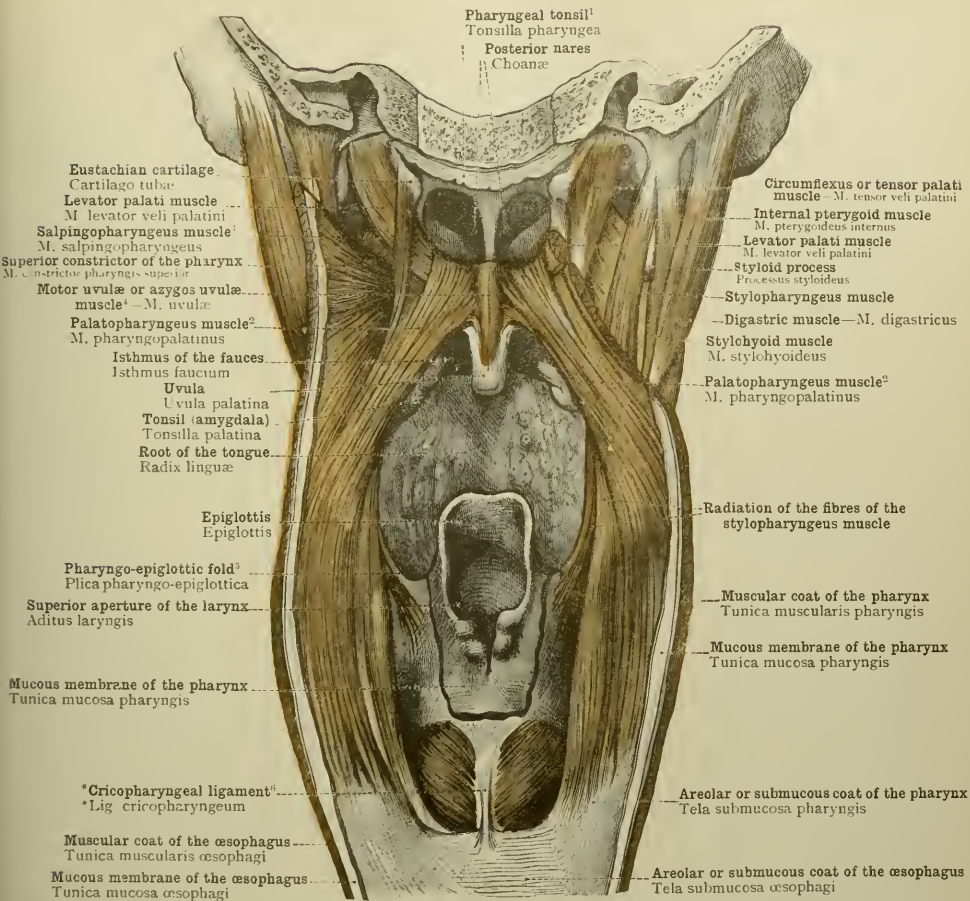
5 See note <sup>7</sup> to p. 415.

FIG. 707.—CAVUM PHARYNGIS, THE PHARYNGEAL CAVITY, SEEN FROM BEHIND. TUNICA MUCOSA PHARYNGIS, THE MUCOUS MEMBRANE OF THE PHARYNX. THE THREE DIVISIONS OF THE PHARYNX: PARS NASALIS PHARYNGIS, THE NASAL PART OF THE PHARYNX, NASOPHARYNX, OR POST-NASAL SPACE; PARS ORALIS PHARYNGIS, THE ORAL PART OF THE PHARYNX, OR FAUCES; PARS LARYNGEA PHARYNGIS, THE LARYNGEAL PART OF THE PHARYNX. THE OPENINGS INTO THE PHARYNGEAL CAVITY.

The posterior wall of the pharynx was divided throughout in the median line, separated from its attachments to the base of the skull, and then turned outwards on each side.

## The Pharynx.





<sup>1</sup> See note 1 to p. 411.      <sup>2</sup> See note 1 to p. 417.  
<sup>3</sup> *Salpingopharyngeus Muscle*.—This consists of a few slender fasciculi which descend from the lower and anterior part of the Eustachian cartilage to the wall of the pharynx. It is usually regarded as an accessory portion of the palatopharyngeus muscle.—Tr.  
<sup>4</sup> See note 1 to p. 418.      <sup>5</sup> See note 7 to p. 415.      <sup>6</sup> See Fig. 771, p. 459, and note 1 on same page.

FIG. 708.—MUSCLES OF THE SOFT PALATE (VELUM PENDULUM PALATI), AND THE VERTICAL MUSCLES (ELEVATORS) OF THE PHARYNX, DISPLAYED BY OPENING THE PHARYNX FROM BEHIND BY A MEDIAN LONGITUDINAL INCISION AND REMOVING THE MUCOUS MEMBRANE.

On the right side, the levator palati muscle and a small portion of the wall of the pharynx have been removed, in order to display the circumflexus or tensor palati muscle and a great part of the stylopharyngeus muscle. In the immediate neighbourhood of the superior aperture of the larynx (aditus laryngis), the mucous membrane of the pharynx has not been removed; also along the borders of the median longitudinal incision a narrow strip of the mucous membrane has been left.



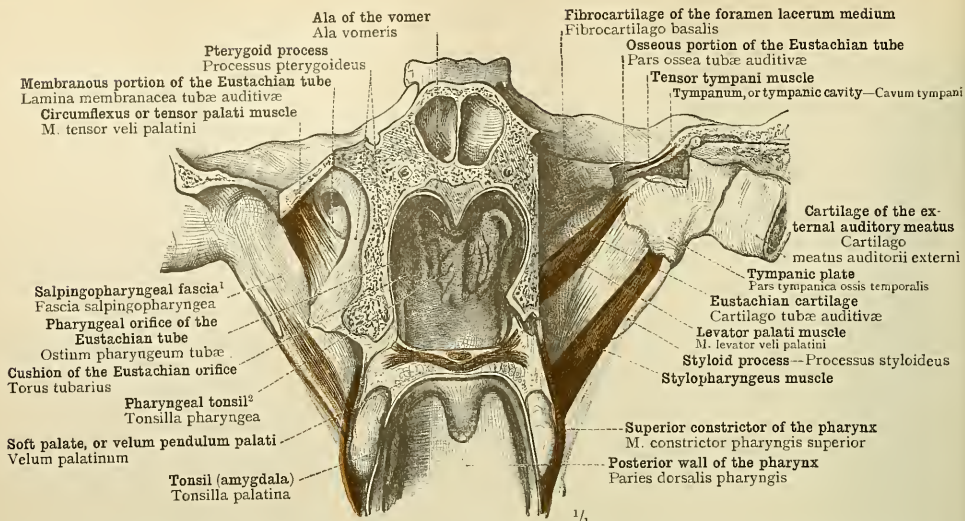


FIG. 709.—PARS NASALIS PHARYNGIS, THE NASAL PART OF THE PHARYNX, NASOPHARYNX, OR POST-NASAL SPACE, SEEN FROM BEFORE. CORONAL SECTION THROUGH THE HEAD. TONSILLA PHARYNGEA, THE PHARYNGEAL TONSIL.

On the left side, the greater part of the pterygoid process, the anterior wall of the tympanum, and the outer wall of the Eustachian tube, have been removed.

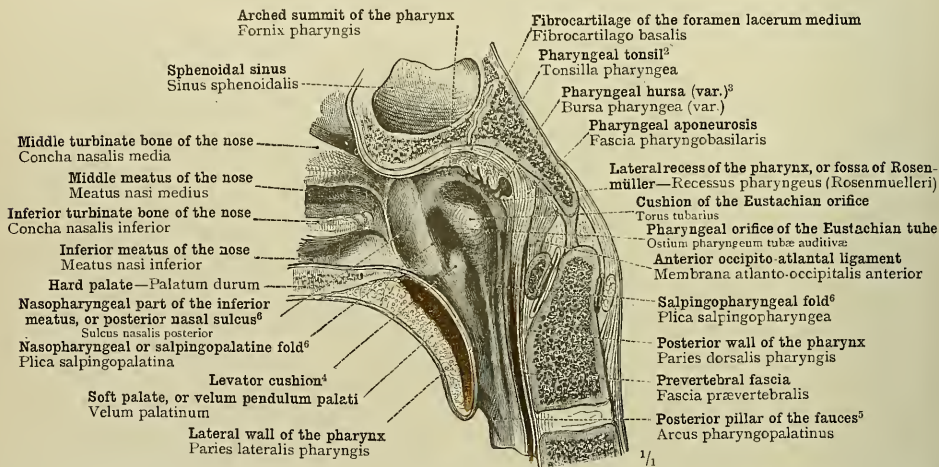


FIG. 710.—PARS NASALIS PHARYNGIS, THE NASAL PART OF THE PHARYNX, NASOPHARYNX, OR POST-NASAL SPACE, AND ITS CONNECTION WITH THE NASAL FOSSEÆ, IN MEDIAN SAGITTAL SECTION. VIEW OF THE RIGHT LATERAL WALL OF THE NASOPHARYNX, WITH THE PHARYNGEAL ORIFICE OF THE EUSTACHIAN TUBE. TONSILLA PHARYNGEA, THE PHARYNGEAL TONSIL; BURSA PHARYNGEA, THE PHARYNGEAL BURSA. SULCUS NASALIS POSTERIOR, THE NASOPHARYNGEAL PART OF THE INFERIOR MEATUS OF THE NOSE, OR \*POSTERIOR NASAL SULCUS, CORRESPONDING TO THE NASOPHARYNGEAL MEATUS (see Part I., p. 99, Fig. 203); PLICA SALPINGOPALATINA, THE NASOPHARYNGEAL OR SALPINGOPALATINE FOLD; PLICA SALPINGOPHARYNGEA, THE SALPINGOPHARYNGEAL FOLD.<sup>1</sup>

<sup>1</sup> *Salpingopharyngeal Fascia*.—Quain applies this name to the membranous portion of the Eustachian tube itself, but the author uses it to denote strands of fibrous tissue passing from the Eustachian cartilage to the submucous areolar tissue of the pharynx.—Tr.

<sup>2</sup> See note 1 to p. 411.

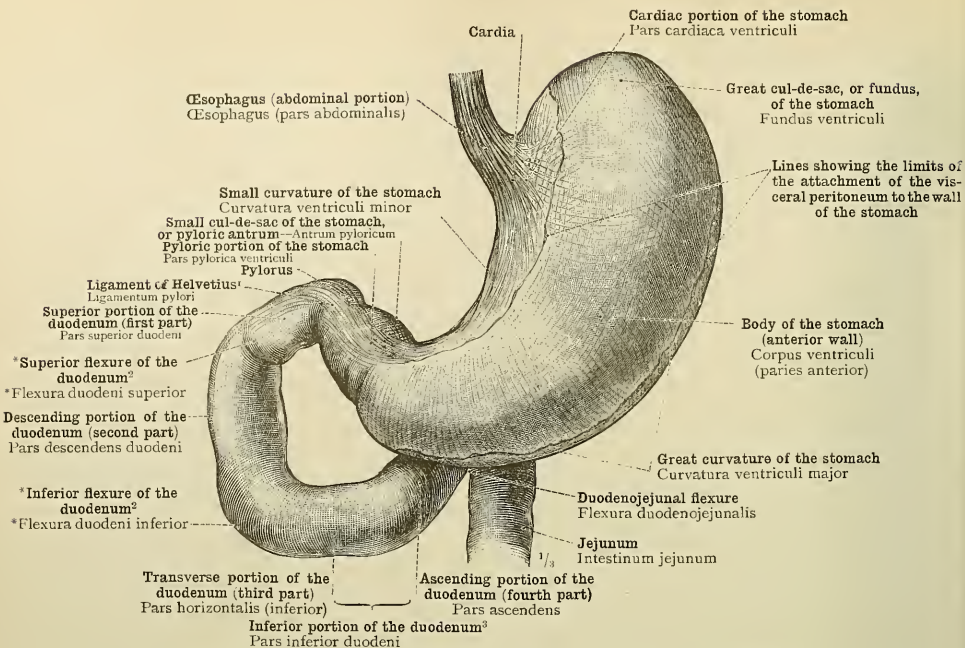
<sup>3</sup> See note 2 to p. 434.

<sup>4</sup> —“When the levators palati are contracted, the upper surface of the soft palate presents a convex eminence behind each posterior naris, called the *levator cushion*. This is occasionally seen in the dead body.”—Quain’s “Anatomy,” vol. iii., part iv., p. 57. See also Appendix, note 4.

<sup>5</sup> Known also as the *posterior palatine*, or *pharyngopalatine*, arch.

<sup>6</sup> See Appendix, note 4.

ABDOMINAL AND PELVIC PORTIONS  
OF THE  
DIGESTIVE ORGANS

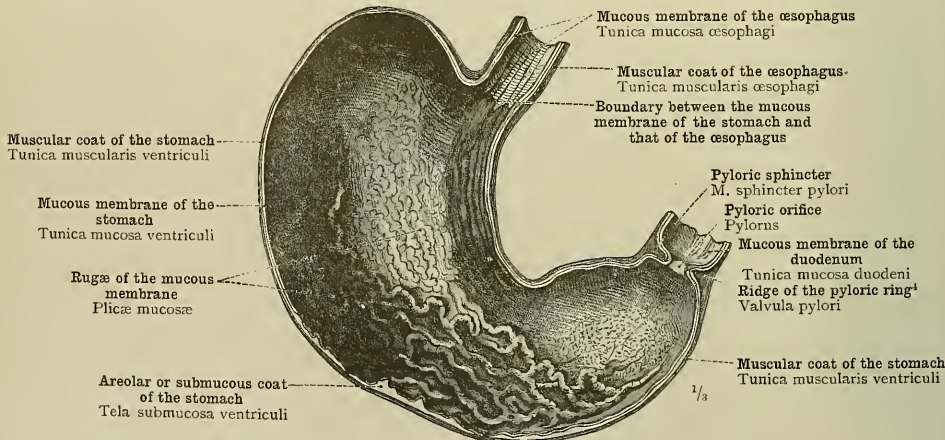


<sup>1</sup> See Appendix, note 5.

<sup>2</sup> See Appendix, note 6.

<sup>3</sup> See Appendix, note 7.

FIG. 711.—VENTRICULUS, THE STOMACH, MODERATELY DISTENDED, WITH THE LOWEST PORTION OF THE ŒSOPHAGUS, AND THE DUODENUM. SEEN FROM BEFORE.



<sup>4</sup> See Appendix, note 8.

FIG. 712.—ANTERIOR HALF OF THE STOMACH, WHICH HAS BEEN DIVIDED IN TWO BY INCISIONS ALONG THE GREAT AND SMALL CURVATURES; SEEN FROM THE INSIDE. TRANSITION OF THE MUCOUS MEMBRANE OF THE ŒSOPHAGUS INTO THAT OF THE CARDIA. PYLORUS, OR PYLORIC ORIFICE. Plicæ mucosæ VENTRICULI, RUGÆ OF THE MUCOUS MEMBRANE OF THE STOMACH.

Tubus digestorius—Alimentary canal.



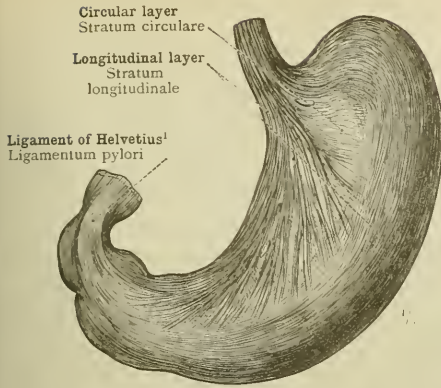
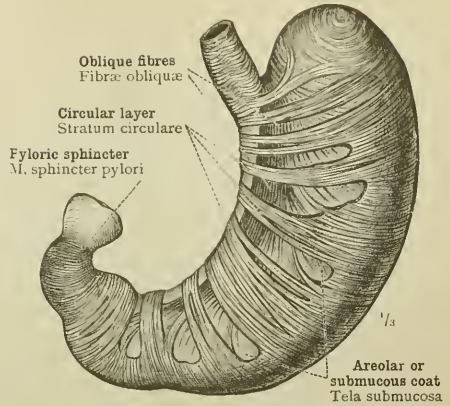


FIG. 713.—SUPERFICIAL LAYER OF THE MUSCULAR COAT OF THE STOMACH: LONGITUDINAL LAYER.



<sup>1</sup> See Appendix, note 5.

FIG. 714.—MIDDLE AND DEEP LAYERS OF THE MUSCULAR COAT OF THE STOMACH: CIRCULAR LAYER, AND OBLIQUE FIBRES.

Strips of the circular layer have been removed, in order to display the oblique fibres beneath.

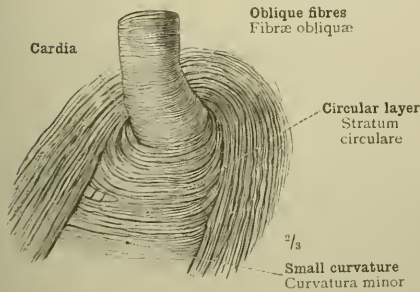


FIG. 715.—MUSCULAR COAT AT THE CARDIA, SEEN FROM WITHIN, THE MUCOUS MEMBRANE HAVING BEEN REMOVED.

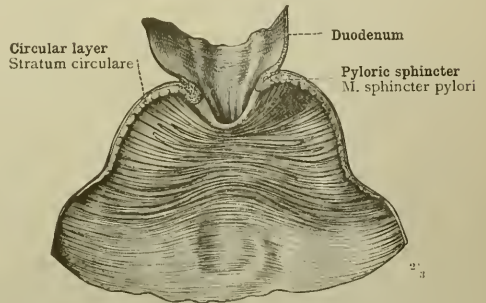


FIG. 716.—MUSCULAR COAT IN THE PYLORIC REGION, LAID BARE FROM WITHIN.

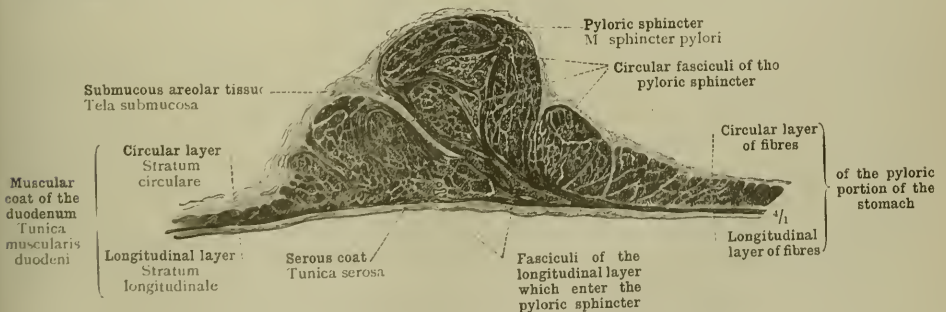


FIG. 717.—M. SPHINCTER PYLORI, THE PYLORIC SPHINCTER, IN LONGITUDINAL SECTION.



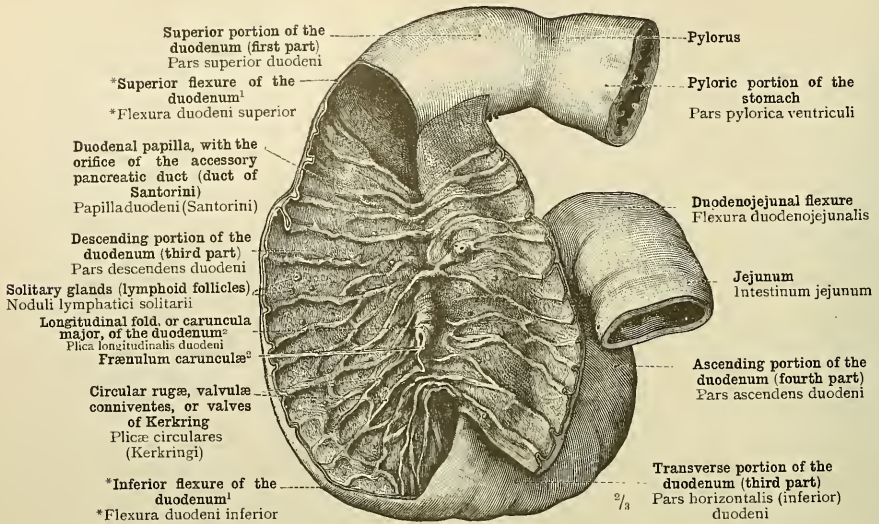


FIG. 718.—DUODENUM, SEEN FROM BEFORE. THE DESCENDING PORTION HAS BEEN OPENED, AND THE ANTERIOR WALL TURNED TO THE LEFT. PLICA LONGITUDINALIS DUODENI, THE LONGITUDINAL FOLD, OR CARUNCULA MAJOR, OF THE DUODENUM, AT THE LOWER END OF WHICH IS THE ORIFICE OF THE DUODENAL DIVERTICULUM, DIVERTICULUM DUODENALE (VATERI).<sup>2</sup> PAPPILLA DUODENI, THE DUODENAL PAPPILLA, WITH THE ORIFICE OF THE ACCESSORY PANCREATIC DUCT, OR DUCT OF SANTORINI.

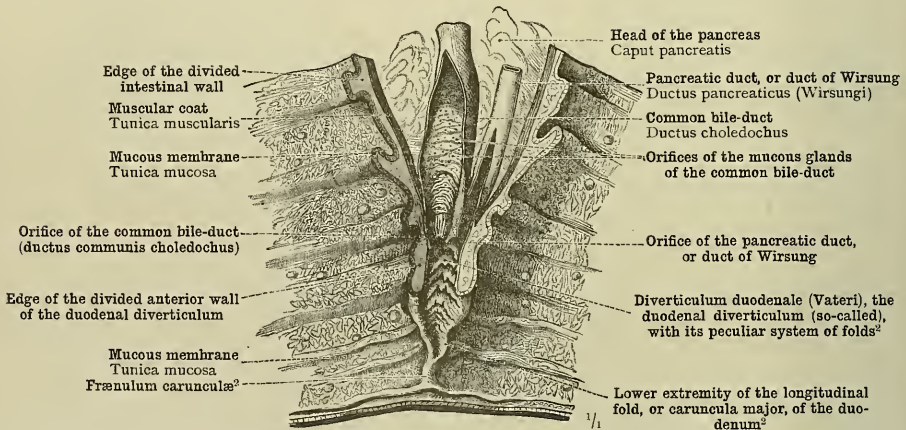


FIG. 719.—THE DUODENUM HAVING BEEN EXCISED, A LONGITUDINAL INCISION HAS BEEN MADE INTO THE SAC-LIKE DILATATION, DIVERTICULUM DUODENALE (VATERI),<sup>2</sup> TO SHOW THE IMBRICATED TRANSVERSE FOLDS<sup>2</sup> IN ITS INTERIOR. LONGITUDINAL INCISIONS HAVE ALSO BEEN MADE INTO THE LOWER EXTREMITIES OF THE COMMON BILE-DUCT AND THE PANCREATIC DUCT, OR DUCT OF WIRSUNG, WHICH OPEN INTO THE DUODENAL DIVERTICULUM.

<sup>1</sup> See Appendix, note 6.

<sup>2</sup> See Appendix, note 9.

<sup>3</sup> See Appendix, note 10.

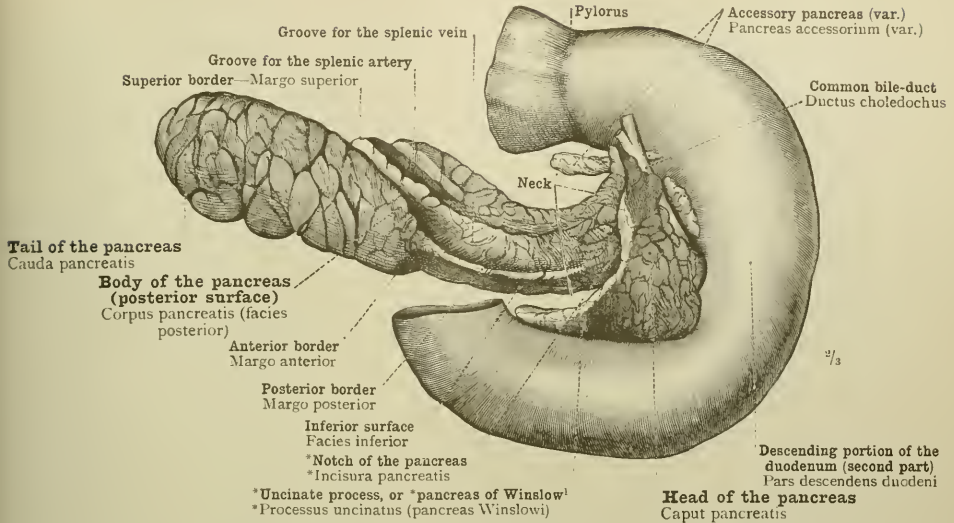


FIG. 720.—THE PANCREAS; ITS RELATIONS TO THE DUODENUM AND TO THE COMMON BILE-DUCT. ACCESSORY PANCREAS. SEEN FROM BEHIND.

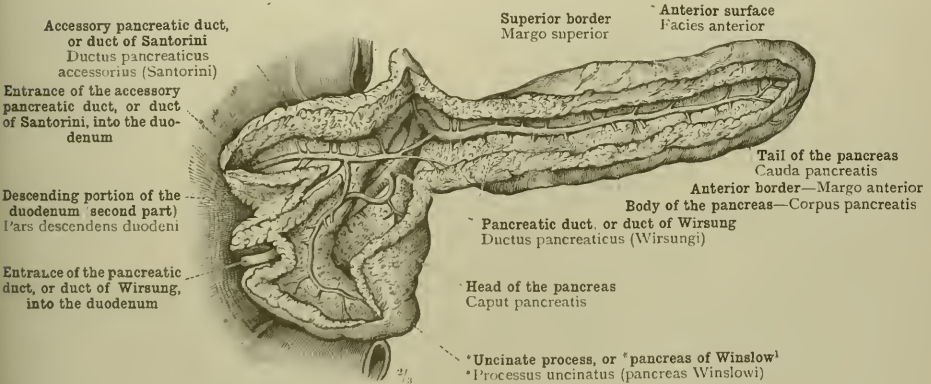


FIG. 721.—THE PANCREAS, WITH ITS DUCTS DISSECTED OUT, SEEN FROM BEFORE. PANCREATIC DUCT, OR DUCT OF WIRSUNG; ACCESSORY PANCREATIC DUCT, OR DUCT OF SANTORINI.

† That portion of the head of the pancreas which extends to the left in a hook-like manner behind the mesenteric vessels, called by the author the "uncinate process," or "pancreas of Winslow," is sometimes completely separate from the rest of the gland, and is then termed the lesser pancreas.—Tr.



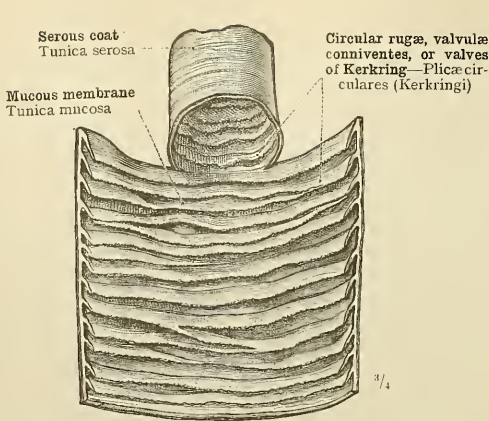


FIG. 722.—THE JEJUNUM, IN PART OPENED.

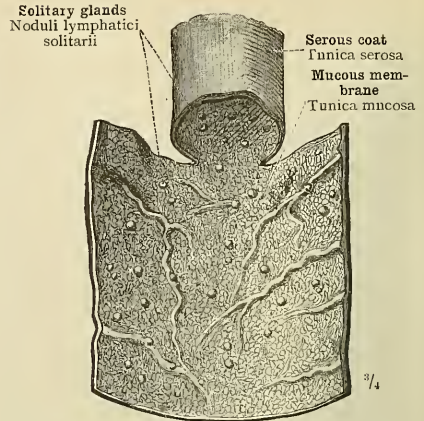
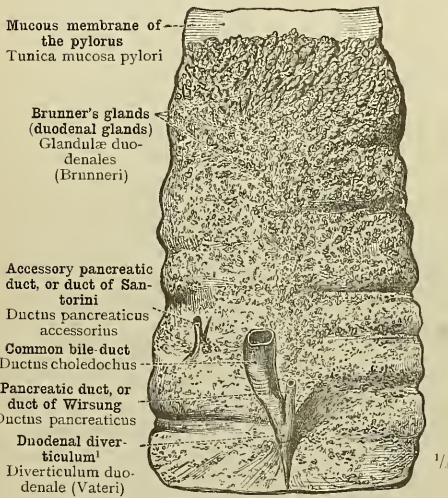


FIG. 723.—THE ILEUM, IN PART OPENED.

INTESTINUM TENUE—THE SMALL INTESTINE.



<sup>1</sup> See Appendix, note

FIG. 724.—OUTER SURFACE OF THE MUCOUS MEMBRANE OF THE DUODENUM, WITH BRUNNER'S GLANDS (DUODENAL GLANDS), DISPLAYED BY THE REMOVAL OF THE MUSCULAR COAT.

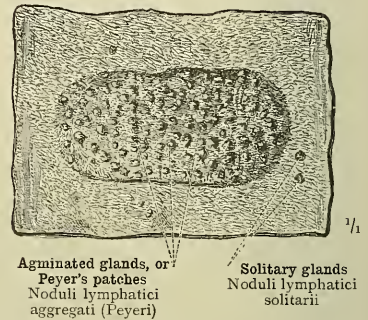


FIG. 725.—NODULI LYMPHATICI AGGREGATI, AGMINATED GLANDS, OR PEYER'S PATCHES, FROM THE ILEUM.

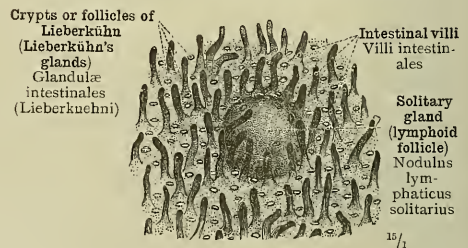


FIG. 726.—MUCOUS MEMBRANE OF THE ILEUM, WITH A SOLITARY GLAND (LYMPHOID FOLLICLE).

Tubus digestorius—Alimentary canal.

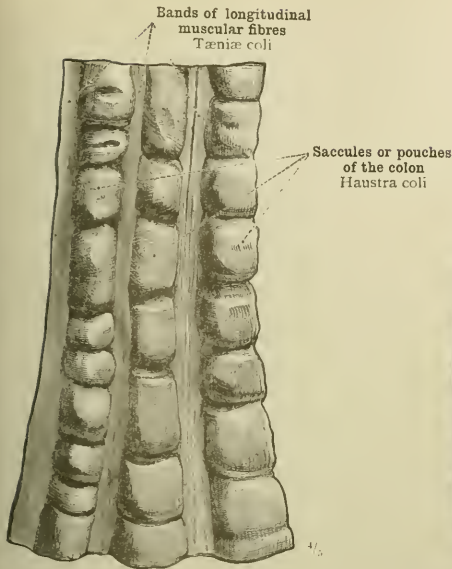


FIG. 727.—TUNICA MUSCULARIS, THE MUSCULAR COAT, OF THE OPENED LARGE INTESTINE (TRANSVERSE COLON), DISPLAYED FROM THE OUTER SIDE BY THE REMOVAL OF THE SEROUS COAT.

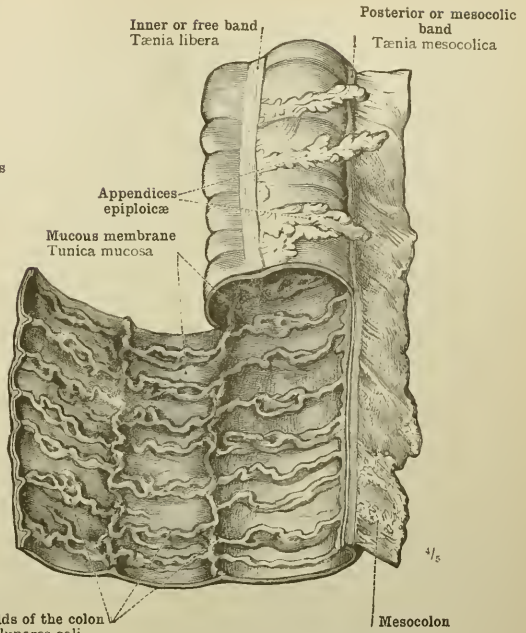


FIG. 728.—INTESTINUM CRASSUM, THE LARGE INTESTINE. IN PART OPENED ALONG THE LINE OF ATTACHMENT OF THE MESENTERY.

The piece of intestine is in the contracted state.

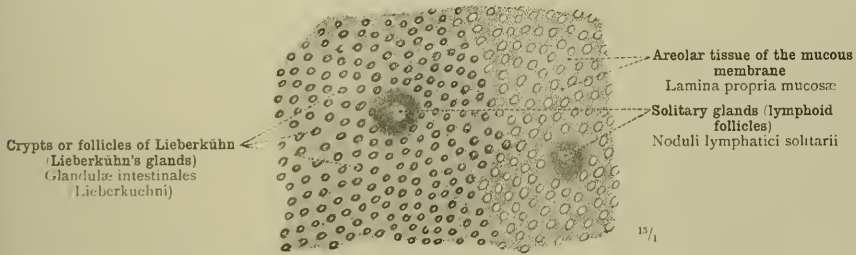


FIG. 729.—MUCOUS MEMBRANE OF THE LARGE INTESTINE (TRANSVERSE COLON), MODERATELY MAGNIFIED, SEEN FROM WITHIN.

On the right side of the preparation the gland cells of the crypts or follicles of Lieberkühn (glandulæ intestinales, Lieberkühn's glands) have been removed by gentle friction.



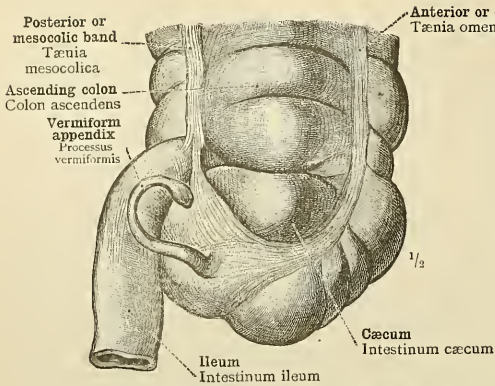


FIG. 730.—INTESTINUM CÆCUM, THE CÆCUM, IN THE DISTENDED STATE, SEEN FROM BEHIND, THE SEROUS COAT HAVING BEEN REMOVED.

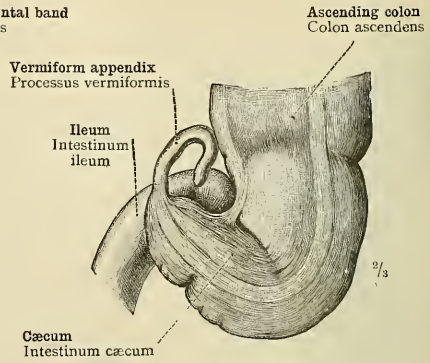


FIG. 731.—INTESTINUM CÆCUM, THE CÆCUM, OF AN ADULT MALE, IN THE FULLY-CONTRACTED STATE, SEEN FROM BEHIND, THE SEROUS COAT HAVING BEEN REMOVED.

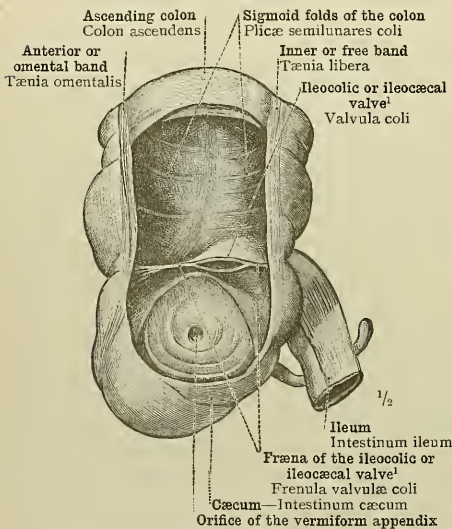


FIG. 732.—THE CÆCUM, DISTENDED AND DRIED, SEEN FROM THE OUTER SIDE. A portion of the outer wall has been removed, in order to display the ileocolic or ileocæcal valve<sup>1</sup> and the orifice of the vermiform appendix.

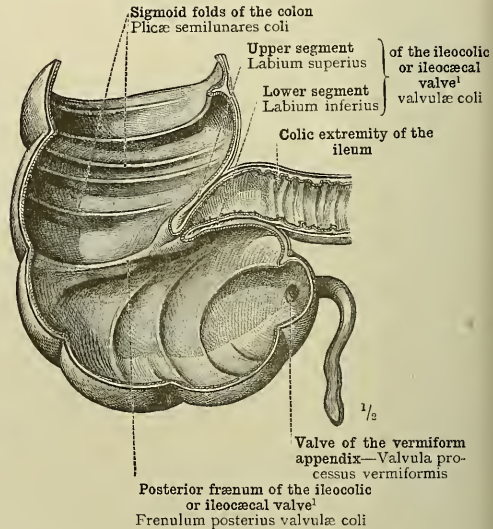


FIG. 733.—THE CÆCUM, HARDENED IN FORMALIN, AND DIVIDED BY AN INCISION PASSING THROUGH THE ILECOLIC OR ILEOCÆCAL ORIFICE. THE ILECOLIC OR ILEOCÆCAL VALVE<sup>1</sup> (VALVULA COLI) IS SEEN CLOSED, IN CORONAL SECTION.

<sup>1</sup> *Ileocolic or Ileocæcal Valve*.—This is known also as the *valve of Bauhin* and as the *valve of Tulpius*, but was described by Fallopius at an earlier date than by either of these anatomists. Macalister distinguishes the upper or colic lip or segment as the *ileocolic valve*, and the lower or cæcal lip or segment as the *ileocæcal valve*. The *fræna* or *retinacula* of the valve are prominent folds in front and behind the orifice formed by the union of the two segments; they pass round the gut to unite opposite the orifice, forming a shelf which separates the cæcum from the ascending colon. This shelf is sometimes called the *frænum of Morgagni*.—T.

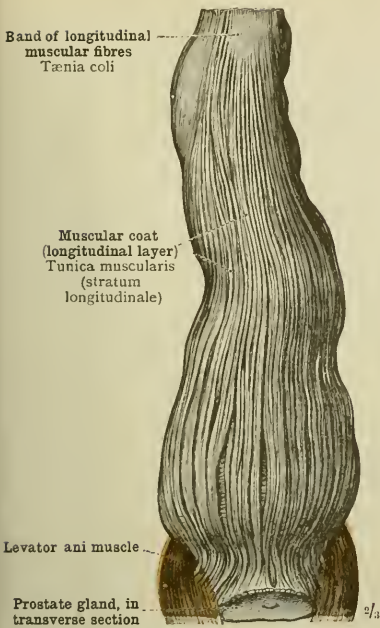


FIG. 734.—INTESTINUM RECTUM, THE RECTUM, THE LONGITUDINAL LAYER OF MUSCULAR FIBRES HAVING BEEN EXPOSED. SEEN FROM BEFORE.

Some of the longitudinal fibres are seen to pass on to the surface of the prostate gland, and others between the fasciculi of the levator ani muscle.

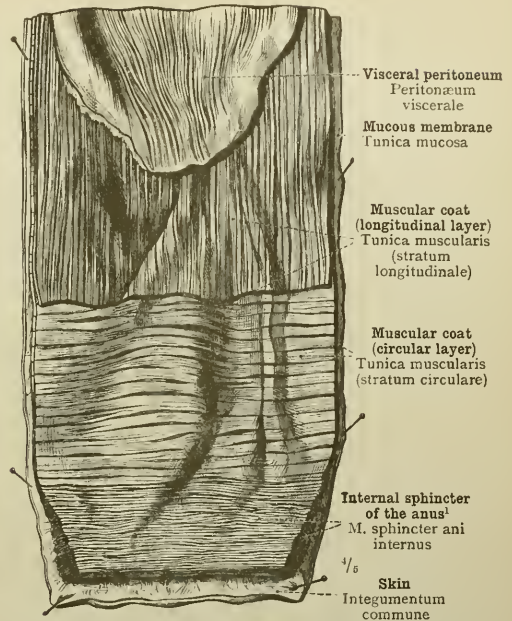


FIG. 735.—OUTER SURFACE OF THE RECTUM, WHICH HAS BEEN ISOLATED AND OPENED FROM BEHIND.

In the lower half the longitudinal layer of the muscular coat has been removed, in order to display the circular layer and the continuity of this latter with the internal or circular sphincter of the anus.

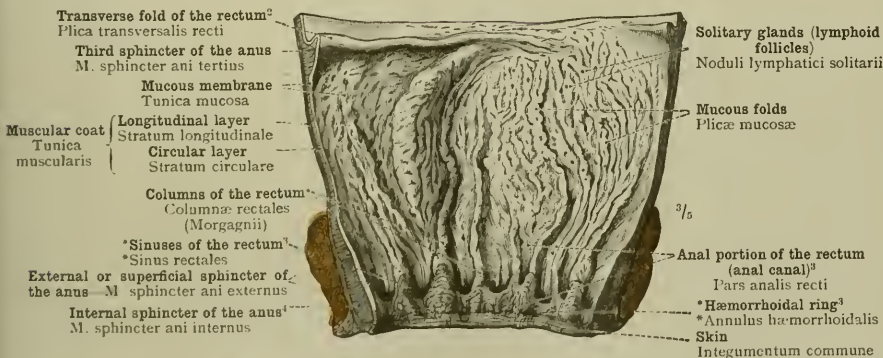


FIG. 736.—MUCOUS MEMBRANE OF THE LOWER PART OF THE RECTUM AND ITS CONTINUITY WITH THE SKIN.

<sup>1</sup> Known also as the *deep or circular sphincter of the anus*.

<sup>2</sup> See Appendix, note 11.

<sup>3</sup> See Appendix, note 12.

<sup>4</sup> Known also as the *deep or circular sphincter of the anus*.



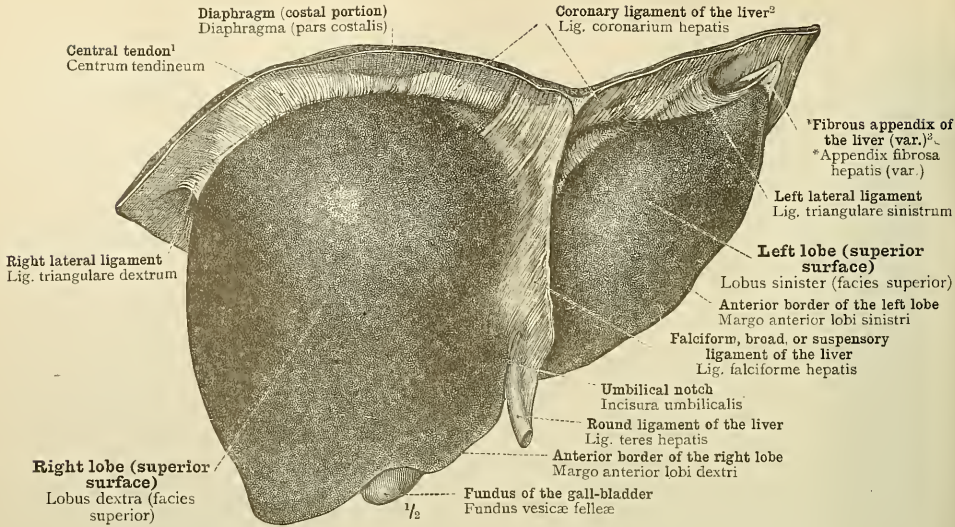


FIG. 737.—SUPERIOR SURFACE OF THE LIVER AND ITS ATTACHMENTS TO THE DIAPHRAGM.

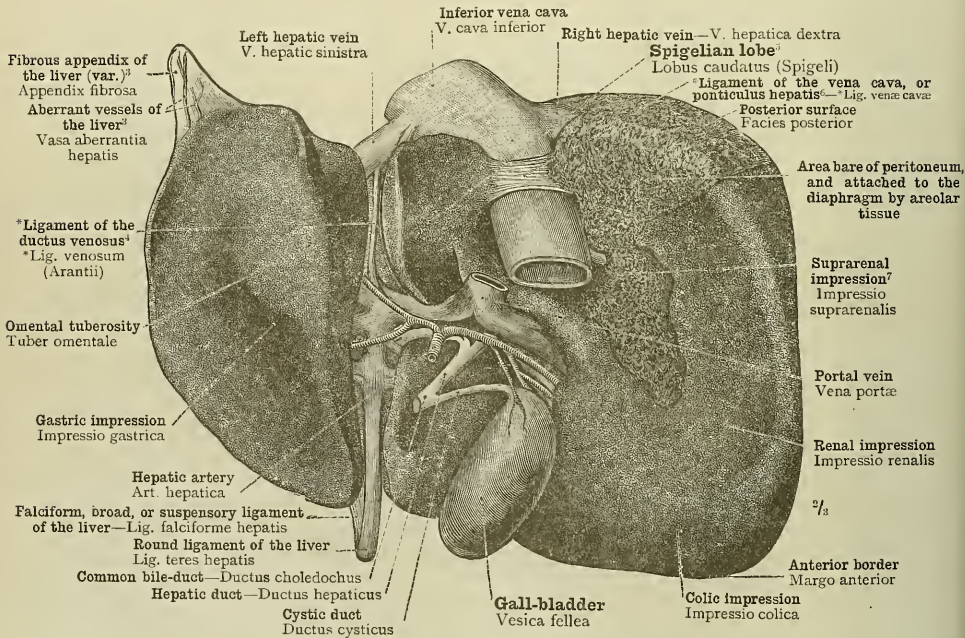


FIG. 738.—INFERIOR SURFACE OF THE LIVER; THE STRUCTURES OCCUPYING THE FISSURES OF THE ORGAN.

<sup>1</sup> Called also the *trefoil* or *cordiform tendon* of the diaphragm. <sup>2</sup> See Appendix, note 13.  
<sup>3</sup> See Appendix, note 14. <sup>4</sup> See Appendix, note 15. <sup>5</sup> See Appendix, note 16.  
<sup>6</sup> See Appendix, note 17. <sup>7</sup> Or *adrenal impression*.

Hepar—The liver.

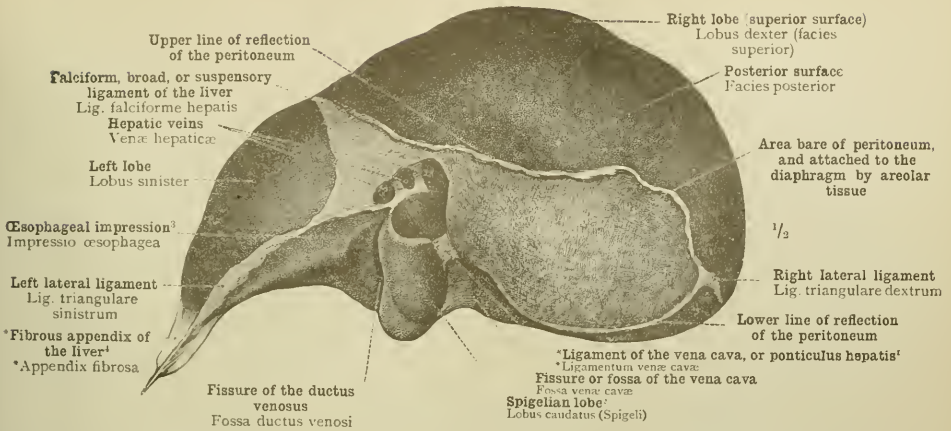


FIG. 739.—POSTERIOR SURFACE OF THE LIVER, WITH THE ORIFICES OF THE HEPATIC VEINS.

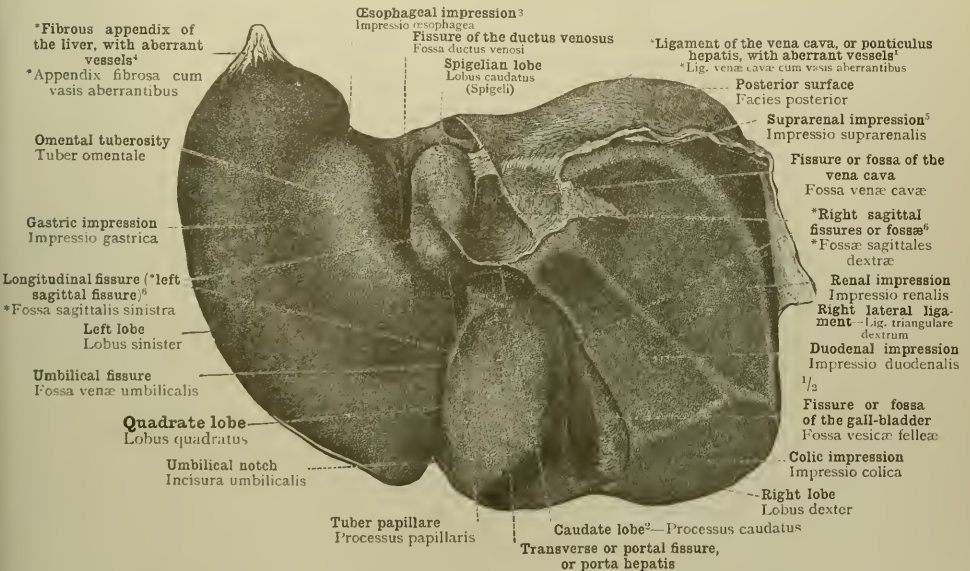


FIG. 740.—INFERIOR SURFACE OF A LIVER WHICH WAS HARDENED *IN SITU* BEFORE THE BODY WAS OPENED, THE STRUCTURES OCCUPYING THE FISSURES OF THE ORGAN HAVING BEEN ENTIRELY REMOVED.

<sup>1</sup> See Appendix, note 17.

<sup>2</sup> See Appendix, note 16.

<sup>3</sup> Known also as the *oesophageal groove* or *oesophageal sulcus*.

<sup>4</sup> See Appendix, note 14.

<sup>5</sup> Or *adrenal impression*.

<sup>6</sup> *Sagittal Fissures*.—This name is not used in England. The *umbilical fissure* and the *fissure of the ductus venosus* form the anterior and posterior parts, respectively, of the *longitudinal fissure* of English anatomists, called by the author *fossa sagittalis sinistra*. The *fissure* or *fossa of the gall-bladder* and the *fissure* or *fossa of the vena cava*, being separated from one another by the caudate lobe, do not combine to form a single fissure. These are called by the author *fossa sagittales dextrae*.—Tr.



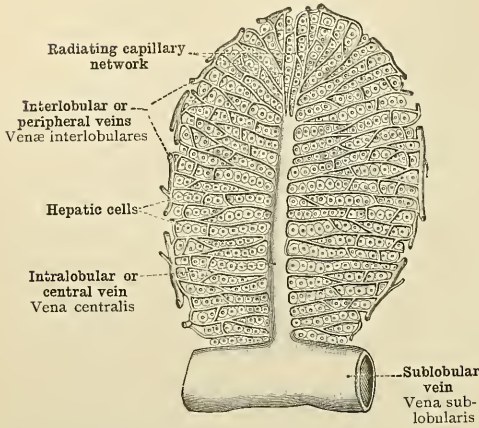


FIG. 741.—DIAGRAMMATIC REPRESENTATION OF A LONGITUDINALLY DIVIDED HEPATIC LOBULE, LOBULUS HEPATICUS. VENA CENTRALIS, INTRALOBULAR OR CENTRAL VEIN; VENÆ INTERLOBULARES, INTERLOBULAR OR PERIPHERAL VEINS; VENA SUBLOBULARIS, SUBLOBULAR VEIN.

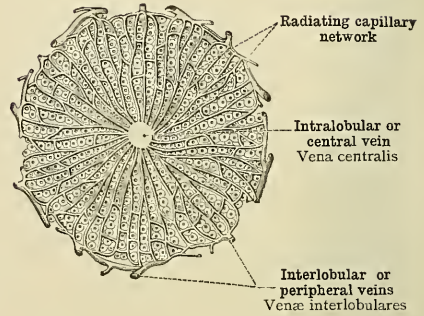
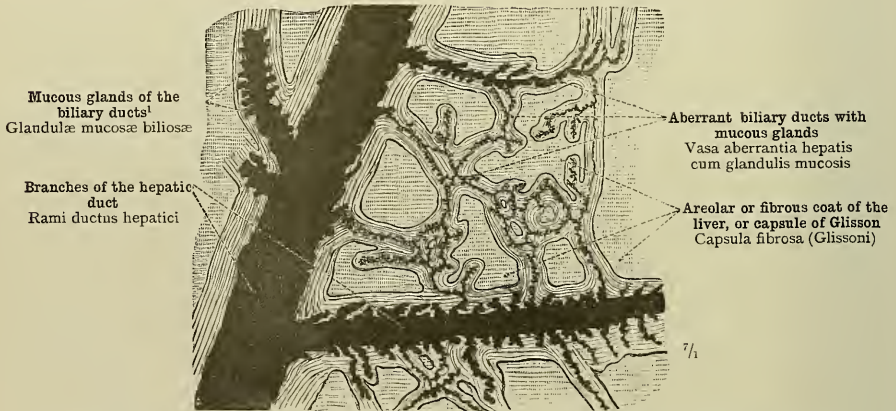


FIG. 742.—DIAGRAMMATIC REPRESENTATION OF A TRANSVERSELY-DIVIDED HEPATIC LOBULE. VENA CENTRALIS, INTRALOBULAR OR CENTRAL VEIN; VENÆ INTERLOBULARES, INTERLOBULAR VEINS.



<sup>1</sup> *Mucous Glands of the Biliary Ducts.*—Quain writes ("Anatomy," tenth ed., vol. iii. part iv., p. 135): "In the portal canals . . . the ducts present numerous openings on the inner surface which are scattered irregularly in the larger ducts, but in the subdivisions are arranged in two longitudinal rows, one at each side of the vessel. These openings were formerly supposed to be the orifices of mucous glands; but, while the main ducts are studded with true mucous glands of lobulated form and with minute orifices, the openings now referred to belong to sacular and tubular recesses, which are often branched and anastomosing, and may be beset all over with tubular projections (Theile)."—Tr.

FIG. 743.—VASA ABERRANTIA HEPATIS, ABERRANT BILIARY DUCTS, WITH MUCOUS GLANDS (GLANDULÆ MUCOSÆ BILIOSÆ), FROM ONE OF THE PORTAL CANALS, INJECTED WITH PRUSSIAN BLUE.

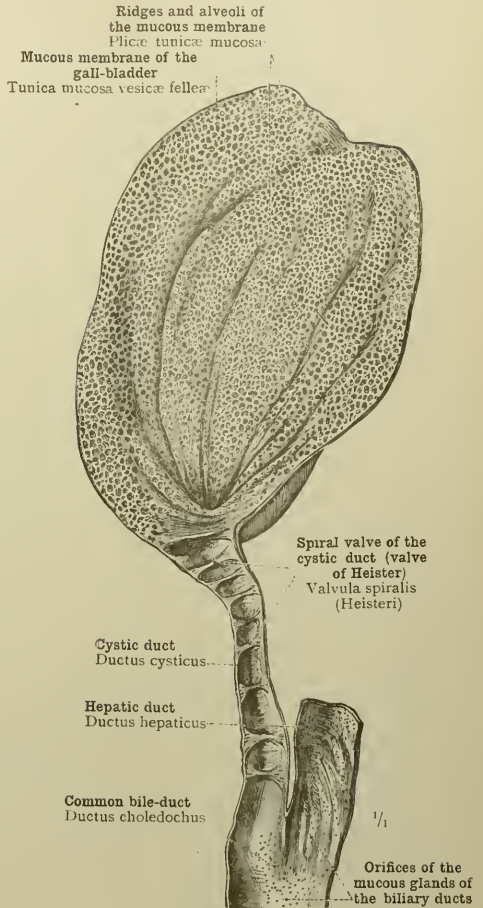


FIG. 744.—VESICA FELLEA, THE GALL-BLADDER, MODERATELY DISTENDED, WITH THE CYSTIC DUCT (DUCTUS CYSTICUS) AND THE JUNCTION OF THE LATTER WITH THE HEPATIC DUCT (DUCTUS HEPATICUS) TO FORM THE COMMON BILE-DUCT (DUCTUS COMMUNIS CHOLEDOCHUS).

FIG. 745.—THE GALL-BLADDER AND THE CYSTIC DUCT, OPENED LONGITUDINALLY. VALVULA SPIRALIS (HEISTERI), THE SPIRAL VALVE OF THE CYSTIC DUCT, OR HEISTER'S VALVE.

Hepar—The liver.

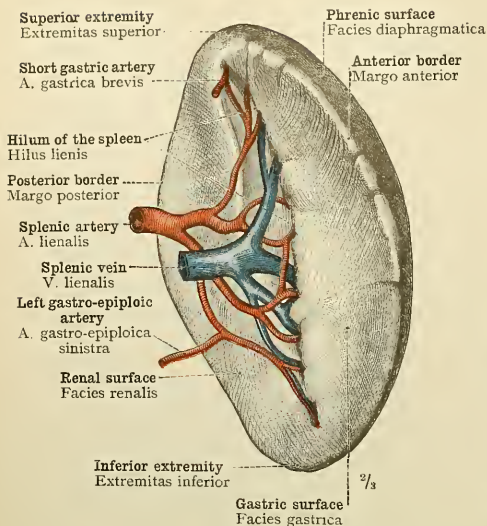


FIG. 746.—LIEN, THE SPLEEN, INNER OR GASTRIC ASPECT, WITH THE BRANCHING TERMINATION OF THE SPLENIC ARTERY AND VEIN LAID BARE.<sup>2</sup>

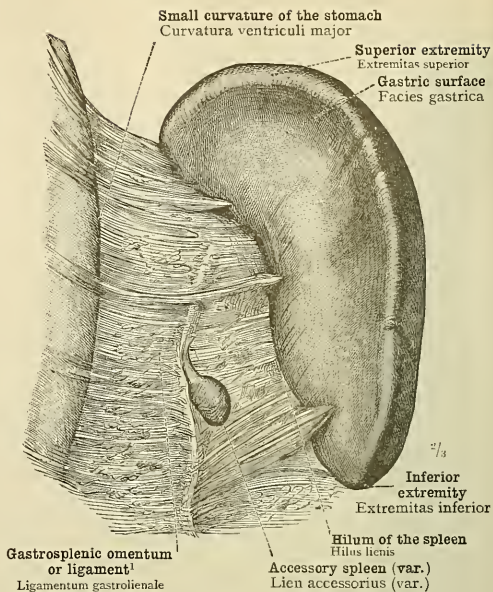


FIG. 747.—THE SPLEEN, WITH THE GASTRO-SPLENIC OMENTUM LEFT ATTACHED, SEEN FROM BEFORE. LIEN ACCESSORIUS, AN ACCESSORY SPLEEN.

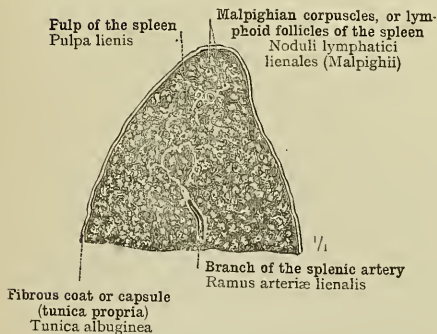


FIG. 748.—A PORTION OF THE CUT SURFACE OF THE SPLEEN OF A YOUNG MALE SUICIDE, IN WHICH THE MALPIGHIAN CORPUSCLES OR LYMPHOID FOLLICLES OF THE SPLEEN (NODULI LYMPHATICI LIENALES MALPIGHII) ARE VERY ABUNDANT.

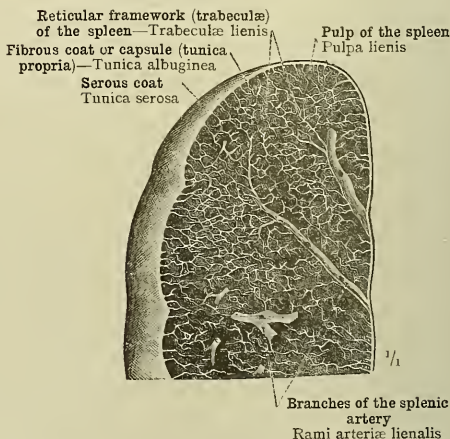
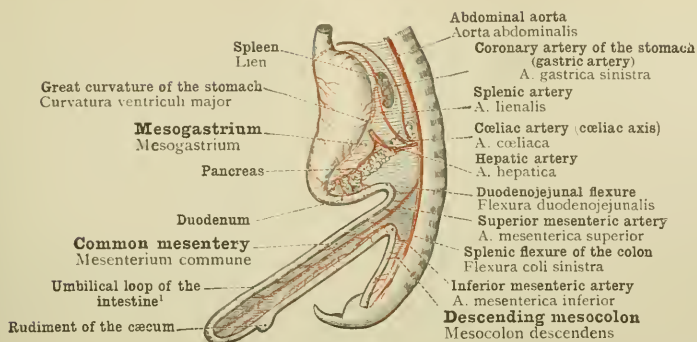


FIG. 749.—A PORTION OF THE CUT SURFACE OF A SPLEEN FROM WHICH THE PULP HAS BEEN PARTIALLY REMOVED BY LONG-CONTINUED AFFUSION WITH WATER, SO THAT THE FIBROUS FRAMEWORK OF THE ORGAN HAS BEEN ISOLATED.

<sup>1</sup> See Appendix, note 20.

<sup>2</sup> See Appendix, note 20.





<sup>1</sup> *Umbilical Loop of the Intestine.*—The small intestine is . . . at first quite short and straight, with a wide aperture to the yolk-sac, but gradually lengthens as the communication with the yolk-sac becomes more contracted, and . . . develops a long V-shaped loop opposite the attachment of the vitelline duct.—Quain, *op. cit.*, vol. 1, part 1, p. 104.

FIG. 750.—CONDITION OF THE HUMAN ALIMENTARY CANAL AND MESENTERY IN THE SIXTH WEEK OF INTRA-UTERINE LIFE. DIAGRAMMATIC.

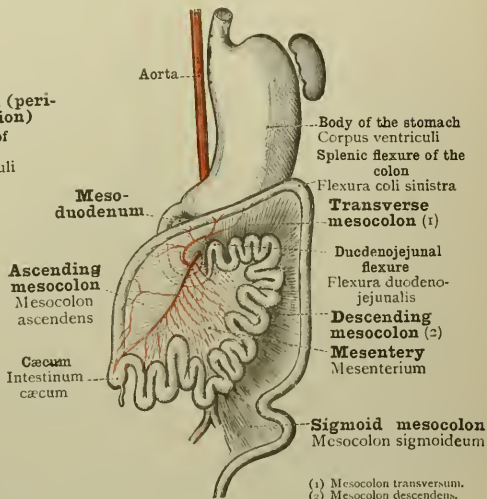
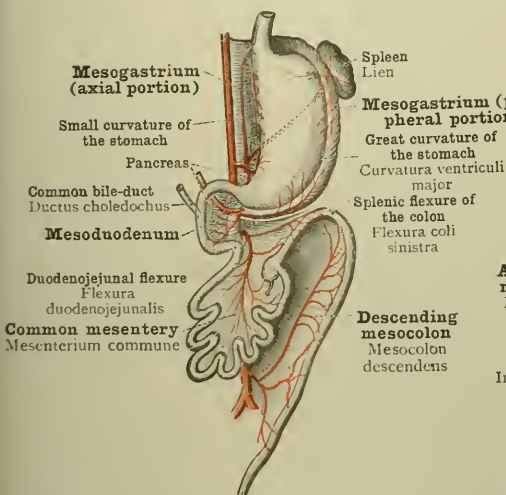


FIG. 751.—CONDITION OF THE HUMAN ALIMENTARY CANAL AND MESENTERY IN THE EIGHTH WEEK OF INTRA-UTERINE LIFE. DIAGRAMMATIC.

FIG. 752.—CONDITION OF THE HUMAN ALIMENTARY CANAL AND MESENTERY IN THE MIDDLE OF THE FOURTH MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH). DIAGRAMMATIC.

Peritonæum—Peritoneum.—Mesenterium—Mesentery.



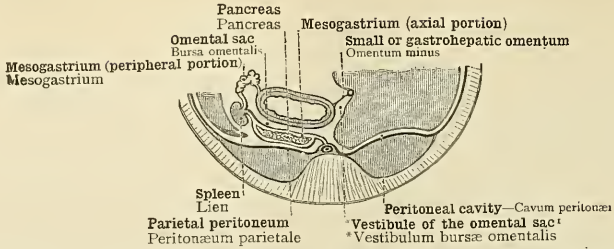


FIG. 753.—MESOGASTRIUM AND OMENTAL SAC (BURSA OMENTALIS, LESSER CAVITY OF THE PERITONEUM) BEFORE THE ADHESION OF THE AXIAL PORTION OF THE MESOGASTRIUM TO THE PARIETAL PERITONEUM. BEGINNING OF THE THIRD MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH). TRANSVERSE SECTION. DIAGRAMMATIC.

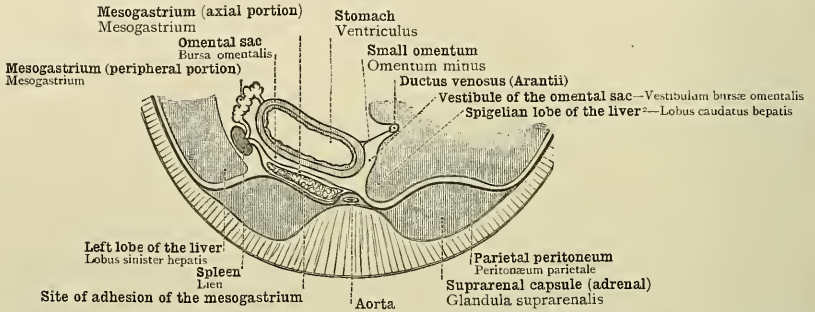


FIG. 754.—MESOGASTRIUM AND OMENTAL SAC (BURSA OMENTALIS, LESSER CAVITY OF THE PERITONEUM) AFTER THE ADHESION OF THE AXIAL PORTION OF THE MESOGASTRIUM TO THE PARIETAL PERITONEUM. END OF THE FOURTH MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH). TRANSVERSE SECTION. DIAGRAMMATIC.

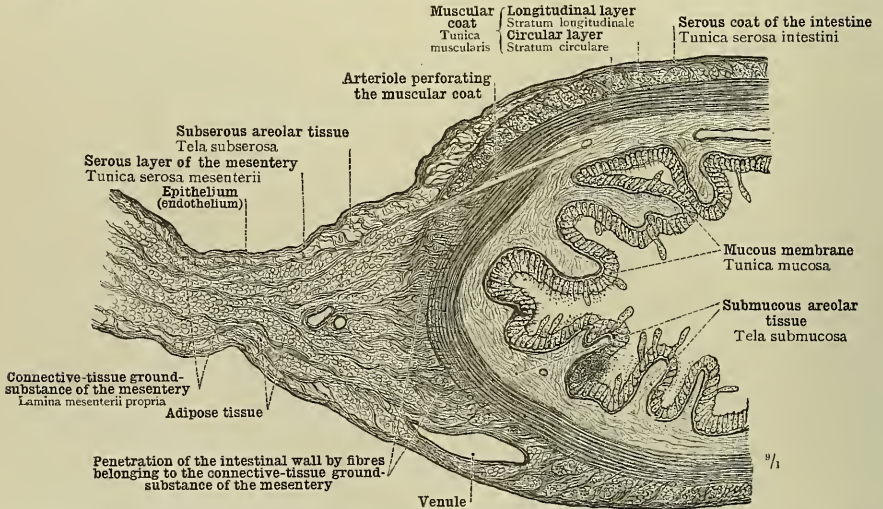
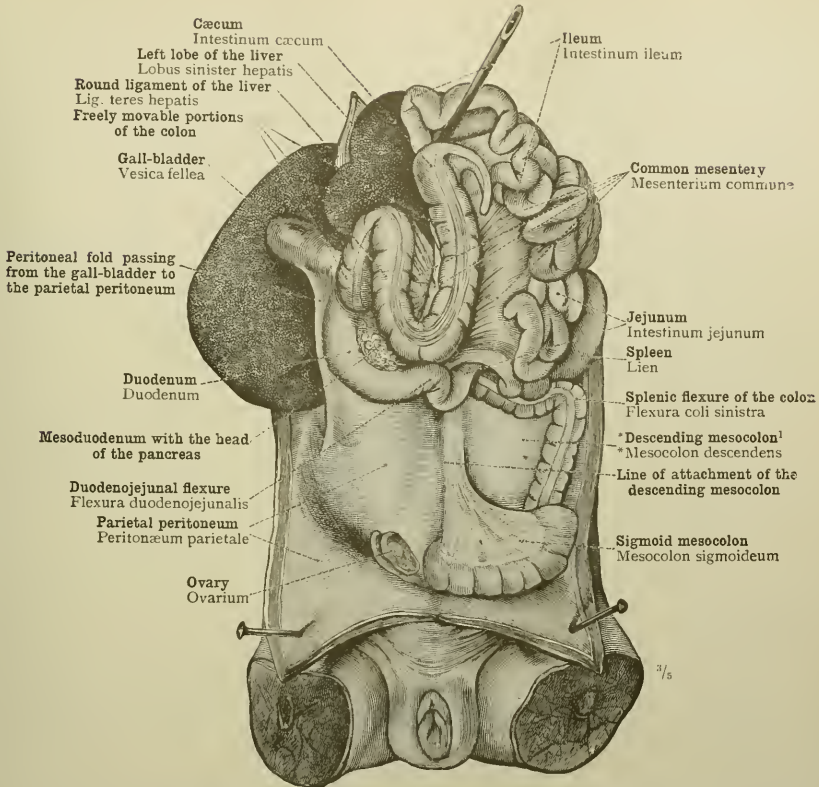


FIG. 755.—THE MESENTERY OF THE SMALL INTESTINE AND ITS ATTACHMENT TO THE INTESTINE. TRANSVERSE SECTION.

\* See note <sup>2</sup> to p. 479.

<sup>2</sup> See Appendix, note 16.



<sup>1</sup> *Descending Mesocolon*.—I follow the author in the use of this term for the peritoneum internal to the descending colon. In England, however, the use of the term *mesentery* is usually restricted to the peritoneal folds suspending *freely movable* portions of the alimentary canal, and is no longer applied in cases in which, as here in the case of the descending mesocolon, the originally free mesentery has become adherent to the parietal peritoneum. The existence of a distinct *descending mesocolon* (in the English sense of the term) is rare.—T.R.

FIG. 756.—MESENTERIUM COMMUNE, COMMON MESENTERY, OF AN INFANT AGED THREE WEEKS (VARIETY).

The adhesion of the duodenum to the parietal peritoneum of the posterior wall of the abdominal cavity has taken place after the normal manner; but the adhesion of the colon and of the ascending mesocolon to the anterior surface of the duodenum and to the posterior wall of the abdominal cavity has failed to take place, so that the ascending colon is freely movable, and has been turned upwards with the cæcum and the coils of the jejunum and ileum; the delimitation of the ascending colon from the transverse colon is lacking. The ascending mesocolon combines with the transverse mesocolon and the mesentery of the small intestine to form a freely movable common mesentery, which corresponds to the mesentery of the primitive umbilical loop of the intestine (see Fig. 750 on page 451, and note <sup>1</sup> to that page). In the right half of the lower part of the abdominal cavity the primary parietal peritoneum remains exposed; whereas in the left half the parietal peritoneum is, as is normally the case, represented by the anterior layer of the adherent descending mesocolon (see note <sup>1</sup> above).

Peritonæum—Peritoneum.—Mesenterium—Mesentery.

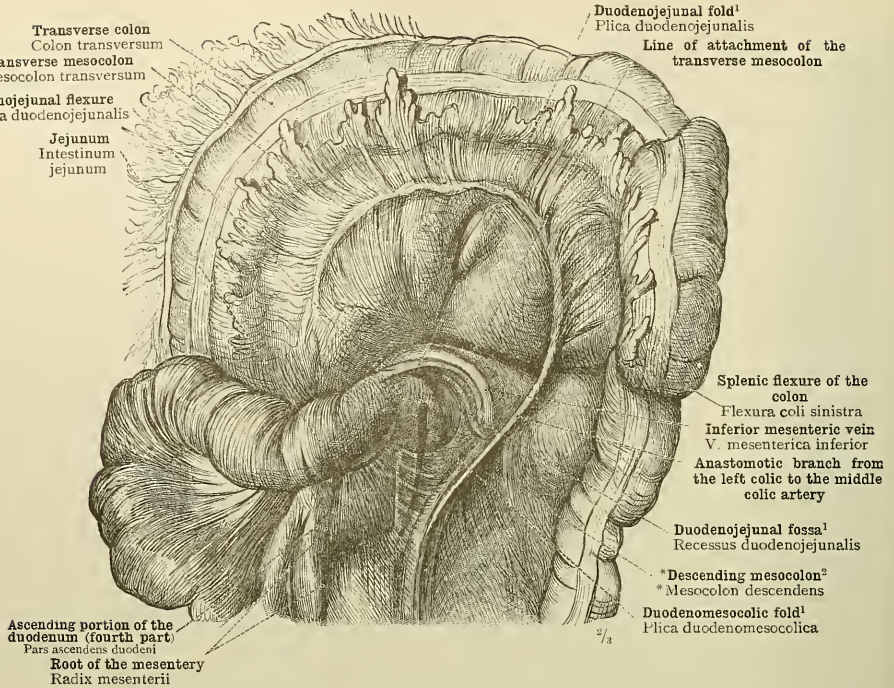


FIG. 757.—RECESSUS DUODENOJEJUNALIS, DUODENOJEJUNAL FOSSA.<sup>3</sup>

The transverse colon has been turned upwards; the jejunum and ileum have been pushed as far to the right as possible, to expose the duodenojejunal flexure, the lower (posterior) surface of the transverse mesocolon, and the \*descending mesocolon. A sound has been passed into the lower part of the duodenojejunal fossa (*i.e.*, the inferior duodenal fossa—see Appendix, note <sup>20</sup>), which extends beside the ascending portion of the duodenum for its whole length, and is bounded in front by the duodenomesocolic fold (inferior duodenal fold)

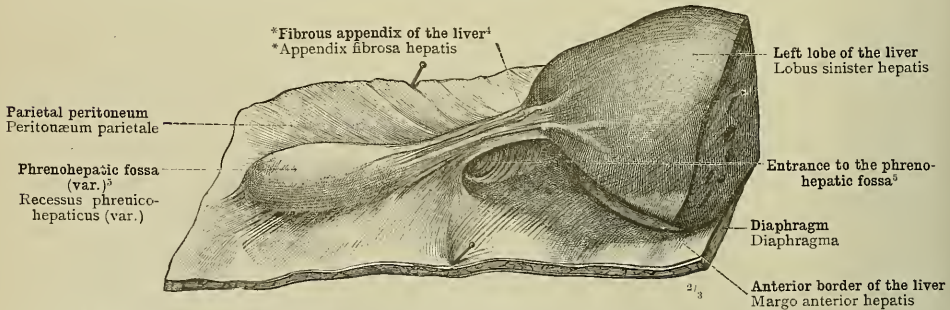


FIG. 758.—RECESSUS PHRENICOHEPATICUS, PHRENOHEPATIC FOSSA.<sup>5</sup> A PORTION OF THE LEFT LOBE OF THE LIVER, WITH THE FIBROUS APPENDIX OF THE LIVER, AND A PORTION OF THE DIAPHRAGM.

<sup>1</sup> See Appendix, note <sup>20</sup>.

<sup>2</sup> See note <sup>1</sup> to p. 453.

<sup>3</sup> See Appendix, note <sup>21</sup>.

<sup>4</sup> See Appendix, note <sup>14</sup>.

<sup>5</sup> See Appendix, note <sup>22</sup>.



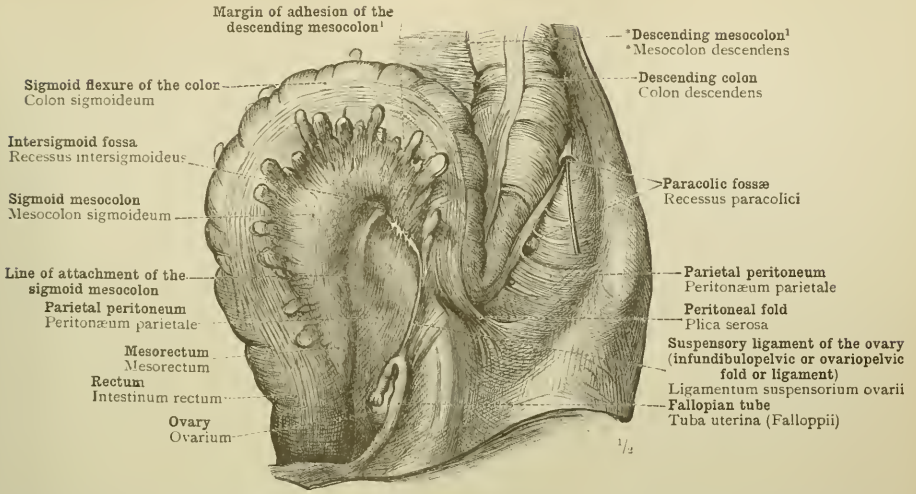


FIG. 759.—RECESSUS INTERSIGMOIDEUS, INTERSIGMOID FOSSA; RECESSUS PARACOLICI, PARACOLIC FOSSE. LEFT ILIAC FOSSA WITH THE LEFT LATERAL WALL OF THE PELVIS. THE SIGMOID MESOCOLON PASSING INTO THE MESORECTUM. SEEN FROM BEFORE.

The sigmoid flexure has been drawn upwards.

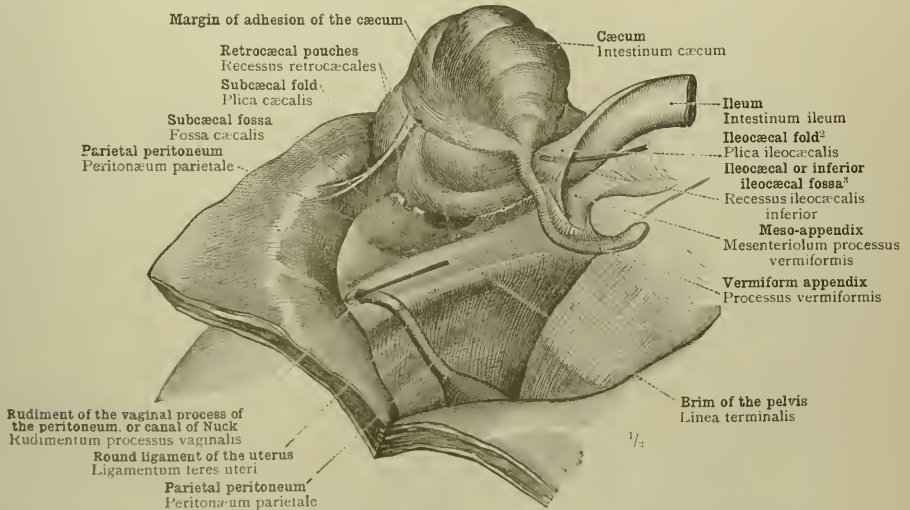


FIG. 760.—FOSSA CÆCALIS, SUBCÆCAL FOSSA; RECESSUS RETROCÆCALES, RETROCÆCAL POUCHES; RECESSUS ILEOCÆCALIS INFERIOR, INFERIOR ILEOCÆCAL FOSSA. RIGHT ILIAC FOSSA WITH THE RIGHT LATERAL WALL OF THE PELVIS. SEEN OBliquELY FROM BEFORE AND THE LEFT SIDE.

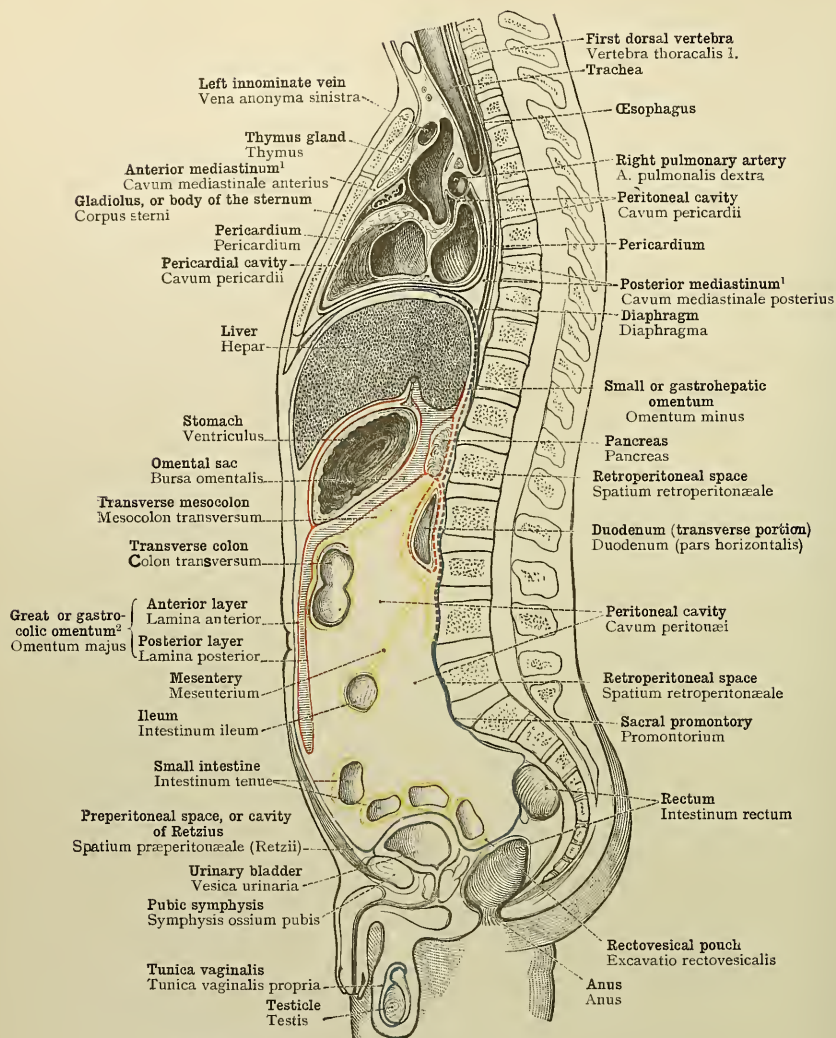
The cæcum has been drawn upwards.

<sup>1</sup> See note <sup>1</sup> to p. 453.

<sup>2</sup> Called by Treves the *bloodless fold*.—TW.

<sup>3</sup> See Appendix, note <sup>2</sup>.





<sup>1</sup> See Appendix, note 24.

<sup>2</sup> *Epiploon*, the Greek word for omentum, is occasionally used to denote the great omentum.—Tr.

<sup>3</sup> The visceral layer of peritoneum covering the liver is not indicated in the diagram by a coloured line.—Tr.

FIG. 761.—DIAGRAMMATIC REPRESENTATION OF THE NORMAL COURSE AND ARRANGEMENT OF THE PERITONEUM, THE MESENTERY, AND THE OMENTAL SAC.

The blue lines indicate the primary parietal peritoneum; the red lines, the mesogastrum; and the yellow lines, the visceral peritoneum, including the peritoneal layers of the mesentery. The continuous lines indicate the free surfaces of the peritoneum; the dotted lines, those parts of the peritoneum in which, owing to secondary adhesion, the free surfaces have disappeared (see note 3 above).

Peritonæum—Peritoneum.—Mesenterium—Mesentery.

APPARATUS RESPIRATORIUS  
RESPIRATORY ORGANS

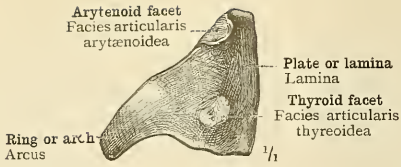


FIG. 762.—SEEN FROM THE LEFT SIDE.

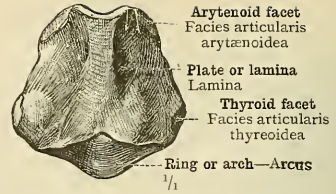


FIG. 763.—SEEN FROM BEHIND.

CARTILAGO CRICOIDEA, THE CRICOID CARTILAGE.

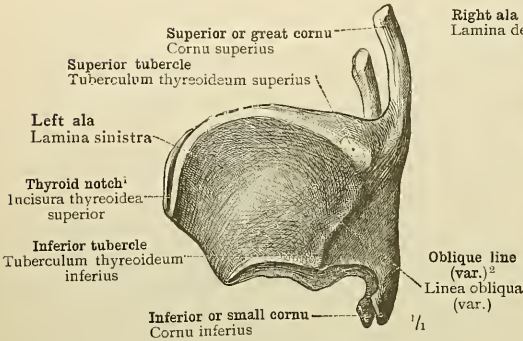


FIG. 764.—SEEN FROM THE LEFT SIDE.

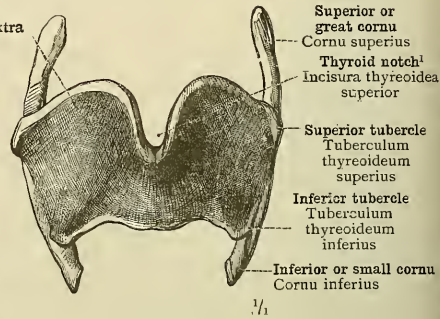


FIG. 765.—SEEN FROM BEFORE.

CARTILAGO THYREOIDEA, THE THYROID CARTILAGE.

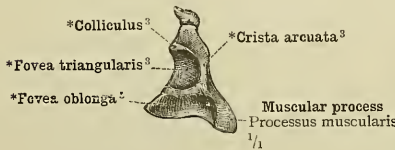


FIG. 766.—SEEN FROM THE OUTER SIDE.

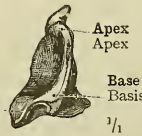


FIG. 767.—SEEN FROM BEHIND.

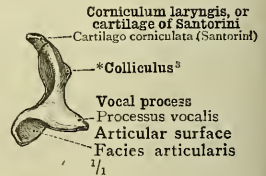


FIG. 768.—SEEN FROM THE INNER SIDE.

CARTILAGO ARYTENOIDEA SINISTRA, THE LEFT ARYTENOID CARTILAGE,<sup>3</sup> WITH THE CORNICULUM LARYNGIS, OR CARTILAGE OF SANTORINI.

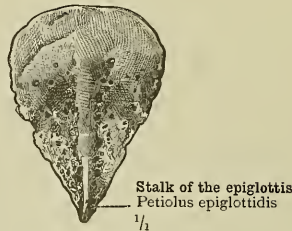
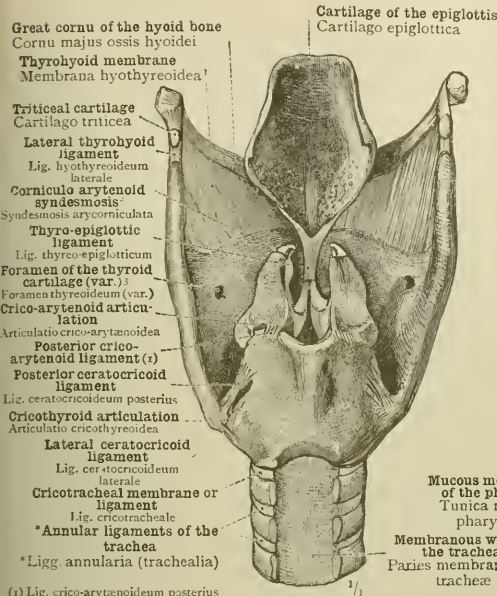


FIG. 769.—CARTILAGO EPIGLOTTICA, CARTILAGE OF THE EPIGLOTTIS. SEEN FROM BEHIND.

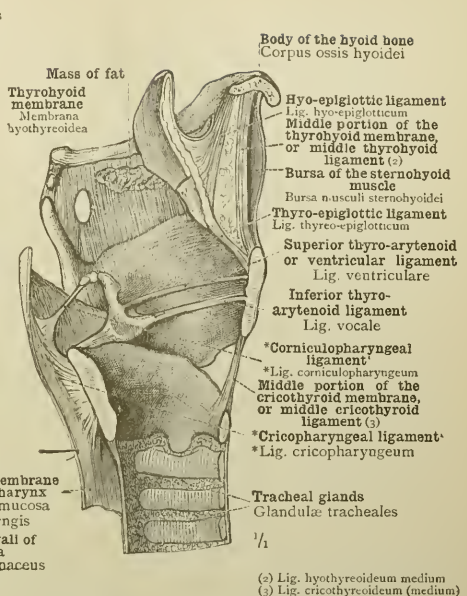
<sup>1</sup> Or great median notch of the thyroid cartilage.

<sup>2</sup> See Appendix, note <sup>23</sup>.

<sup>3</sup> See Appendix, note <sup>26</sup>.



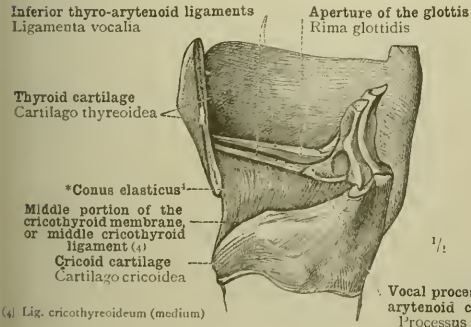
(1) Lig. crico-arytenoideum posterius



(2) Lig. hyothyroideum medium  
(3) Lig. cricothyroideum (medium)

FIG. 770.—LIGAMENTS OF THE LARYNX, AND THE THYROHYOID MEMBRANE, SEEN FROM BEHIND.

FIG. 771.—LIGAMENTS OF THE LARYNX, AND THE THYROHYOID MEMBRANE, SHOWN IN THE LEFT HALF OF A SAGITTALLY-HEMISECTED LARYNX. SEEN FROM WITHIN.



(4) Lig. cricothyroideum (medium)

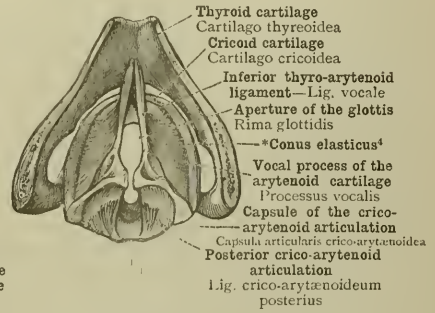


FIG. 773.—\*CONUS ELASTICUS,<sup>4</sup> WITH THE INFERIOR THYRO-ARYTENOID LIGAMENTS, DISPLAYED FROM ABOVE BY THE REMOVAL OF THE UPPER PORTIONS OF THE ALÆ OF THE THYROID CARTILAGE AND THE SOFT PARTS INTERNAL TO THE ALÆ.

FIG. 772.—\*CONUS ELASTICUS,<sup>4</sup> WITH THE INFERIOR THYRO-ARYTENOID LIGAMENTS, WHICH LATTER FORM THE ELASTIC ELEMENTS OF THE TRUE VOCAL CORDS (PLICE VOCALES). SEEN FROM THE LEFT SIDE.

The parts have been laid bare by the removal of the greater part of the left alæ of the thyroid cartilage.

<sup>1</sup> See Appendix, note 27.

<sup>2</sup> See Appendix, note 28.

<sup>3</sup> See Appendix, note 29.

<sup>4</sup> See Appendix, note 30.



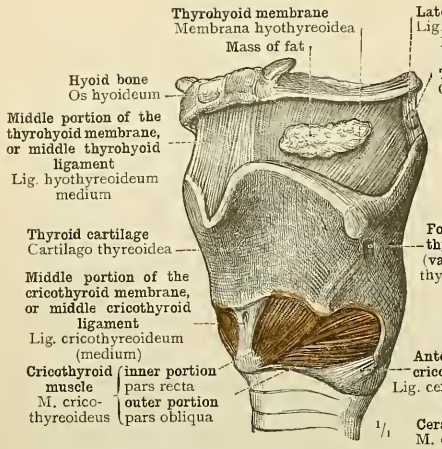


FIG. 774.—THE LARYNX WITH THE THYROID MEMBRANE AND THE CRICOTHYROID MUSCLE, SEEN OBLIQUELY FROM THE LEFT SIDE AND BEFORE.

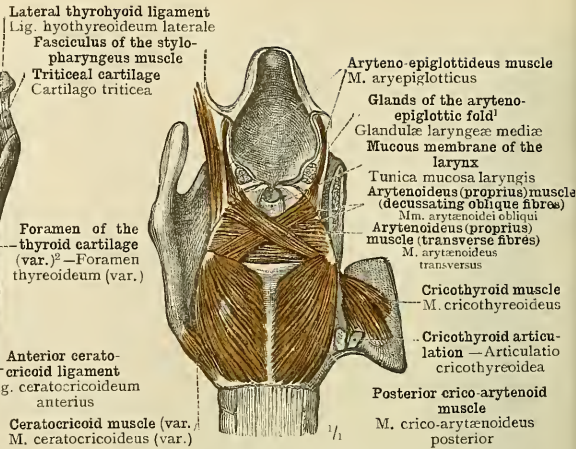


FIG. 775.—THE MUSCLES OF THE LARYNX SEEN FROM BEHIND. The right ala of the thyroid cartilage has been in part removed.

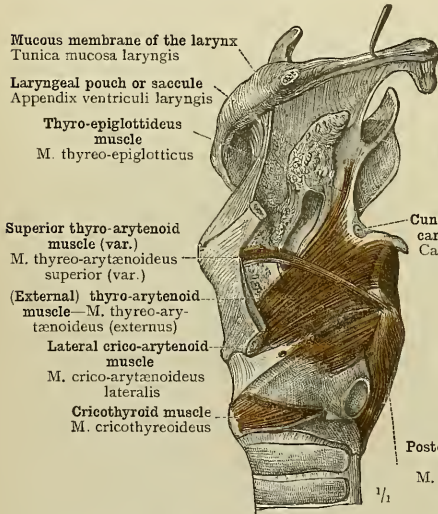


FIG. 776.—THE MUSCLES OF THE LARYNX AS SEEN FROM THE LEFT SIDE AFTER THE REMOVAL OF THE GREATER PART OF THE LEFT ALA OF THE THYROID CARTILAGE.

The laryngeal pouch or sacculus (the recess leading upward from the anterior part of the ventricle) is unusually large.



FIG. 777.—THE MUSCLES AND MUCOUS GLANDS OF THE LARYNX, AS SEEN FROM WITHIN THE LEFT HALF OF A SAGITTALLY-HEMISECTED LARYNX.

Part of the mucous membrane covering the true and false vocal cords has been left *in situ*.

¹ See Appendix, note 34.

² See Appendix, note 29.

³ Arytenovocalis Muscle.—This is called by Ludwig *portio aryvocalis musculi thyreo-arytenoidei*.—Tr.

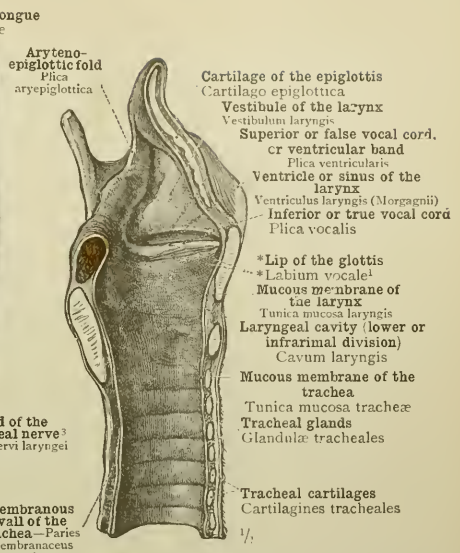
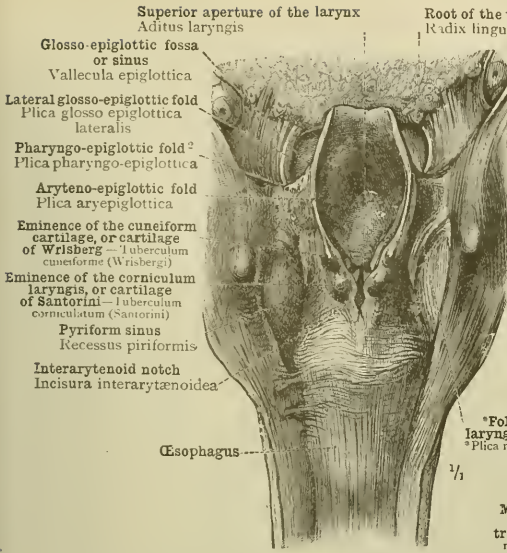


FIG. 778.—ANTERIOR WALL OF THE LARYNGEAL PART OF THE PHARYNX WITH THE SUPERIOR APERTURE OF THE LARYNX.

FIG. 779.—LEFT HALF OF A SAGITTALLY-BISECTED LARYNX. PLICA VOCALIS, INFERIOR OR TRUE VOCAL CORD; PLICA VENTRICULARIS, SUPERIOR OR FALSE VOCAL CORD, OR VENTRICULAR BAND; VENTRICULUS LARYNGIS, VENTRICLE OR SINUS OF THE LARYNX.

The posterior wall of the pharynx has been divided along the median line, and the lateral walls have been turned outwards.

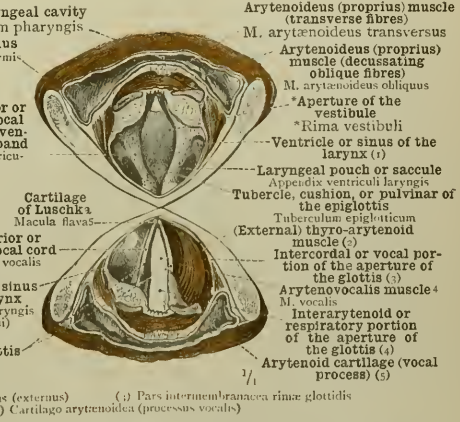
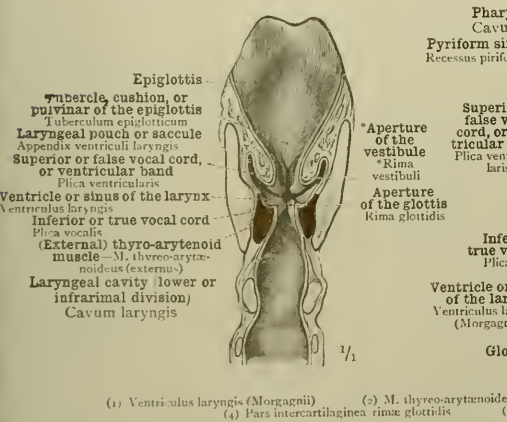


FIG. 780.—ANTERIOR HALF OF A CORONALLY-DIVIDED LARYNX. THE VOCAL APPARATUS, OR GLOTTIS; THE APERTURE OF THE GLOTTIS, RIMA GLOTTIDIS; THE INFERIOR OR TRUE VOCAL CORD, PLICA VOCALIS, WITH THE LABIUM Vocale; THE SUPERIOR OR FALSE VOCAL CORD, OR VENTRICULAR BAND, PLICA VENTRICULARIS; THE VENTRICLE OR SINUS OF THE LARYNX, VENTRICULUS LARYNGIS, AND THE LARYNGEAL POUCH OR SACCULE, APPENDIX VENTRICULI LARYNGIS.

FIG. 781.—UPPER AND LOWER HALVES OF A LARYNX, DIVIDED INTO TWO PARTS BY A HORIZONTAL SECTION PASSING THROUGH THE VENTRICLES OF THE LARYNX, WITH THE ADJACENT PART OF THE PHARYNX.

In the lower half on the right side the mucous membrane of the ventricle of the larynx has been removed, to show the arytenovocalis<sup>4</sup> and (external) thyro-arytenoid muscles.

- (1) Ventriculus laryngis (Morgagnii)
- (2) M. thyro-arytenoideus (externus)
- (3) Pars intermembranae rima glottidis
- (4) Pars intercartilaginea rima glottidis
- (5) Cartilago arytenoidea (processus vocalis)

<sup>1</sup> See Appendix, note P.    <sup>2</sup> See note 7 to p. 415.    <sup>3</sup> See note 1 to p. 434.    <sup>4</sup> See note 1 to p. 460.    <sup>5</sup> See Appendix, note 33.

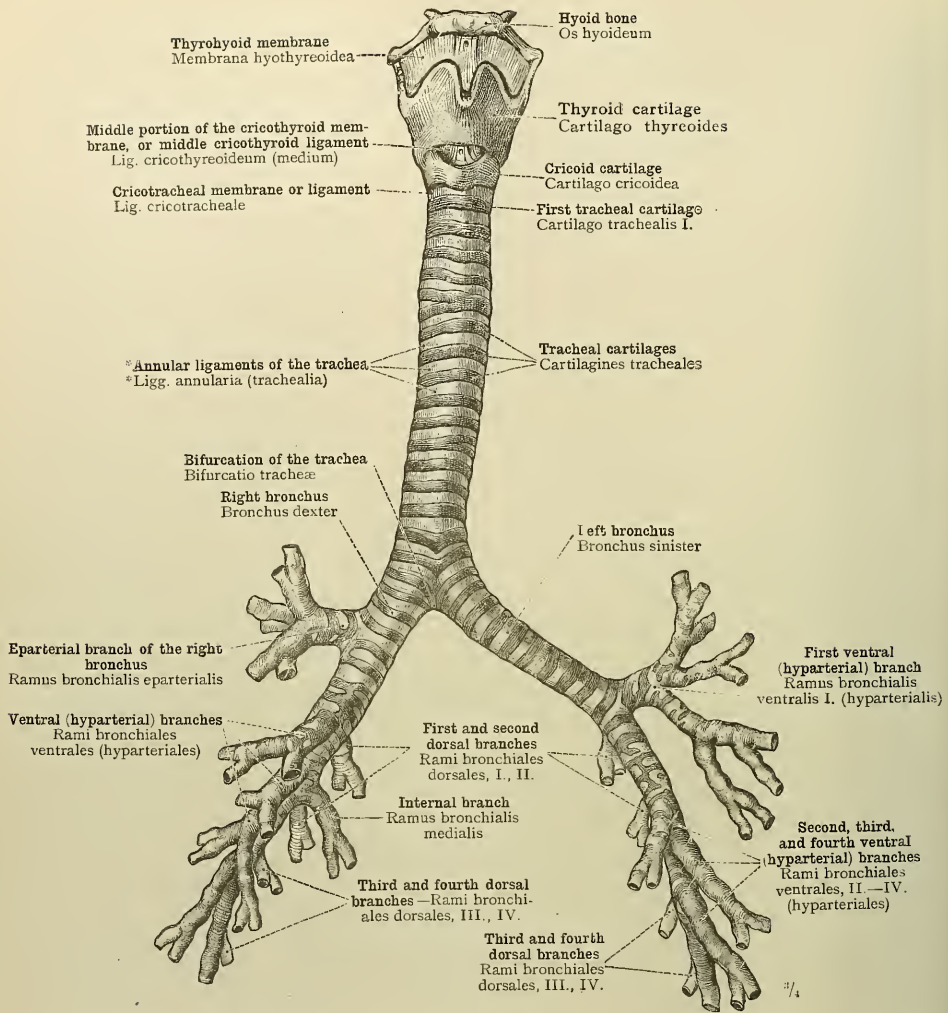


FIG. 782.—THE TRACHEA, ITS BIFURCATION INTO THE RIGHT AND LEFT BRONCHIAL TRUNKS (BRONCHI), AND THE LARGER SUBDIVISIONS OF THESE (RAMI BRONCHIALES). SEEN FROM BEFORE.

The air-passages were filled with tallow before opening the thorax. Subsequently the parts were dissected out and dried.

The Trachea and the Bronchial Ramification.



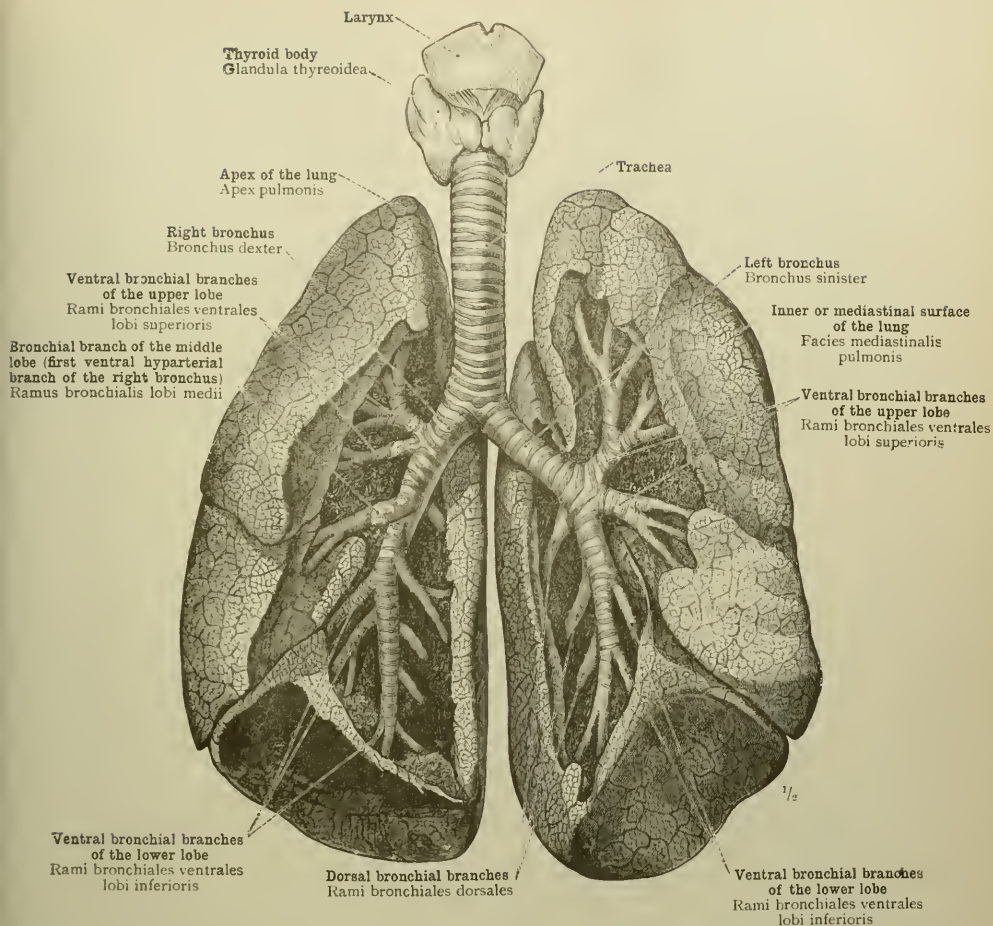


FIG. 783.—THE TRACHEA, ITS BIFURCATION INTO THE RIGHT AND LEFT BRONCHIAL TRUNKS (BRONCHI), AND THE LARGER SUBDIVISIONS OF THESE (RAMI BRONCHIALES). RELATIONS OF THE BRONCHIAL BRANCHES TO THE LOBES OF THE LUNG AND TO THE DIFFERENT REGIONS OF THESE LOBES. SEEN FROM BEFORE.

After the lungs had been steeped in alcohol, the bronchial tubes were exposed from the inner or mediastinal surface of the lungs by the removal of the portions of lung tissue by which they were covered. The lungs were drawn a little apart from one another anteriorly.

#### The Trachea and the Bronchial Ramification.



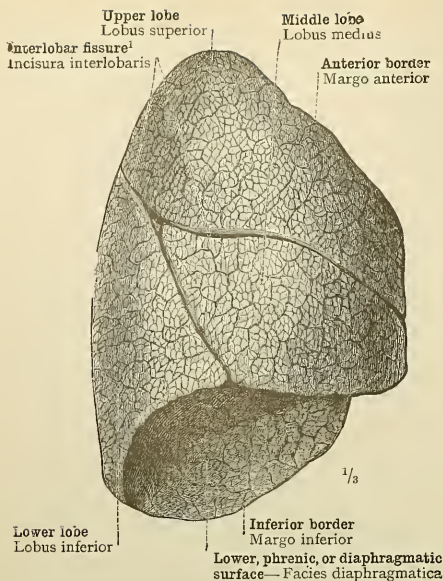


FIG. 784.—RIGHT LUNG. OUTER OR COSTAL SURFACE.

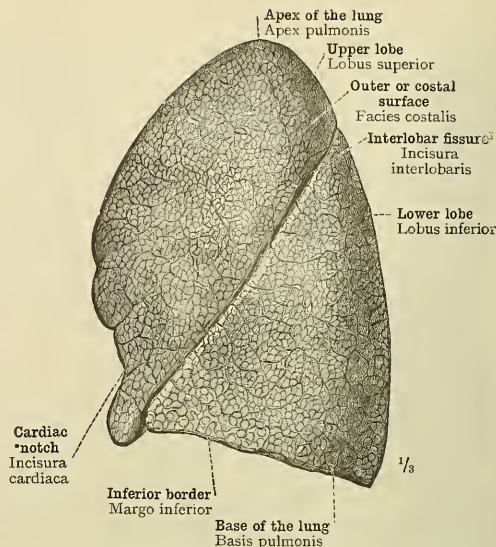


FIG. 785.—LEFT LUNG. OUTER OR COSTAL SURFACE.

*Fissures of the Lung.*—The single fissure of the left lung, and the lower, more oblique, of the two fissures of the right lung, are sometimes distinguished as *great fissures* from the upper, nearly horizontal fissure of the right lung, which may be called the *supplementary fissure*.—T.R.

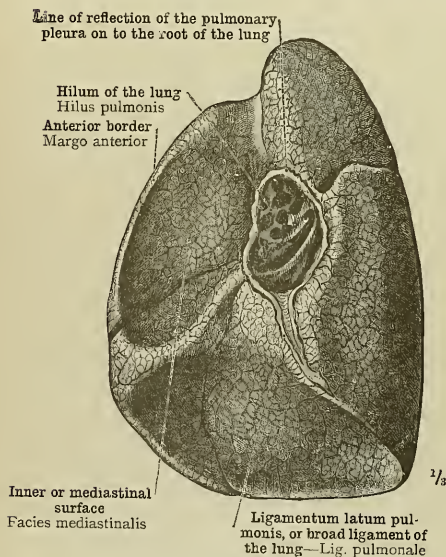


FIG. 786.—RIGHT LUNG. INNER OR MEDIASTINAL SURFACE, WITH THE HILUM LAID BARE BY THE REMOVAL OF THE STRUCTURES FORMING THE ROOT OF THE LUNG.

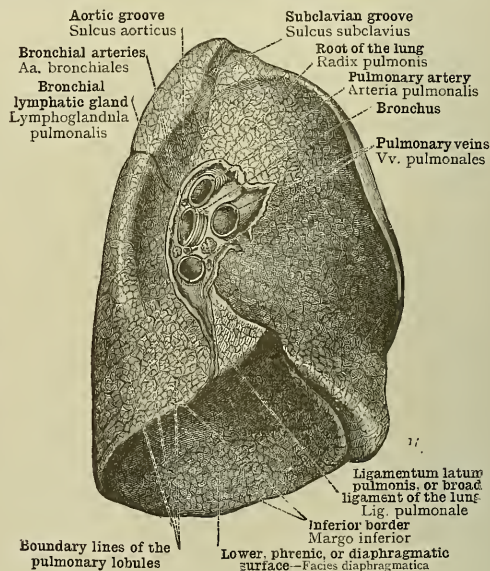
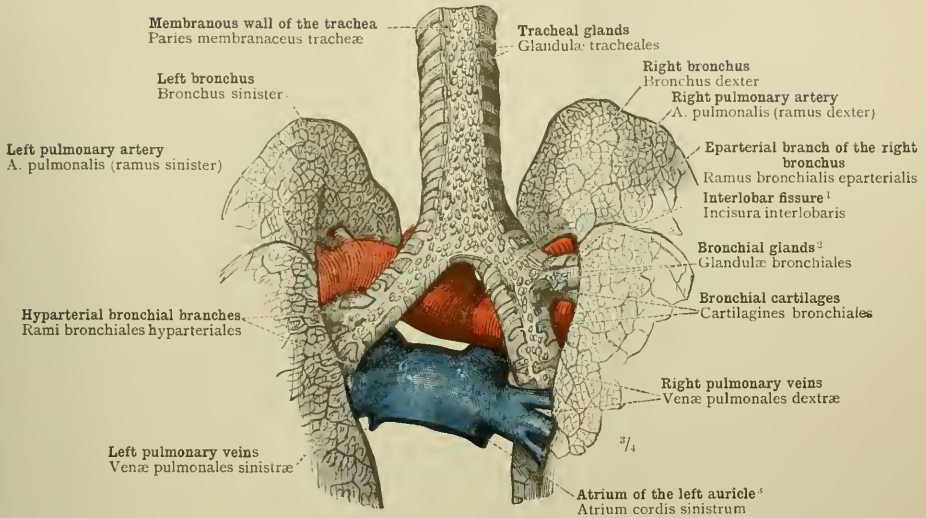


FIG. 787.—LEFT LUNG. INNER OR MEDIASTINAL SURFACE, WITH THE ROOT OF THE LUNG CUT ACROSS.



<sup>1</sup> See note 1 to p. 464.  
<sup>2</sup> *Bronchial Glands*.—These are small mucous glands in the walls of the bronchi, and must not be confounded with the *bronchial lymphatic glands*.—Tr.  
<sup>3</sup> See note 3 to p. 471.

FIG. 788.—ROOTS OF THE LUNGS, RADICES PULMONUM, SEEN FROM BEHIND. MUTUAL RELATIONS OF THE PULMONARY ARTERY, THE PULMONARY VEINS, THE MAIN BRONCHIAL TRUNK, AND THE PRIMARY BRONCHIAL BRANCHES, AS THEY ENTER THE HILUM OF EACH LUNG.

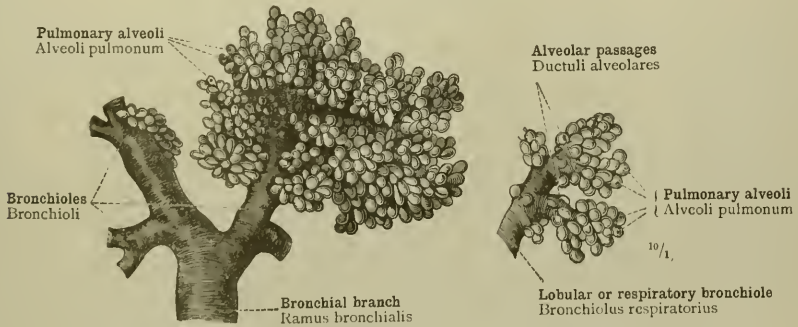


FIG. 789.—ULTIMATE EXTREMITIES OF THE AIR-PASSAGES.

After filling the bronchial ramification with resin, the lung tissue surrounding the air passages was removed by maceration in hydrochloric acid.



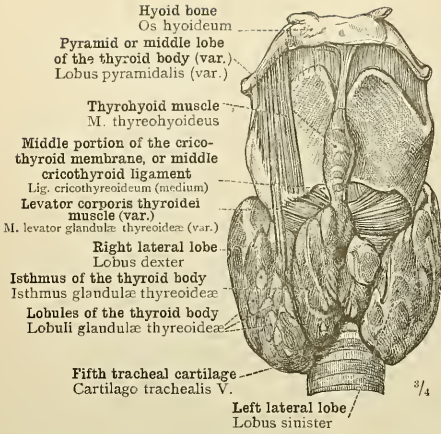


FIG. 790.—GLANDULA THYREOIDEA, THE THYROID BODY, WITH THE LARYNX AND TRACHEA, SEEN FROM BEFORE.

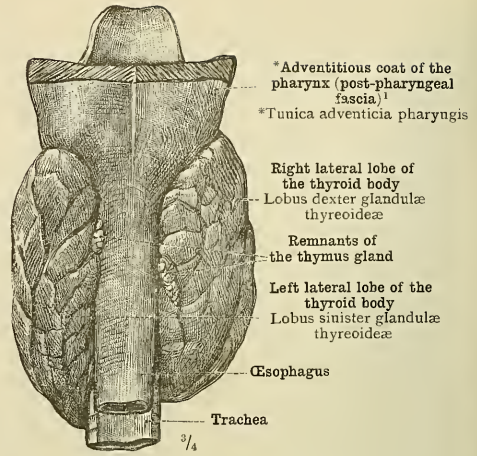


FIG. 791.—THE THYROID BODY, WITH THE ESOPHAGUS, SEEN FROM BEHIND.

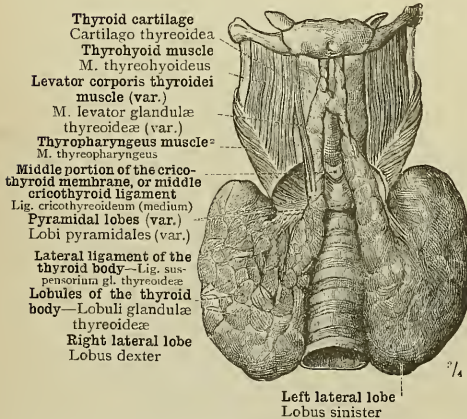


FIG. 792.—GLANDULA THYREOIDEA, THE THYROID BODY, WITH THE ISTHMUS WANTING, AND WITH BILATERAL PYRAMIDAL LOBES (VARIETY).

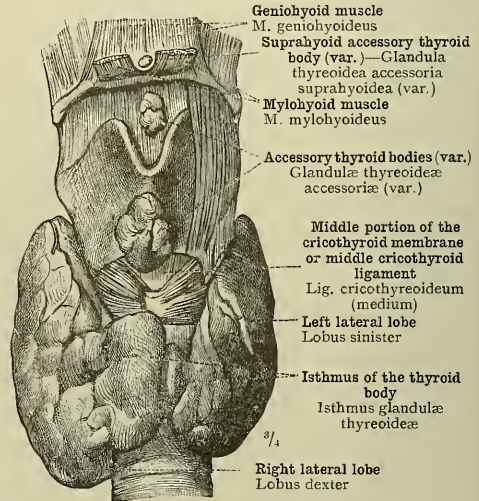


FIG. 793.—THYROID BODY WITH SEVERAL ACCESSORY THYROIDS; ONE OF THE LATTER IS SITUATE ABOVE THE HYOID BONE, BEHIND THE MYLOHYOID MUSCLE.

\* See Appendix, note 34

° See note 1 to p. 433.

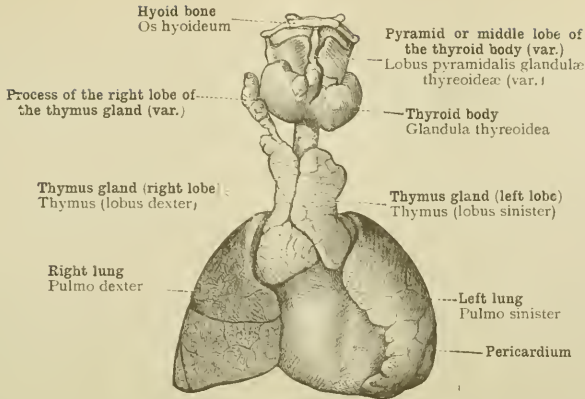
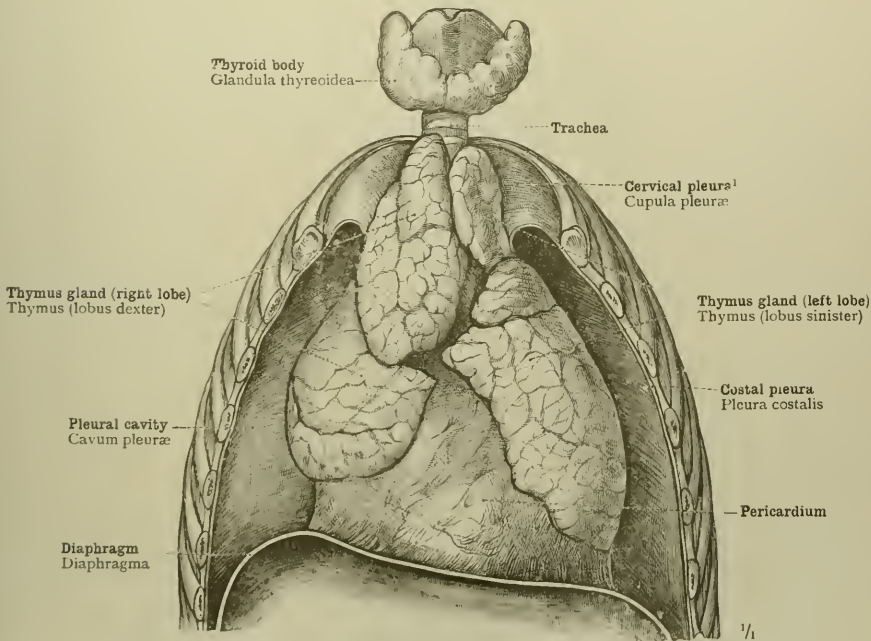


FIG. 794.—THE THYMUS GLAND, WITH THE THYROID BODY, THE PERICARDIUM, AND THE LUNGS, OF A HUMAN FÆTUS IN THE SIXTH MONTH OF INTRA-UTERINE LIFE (MONTHS OF FOUR WEEKS EACH). SEEN FROM BEFORE.



<sup>1</sup> *Cupula Pleurae*.—This term is applied by the author to the dome-shaped summit of the pleura, but as this portion of the pleura projects through the superior aperture of the thorax into the root of the neck, it is generally known in England as the *cervical pleura*.—TR.

FIG. 795.—THE THYMUS GLAND, WITH THE PERICARDIUM, AS SEEN FROM BEFORE AFTER THE LUNGS HAVE BEEN ENTIRELY REMOVED. FROM A BOY AGED FIVE WEEKS.

The Thymus Gland.



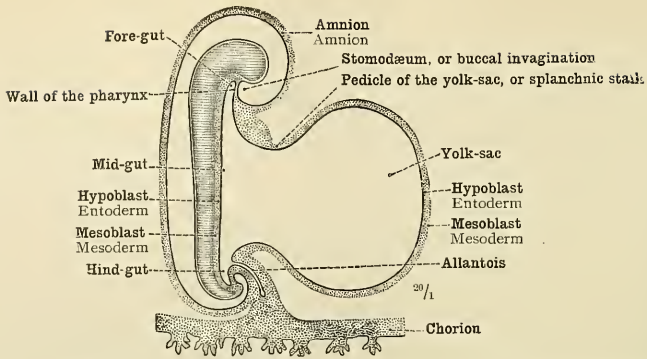


FIG. 796.—HUMAN EMBRYO IN THE BEGINNING OF THE THIRD WEEK (DIAGRAMMATIC).

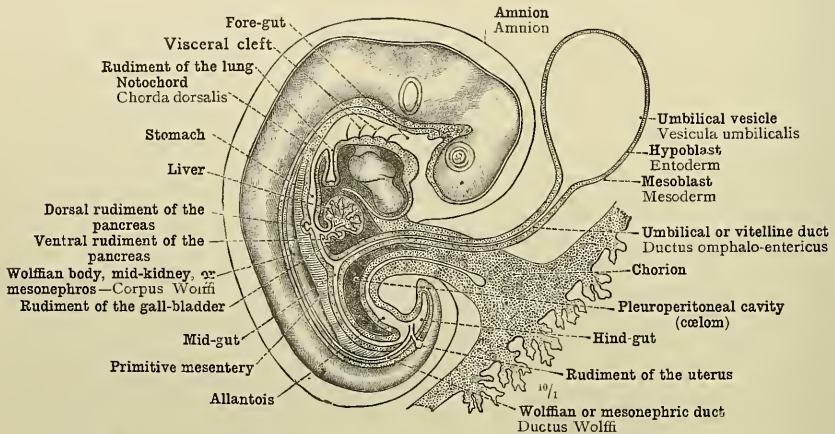


FIG. 797.—HUMAN EMBRYO IN THE BEGINNING OF THE FIFTH WEEK (DIAGRAMMATIC).

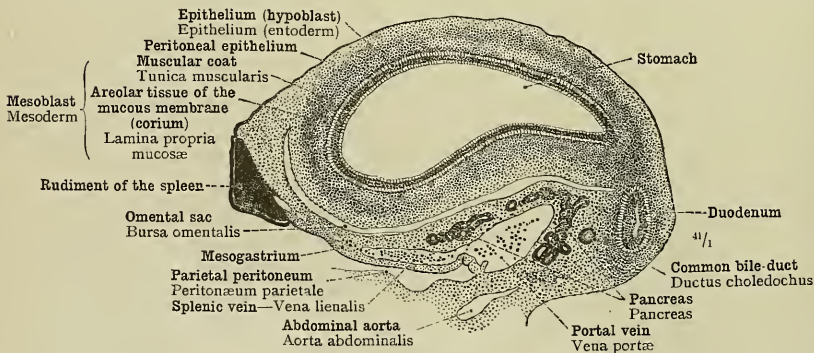
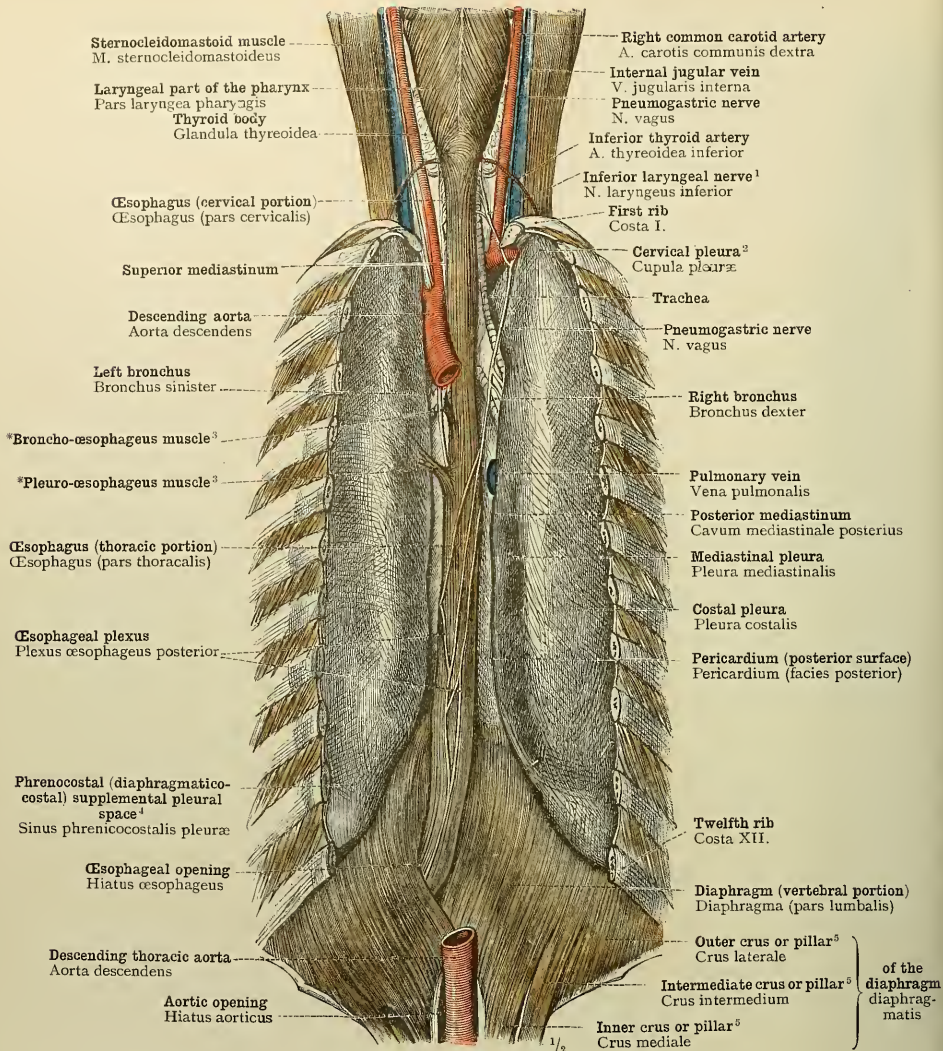


FIG. 798.—RUDIMENT OF THE SPLEEN. HUMAN EMBRYO IN THE SIXTH WEEK. TRANSVERSE SECTION

Rudiments of the Viscera.

TOPOGRAPHICAL ANATOMY  
OF THE  
THORACIC AND ABDOMINAL VISCERA



<sup>1</sup> Known also as the *recurrent laryngeal nerve*.  
<sup>2</sup> See note <sup>1</sup> to p. 467.  
<sup>3</sup> See Appendix, note 35.  
<sup>4</sup> See Appendix, note 36.  
<sup>5</sup> See Appendix, note 37.

FIG. 799.—COURSE OF THE THORACIC PORTION OF THE ŒSOPHAGUS IN THE POSTERIOR MEDI-  
 ASTINUM, AND ITS PASSAGE THROUGH THE ŒSOPHAGEAL OPENING IN THE DIAPHRAGM. THE  
 ŒSOPHAGUS IS SEEN FROM BEHIND, HAVING BEEN EXPOSED BY THE REMOVAL OF THE  
 VERTEBRAL COLUMN, THE POSTERIOR EXTREMITIES OF THE RIBS, AND THE GREATER PART OF  
 THE DESCENDING THORACIC AORTA. BRONCHO-ŒSOPHAGEUS AND PLEURO-ŒSOPHAGEUS MUSCLES.

The pleura has been left intact.



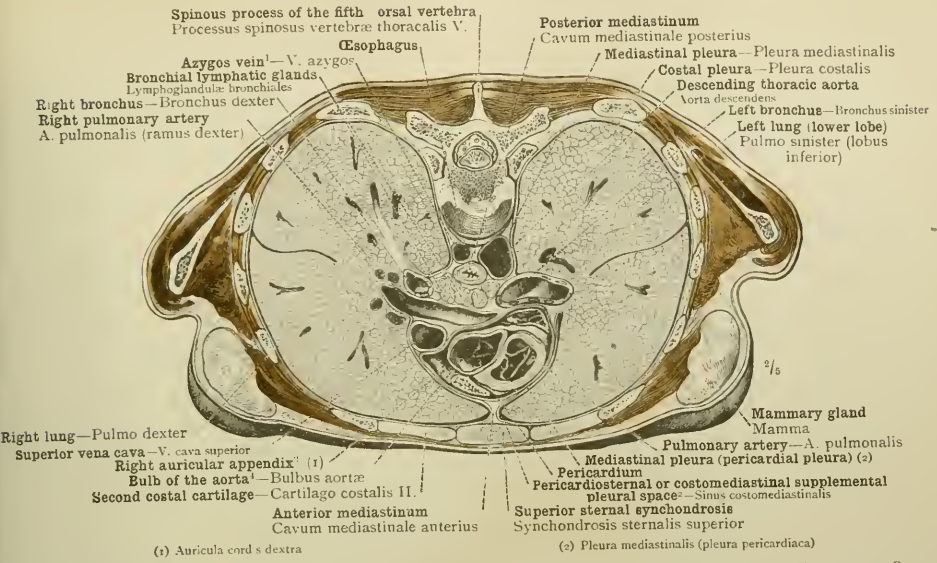


FIG. 800.—HORIZONTAL SECTION THROUGH THE TRUNK PASSING BETWEEN THE BODIES OF THE FIFTH AND SIXTH DORSAL VERTEBRÆ.

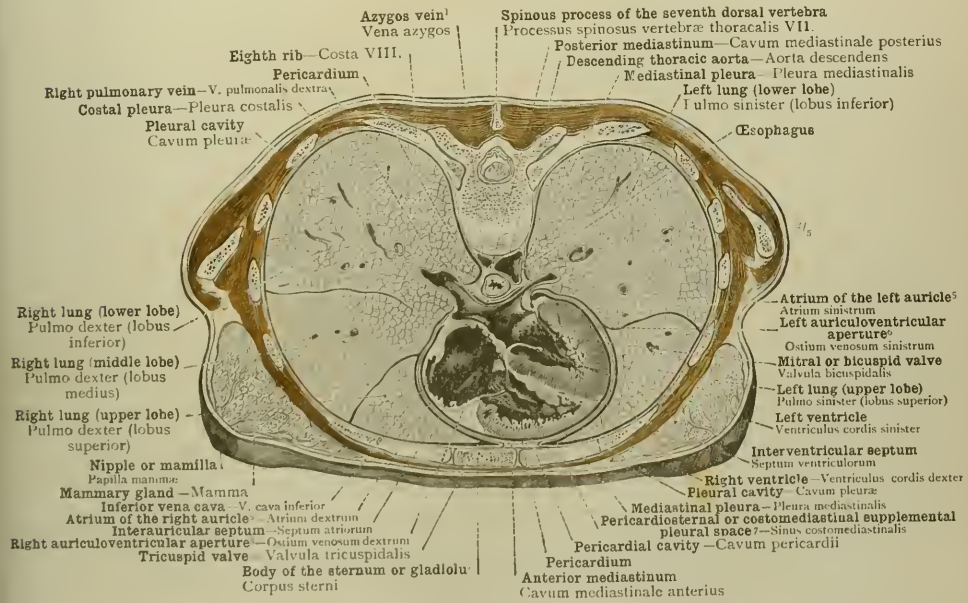
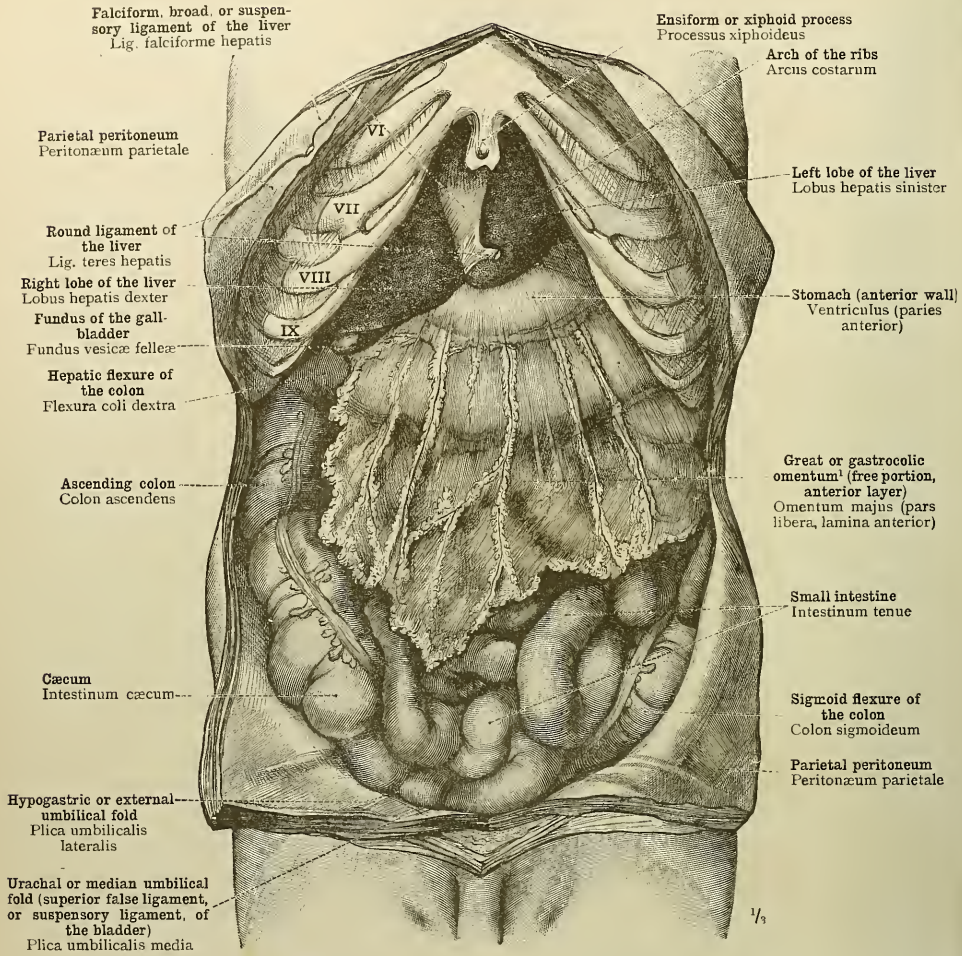


FIG. 801.—HORIZONTAL SECTION THROUGH THE TRUNK PASSING BETWEEN THE BODIES OF THE SEVENTH AND EIGHTH DORSAL VERTEBRÆ.

1 Sometimes called the right or large azygos vein. 2 See Appendix, note 9. 3 See note 3 to p. 411. 4 See Appendix, note 8.  
5 See note 3 to p. 411. 6 Or mitral orifice. 7 See Appendix, note 9. 8 Or tricuspid orifice.

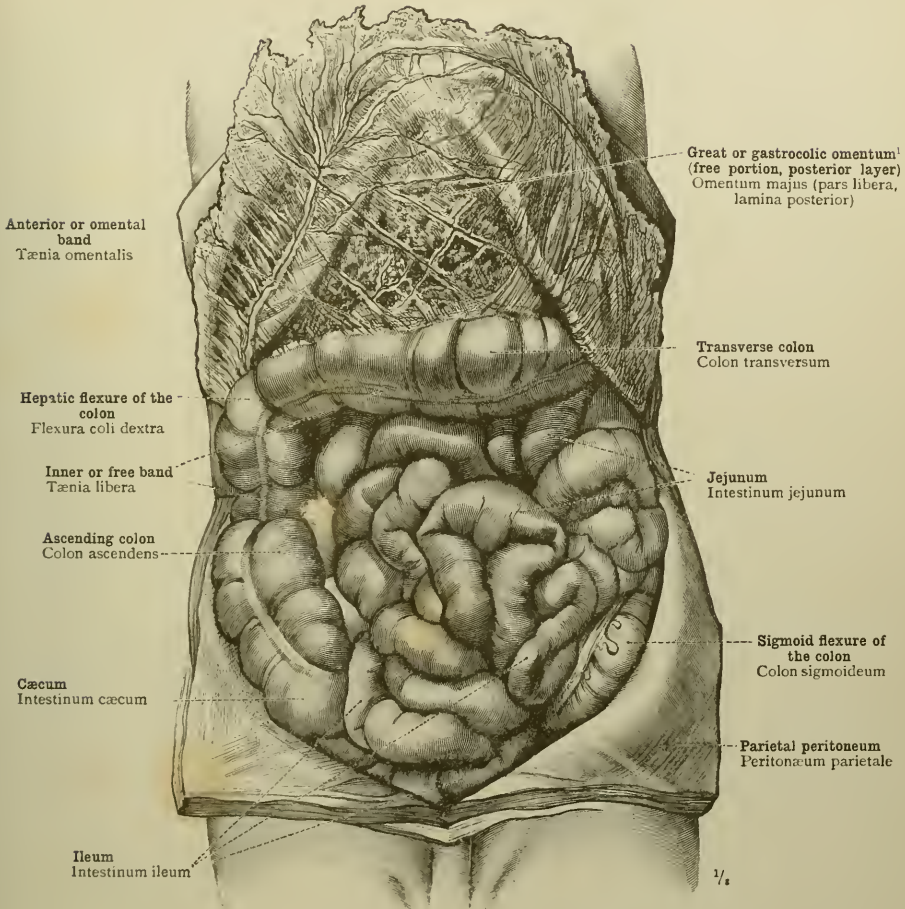




<sup>1</sup> Or epiploon. See note <sup>2</sup> to p. 456.

FIG. 802.—POSITION OF THE ABDOMINAL VISCERA AS SEEN AFTER THE ABDOMINAL CAVITY HAS BEEN OPENED IN THE USUAL MANNER AND THE COSTAL ARCHES HAVE BEEN LAID BARE.

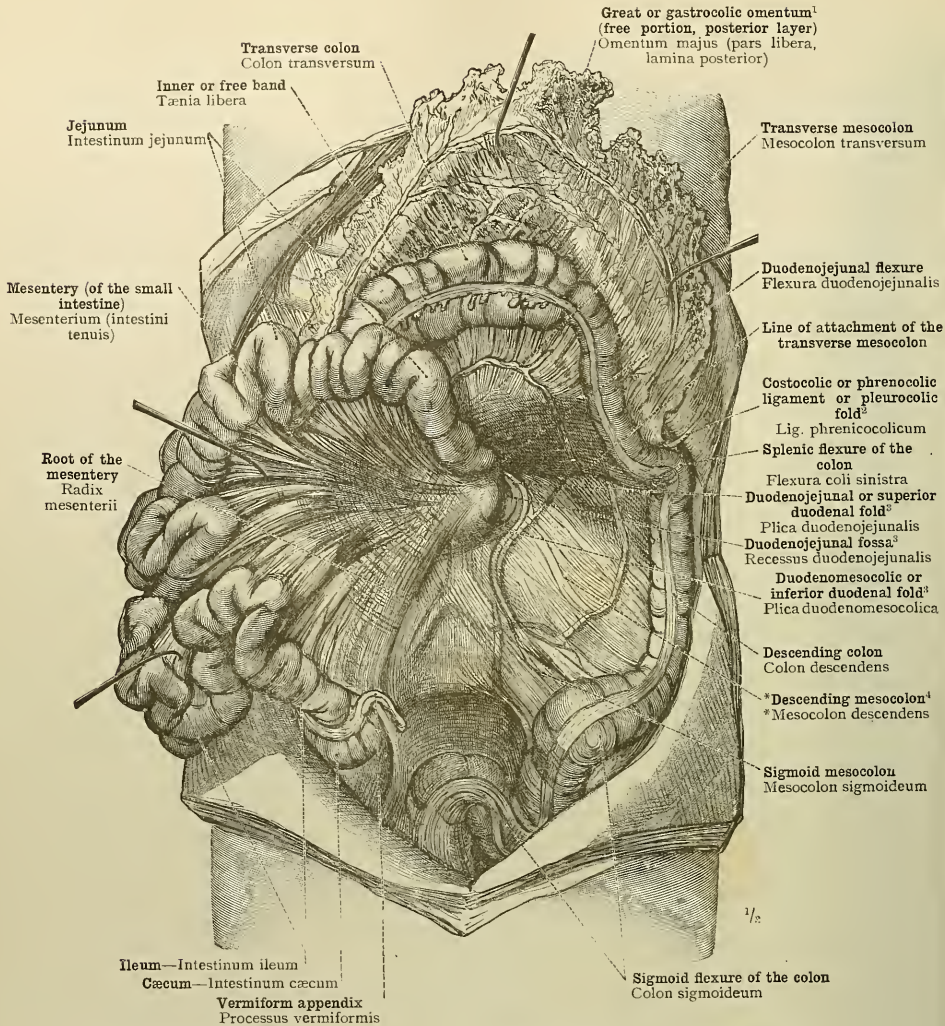
The visible portions of the large intestine (colon) are moderately distended with gas; the great or gastrocolic omentum (omentum majus) is in its natural position.



\* Or *epiploon*. See note 2 to p. 456.

FIG. 803.—POSITION OF THE VISCERA IN THE LOWER PORTION OF THE ABDOMINAL CAVITY, AFTER THE GREAT OR GASTROCOLIC OMENTUM HAS BEEN TURNED UPWARDS. RELATION OF THE GREAT OMENTUM TO THE TRANSVERSE COLON (COLON TRANSVERSUM); POSITION OF THE CÆCUM (INTESTINUM CÆCUM) AND OF THE ASCENDING COLON (COLON ASCENDENS) IN RELATION TO THE LOOPS OF THE FREE PORTIONS OF THE SMALL INTESTINE (INTESTINUM TENUE): JEJUNUM (INTESTINUM JEJUNUM) AND ILEUM (INTESTINUM ILEUM).

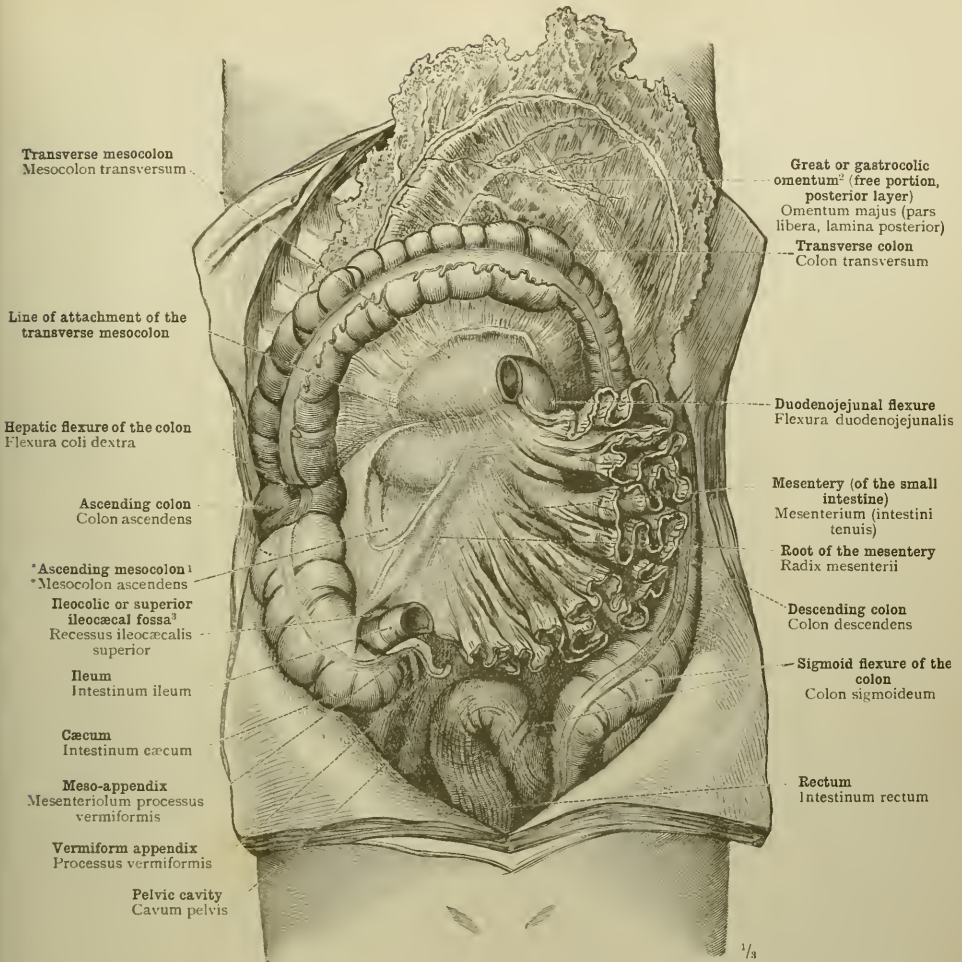




<sup>1</sup> Or *epifloön*. See note <sup>2</sup> to p. 456.  
<sup>3</sup> See Fig. 757 on p. 454 and Appendix, note <sup>20</sup>.

<sup>2</sup> Known also as *sustentaculum lienis*. See Appendix, note <sup>44</sup>.  
<sup>4</sup> See note <sup>1</sup> to p. 453.

FIG. 804.—THE FREE PORTIONS OF THE SMALL INTESTINE (INTESTINUM TENUE), THE JEJUNUM (INTESTINUM JEJUNUM), AND THE ILEUM (INTESTINUM ILEUM), HAVE BEEN TURNED AS FAR AS POSSIBLE TO THE RIGHT, AND THE TRANSVERSE COLON (COLON TRANSVERSUM) HAS BEEN DRAWN UPWARDS, TO SHOW THE TRANSITION OF THE LATTER INTO THE DESCENDING COLON (COLON DESCENDENS), AND OF THE DESCENDING COLON INTO THE SIGMOID FLEXURE OF THE COLON (COLON SIGMOIDEUM). THE MESENTERY AND ITS ROOT (MESENTERIUM ET RADIX MESENTERII) ARE SEEN FROM THE LEFT SIDE. OF THE MESENTERY OF THE LARGE INTESTINE, OR MESOCOLON, THE LEFT HALF OF THE TRANSVERSE MESOCOLON WITH ITS LINE OF ATTACHMENT, THE \*DESCENDING MESOCOLON (see note <sup>4</sup> above), AND THE SIGMOID MESOCOLON ARE VISIBLE. RECESSUS DUODENOJEJUNALIS, DUODENOJEJUNAL FOSSA (see note <sup>3</sup> above).



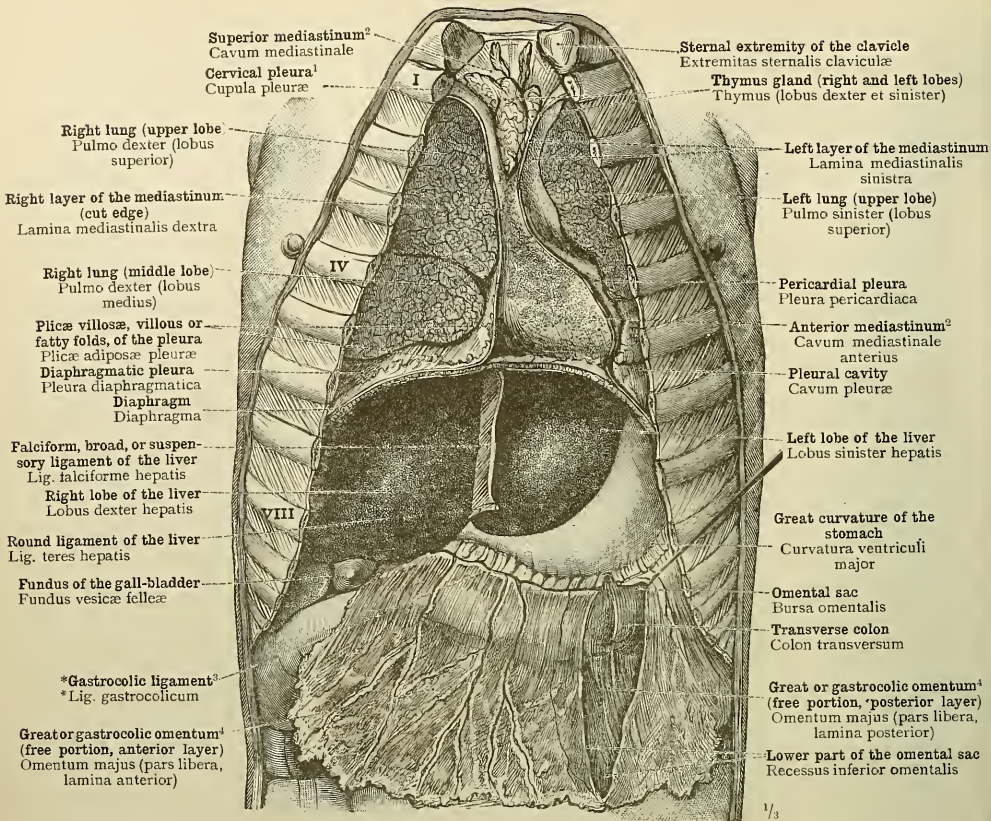
<sup>1</sup> See Appendix, note 24.

<sup>2</sup> Or *epifloen*. See note <sup>2</sup> to p. 456.

<sup>3</sup> See Appendix, note 23.

FIG. 805.—THE FREELY-MOVABLE PORTION OF THE SMALL INTESTINE HAS, WITH THE EXCEPTION OF THE COMMENCEMENT OF THE JEJUNUM AND THE TERMINATION OF THE ILEUM, BEEN CUT AWAY FROM THE MESENTERY, AND THIS LATTER HAS BEEN TURNED TO THE LEFT. THE MESENTERY AND ITS ROOT (MESENTERIUM ET RADIX MESENTERII) ARE SEEN FROM THE RIGHT SIDE. OF THE MESENTERY OF THE LARGE INTESTINE, OR MESOCOLON, THE RIGHT PORTION OF THE TRANSVERSE MESOCOLON WITH ITS LINE OF ATTACHMENT, AND THE \*ASCENDING MESOCOLON (see Appendix, note <sup>20</sup>) ARE VISIBLE. RECESSUS ILEOCÆCALIS SUPERIOR, ILECOLIC OR SUPERIOR ILEOCÆCAL FOSSA (see Appendix, note <sup>23</sup>). INTESTINUM CÆCUM, THE CÆCUM; COLON ASCENDENS, THE ASCENDING COLON; COLON TRANSVERSUM, THE TRANSVERSE COLON; COLON SIGMOIDEUM, THE SIGMOID FLEXURE OF THE COLON, AND ITS TRANSITION INTO THE RECTUM (INTESTINUM RECTUM).





<sup>1</sup> See note <sup>1</sup> to p. 467.    <sup>2</sup> See note <sup>2</sup> to p. 470 and Appendix, note 24.    <sup>3</sup> See Appendix, note 40.    <sup>4</sup> Or *epiploon*. See note <sup>2</sup> to p. 456.

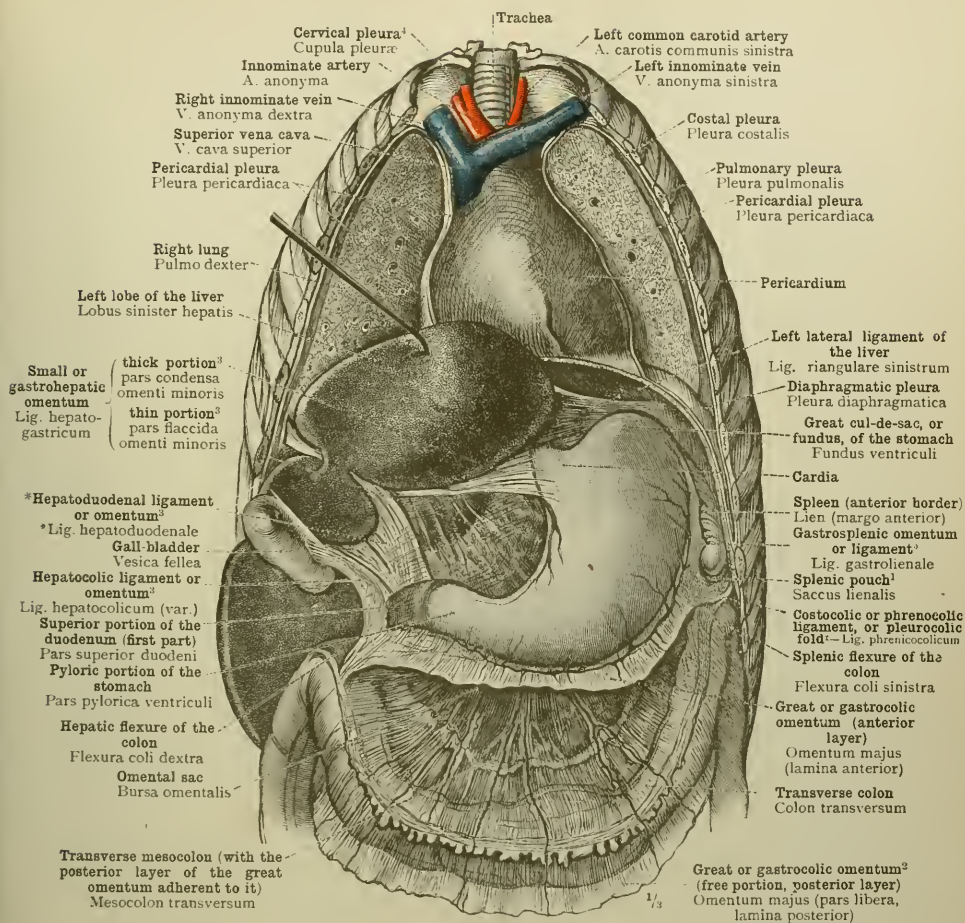
FIG. 806.—POSITION OF THE VISCERA IN THE THORACIC CAVITY AND THE UPPER PORTION OF THE ABDOMINAL CAVITY, AS SEEN AFTER THE REMOVAL OF THE ANTERIOR WALLS OF THE THORAX AND ABDOMEN.

The sternum, the costal cartilages, and the anterior extremities of the bodies or shafts of the ribs, have been removed.

CAVUM MEDIASTINALE ANTERIUS, THE ANTERIOR MEDIASTINUM—ANTERIOR AND SUPERIOR MEDIASTINA OF ENGLISH ANATOMISTS (see note <sup>2</sup> above)—WITH THE REMAINS OF THE THYMUS GLAND AND THE ANTERIOR WALL OF THE PERICARDIUM. LAMINÆ MEDIASTINALES, THE TWO LAYERS OF THE MEDIASTINUM. THE ANTERIOR BORDER AND A PORTION OF THE OUTER OR COSTAL SURFACE OF BOTH LUNGS. POSITION OF THE STOMACH IN RELATION TO THE LIVER AND THE TRANSVERSE COLON. GREAT OR GASTROCOLIC OMENTUM (OMENTUM MAJUS) SEEN FROM BEFORE.

The anterior layer of the great omentum, attached above to the great curvature of the stomach, has been divided by a vertical incision to the left of the middle line, and the margins of the incision have been drawn a little apart, in order to show the interior of the lower part of the omental sac (recessus inferior omentalis). Through the aperture thus made, a small portion of the transverse colon, and the posterior layer of the great omentum, are visible.

Topographical Anatomy of the Thoracic Organs and of the Viscera in the Upper Part of the Abdominal Cavity.



1 See Appendix, note 41.  
4 See note 1 to p. 457.

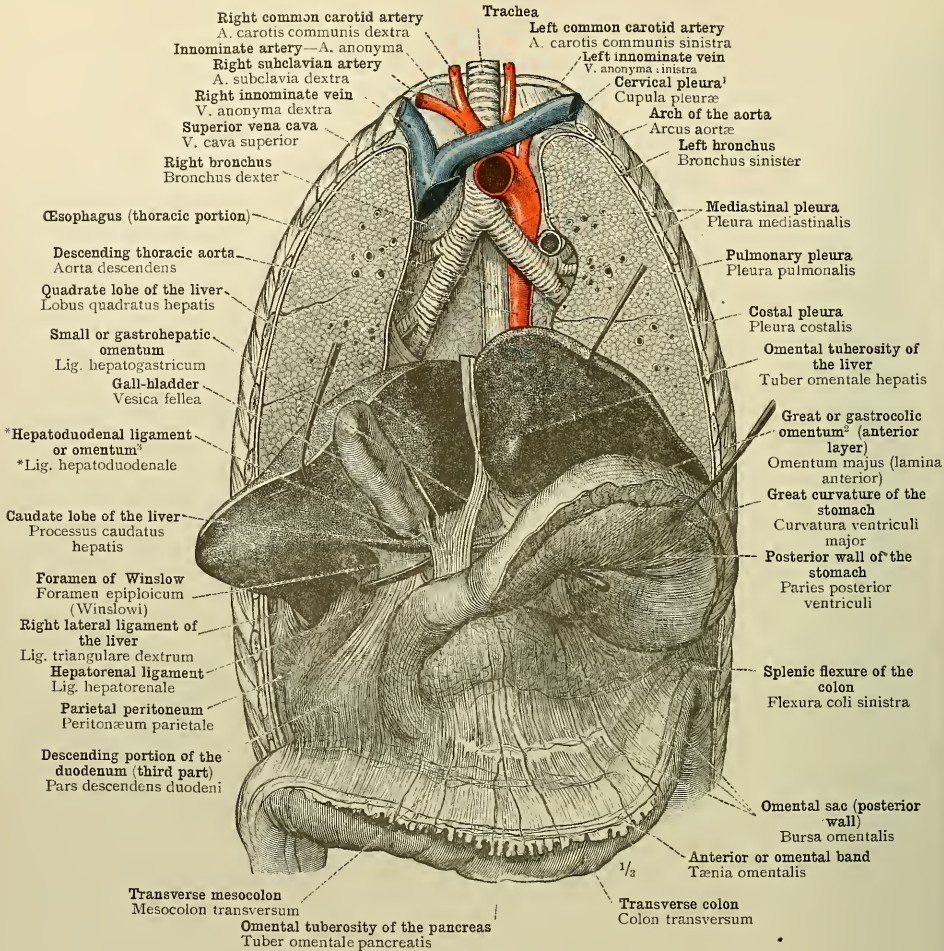
2 Or *epiploon*. See note 2 to p. 456.  
5 This is connected below with the great omentum, and is often regarded as a part of it.—Tr.

3 See Appendix, note 42.

FIG. 807.—THE THORACIC ORGANS AND THE VISCERA IN THE UPPER PART OF THE ABDOMINAL CAVITY AS SEEN AFTER THE REMOVAL OF THE WHOLE OF THE ANTERIOR WALL OF THE THORAX AND ABDOMEN.

By means of a coronal section, the anterior portions of both lungs and of the two layers of the mediastinum have been removed, so that the greater part of the anterior surface of the pericardium is exposed to view. The various parts of the diaphragm and the pleura are seen in section. The liver has been drawn as far as possible to the right, in order to show the stomach in its natural position, and the small omentum, consisting of three portions (see Appendix, note 42); the Spiegelian lobe of the liver (*lobus caudatus* according to Toldt—see Appendix, note 16) is visible through the thin portion of the small omentum. By the removal of the greater part of the anterior layer of the great or gastrocolic omentum, the posterior wall of the lower part of the omental sac has been exposed; this posterior wall is constituted by the posterior layer of the great omentum, and in part by the transverse mesocolon, adherent thereto.





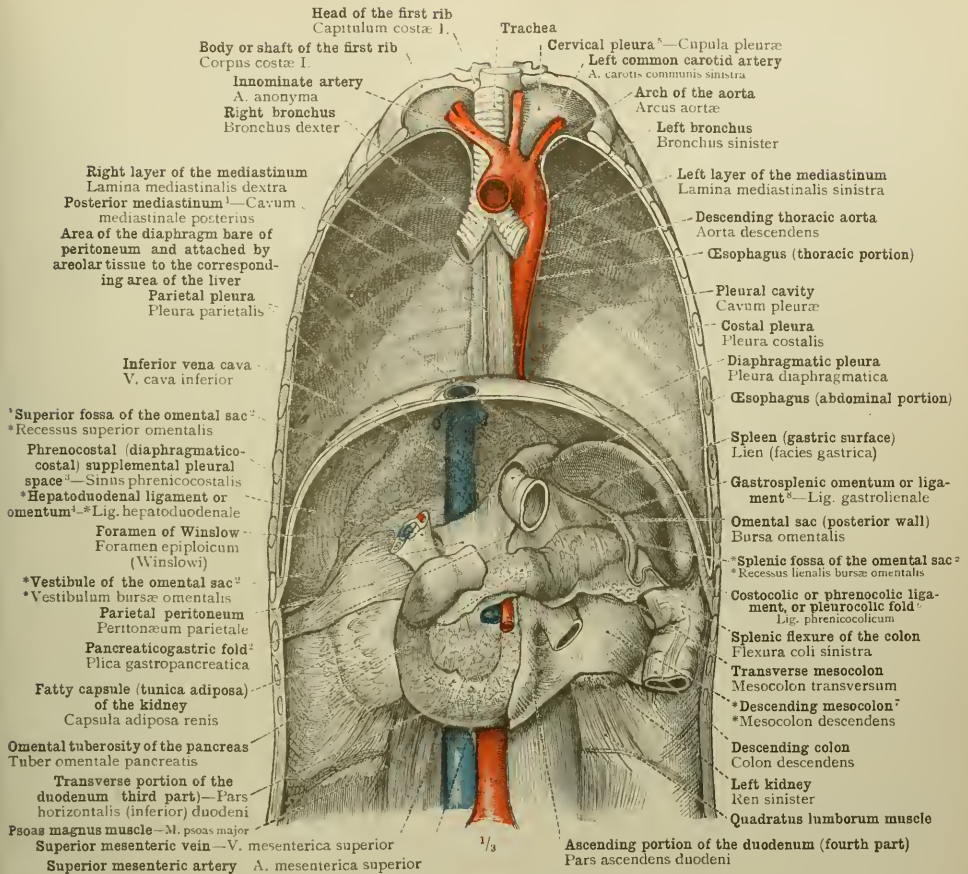
<sup>1</sup> See note <sup>1</sup> to p. 467.      <sup>2</sup> Or *epiploæon*. See note <sup>2</sup> to p. 456.      <sup>3</sup> See Appendix, note 42.  
<sup>4</sup> See Appendix, note 16.      <sup>5</sup> See note <sup>2</sup> to p. 410 and Appendix, note 24.

FIG. 808.—THE THORACIC AND ABDOMINAL WALLS HAVE BEEN REMOVED AS FAR BACK AS THE AXILLARY LINE (see Fig. 818, p. 488). THE ANTERIOR PORTIONS OF BOTH LUNGS HAVE BEEN REMOVED IN FRONT OF THE HILUM, AND THE PERICARDIAL SAC AND THE HEART HAVE BEEN TAKEN AWAY, SO THAT THE HINDER PART OF THE MIDDLE AND SUPERIOR MEDIASTINA AND THE POSTERIOR MEDIASTINUM (see note <sup>3</sup> above) ARE SEEN FROM THE FRONT, AND THE BRONCHIAL RAMIFICATION, THE ÆSOPHAGUS, AND THE DESCENDING THORACIC AORTA, ARE PARTIALLY DISPLAYED.

THE FREE PORTION OF THE GREAT OR GASTROCOLIC OMENTUM HAVING BEEN CUT AWAY BY INCISIONS PASSING ALONG ITS ATTACHMENTS TO THE GREAT CURVATURE OF THE STOMACH AND TO THE TRANSVERSE COLON, THE LIVER AND THE STOMACH WERE DRAWN UPWARDS AS FAR AS POSSIBLE, IN ORDER TO SHOW THE ENTRANCE TO THE OMENTAL SAC BY MEANS OF THE FORAMEN OF WINSLOW (FORAMEN EPIPLOICUM WINSLOWI), AND THE INTERIOR OF THE OMENTAL SAC (BURSA OMENTALIS), THE POSTERIOR WALL OF WHICH IS TO A LARGE EXTENT LAID BARE; IN THIS AREA, AND COVERED BY THE POSTERIOR LAYER OF THE GREAT OMENTUM, THE PANCREAS IS VISIBLE.

A sound has been passed through the foramen of Winslow into the omental sac.

Topographical Anatomy of the Thoracic Organs and of the Viscera in the Upper Part of the Abdominal Cavity.

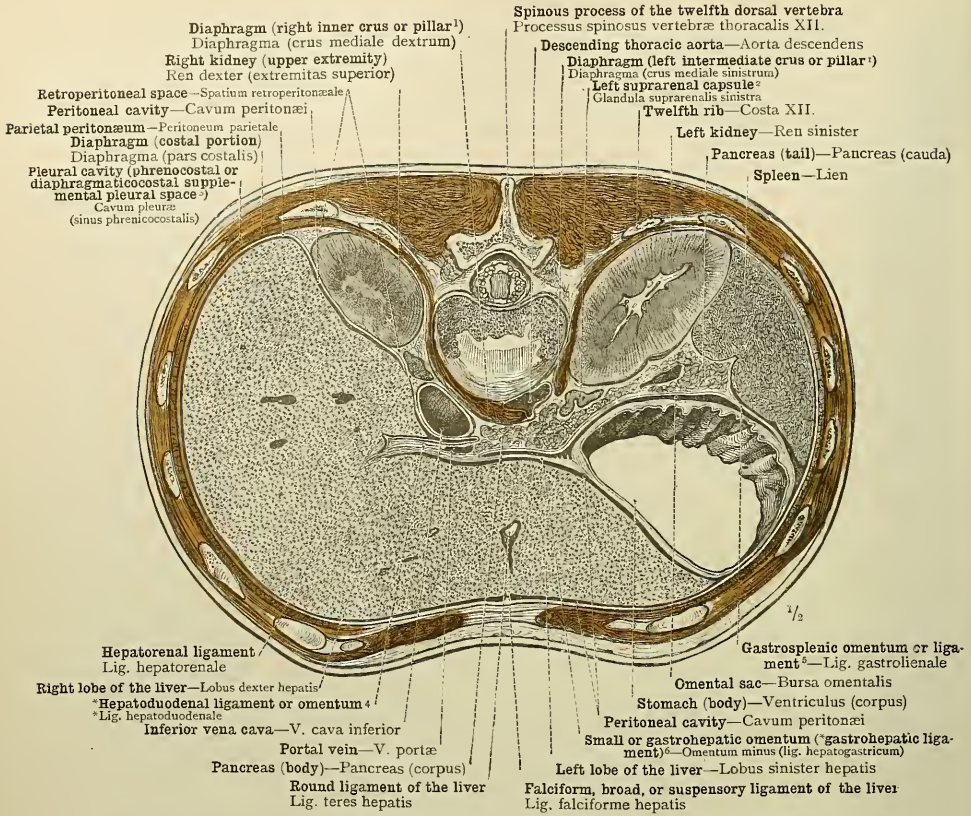


<sup>1</sup> See Appendix, note 43.  
<sup>2</sup> See Appendix, note 44.  
<sup>3</sup> See Appendix, note 36.  
<sup>4</sup> See Appendix, note 42.  
<sup>5</sup> See note <sup>1</sup> to p. 457.  
<sup>6</sup> See Appendix, note 41.  
<sup>7</sup> See note <sup>1</sup> to p. 453.  
<sup>8</sup> See Appendix, note 45.

FIG. 809.—THE THORACIC AND ABDOMINAL WALLS HAVE BEEN REMOVED AS FAR BACK AS THE AXILLARY LINE (see Fig. 818, p. 488). THE PERICARDIUM, THE HEART, AND THE LUNGS HAVE BEEN COMPLETELY REMOVED, SO THAT THE TWO PLEURAL CAVITIES COVERED BY THE COSTAL (PARIETAL) PLEURA, AND BETWEEN THESE THE POSTERIOR MEDIASTINUM AND THE POSTERIOR PART OF THE SUPERIOR MEDIASTINUM, ARE SEEN. THE LIVER, THE STOMACH, AND THE GREATER PART OF THE INTESTINE HAVE BEEN REMOVED, IN ORDER TO SHOW THE MUTUAL RELATIONS OF THE DUODENUM, THE PANCREAS, AND THE SPLEEN. THE POSTERIOR WALL OF THE \*VESTIBULE OF THE OMENTAL SAC, CONSISTING OF PARIETAL PERITONEUM, AND THE POSTERIOR WALL OF THE OMENTAL SAC, CONSISTING OF THE AXIAL PORTION OF THE MESOGASTRIUM, ARE VISIBLE, ALSO THE \*SUPERIOR FOSSA AND THE \*SPLENIC FOSSA OF THE OMENTAL SAC.

Topographical Anatomy of the Thoracic Organs and of the Viscera in the Upper Part of the Abdominal Cavity.





<sup>1</sup> See Appendix, note 37.    <sup>2</sup> Called also *suprarenal body*, or *adrenal*.    <sup>3</sup> See Appendix, note 36.    <sup>4</sup> See Appendix, note 42.  
<sup>5</sup> The *gastrospenic omentum* is connected below with the *great omentum*, and is often regarded as a part of it.—T.R.  
<sup>6</sup> See Appendix, note 42.

FIG. 810.—HORIZONTAL SECTION THROUGH THE TRUNK PASSING BETWEEN THE BODIES OF THE TWELFTH DORSAL AND FIRST LUMBAR VERTEBRÆ.

The section cuts the liver almost through its greatest transverse (horizontal) dimension, the stomach above the middle of its body, the spleen about the middle of its vertical extent, the body and tail of the pancreas near the upper border of that organ, the right kidney near its upper extremity, the left kidney above its middle; both suprarenal capsules also appear in the section. Between the vena cava inferior and the <sup>2</sup>hepatoduodenal ligament (see Appendix, note <sup>42</sup>), the section passes through the foramen of Winslow (foramen epiploicum Winslowi), into which the caudate lobe of the liver (*processus caudatus hepatis*—see Appendix, note <sup>30</sup>) projects; behind the small or gastrohepatic omentum (see Appendix, note <sup>42</sup>) the <sup>5</sup>vestibule of the omental sac (see Appendix, note <sup>41</sup>) is cut across. The aorta is divided as it passes through the aortic opening in the diaphragm, the vena cava inferior below its entrance into the fissure or fossa of the vena cava, and the portal vein just after it has passed between the layers of the small or gastrohepatic omentum.

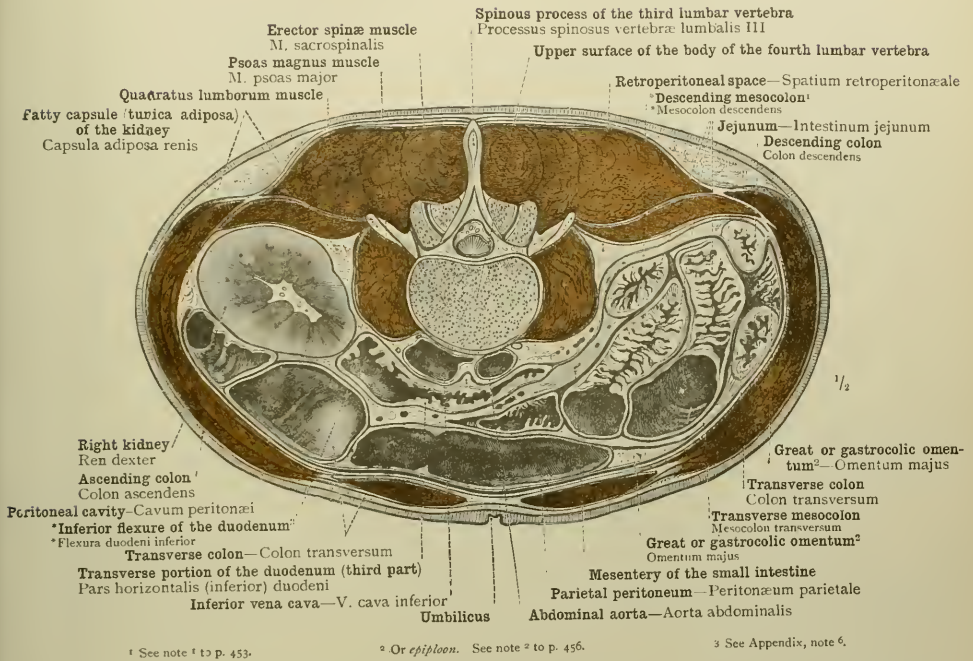
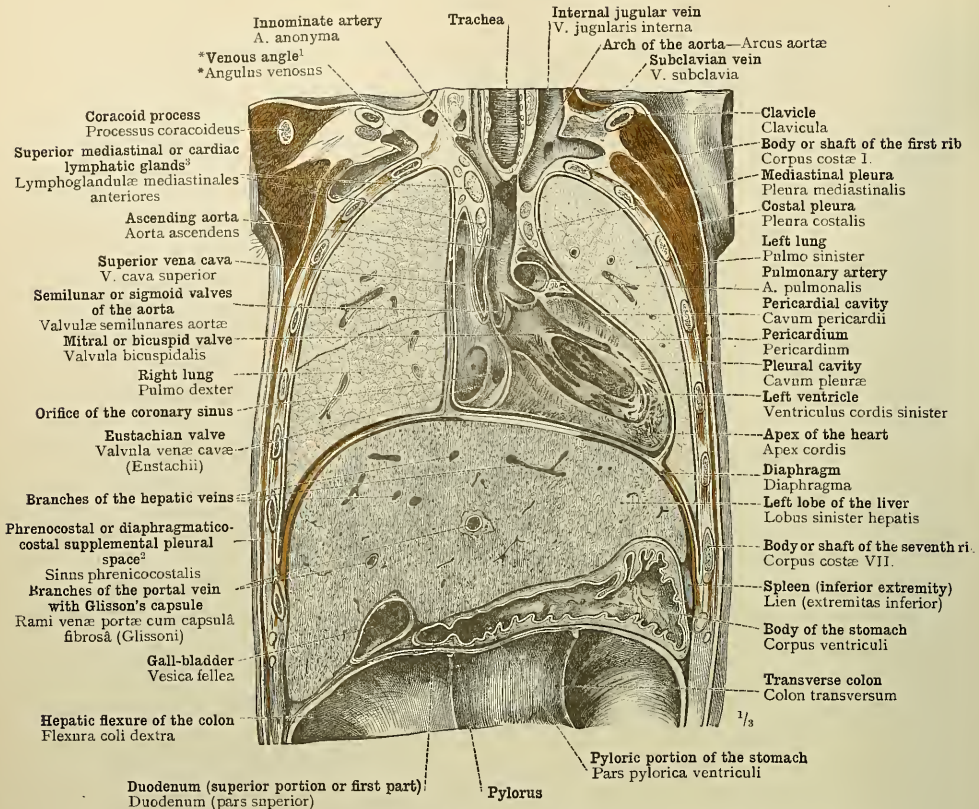


FIG. 811.—HORIZONTAL SECTION THROUGH THE TRUNK AT THE LEVEL OF THE UMBILICUS, PASSING BETWEEN THE BODIES OF THE THIRD AND FOURTH LUMBAR VERTEBRÆ.

The right kidney is divided near its inferior extremity, but the left kidney is entirely above the plane of section. As regards the small intestine, the whole length of the transverse portion of the duodenum appears in the section, in addition to several coils of the jejunum. The ascending colon is divided close to the commencement of the hepatic flexure. The greater part of the transverse colon is distended, and is divided nearly in the direction of its long axis; in the neighbourhood of the splenic flexure, however, it is contracted, and is divided transversely; the descending colon is also seen in transverse section. The section further shows portions of the great or gastrocolic omentum, of the mesentery of the small intestine, and of the \*descending mesocolon (see note † above).



<sup>1</sup> *Angulus venosus*, the "*venous angle*", is the name given by the author to the junction of the internal jugular and subclavian veins to form the innominate vein. The term is not used by English anatomists.—Tr.

<sup>2</sup> See Appendix, note 36.

<sup>3</sup> There are three or four lymphatic glands behind the lower part of the body of the sternum, between that bone and the pericardium, known as the *anterior mediastinal lymphatic glands*. Those figured here are, however, in the *superior mediastinum* of English anatomists, and are, therefore, *superior mediastinal lymphatic glands* (see note <sup>1</sup> to p. 456). As they receive the lymphatics of the heart in addition to those of the greater part of the pericardium and of the thymus gland, they are often called the *cardiac lymphatic glands*.—Tr.

FIG. 812.—CORONAL SECTION THROUGH THE TRUNK; ON THE RIGHT SIDE OF THE BODY THE SECTION PASSES THROUGH THE ANTERIOR AXILLARY FOLD, ON THE LEFT SIDE A LITTLE IN FRONT OF THIS FOLD.

The left ventricle, the ascending aorta, and the superior vena cava are divided longitudinally, while the pulmonary artery is divided transversely. The right auricle is divided in front of the orifices of the inferior vena cava and the coronary sinus. The liver is cut across almost in its greatest transverse (vertical) dimension. The situation of the contracted stomach and of the superior or first part of the duodenum in relation to the liver and to the greatly distended transverse colon is to be noted.

[The superior and middle mediastina of English anatomists are seen in coronal section: the plane between them is at the level of the reflection of the pericardium on the ascending aorta, above the transversely divided pulmonary artery. See note <sup>2</sup> to p. 410 and Appendix, note <sup>36</sup>.—Tr.]

Topographical Anatomy of the Thoracic Organs and of the Viscera in the Upper Part of the Abdominal Cavity.



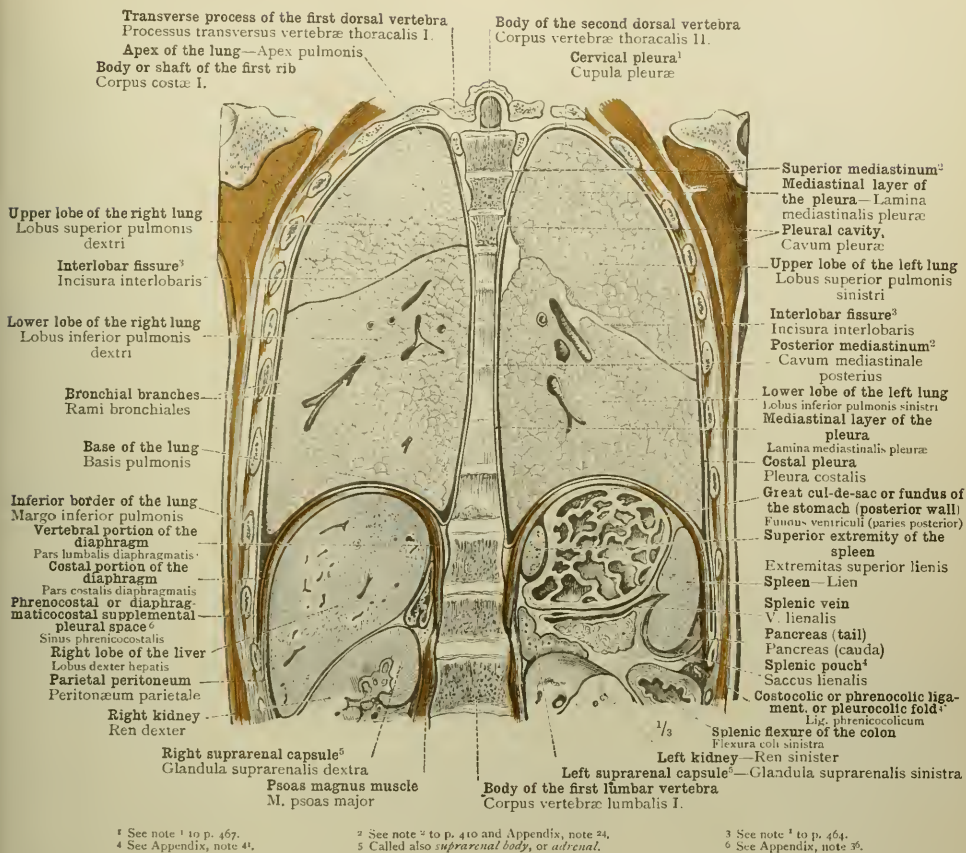


FIG. 813.—CORONAL SECTION THROUGH THE TRUNK, A LITTLE BEHIND THE AXILLARY LINE (see Fig. 818, p. 488).

The section passes through the bodies of the uppermost and lowermost dorsal vertebra, but passes in front of the bodies of the fifth to the tenth dorsal vertebra; hence those portions of the viscera that lie in the posterior portions of the thoracic and abdominal cavities on either side of the spinal column appear in the section. The lungs are divided very nearly in their greatest vertical dimension. In the right side of the abdominal cavity, the relations of the kidney and the suprarenal capsule (see note 6 above) to the liver are shown; in the left side, the relations of the spleen to the great cul-de-sac or fundus of the stomach, to the tail of the pancreas, and to the splenic flexure of the colon.

Topographical Anatomy of the Thoracic Organs and of the Viscera in the Upper Part of the Abdominal Cavity.

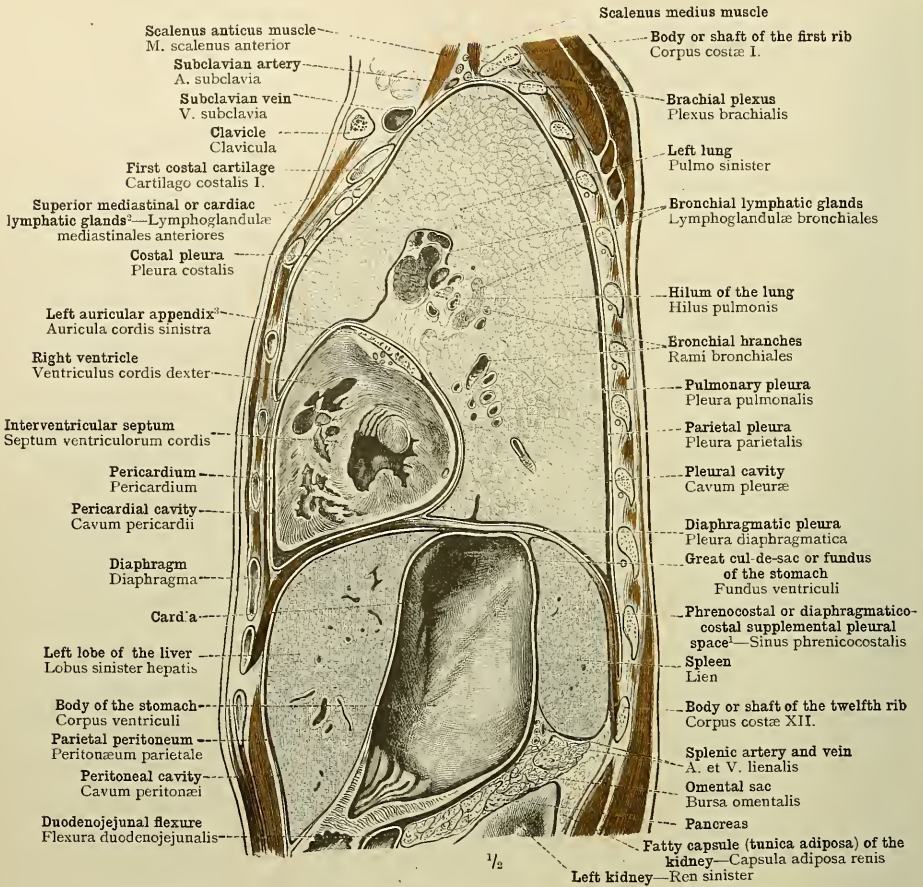
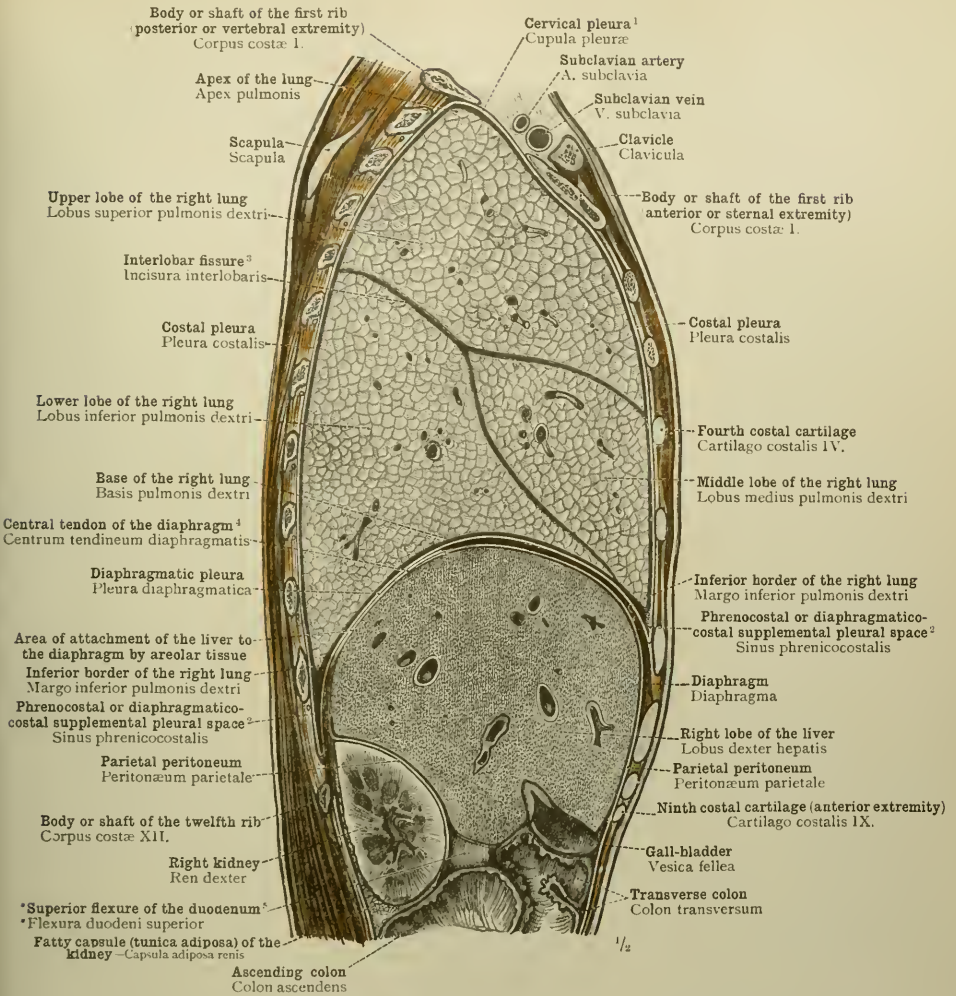


FIG. 814.—SAGITTAL SECTION THROUGH THE TRUNK, 4 CENTIMETRES (1.575 INCHES) TO THE LEFT OF THE MEDIAN PLANE.

The section passes through the hilum of the left lung, and divides the lung itself very nearly in its greatest vertical dimension; the two ventricles are divided obliquely. The body and the great cul-de-sac or fundus of the moderately distended stomach are divided approximately in their long axis, so that the position of the cardia at the upper end of the small curvature of the stomach is well shown. The relations of the stomach to the left lobe of the liver, to the spleen, to the pancreas, and to the duodenojejunal flexure, are to be noted.

Topographical Anatomy of the Thoracic Organs and of the Viscera in the Upper Part of the Abdominal Cavity.



<sup>1</sup> See note <sup>1</sup> to p. 467.

<sup>2</sup> See Appendix. note 36.

<sup>3</sup> See note <sup>1</sup> to p. 464.

<sup>4</sup> Called also the *trefoil* or *cordiform* tendon of the diaphragm.

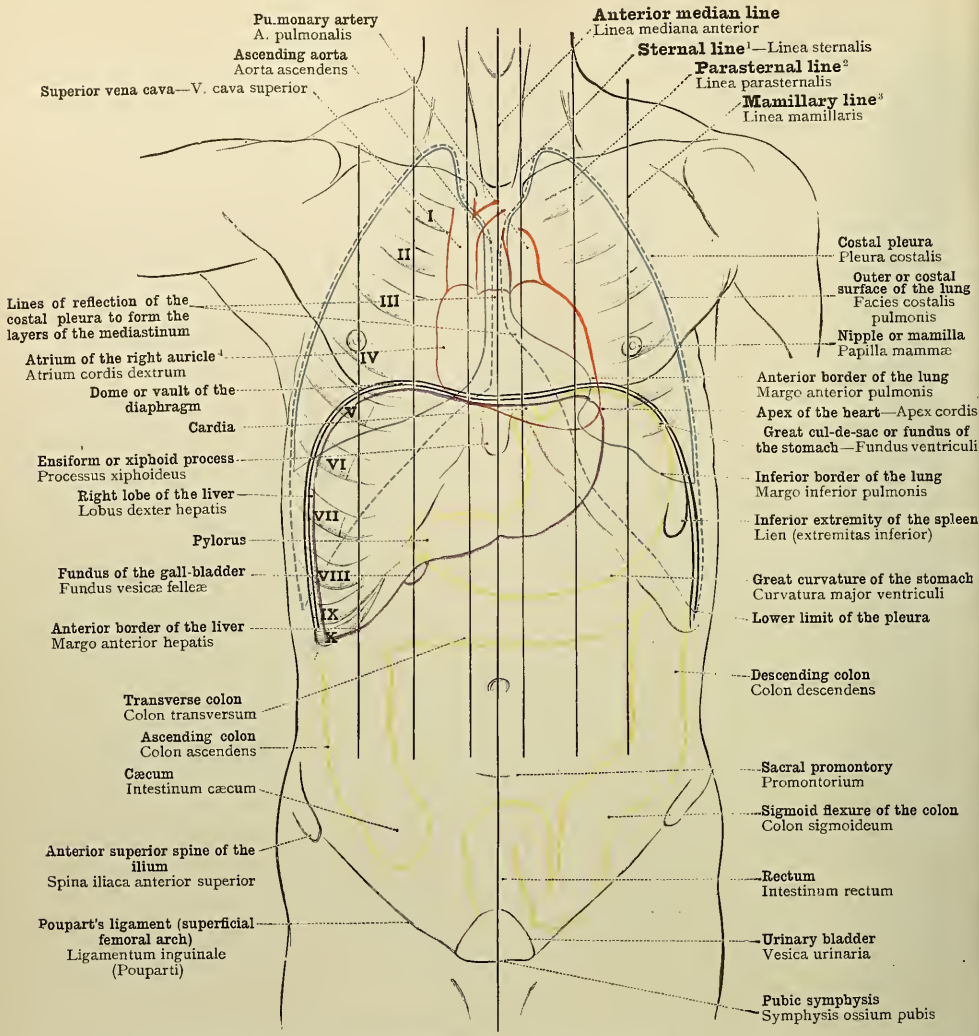
<sup>5</sup> See Appendix note 6.

FIG. 815.—SAGITTAL SECTION THROUGH THE TRUNK, 6 CENTIMETRES (2.362 INCHES) TO THE RIGHT OF THE MEDIAN PLANE.

The section passes to the right of the hilum of the lung, and divides all three lobes of the organ. The other organs seen in the section are: The right lobe of the liver, the gall-bladder, the right kidney, and portions of the ascending and transverse colon, which latter is moderately distended. The <sup>2</sup>superior flexure of the duodenum is also shown, its right (convex) wall appearing in the section.

Topographical Anatomy of the Right Lung and of the Viscera in the Upper Part of the Abdominal Cavity.





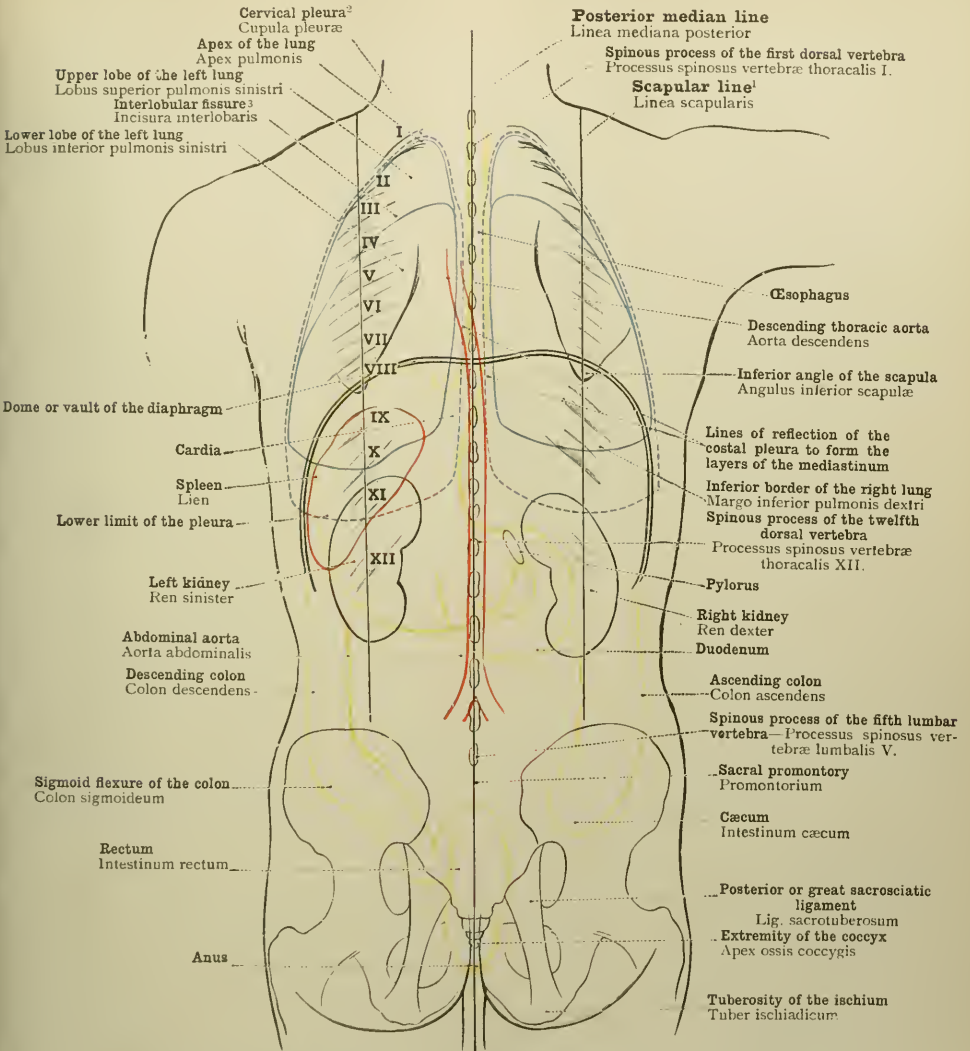
<sup>1</sup> See Appendix, note 46.      <sup>2</sup> See Appendix, note 47.      <sup>3</sup> See Appendix, note 48.      <sup>4</sup> See note 3 to p. 411.

FIG. 316.—PROJECTION-OUTLINES OF THE THORACIC AND ABDOMINAL ORGANS ON THE ANTERIOR SURFACE OF THE TRUNK.

The red line indicates the outline of the heart and the great vessels (superior vena cava, ascending aorta, and pulmonary artery); the continuous blue lines indicate the outlines of the two lungs; the dotted blue lines, the boundaries of the pleural cavities. The violet line indicates the projection-outline of the liver and the fundus of the gall-bladder; the yellow lines indicate the projection-outline of the stomach and the different sections of the large intestine. The projection-outlines of the dome or vault of the diaphragm and of the inferior extremity of the spleen are black.

GUIDE-LINES FOR THE DETERMINATION OF THE POSITION OF THE THORACIC ORGANS: ANTERIOR MEDIAN LINE, STERNAL LINE (see Appendix, note 46), PARASTERNAL LINE (see Appendix, note 47), AND MAMILLARY LINE (see Appendix, note 48). THE RIBS ARE DISTINGUISHED BY ROMAN NUMERALS.

Projection-Outlines of the Thoracic and Abdominal Viscera.



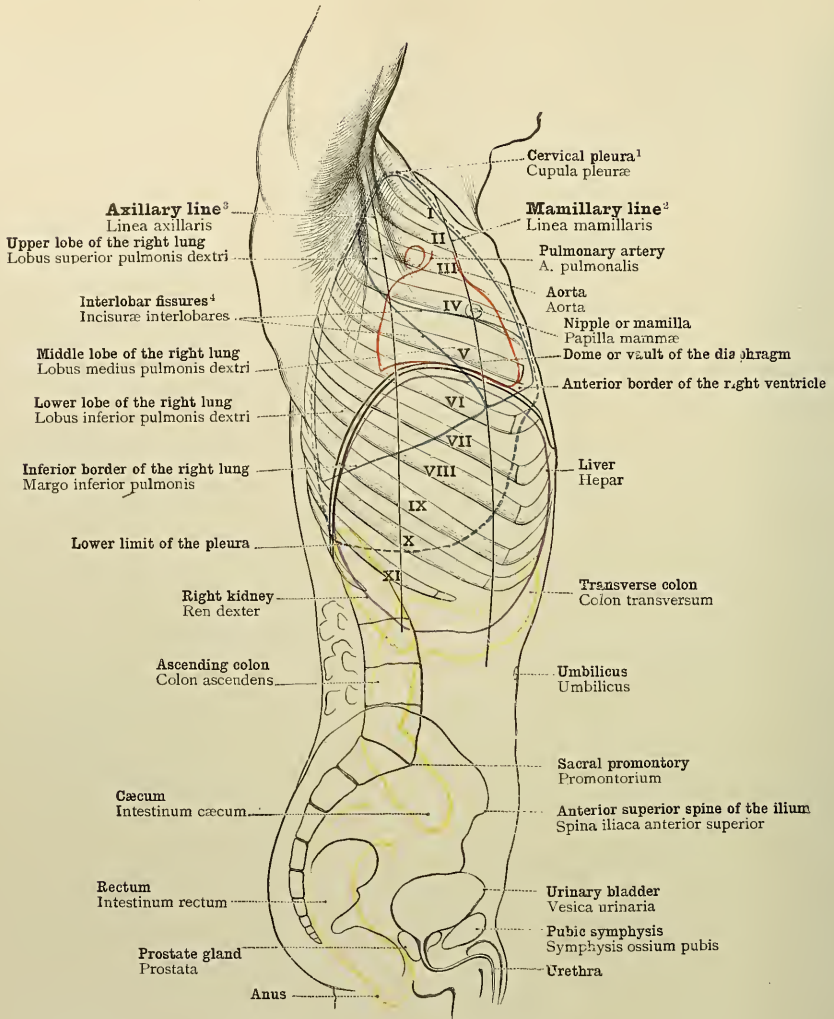
<sup>1</sup> The scapular line is a vertical line traced on the back of the trunk passing through the inferior angle of the scapula.—Tr.  
<sup>2</sup> See note <sup>1</sup> to p. 457.      <sup>3</sup> See note <sup>1</sup> to p. 454.

FIG. 817.—PROJECTION-OUTLINES OF THE THORACIC AND ABDOMINAL ORGANS ON THE POSTERIOR SURFACE OF THE TRUNK.

The red lines indicate the outlines of the descending thoracic aorta, the abdominal aorta, and the spleen; the continuous blue lines indicate the outlines of the two lungs and of their upper and lower lobes; the dotted blue lines, the boundaries of the pleural cavities. The yellow lines indicate the projection-outlines of the stomach, the duodenum, and various portions of the large intestine. The yellow lines indicate the dome or vault of the diaphragm and of the two kidneys are black.

GUIDE LINES FOR THE DETERMINATION OF THE POSITION OF THE THORACIC ORGANS: POSTERIOR MEDIAN LINE AND SCAPULAR LINE (see note <sup>1</sup> above). THE RIBS ARE DISTINGUISHED BY ROMAN NUMERALS.

Projection-Outlines of the Thoracic and Abdominal Viscera.



<sup>1</sup> See note <sup>1</sup> to p. 467.

<sup>2</sup> See Appendix, note <sup>48</sup>.

<sup>3</sup> See Appendix, note <sup>49</sup>.

<sup>4</sup> See note <sup>1</sup> to p. 464.

FIG. 818.—PROJECTION-OUTLINES OF THE THORACIC AND ABDOMINAL ORGANS ON THE RIGHT SIDE OF THE TRUNK.

The red line indicates the outline of the heart and the pulmonary artery; the continuous blue lines indicate the outlines of the right lung and its three lobes; the dotted blue line indicates the boundaries of the pleural cavity. The violet line indicates the projection-outline of the right lobe of the liver; the yellow lines indicate the projection-outlines of the right kidney and the different sections of the large intestine.

GUIDE-LINES FOR THE DETERMINATION OF THE POSITION OF THE THORACIC ORGANS: AXILARY LINE (see Appendix, note <sup>49</sup>) AND MAMILLARY LINE (see Appendix, note <sup>48</sup>). THE RIBS ARE DISTINGUISHED BY ROMAN NUMERALS.



APPARATUS UROGENITALIS  
GENITO-URINARY APPARATUS

ORGANA UROPOËTICA  
URINARY ORGANS

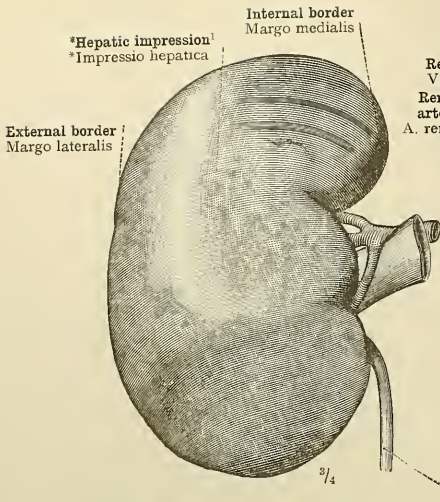


FIG. 819.—REN DEXTER, THE RIGHT KIDNEY. FACIES ANTERIOR, ANTERIOR SURFACE.

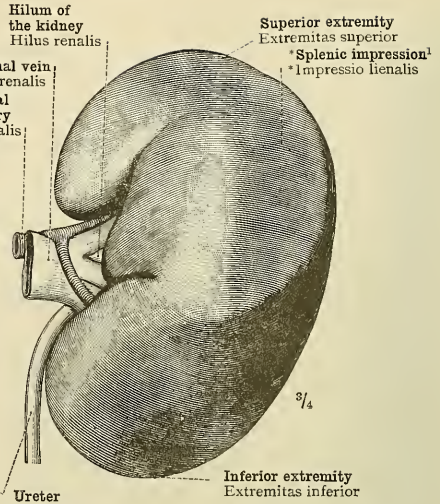


FIG. 820.—REN SINISTER, THE LEFT KIDNEY. FACIES ANTERIOR, ANTERIOR SURFACE.

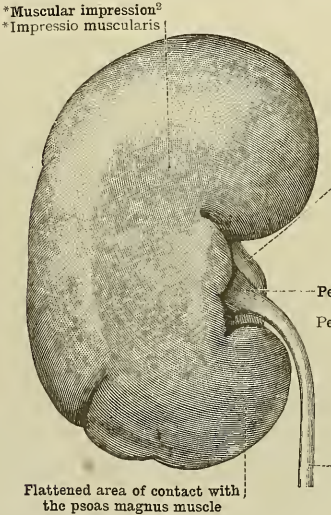


FIG. 821.—REN SINISTER, THE LEFT KIDNEY. FACIES POSTERIOR, POSTERIOR SURFACE.

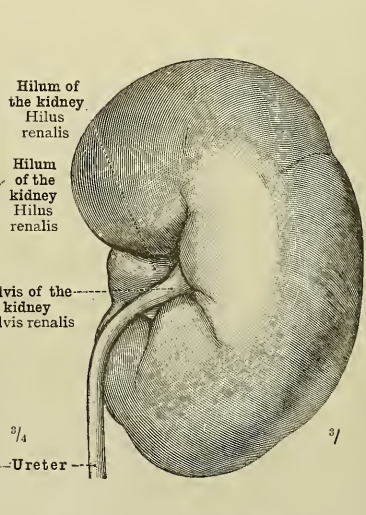


FIG. 822.—REN DEXTER, THE RIGHT KIDNEY. FACIES POSTERIOR, POSTERIOR SURFACE.

<sup>1</sup> Impressions.—When the solid viscera are hardened *in situ*, their surface presents facets corresponding to the areas of contact with one another and with the structures forming the wall of the abdominal cavity. Such facets are termed *impressions*. The word is used most frequently in connexion with the *impressions of the liver*.—Tr.  
<sup>2</sup> The *muscular impression* is a flattening, very variable in extent, indicating the area of contact of the kidney with the anterior surface of the quadratus lumborum muscle (see also note 5).—Tr.

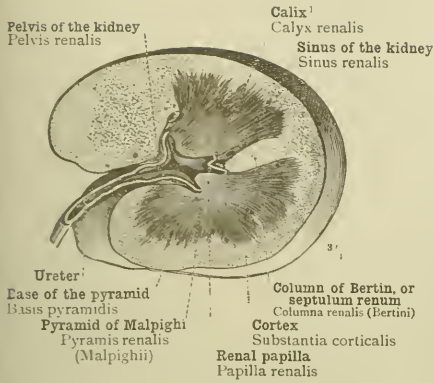


FIG. 823.—HORIZONTAL SECTION THROUGH THE MIDDLE OF THE RIGHT KIDNEY AND THE RENAL PELVIS.

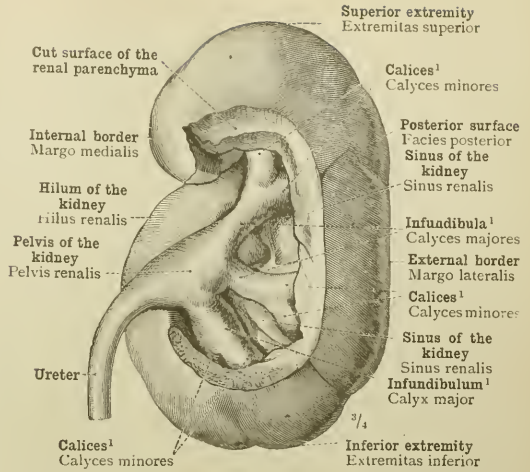


FIG. 824.—PELVIS RENALIS, THE PELVIS OF THE KIDNEY WITH THE CALICES AND INFUNDIBULA (CALYCES RENALES MINORES ET MAJORES) LAID BARE BY THE REMOVAL OF A PORTION OF THE RENAL PARENCHYMA FROM BEHIND.

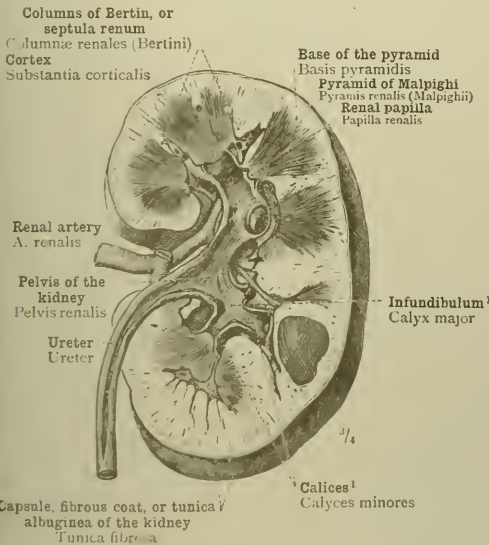


FIG. 825.—CORONAL SECTION THROUGH THE RIGHT KIDNEY AND THE RENAL PELVIS, SUBSTANTIA CORTICALIS, THE CORTEX; SUBSTANTIA MEDULLARIS, THE MEDULLA.

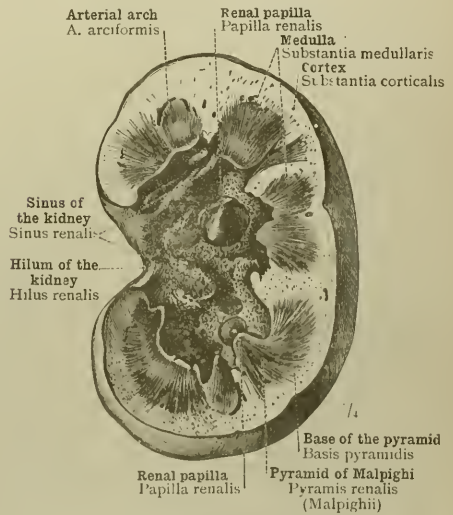


FIG. 826.—SINUS RENALIS, THE SINUS OF THE KIDNEY, DISPLAYED IN A CORONALLY-BISECTED KIDNEY BY REMOVAL OF THE RENAL PELVIS AND THE BLOODVESSELS POSTERIOR HALF.

<sup>1</sup> See Appendix, note 60.



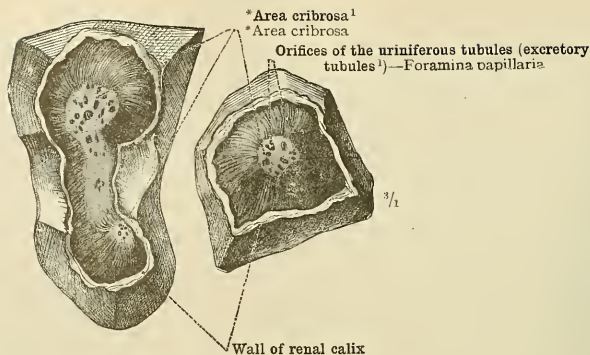


FIG. 827.—\*AREA CRIBROSA¹ OF THE RENAL PAPILLA.

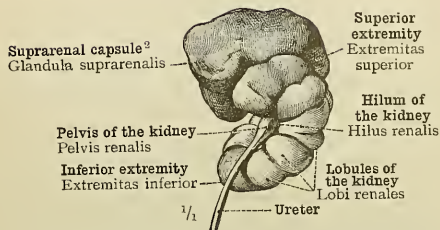


FIG. 828.—RIGHT KIDNEY AND SUPRARENAL CAPSULE² FROM A HUMAN FETUS IN THE MIDDLE OF THE SEVENTH MONTH (MONTHS OF FOUR WEEKS EACH). SEEN FROM BEHIND.

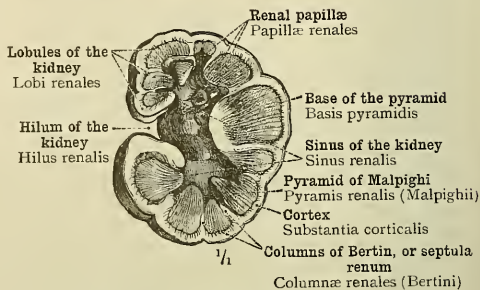


FIG. 829.—SINUS OF THE KIDNEY, DISPLAYED IN THE CORONALLY-BISECTED KIDNEY OF AN INFANT AGED THREE WEEKS

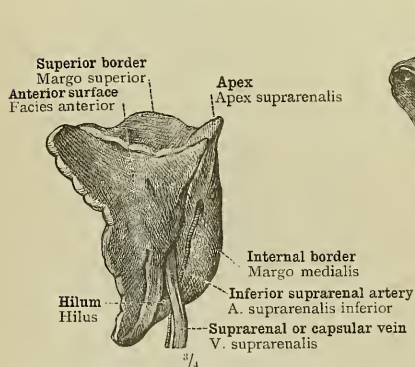


FIG. 830.—RIGHT SUPRARENAL CAPSULE,² SEEN FROM BEFORE.

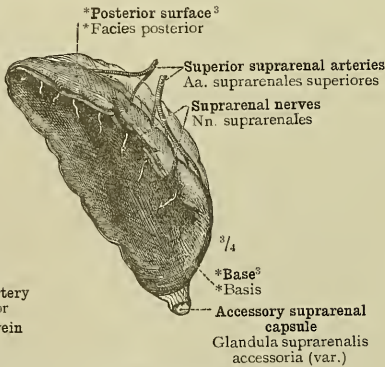


FIG. 831.—LEFT SUPRARENAL CAPSULE,² SEEN FROM BEHIND.



FIG. 832.—HORIZONTAL SECTION THROUGH THE LEFT SUPRARENAL CAPSULE.²

¹ See Appendix, note 51.

² Called also *suprarenal body*, or *adrenal*.

³ See Appendix, note 50.

Ren—The kidney.—Glandula suprarenalis—The suprarenal capsule (see note ² above).

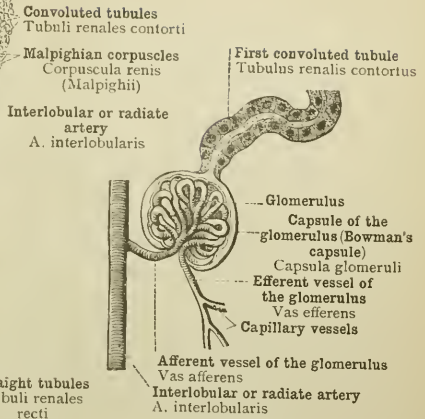
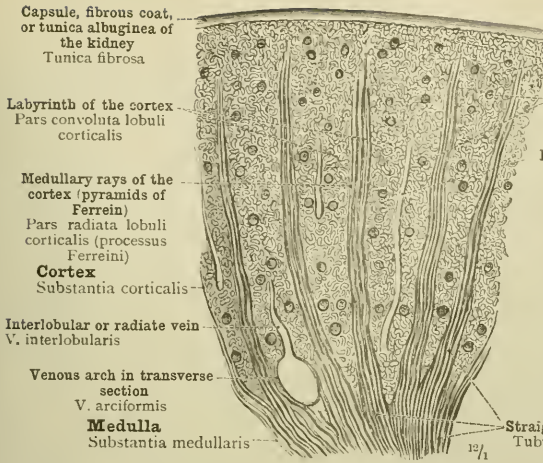
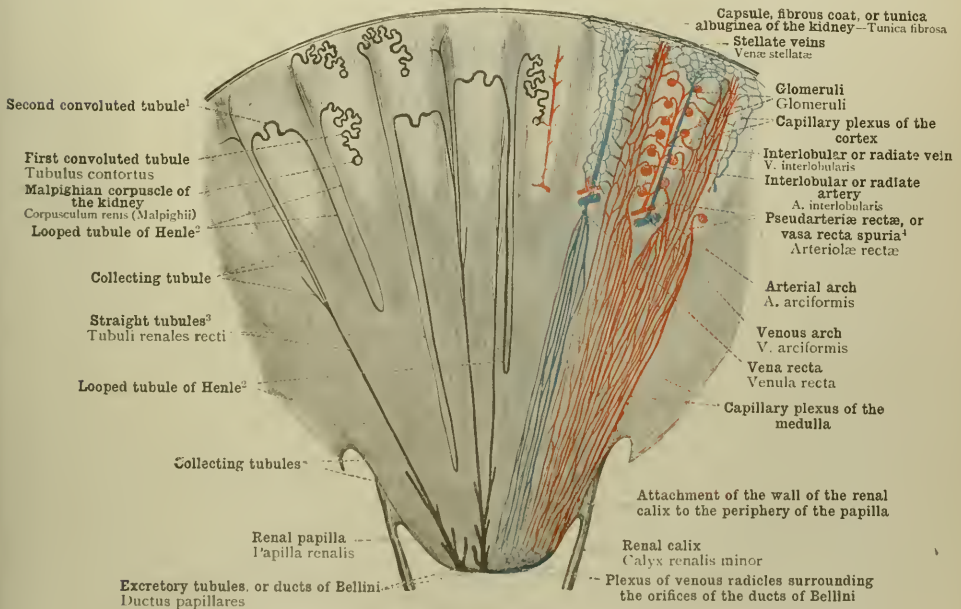


FIG. 833.—PART OF A SECTION THROUGH THE CORTEX OF THE KIDNEY IN THE DIRECTION OF THE STRAIGHT TUBULES.

FIG. 834.—CORPUSCULUM RENIS (MALPIGHII), MALPIGHIAN CORPUSCLE OF THE KIDNEY. DIAGRAMMATIC.



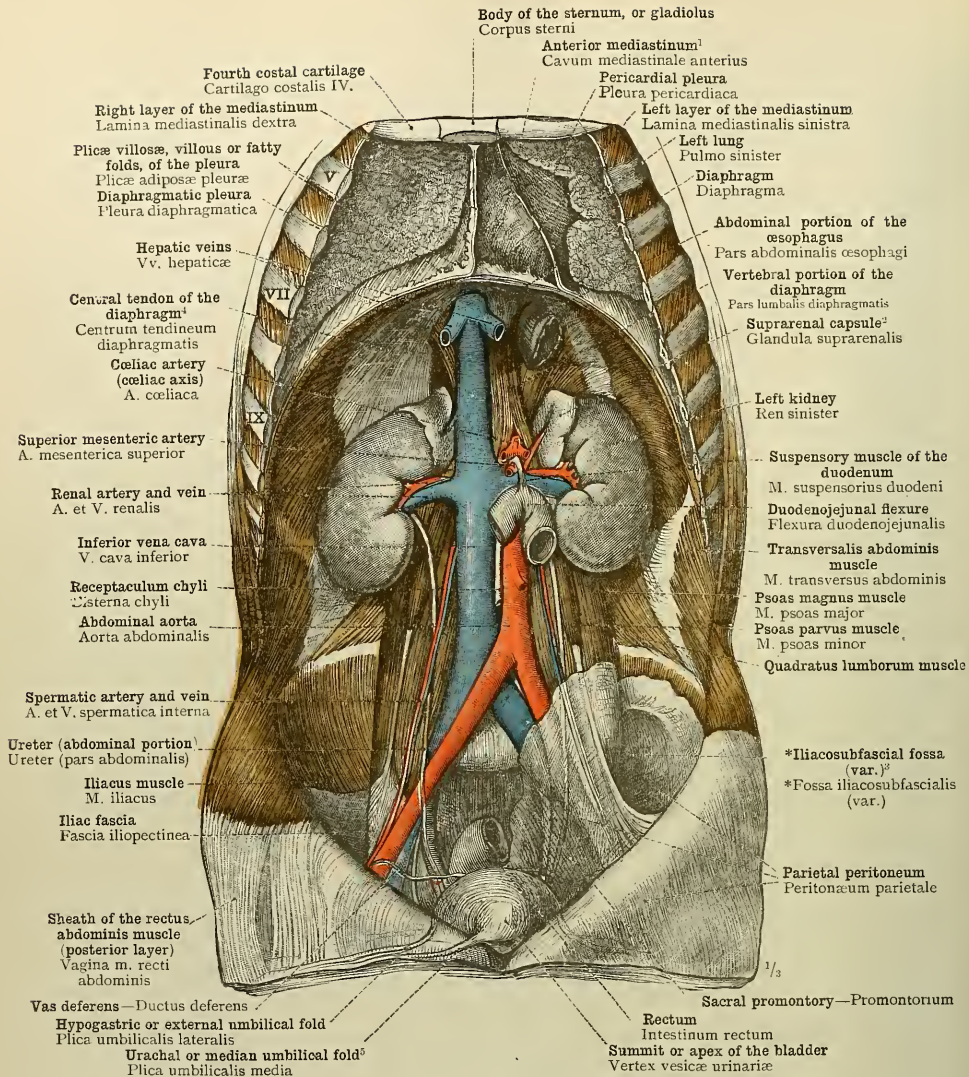
<sup>1</sup> See Appendix, note 53.

<sup>2</sup> See Appendix, note 54.

<sup>3</sup> See Appendix, note 55.

<sup>4</sup> See Appendix, note 56.

FIG. 835.—DIAGRAMMATIC REPRESENTATION OF THE ARRANGEMENT OF THE URINIFEROUS TUBULES AND THE BLOODVESSELS IN THE KIDNEY.



<sup>1</sup> See note <sup>2</sup> to p. 410 and Appendix, note 24.

<sup>3</sup> See Appendix, note 57.

<sup>5</sup> Also called the *superior false ligament*, or *suspensory ligament*, of the bladder.

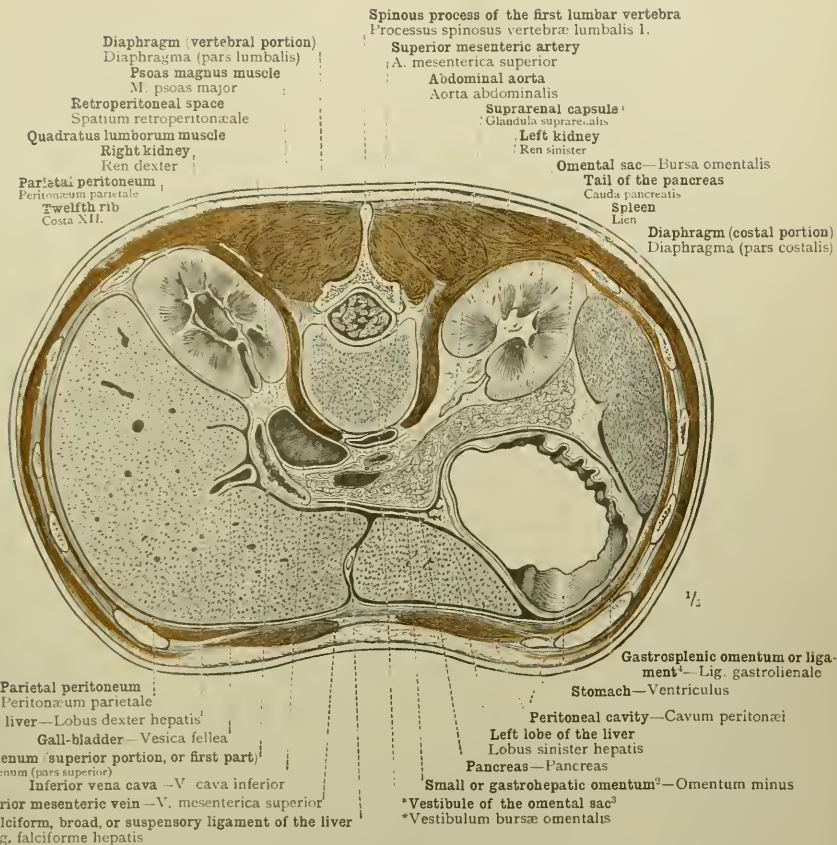
<sup>2</sup> Called also *suprarenal body*, or *adrenal*.

<sup>4</sup> Called also the *trifid* or *cordiform tendon* of the diaphragm.

FIG. 836.—POSTERIOR WALL OF THE ABDOMINAL CAVITY, AS SEEN AFTER THE REMOVAL OF THE PARIETAL PERITONEUM; SPATIUM RETROPERITONEALE, THE RETROPERITONEAL SPACE. POSITION OF THE KIDNEYS AND THE SUPRARENAL CAPSULES (see note <sup>2</sup> above). ABDOMINAL PORTION OF THE OESOPHAGUS. MUSCULUS SUSPENSORIUS DUODENI, THE SUSPENSORY MUSCLE OF THE DUODENUM.

In the left iliac fossa the parietal peritoneum has been left attached, in order to display the \*iliacosubfascial fossa of the peritoneum, which exists in this specimen. (Compare with this figure Fig. 809, p. 479.)





<sup>1</sup> Also known as the suprarenal body, or adrenal.

<sup>2</sup> See Appendix, note 42.

<sup>3</sup> See Appendix, note 44.

<sup>4</sup> The gastrosplenic omentum is connected below with the great omentum, and is often regarded as a part of it.—Tr.

FIG. 837.—HORIZONTAL SECTION THROUGH THE TRUNK, PASSING THROUGH THE BODY OF THE FIRST LUMBAR VERTEBRA CLOSE TO ITS UPPER SURFACE. THE POSITION OF THE KIDNEYS IN RELATION TO THE ABDOMINAL WALL, THE LIVER, THE SPLEEN, AND THE PANCREAS.

The right kidney is divided above, the left below, the middle of its vertical extent. The stomach is divided below the middle of its body; the pancreas, near its inferior surface; the spleen, near its inferior extremity. In the hepatic region the section crosses the umbilical fissure (fossa v. nae umbilicalis) and the body of the gall-bladder. Close to the latter the superior or first part of the duodenum is seen. (Compare this section with those shown in Figs. 810 and 811.)

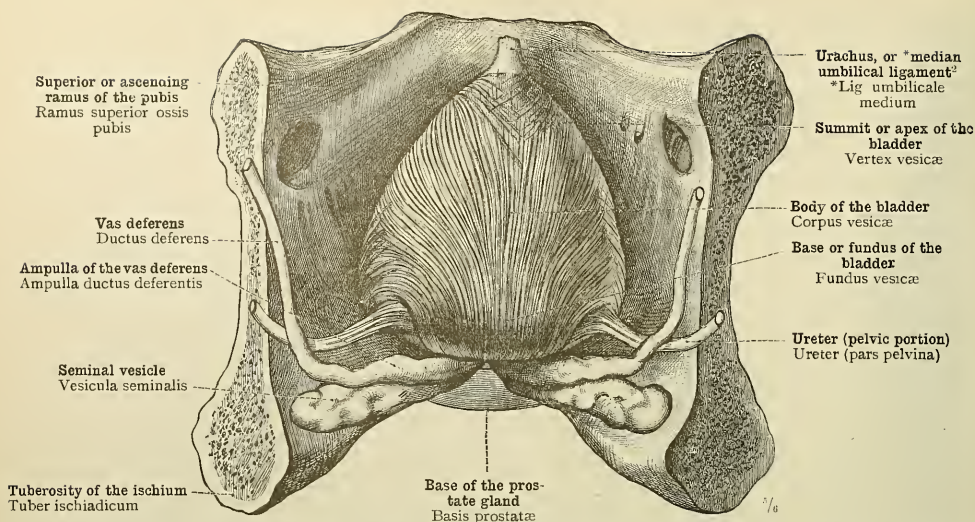


FIG. 838.—EXTERNAL LAYER OF THE MUSCULAR COAT OF THE BLADDER (STRATUM EXTERNUM TUNICÆ MUSCULARIS VESICÆ URINARIÆ). THE CONTRACTED MALE BLADDER IN ITS NATURAL POSITION, WITH THE PELVIC PORTION OF THE URETER, THE VAS DEFERENS, AND THE SEMINAL VESICLE SEEN FROM BEHIND.

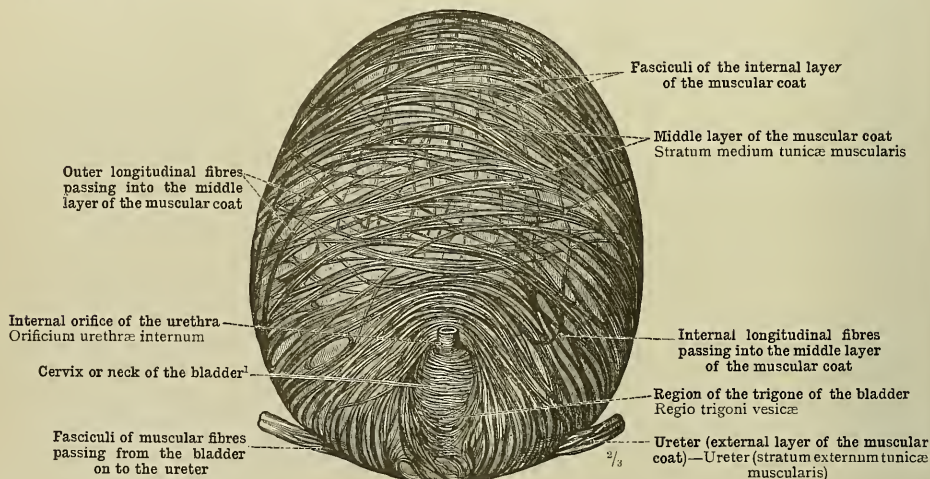


FIG. 839.—MIDDLE AND INTERNAL LAYERS OF THE MUSCULAR COAT OF THE BLADDER (STRATUM MEDIUM ET STRATUM INTERNUM TUNICÆ MUSCULARIS VESICÆ URINARIÆ), SEEN FROM BEFORE AND BELOW IN THE MODERATELY-DISTENDED BLADDER.

<sup>1</sup> See Appendix, note 53.

<sup>2</sup> See note 3 to p. 387 in Part III.

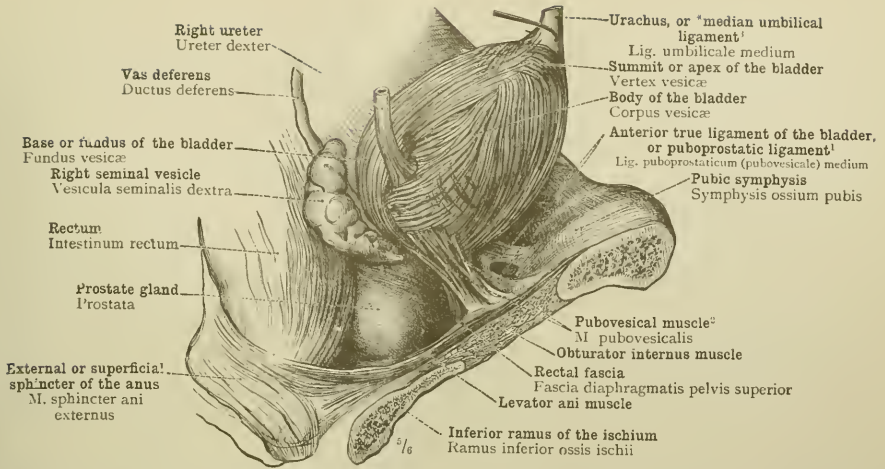


FIG. 840.—EXTERNAL LAYER OF THE MUSCULAR COAT (STRATUM EXTERNUM TUNICÆ MUSCULARIS) OF THE CONTRACTED BLADDER. RELATIONS OF THE SEMINAL VESICLE AND THE PROSTATE GLAND TO THE BLADDER AND THE RECTUM. SEEN FROM THE RIGHT SIDE.

The prostate gland is hypertrophied.

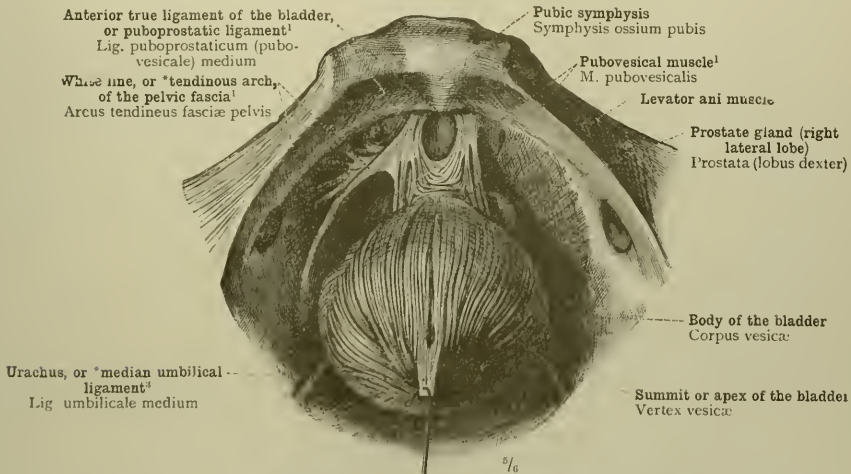


FIG. 841.—EXTERNAL LAYER OF THE MUSCULAR COAT (STRATUM EXTERNUM TUNICÆ MUSCULARIS) OF THE CONTRACTED BLADDER, SEEN FROM BEFORE AND ABOVE.

The bladder has been drawn as far as possible backwards away from the pubes. On the right side the levator ani muscle is exposed; on the left side the rectal fascia<sup>1</sup> covering upper or pelvic surface has been left intact.

<sup>1</sup> See Appendix, note 59.

<sup>2</sup> See Appendix, note 59.

<sup>3</sup> See note 3 to p. 387 in Part III.



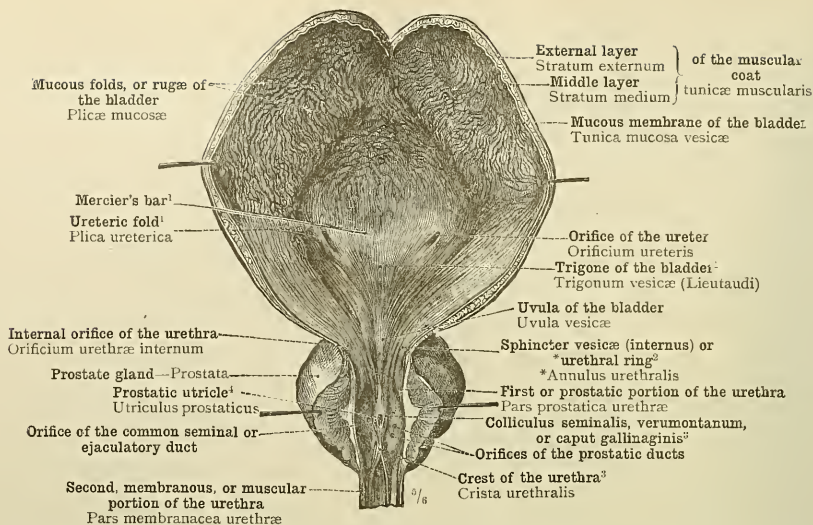


FIG. 842.—THE MALE BLADDER AND THE FIRST OR PROSTATIC PORTION OF THE URETHRA, WITH THE PROSTATE GLAND, OPENED FROM BEFORE.

The bladder was in a moderately distended state.

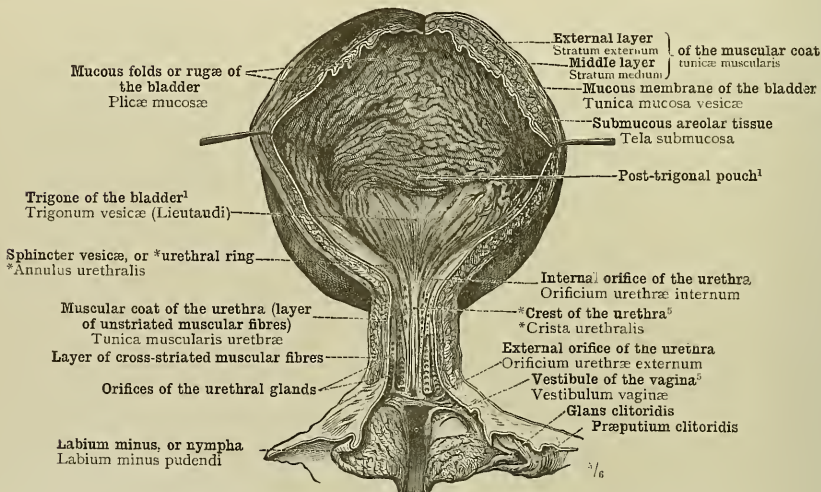
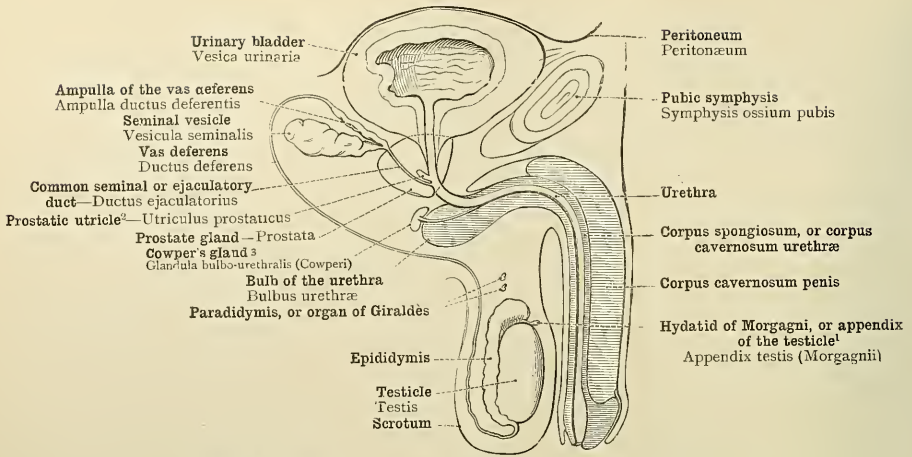


FIG. 843.—THE FEMALE BLADDER AND URETHRA, OPENED FROM BEFORE

The bladder was nearly empty, and contracted.

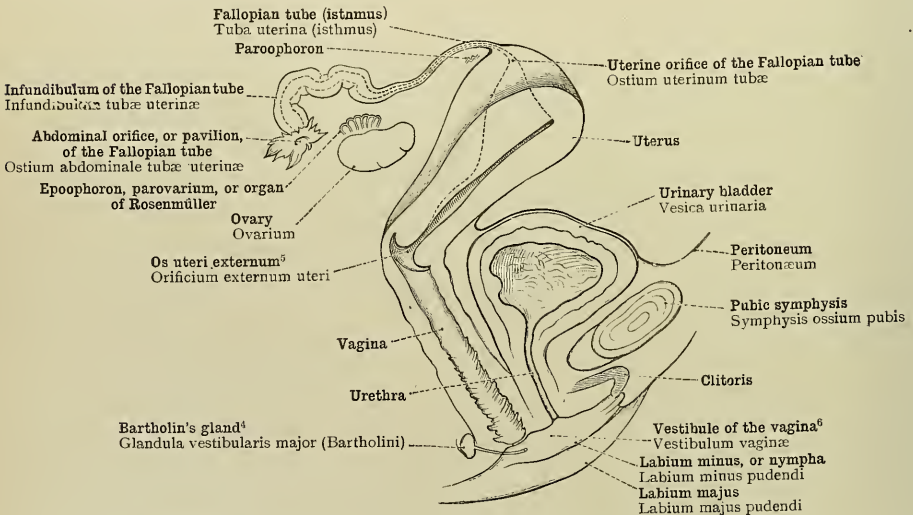
<sup>2</sup> See Appendix, note 64.      <sup>3</sup> See Appendix, note 63.  
<sup>4</sup> See Appendix, note 64.      <sup>5</sup> See Appendix, note 65.

ORGANA GENITALIA VIRILIA  
MALE REPRODUCTIVE ORGANS



<sup>1</sup> See Appendix, note 60.  
<sup>2</sup> Known also as the *prostatic sinus*, *prostatic vesicle*, *sinus pocularis*, and *uterus masculinus*.  
<sup>3</sup> Known also as the *suburethral gland*.

FIG. 844.—DIAGRAMMATIC REPRESENTATION OF THE MALE REPRODUCTIVE ORGANS AND THEIR RELATIONS TO THE BLADDER AND THE URETHRA. LATERAL VIEW.



<sup>4</sup> See Appendix, note 66.

<sup>5</sup> See Appendix, note 67.

<sup>6</sup> See Appendix, note 90.

FIG. 845.—DIAGRAMMATIC REPRESENTATION OF THE FEMALE REPRODUCTIVE ORGANS AND THEIR RELATIONS TO THE BLADDER AND URETHRA. LATERAL VIEW.

Comparative Diagrams of the Male and Female Reproductive Organs.



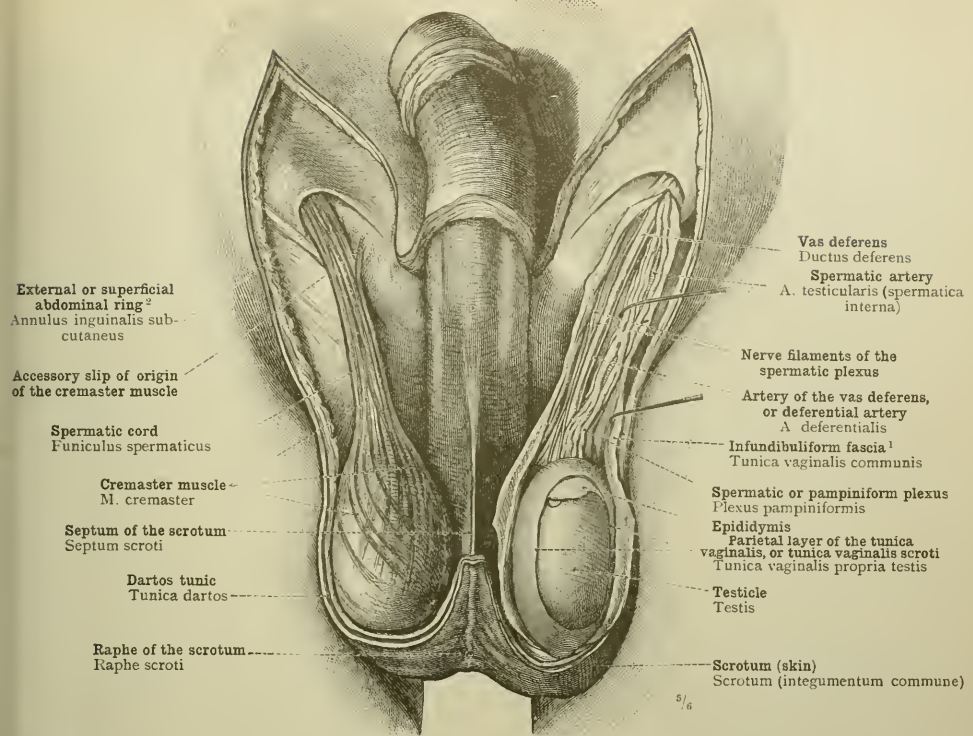


FIG. 846.—THE SCROTUM. THE PENIS HAS BEEN TURNED UPWARDS, AND THE ANTERIOR WALL OF THE SCROTUM HAS BEEN REMOVED. ON THE RIGHT SIDE, THE SPERMATIC CORD, THE INFUNDIBULIFORM FASCIA, AND THE CREMASTER MUSCLE, ARE DISPLAYED; ON THE LEFT SIDE, THE INFUNDIBULIFORM FASCIA HAS BEEN DIVIDED BY A LONGITUDINAL INCISION PASSING ALONG THE FRONT OF THE CORD AND THE TESTICLE, AND A PORTION OF THE TUNICA VAGINALIS SCROTI (PARIETAL LAYER OF THE TUNICA VAGINALIS) HAS BEEN REMOVED, TO DISPLAY THE TESTICLE AND A PORTION OF THE HEAD OR GLOBUS MAJOR OF THE EPIDIDYMIS, WHICH ARE COVERED BY THE TUNICA VAGINALIS TESTIS, OR VISCERAL LAYER OF THE TUNICA VAGINALIS.

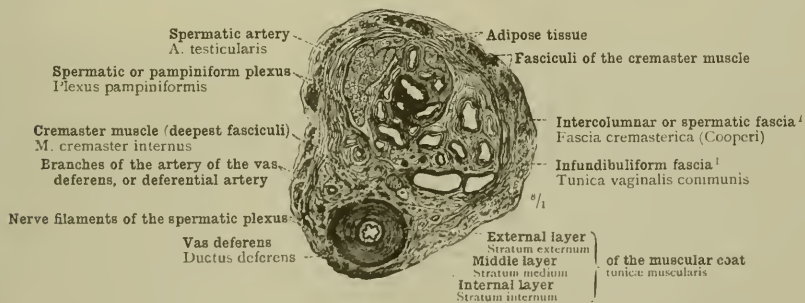


FIG. 847.—TRANSVERSE SECTION THROUGH THE SPERMATIC CORD NOT FAR FROM ITS EMERGENCE FROM THE INGUINAL CANAL.

<sup>1</sup> See Appendix, note 6.

<sup>2</sup> Known also as the external inguinal aperture.

Scrotum—The scrotum.—Funiculus spermaticus—The spermatic cord.

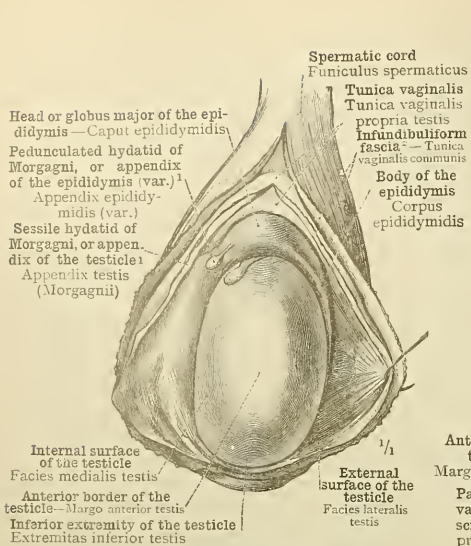


FIG. 848.—THE LEFT TESTICLE WITH THE EPIDIDYMIS, THE INFUNDIBULIFORM FASCIA AND THE PARIETAL LAYER OF THE TUNICA VAGINALIS (TUNICA VAGINALIS SCROTI), HAVING BEEN DIVIDED. SEEN FROM BEFORE.

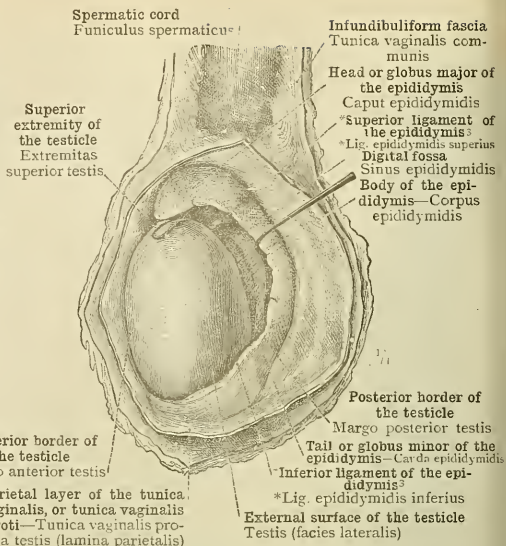


FIG. 849.—THE LEFT TESTICLE WITH THE EPIDIDYMIS, THE LATTER BEING DRAWN A LITTLE BACKWARDS. THE INFUNDIBULIFORM FASCIA AND THE PARIETAL LAYER OF THE TUNICA VAGINALIS (TUNICA VAGINALIS SCROTI) HAVE BEEN DIVIDED. SEEN FROM THE OUTER SIDE.

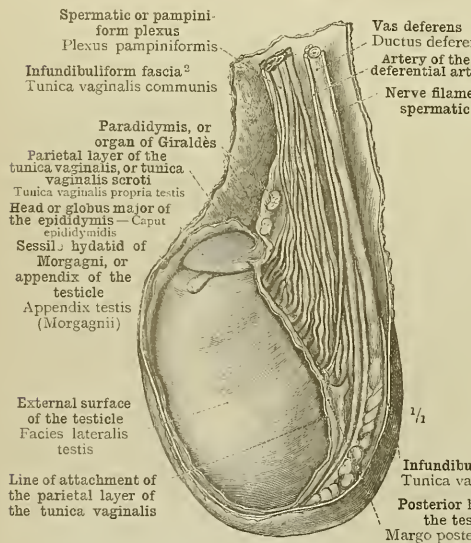


FIG. 850.—THE TESTICLE WITH THE PAMPINIFORM PLEXUS, THE SEROUS SAC OF THE TESTICLE (TUNICA VAGINALIS) HAVING BEEN OPENED FROM THE INNER SIDE.

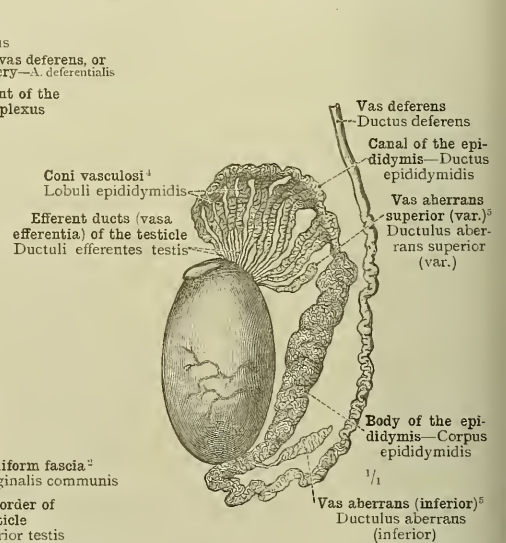


FIG. 851.—THE TESTICLE WITH ITS EFFERENT DUCTS AND THE CANAL OF THE EPIDIDYMIS DISSECTED OUT. SEEN FROM THE OUTER SIDE.

<sup>1</sup> See Appendix, note 69.

<sup>2</sup> See Appendix, note 68.

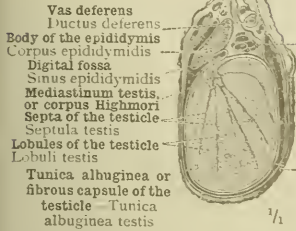
<sup>3</sup> See Appendix, note 70.

<sup>4</sup> See Appendix, note 73.

<sup>5</sup> See Appendix, note 71.

Testis—The testicle.—Epididymis—The epididymis.

Reflection of the parietal layer of the tunica vaginalis tunica vaginalis scroti into the visceral layer of the tunica vaginalis tunica vaginalis testis



Vas deferens  
Ductus deferens  
Body of the epididymis  
Corpus epididymidis  
Digital fossa  
Sinus epididymidis  
Mediastinum testis, or corpus Highmori  
Septa of the testicle  
Septula testis  
Lobules of the testicle  
Lobuli testis  
Tunica albuginea or fibrous capsule of the testicle—Tunica albuginea testis

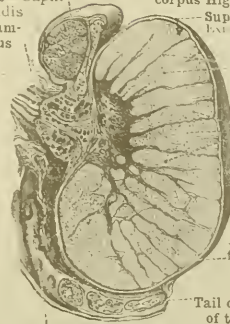
Spermatic or pampiniform plexus  
Plexus pampiniformis  
Parietal layer of the tunica vaginalis or tunica vaginalis scroti  
Tunica vaginalis propria testis (tunica parietalis)  
Visceral layer of the tunica vaginalis or tunica vaginalis testis  
Tunica vaginalis propria testis (tunica visceralis)  
Infundibuliform fascia  
Tunica vaginalis communis

1/4

Body of the epididymis  
Corpus epididymidis

FIG. 852.—HORIZONTAL SECTION THROUGH THE RIGHT TESTICLE AND THE EPIDIDYMS, AND THROUGH THE TUNICA VAGINALIS AND THE INFUNDIBULIFORM FASCIA.

Head or globus major of the epididymis—Caput epididymidis  
Spermatic or pampiniform plexus  
Plexus pampiniformis



Mediastinum testis, or corpus Highmori  
Superior extremity  
Extremitas superior

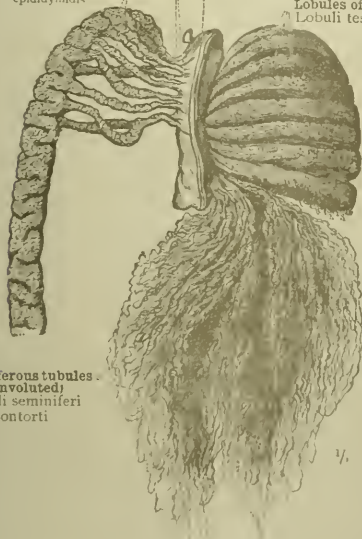
Septa of the testicle  
Septula testis  
Lobules of the testicle  
Lobuli testis  
Anterior border of the testicle  
Margo anterior testis  
Funicula albuginea or fibrous capsule of the testicle—Tunica albuginea testis  
Tail or globus minor of the epididymis  
Cauda epididymidis

1/4

FIG. 853.—SAGITTAL SECTION THROUGH THE MIDDLE OF THE RIGHT TESTICLE. THE MEDIASTINUM TESTIS, OR CORPUS HIGHMORI.

Efferent ducts (vasa efferentia) of the testicle—Ductuli efferentes  
Coni vasculosi—Lobuli epididymidis

Tunica albuginea or fibrous capsule of the testicle  
Tunica albuginea testis  
Lobules of the testicle  
Lobuli testis

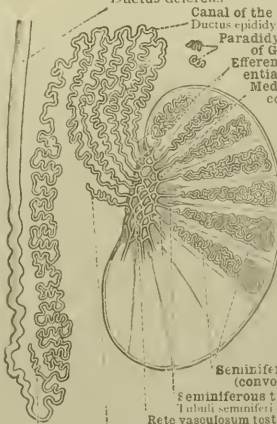


Seminiferous tubules (convoluted)  
Tubuli seminiferi contorti

1/4

FIG. 854.—THE PARENCHYMA OF THE TESTICLE, PARTIALLY TREATED BY MACERATION IN HYDROCHLORIC ACID SOLUTION.

Vas deferens  
Ductus deferens



Canal of the epididymis  
Ductus epididymidis  
Paradidymis or organ of Giraldes  
Efferent ducts (vasa efferentia) of the testicle (1)  
Mediastinum testis, or corpus Highmori

Seminiferous tubules (convoluted) (1)  
Seminiferous tubules (straight)  
Tubuli seminiferi recti  
Rete vasculosum testis (rete testis) (Halleri)  
Vas aberrans superior (var.)  
Ductulus aberrans superior (var.)  
Vas aberrans (inferior)  
Ductulus aberrans (inferior)

(1) Ductuli efferentes (2) Tubuli seminiferi contorti

FIG. 855.—DIAGRAMMATIC REPRESENTATION OF THE COURSE AND CONNECTIONS OF THE TUBULES OF THE TESTICLE AND THE EPIDIDYMS.

Testis—The testicle.—Epididymis—The epididymis.



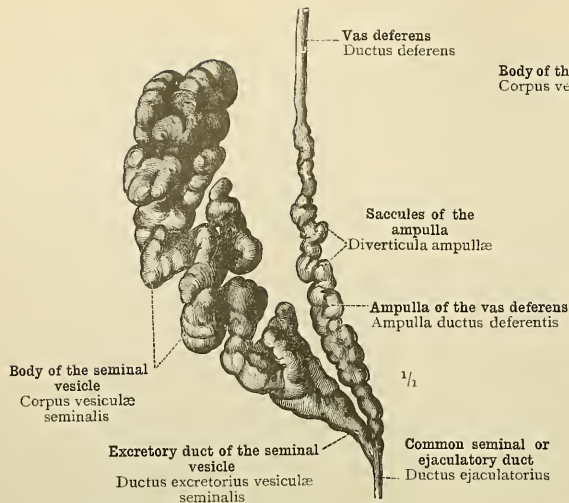


FIG. 856.—CAST OF THE INTERIOR OF THE RIGHT SEMINAL VESICLE, THE AMPULLA OF THE VAS DEFERENS, AND THE COMMON SEMINAL OR EJACULATORY DUCT.

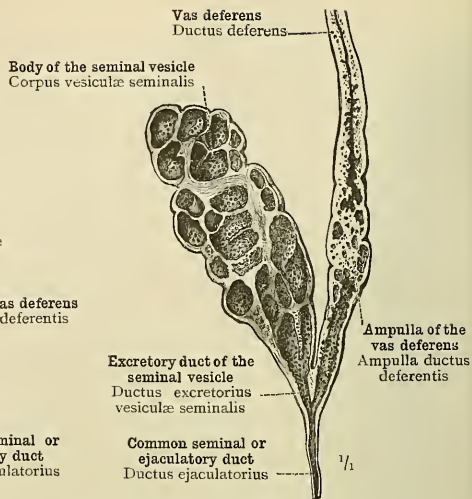
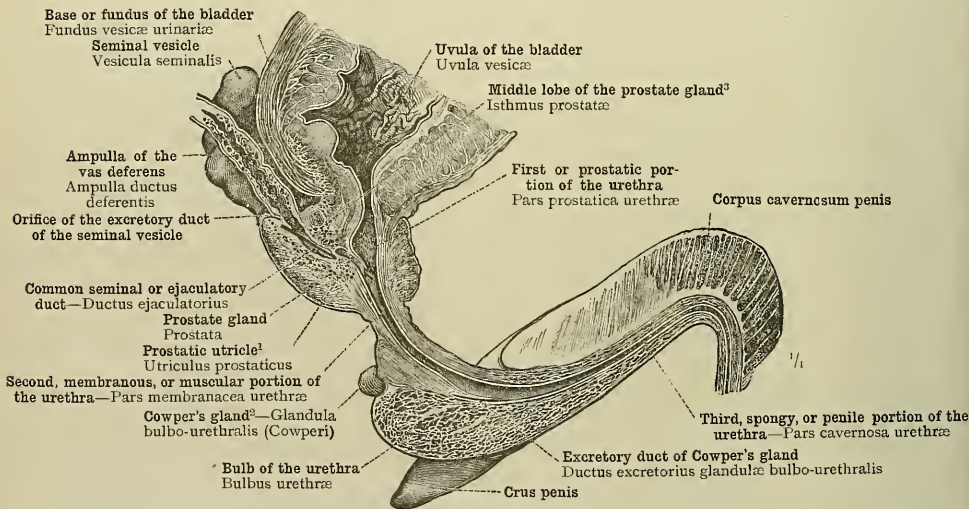


FIG. 857.—LONGITUDINAL SECTION THROUGH THE RIGHT SEMINAL VESICLE, THE AMPULLA OF THE VAS DEFERENS, AND THE COMMON SEMINAL OR EJACULATORY DUCT.



<sup>1</sup> Known also as the *prostatic sinus*, *prostatic vesicle*, *sinus peculiaris*, and *uterus masculinus*.

<sup>2</sup> Known also as the *suburethral gland*.

<sup>3</sup> See Appendix, note 73.

FIG. 858.—SAGITTAL SECTION THROUGH THE MALE URETHRA. LEFT HALF. URETHRAL ORIFICES OF THE COMMON SEMINAL OR EJACULATORY DUCT AND THE EXCRETORY DUCT OF COWPER'S GLAND (see note <sup>2</sup> above). THE PROSTATIC UTRICLE (see note <sup>1</sup> above).

Vesicula seminalis—The seminal vesicle.—Ductus deferens—The vas deferens.—  
Ductus ejaculatorius—The common seminal or ejaculatory duct.

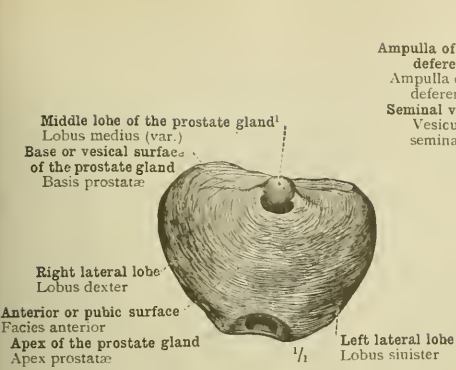


FIG. 859.—THE PROSTATE GLAND, ISOLATED AND SEEN FROM BEFORE.

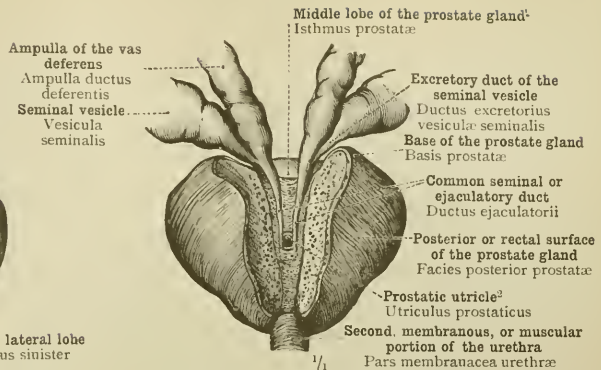


FIG. 860.—THE COMMON SEMINAL OR EJACULATORY DUCTS AND THE BLIND EXTREMITY OF THE PROSTATIC UTRICLE, LAID BARE FROM BEHIND BY THE REMOVAL OF A PORTION OF THE PROSTATE GLAND.

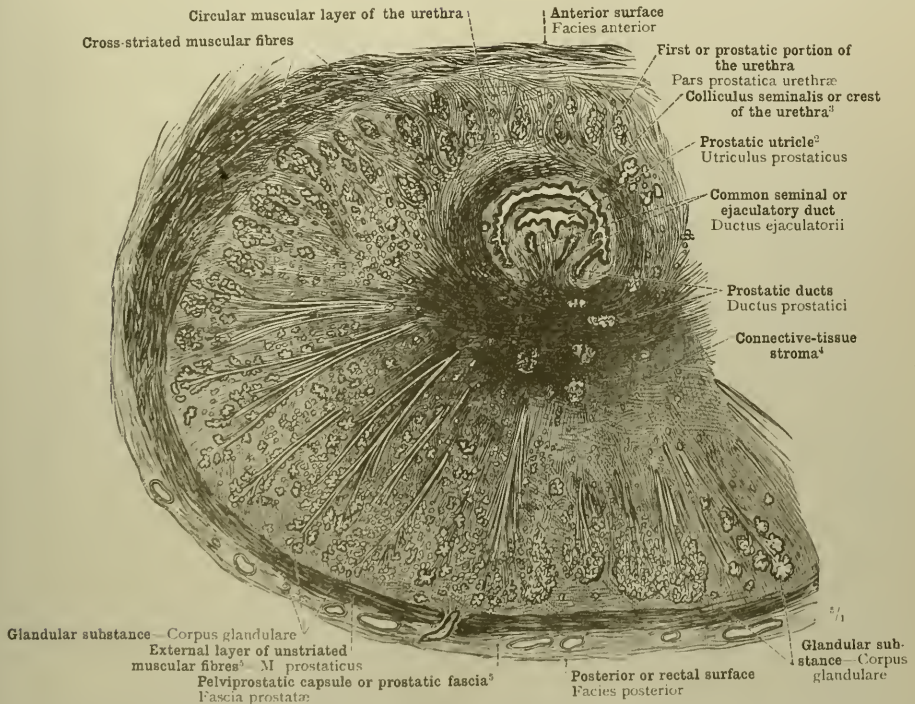


FIG. 861.—HORIZONTAL SECTION THROUGH THE MIDDLE OF THE PROSTATE GLAND OF A MUSCULAR MAN TWENTY-FOUR YEARS OF AGE. TRANSVERSE SECTION OF THE COLLICULUS SEMINALIS OR CREST OF THE URETHRA.

<sup>1</sup> See Appendix, note 73.

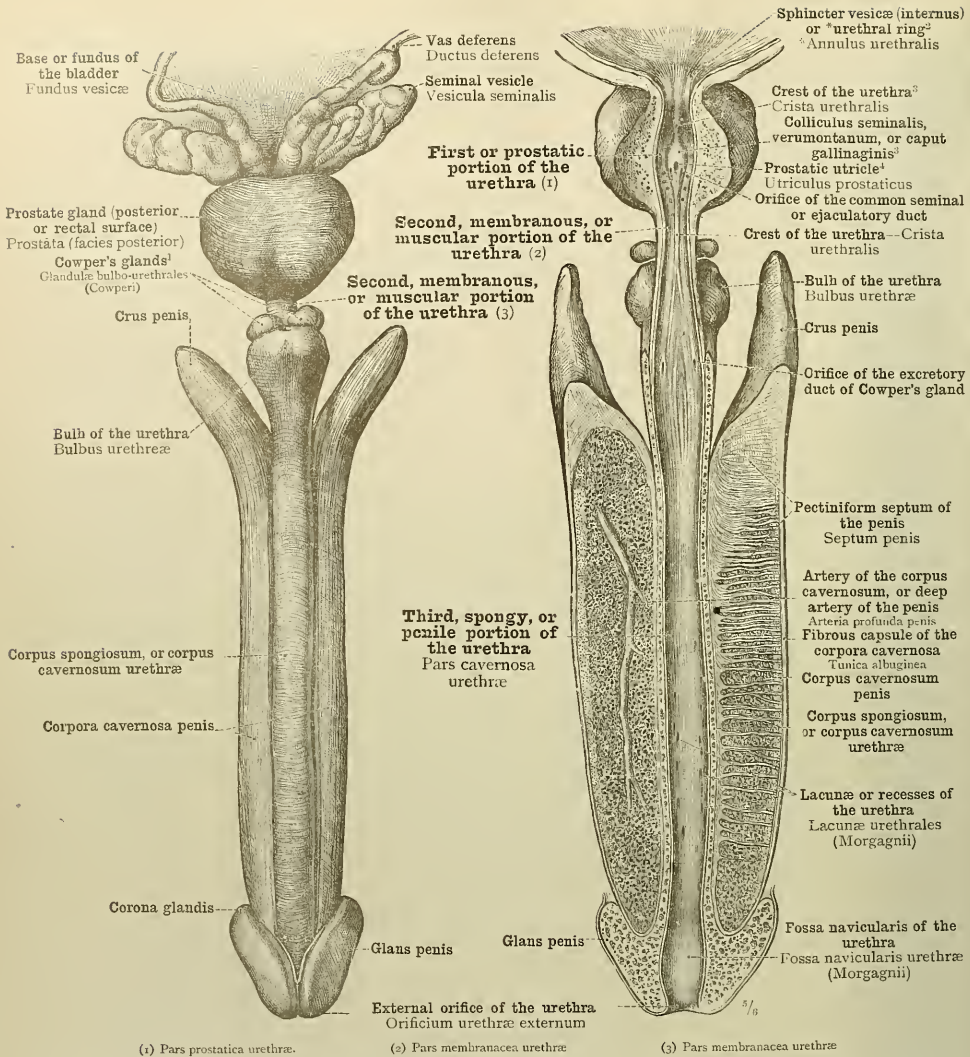
<sup>2</sup> Known also as the *prostatic sinus*, *prostatic vesicle*, *sinus prostaticus*, and *uterus masculinus*.

<sup>3</sup> Known also as the *verumontanum* or *caput gallinaceum*. See Appendix, note 63.

<sup>4</sup> This so-called connective-tissue stroma (*Bündelgewebstroma*, Toldt) of the prostate gland consists chiefly of unstriated muscular fibres.—Tr.

<sup>5</sup> See Appendix, note 74.

Prostata—The prostate gland.—Ductus ejaculatorii—The common seminal or ejaculatory ducts.



<sup>1</sup> Known also as the *suburethral glands*.

<sup>2</sup> See Appendix, note 66.

<sup>3</sup> See Appendix, note 63.

<sup>4</sup> Known also as the *prostatic sinus, prostatic vesicle, sinus peculiaris, and uterus masculinus*.

Penis—The penis.—Urethra virilis—The male urethra.



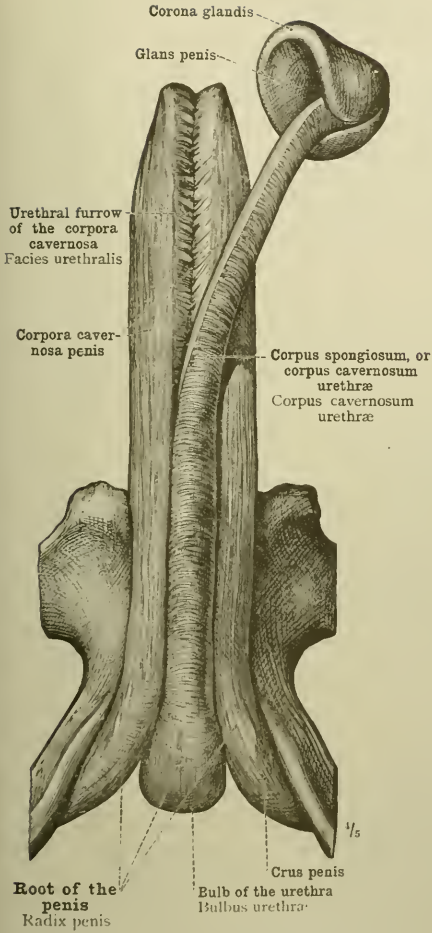


FIG. 864.—THE PENIS, WITH THE PUBIC BONES. SEEN FROM BEFORE AND BELOW.

The corpus spongiosum, or corpus cavernosum urethrae, with the glans penis, has been separated from the corpora cavernosa penis for the anterior half of its extent, and turned to one side.

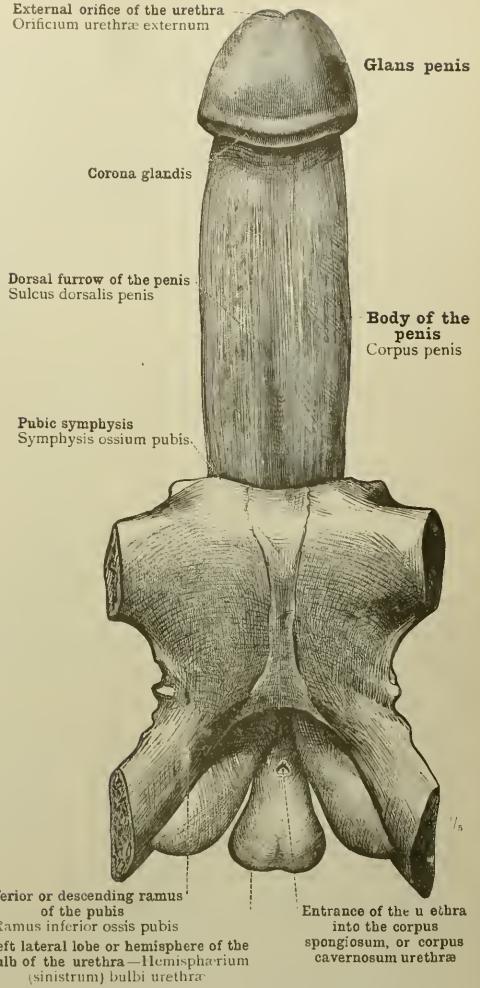


FIG. 865.—THE PENIS, WITH THE PUBIC BONES. SEEN FROM ABOVE AND BEHIND.

The urethra has been cut away at its entrance into the corpus spongiosum, or corpus cavernosum urethrae.

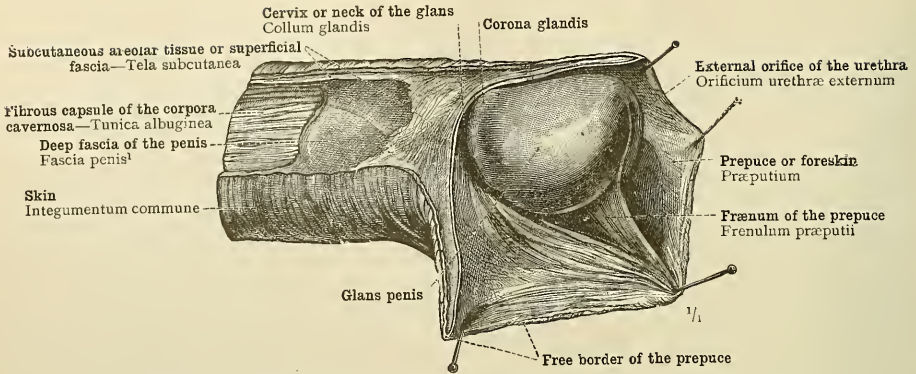


FIG. 866.—FREE PORTION, OR BODY, OF THE PENIS SEEN FROM THE RIGHT SIDE.

The skin has been divided along the dorsum of the penis, and the right half of the prepuce or foreskin has been turned downwards. The subcutaneous areolar tissue or superficial fascia and the deep fascia have been partially removed.

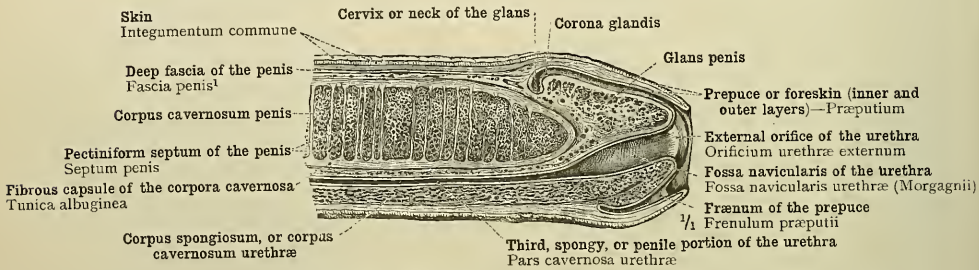


FIG. 867.—MEDIAN SAGITTAL SECTION THROUGH THE FREE PORTION, OR BODY, OF THE PENIS.

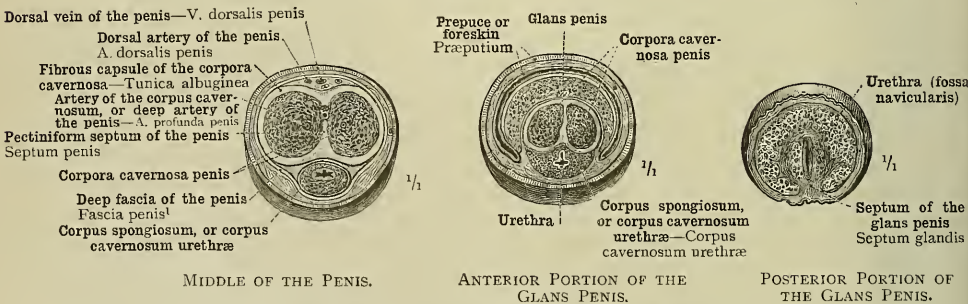


FIG. 868.—TRANSVERSE SECTIONS THROUGH THE PENIS.

<sup>1</sup> *Fascia Penis*.—This term, as used by the author, denotes not only the *deep fascia of the penis* of English anatomists, which forms a sheath for the free portion or *body* of the penis, but also the fascial layer (structurally continuous with the deep fascia of the penis) which covers the root of the organ, and belongs to the perineum. This latter is usually known in England by the name of *Colles's fascia*. See Fig. 914, p. 526; and note <sup>2</sup> on that page.—Tr.

ORGANA GENITALIA MULIEBRIA  
FEMALE REPRODUCTIVE ORGANS



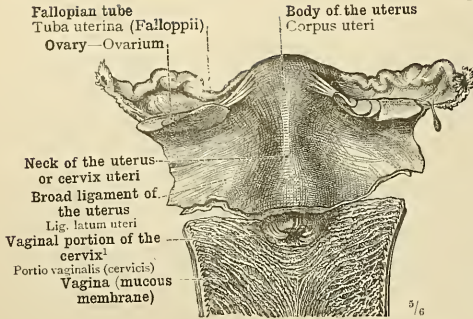


FIG. 869.—INTERNAL GENITAL ORGANS OF A NEW-BORN, POWERFULLY-DEVELOPED FEMALE INFANT. SEEN FROM BEHIND.

The posterior wall of the vagina has been divided by a median longitudinal incision and the segments turned to the right and the left.

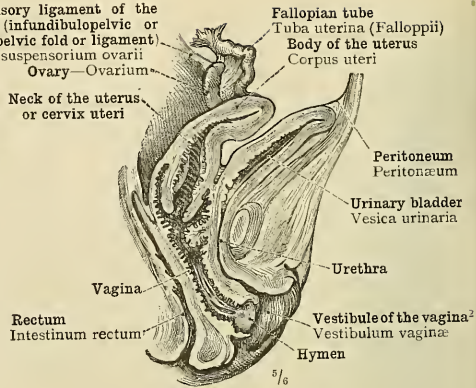


FIG. 870.—REPRODUCTIVE ORGANS OF A NEW-BORN, POWERFULLY-DEVELOPED FEMALE INFANT IN MEDIAN SAGITTAL SECTION. LEFT HALF.

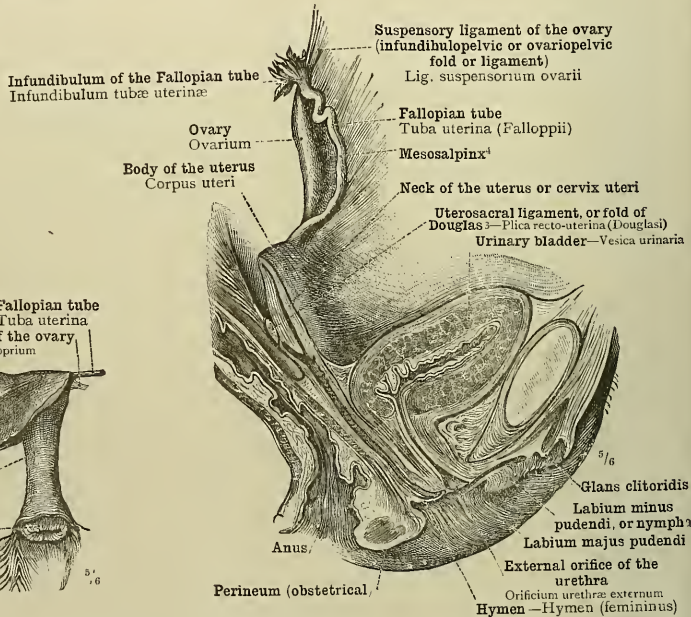


FIG. 872.—REPRODUCTIVE ORGANS OF A GIRL AGED TEN YEARS IN MEDIAN SAGITTAL SECTION. LEFT HALF.

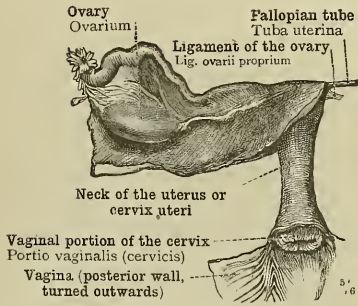


FIG. 871.—INTERNAL GENITAL ORGANS OF A GIRL AGED EIGHT YEARS. SEEN FROM BEHIND.

<sup>1</sup> See Appendix, note 73.  
<sup>2</sup> See Appendix, note 99.  
<sup>3</sup> Known also as the *recto-uterine fold or ligament*. It forms the lateral boundary of the *pouch of Douglas*, and must be distinguished from the *rectovaginal ligament*, which forms the floor of that pouch.—T.  
<sup>4</sup> See Appendix, note 82.

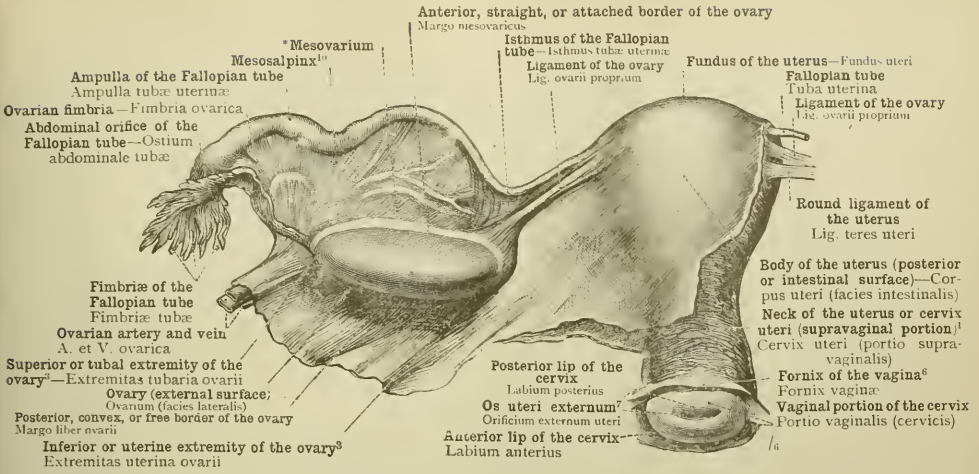


FIG. 873.—THE UTERUS, THE LEFT FALLOPIAN TUBE, AND THE LEFT OVARY, IN THEIR CONNEXION WITH THE BROAD LIGAMENT OF THE UTERUS, WHICH HAS BEEN FULLY UNFOLDED.<sup>3</sup> SEEN FROM BEHIND. FROM A VIRGIN, AGED NINETEEN YEARS.

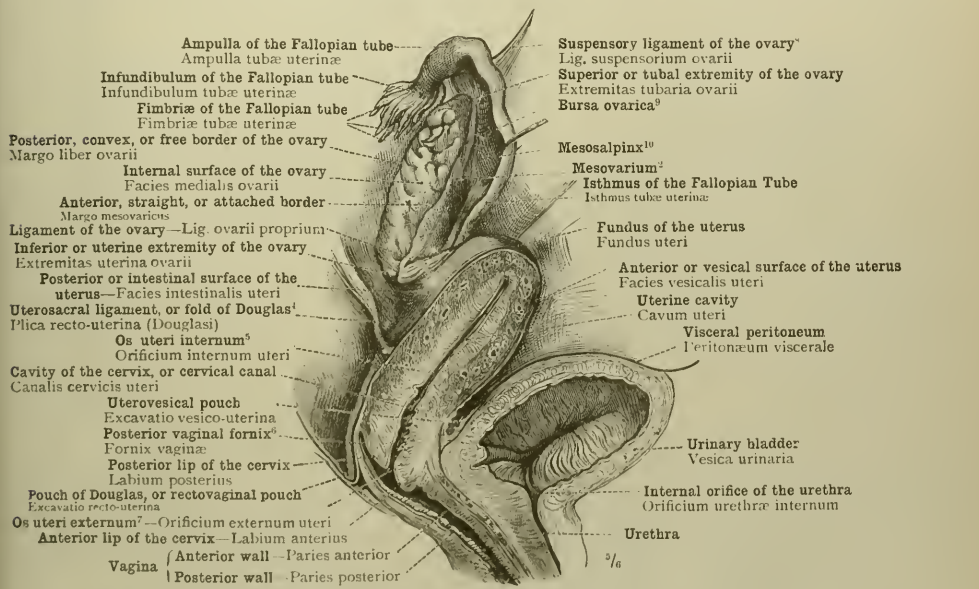


FIG. 874.—INTERNAL GENITAL ORGANS OF A WOMAN AGED THIRTY-FIVE YEARS—UTERUS, VAGINA, AND BLADDER IN MEDIAN SAGITTAL SECTION. LEFT OVARY AND FALLOPIAN TUBE, BY THE DRAWING APART OF WHICH THE BURSA OVARICA HAS BEEN OPENED UP.

<sup>1</sup> See Appendix, note 7.      <sup>2</sup> See Appendix, note 7.      <sup>3</sup> See Appendix, note 7.      <sup>4</sup> See note 4 to p. 510.  
<sup>5</sup> Known also as the *isthmus uteri*, or *isthmus of the uterine cavity*, and sometimes as *ostium uteri*.  
<sup>6</sup> See Appendix, note 7.      <sup>7</sup> See Appendix, note 6.  
<sup>8</sup> Known also as the *infundibulopetrous* or *ovariofimbrial fold or ligament*.      <sup>9</sup> See Appendix, note 7.  
<sup>10</sup> See Appendix, note 9.



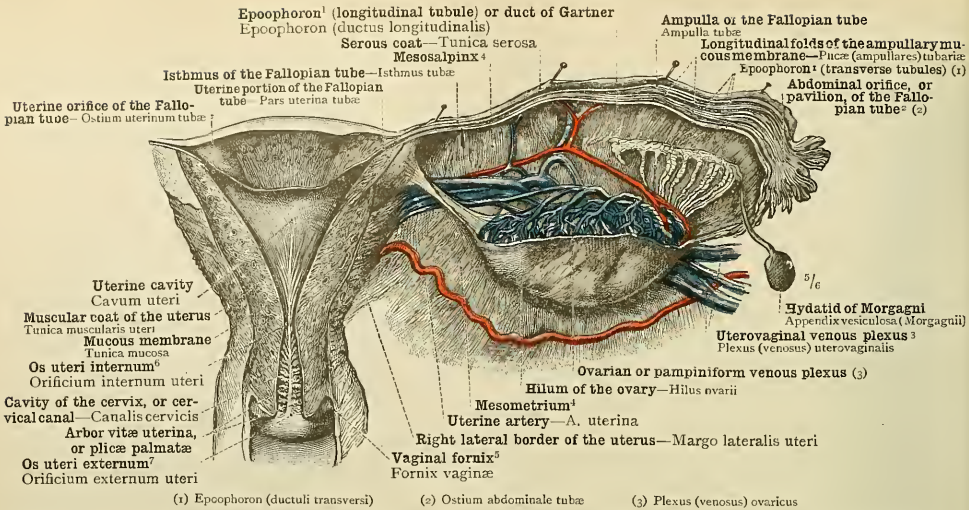


FIG. 875.—THE UTERUS AND THE RIGHT FALLOPIAN TUBE, OPENED FROM BEHIND. EPOOPHORON, PAROVARIIUM, OR ORGAN OF ROSENMÜLLER.

The posterior layer of the broad ligament of the uterus has been removed.

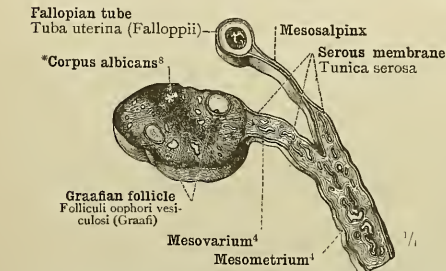


FIG. 876.—LIGAMENTUM LATUM UTERI, THE BROAD LIGAMENT OF THE UTERUS, WITH THE MESOVARIIUM THE MESOSALPINX, THE OVARY, AND THE FALLOPIAN TUBE, IN TRANSVERSE SECTION.

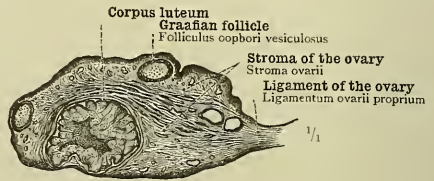


FIG. 877.—LONGITUDINAL SECTION THROUGH THE OVARY.

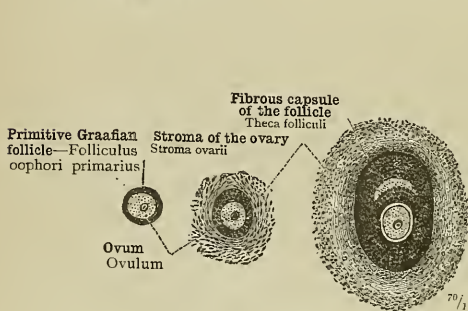


FIG. 878.—STAGES IN THE DEVELOPMENT OF THE PRIMITIVE GRAAFIAN FOLLICLES.

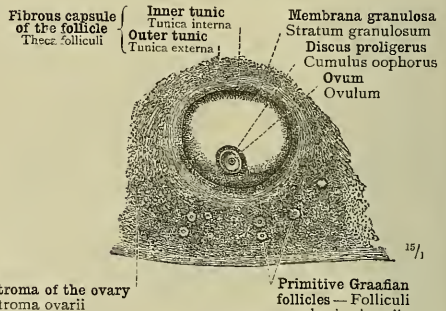


FIG. 879.—GRAAFIAN FOLLICLE, FOLLICULUS OOPHORUS VESICULOSUS, IN SECTION.

<sup>1</sup> The *epoophoron* is also known as the *paroovarium*, or *organ of Rosenmüller*.

<sup>2</sup> See Appendix, note 80.

<sup>3</sup> See Appendix, note 84.

<sup>6</sup> See note 5 to p. 512.

<sup>4</sup> See Appendix, note 82.

<sup>7</sup> See Appendix, note 67.

<sup>5</sup> See Appendix, note 78.

<sup>8</sup> See Appendix, note 83.

Uterus—The uterus.—Tuba uterina—The Fallopian tube.—Ovarium—The ovary.



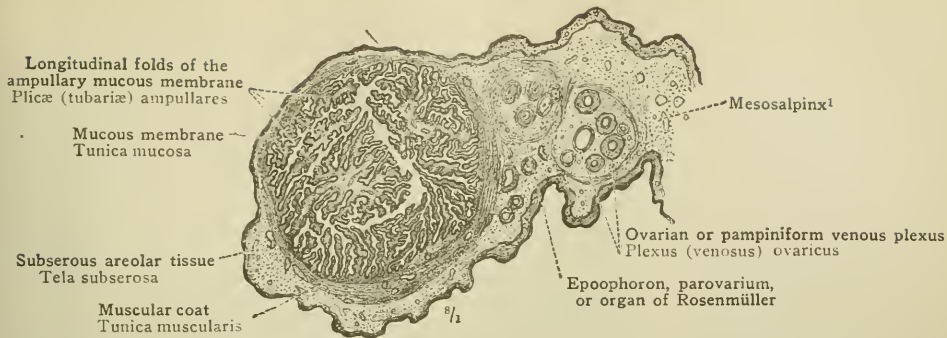
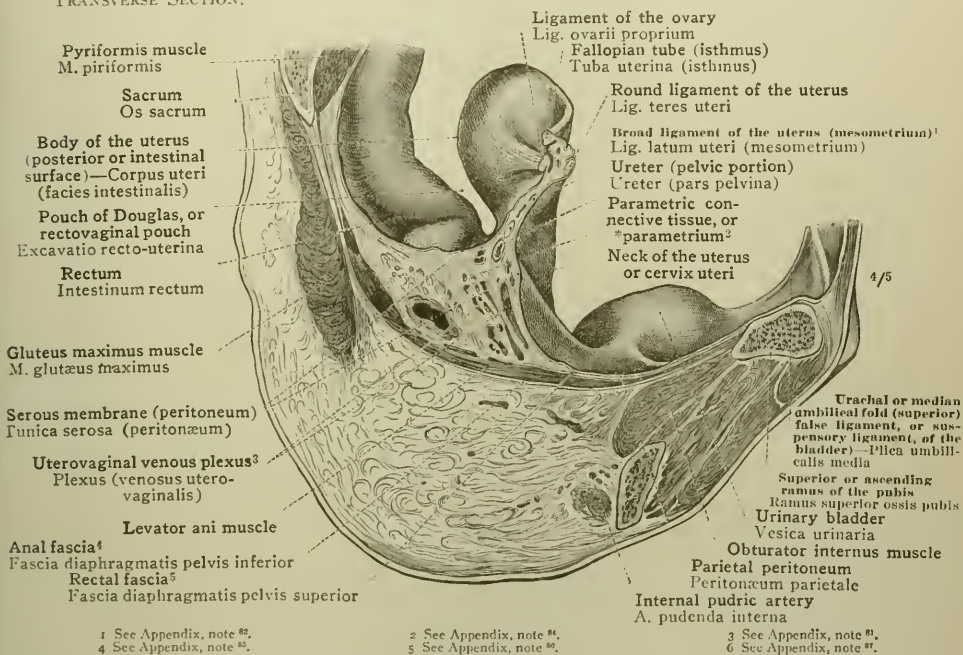


FIG. 880.—AMPULLA TUBE UTERINE, THE AMPULLA OF THE FALLOPIAN TUBE, WITH THE ADJOINING PORTION OF THE MESOSALPINX, AND THE EPOPHORON, PAROVARIUM, OR ORGAN OF ROSENMÜLLER, IN TRANSVERSE SECTION.



1 See Appendix, note 82.  
4 See Appendix, note 82.

2 See Appendix, note 81.  
5 See Appendix, note 81.

3 See Appendix, note 81.  
6 See Appendix, note 87.

FIG. 881.—SAGITTAL SECTION THROUGH THE FEMALE PELVIS, 4 CENTIMETRES (1.576 INCHES) TO THE RIGHT OF THE MEDIAN PLANE. THE SECTION PASSES THROUGH THE RIGHT BROAD LIGAMENT OF THE UTERUS, AND SHOWS THE CONTINUITY OF THE TWO LAYERS OF THIS LIGAMENT WITH THE PARIETAL PERITONEUM OF THE FLOOR OF THE PELVIS. \*PARAMETRIUM, OR PARAMETRIC CONNECTIVE TISSUE (see Appendix, note 81). DIAPHRAGMA PELVIS, THE PELVIC DIAPHRAGM (see Appendix, note 87), WITH ITS SUPERIOR AND INFERIOR FASCIAL LAYERS, AND INFERIOR TO THE LATTER OF THESE THE FATTY TISSUE OF THE ISCHIORECTAL FOSSA. FROM A FROZEN PREPARATION.

The long axis of the uterus in this specimen is vertical, the organ being pathologically retroverted.

Tuba uterina—The Fallopian tube.—Ligamentum latum uteri—The broad ligament of the uterus.

\*Parametrium—The parametric connective tissue.

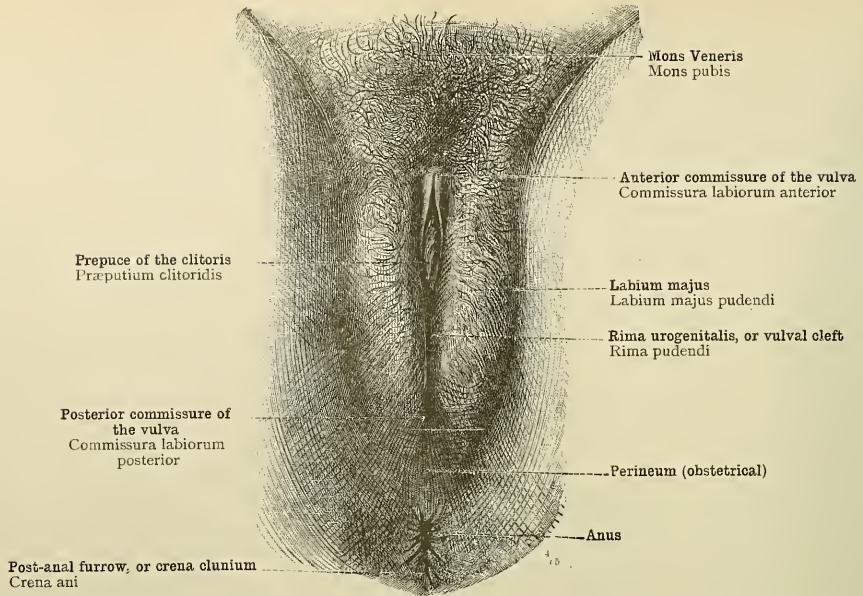
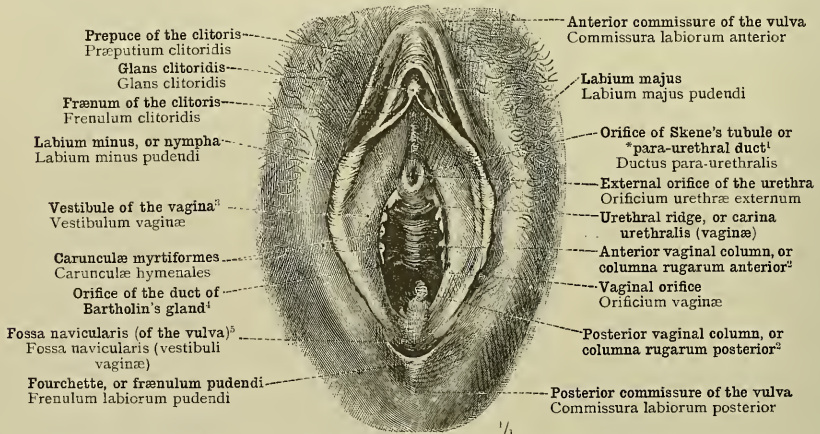


FIG. 882.—PUDENDUM MULIEBRE, THE FEMALE PUDENDUM, OR VULVA, WITH THE LABIA MAJORA. RIMA UROGENITALIS, THE VULVAL CLEFT. FEMALE PERINEUM (OBSTETRICAL PERINEUM). MONS VENERIS, WITH THE PUBIC HAIR.



<sup>1</sup> See Appendix, note 58.

<sup>3</sup> See Appendix, note 89.

<sup>4</sup> *Glandula vestibularis major*, known also as *Duverney's gland* and the *suburethral gland*. (See Appendix, note 64.)

<sup>5</sup> See Appendix, note 90.

<sup>2</sup> *Vaginal columns*, anterior and posterior. These may be either single or double.—Tr.

FIG. 883.—VESTIBULE OF THE VAGINA (see note <sup>3</sup> above) WITH THE LABIA MINORA OR NYMPHÆ, THE VAGINAL AND URETHRAL ORIFICES, AND THE GLANS CLITORIDIS.

The labia majora have been drawn outwards, and the rima urogenitalis, or vulval cleft, has thus been widely opened.

Partes genitales externæ muliebres—The female external genital organs.

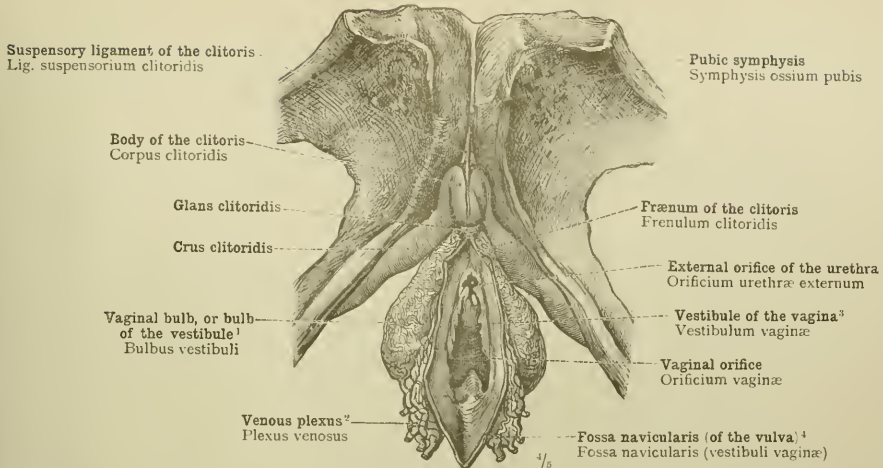


FIG. 884.—THE CLITORIS AND THE VAGINAL BULB OR BULB OF THE VESTIBULE,<sup>1</sup> INJECTED WITH RESIN THROUGH THE VEINS, AND FULLY EXPOSED BY REMOVAL OF THE LABIA MAJORA AND MINORA. SEEN FROM BEFORE AND BELOW.

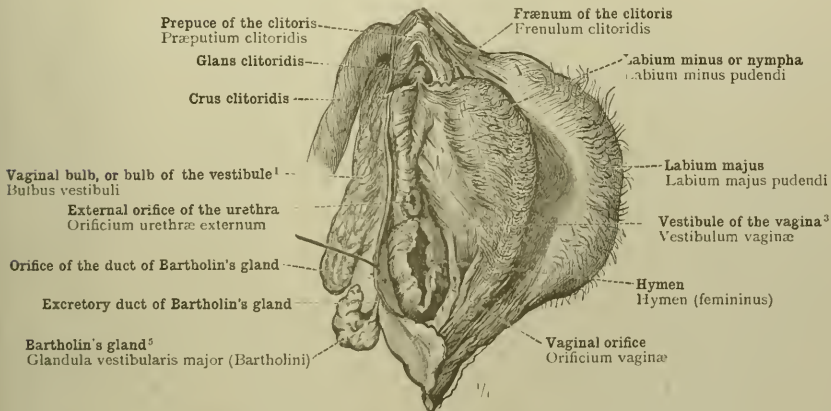


FIG. 885.—FEMALE EXTERNAL GENITAL ORGANS.

The mucous membrane has been removed from the right side of the vestibule<sup>3</sup> and from the vulva area on the right side of the vaginal orifice, and the right labium majus and labium minus have been cut away, to show the relative positions of the crus clitoridis, the vaginal bulb<sup>1</sup> and Bartholin's gland.<sup>5</sup> On the left side the labium majus and labium minus have been drawn outward.

<sup>1</sup> See Appendix, note 91.

See Appendix, note 92.

See Appendix, note 89.

<sup>4</sup> See Appendix, note 90.

<sup>5</sup> Known also as *Duverney's gland* or the *suburethral gland*. (See Appendix, note 91.)

Partes genitales externæ—The female external genital organs.



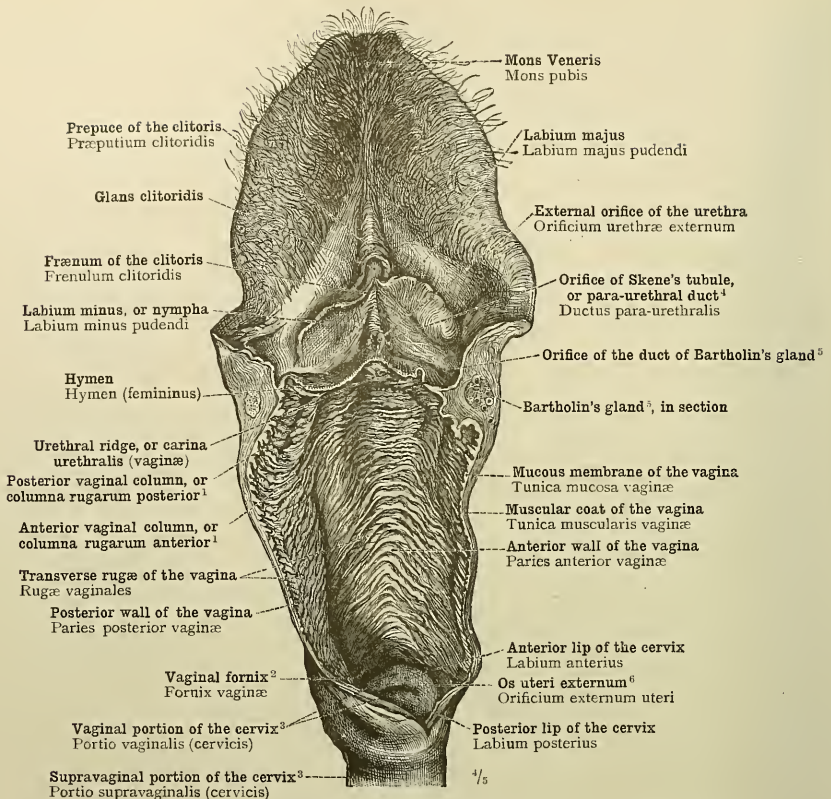
<sup>1</sup> See <sup>2</sup> to p. 514.<sup>2</sup> See Appendix, note 78.<sup>3</sup> See Appendix, note 75.<sup>4</sup> See Appendix, note 88.<sup>5</sup> *Glandula vestibularis major*, known also as *Ducroyn's gland* and the *suburethral gland*. (See Appendix, note 65.)<sup>6</sup> See Appendix, note 97.

FIG. 886.—FEMALE EXTERNAL GENITAL ORGANS OF A VIRGIN, ATTACHED TO THE VAGINA, WHICH HAS BEEN ISOLATED AND OPENED, AND A PORTION OF THE CERVIX UTERI. HYMEN (FEMININUS). THE VAGINAL FORNIX (see Appendix, note 78), WITH THE ANTERIOR AND POSTERIOR LIPS OF THE CERVIX, AND THE OS UTERI EXTERNUM (see Appendix, note 97). THE VAGINAL COLUMNS, COLUMNÆ RUGARUM, AND THE TRANSVERSE RUGÆ OF THE VAGINA, RUGÆ VAGINALES.

The posterior wall of the vagina has been divided longitudinally throughout to the left of the median line, and has been turned to the right. Near the vestibule (see Appendix, note 89) the section passes through the left Bartholin's gland (see note 5 above).

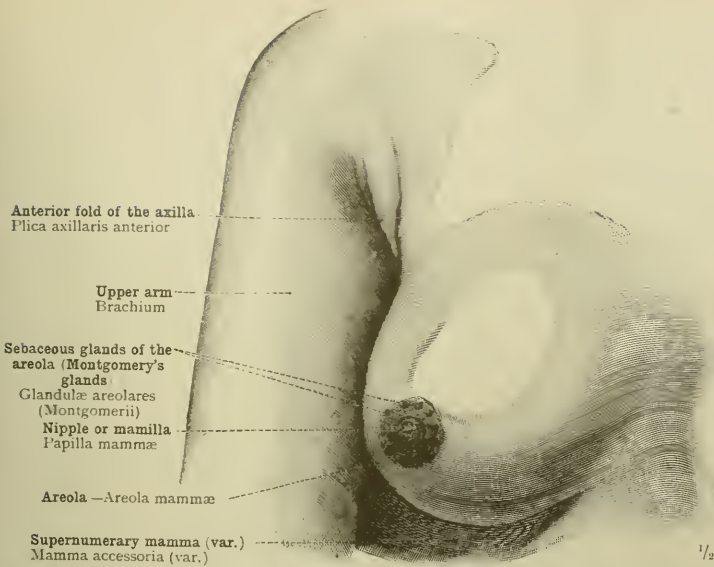


FIG. 887.—MAMMA, THE BREAST, OF A VIRGIN AGED EIGHTEEN YEARS.

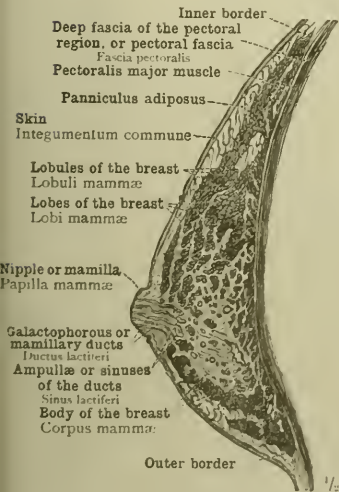


FIG. 888.—HORIZONTAL SECTION THROUGH THE FEMALE BREAST.

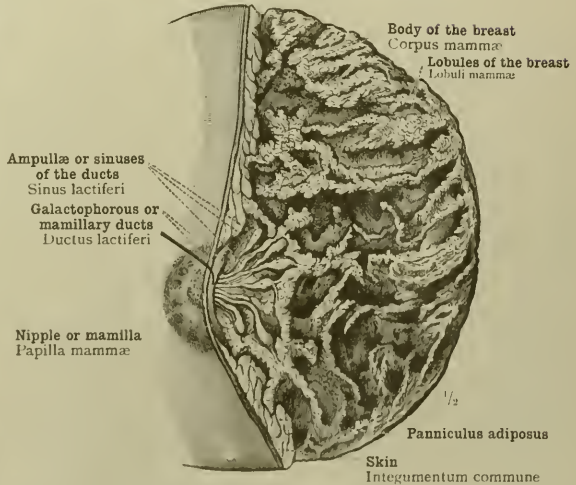


FIG. 889.—BREAST OF A NURSING MOTHER, HARDENED IN STRONG ALCOHOL; FROM ONE HALF OF THE ORGAN THE SKIN AND SUBCUTANEOUS FATTY TISSUE HAVE BEEN REMOVED, AND THE GALACTOPHOROUS OR MAMILLARY DUCTS WITH THEIR SINUSES HAVE BEEN LAID BARE.

Mamma The breast.

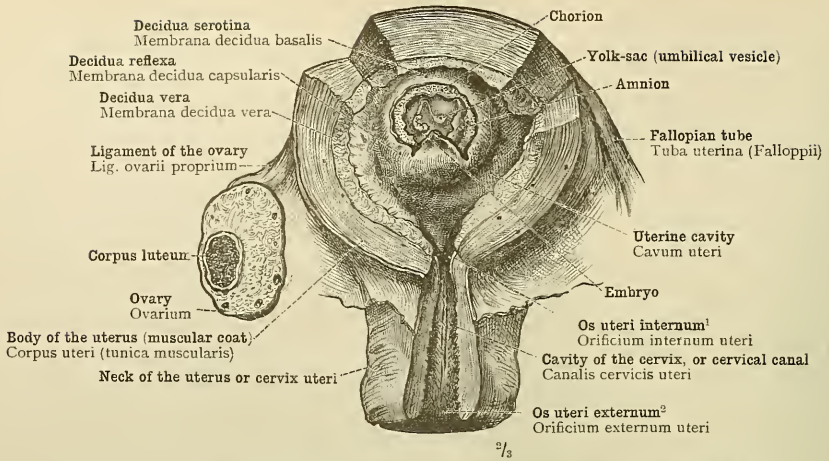


FIG. 890.—UTERUS IN THE FIFTH WEEK OF PREGNANCY, OPENED FROM BEHIND.  
By the removal of parts of the membranes the cavity of the amnion has been opened.

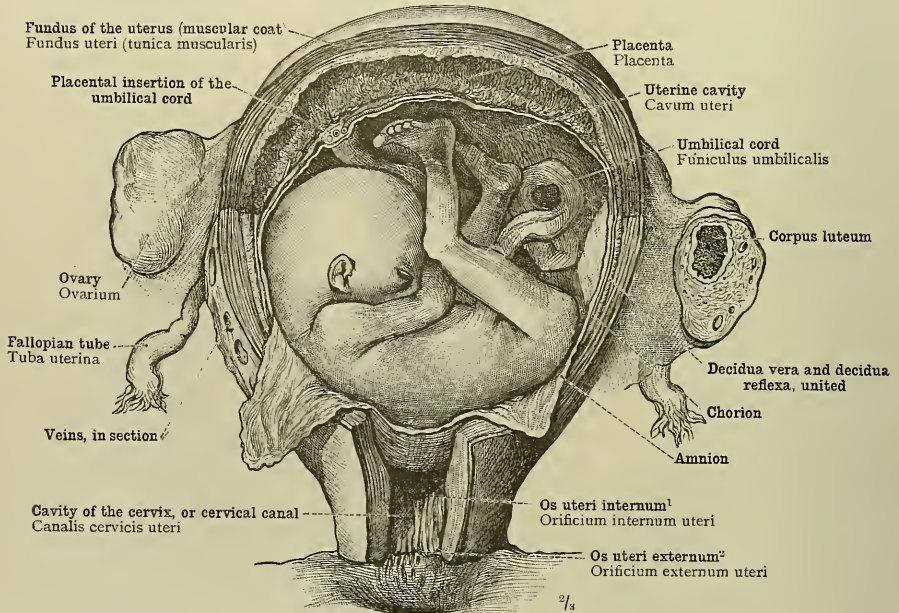


FIG. 891.—UTERUS IN THE SIXTH MONTH OF PREGNANCY (MONTHS OF FOUR WEEKS EACH), OPENED BY THE REMOVAL OF THE POSTERIOR WALL. THE FŒTUS, WITH ITS MEMBRANES, AND THE PLACENTA, IN TRANSVERSE SECTION.

<sup>1</sup> See note 5 to p. 511.

<sup>2</sup> See Appendix, note 67.

Uterus gravidus—The gravid uterus.



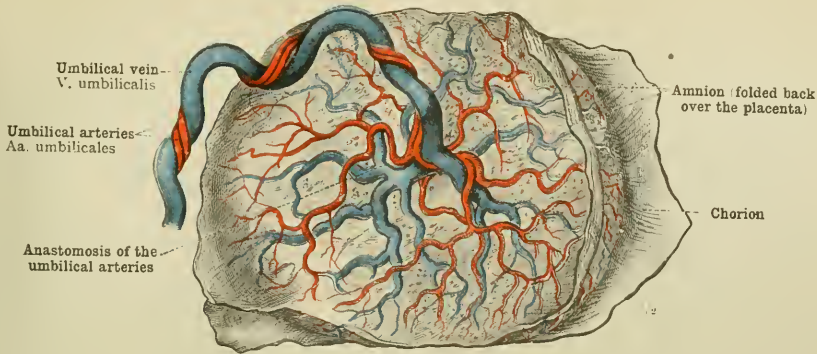


FIG. 892.—INTERNAL OR FETAL SURFACE OF THE PLACENTA AT FULL TERM. The umbilical vessels have been injected.

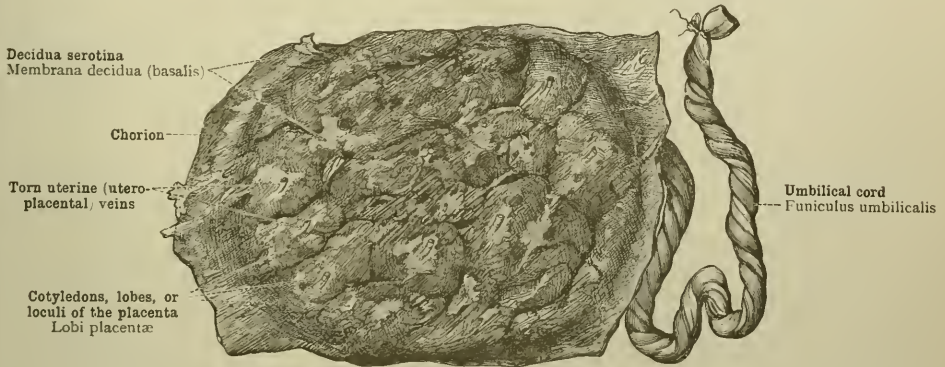
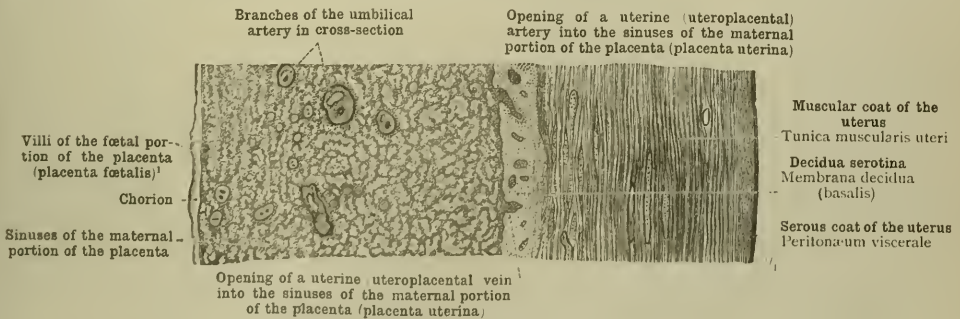


FIG. 893.—EXTERNAL, MATERNAL, OR UTERINE SURFACE OF THE PLACENTA AT FULL TERM, WITH THE UMBILICAL CORD (FUNICULUS UMBILICALIS).



¹ These villi are known indifferently as fetal villi and chorionic villi.

FIG. 894.—UTERUS AND PLACENTA IN TRANSVERSE SECTION. SIXTH MONTH OF PREGNANCY (MONTHS OF FOUR WEEKS EACH).

The Placenta.

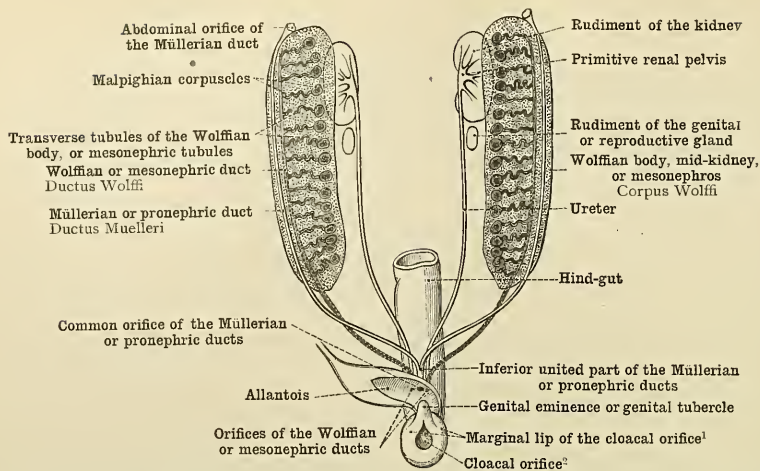


FIG. 895.—DIAGRAMMATIC REPRESENTATION OF THE PRIMITIVE UROGENITAL ORGANS OF THE EMBRYO PRIOR TO SEXUAL DIFFERENTIATION. THE WOLFFIAN BODY (MID-KIDNEY OR MESONEPHROS) WITH THE WOLFFIAN (MESONEPHRIC) AND MÜLLERIAN (PRONEPHRIC) DUCTS.

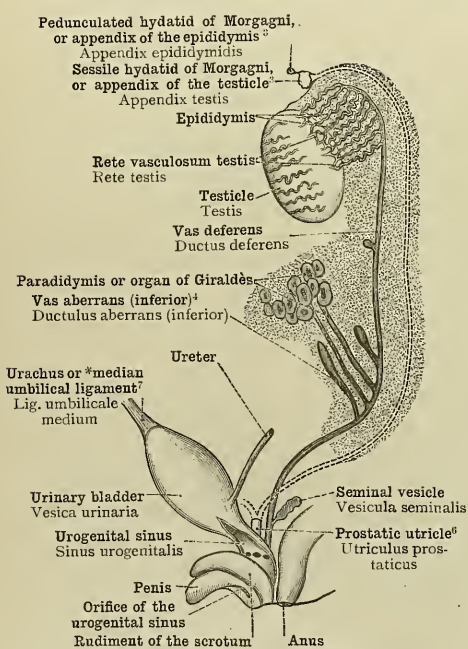


FIG. 896.—DEVELOPMENT OF THE MALE GENITO-URINARY APPARATUS.

<sup>1</sup> See Appendix, note 93.

<sup>2</sup> See Appendix, note 71.

<sup>3</sup> Known also as the *prostatic vesicle*, *prostatic sinus*, *sinus peculiaris*, and *uterus masculinus*.

<sup>4</sup> See Appendix, note 94.

<sup>5</sup> Known also as the *parovarium*, or *organ of Rosenmüller*.

<sup>6</sup> See Appendix, note 69.

<sup>7</sup> See note 3 to p. 367, Part III.

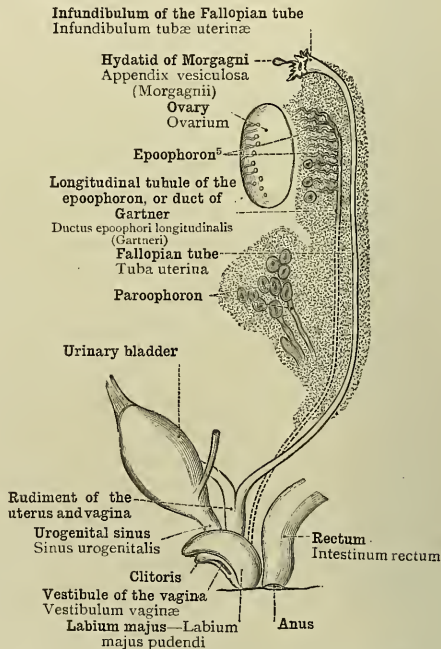


FIG. 897.—DEVELOPMENT OF THE FEMALE GENITO-URINARY APPARATUS.

Diagram showing the Development from a Common Type of the Male and the Female Genito-Urinary Apparatus.

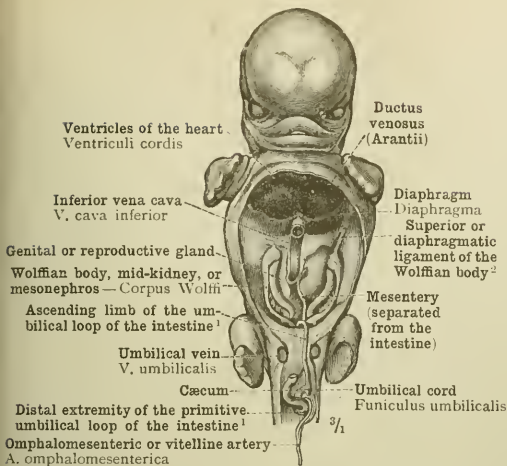


FIG. 898.—HUMAN FETUS AT THE END OF THE SIXTH WEEK. THE GENITAL OR REPRODUCTIVE GLANDS AND THE WOLFFIAN BODIES ARE LAID BARE BY THE REMOVAL OF THE LIVER, THE STOMACH, AND THE DESCENDING LIMB OF THE UMBILICAL LOOP OF THE INTESTINE.<sup>1</sup>

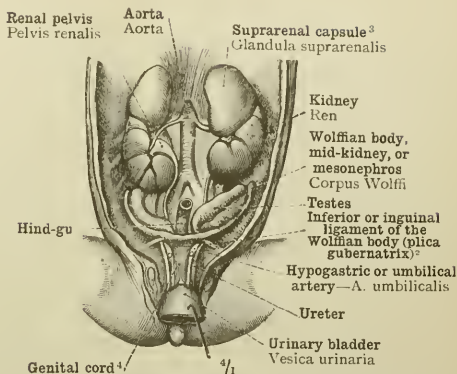


FIG. 899.—GENITO-URINARY ORGANS OF A MALE FETUS AT THE END OF THE TENTH WEEK.

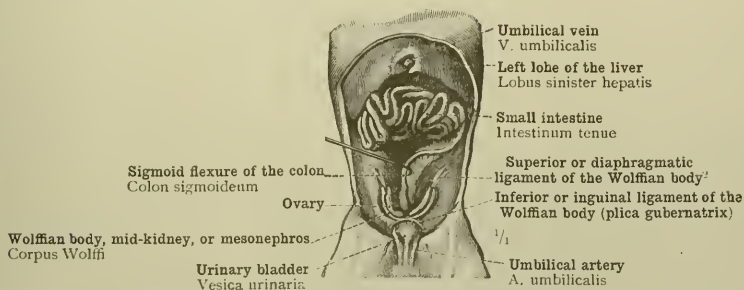


FIG. 900.—ABDOMINAL ORGANS OF A FEMALE FETUS IN THE MIDDLE OF THE FOURTH MONTH (MONTHS OF FOUR WEEKS EACH).

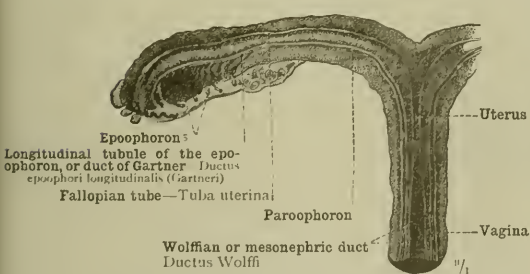


FIG. 901.—UTERUS AND FALLOPIAN TUBE OF A THREE AND A HALF MONTHS FETUS (MONTHS OF FOUR WEEKS EACH), WITH THE WOLFFIAN DUCT.

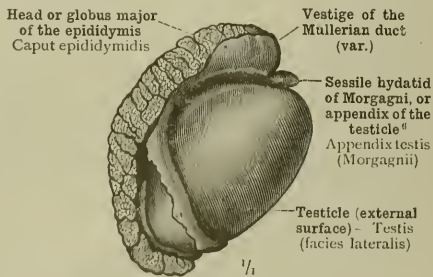


FIG. 902.—TESTICLE OF AN ADULT EXHIBITING A VESTIGE OF THE MÜLLERIAN DUCT.

<sup>1</sup> See note 1 to p. 451.

<sup>2</sup> See Appendix, note 95.  
<sup>3</sup> Known also as the *parovarium* or organ of Rosenmüller.

<sup>4</sup> Called also *suprarenal body*, or *adrenal*.  
<sup>6</sup> See Appendix, note 91.



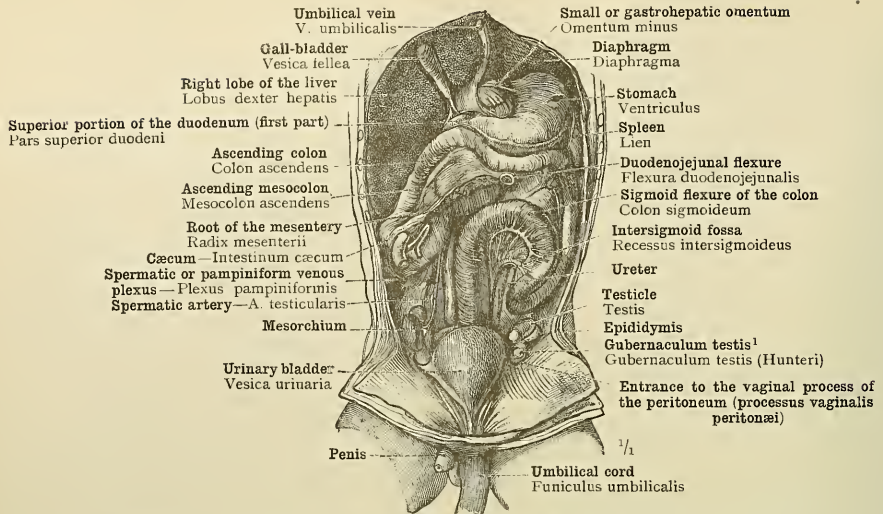


FIG. 903.—ABDOMINAL VISCERA OF A FŒTUS AT THE END OF THE SIXTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 28 CENTIMETRES (11 INCHES).

The small intestine has been cut away, and the liver drawn upwards as far as possible. The testicle and the epididymis are in the inguinal region.

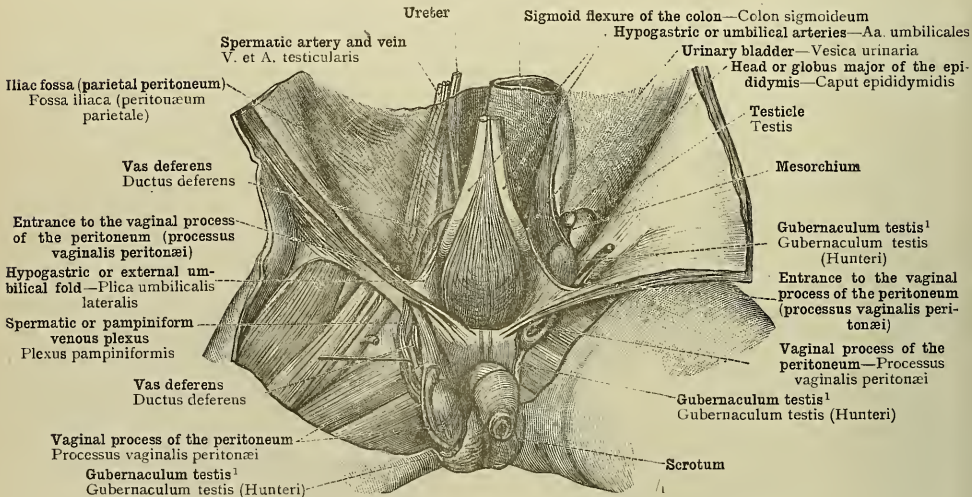


FIG. 904.—PELVIC REGION OF A FŒTUS IN THE MIDDLE OF THE NINTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 42 CENTIMETRES (16½ INCHES).

The anterior abdominal wall has been opened. The right testicle has already descended into the scrotum, whilst the left is still above the entrance to the inguinal canal. On the right side the spermatic or pampiniform venous plexus, which lies behind the vaginal process of the peritoneum, has been separated from this latter and drawn outwards.

<sup>1</sup> See Appendix, note 95.

### Descensus testis—Descent of the testicles.

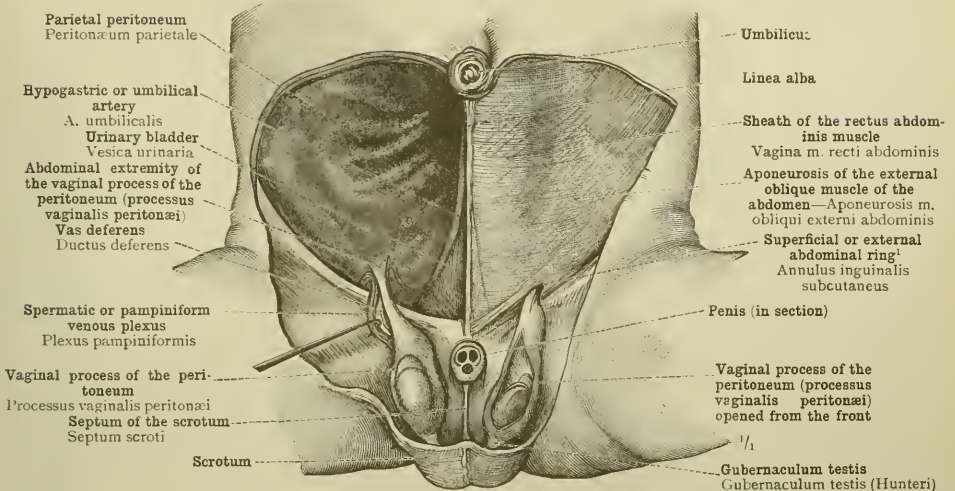


FIG. 905.—ABDOMINAL AND PELVIC REGIONS OF A FETUS IN THE MIDDLE OF THE TENTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 47 CENTIMETRES (18½ INCHES).

Both testicles are in the scrotum; the vaginal process of the peritoneum, processus vaginalis peritonæi, still communicates freely with the abdominal cavity. On the right side of the body, all the layers of the abdominal wall except the parietal peritoneum have been removed; on the left side of the body, the sheath of the rectus abdominis muscle and the aponeurosis of the external oblique muscle of the abdomen with the superficial or external abdominal ring (external inguinal aperture) are displayed. The left vaginal process of the peritoneum has been opened by an incision through its anterior wall.

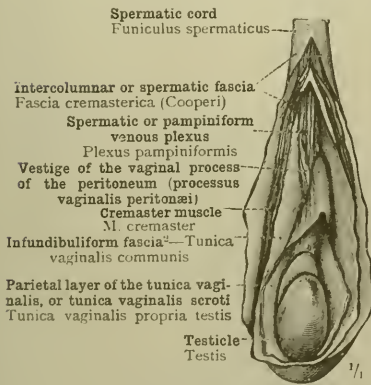


FIG. 906.—THE SPERMATIC CORD OF A BOY AGED TWO MONTHS.

The coverings of the cord and the testicle have been divided to expose these structures. A serous pouch, the vestige of the vaginal process of the peritoneum (processus vaginalis peritonæi), runs up along the cord for more than half an inch.

<sup>1</sup> Or external inguinal aperture.

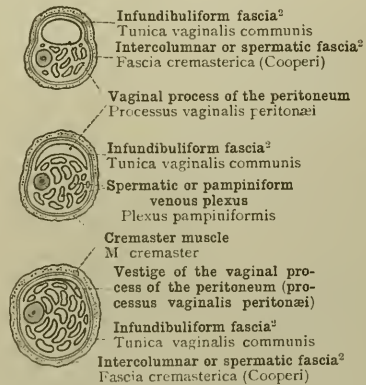


FIG. 907.—DIAGRAMMATIC SECTIONS OF THE SPERMATIC CORD SHOWING THE CLOSURE OF THE VAGINAL PROCESS OF THE PERITONEUM (PROCESSUS VAGINALIS PERITONÆI).

<sup>2</sup> See Appendix, note 68.

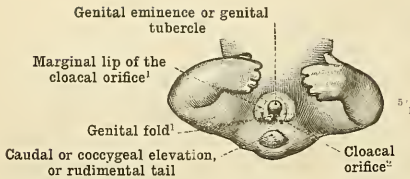


FIG. 908.—EXTERNAL GENITAL ORGANS OF A FŒTUS IN THE SEVENTH WEEK.

The urinary and genital canals unite distally with the alimentary canal to form a common cavity, the cloaca,<sup>2</sup> by which they communicate with the exterior.

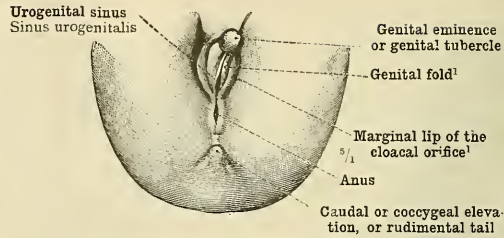


FIG. 909.—EXTERNAL GENITAL ORGANS OF A HUMAN FŒTUS IN THE BEGINNING OF THE THIRD MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 4.5 CENTIMETRES (1.8 INCHES).

The division of the cloaca into a dorsal or anal and a ventral or urogenital part (urogenital sinus) has begun.

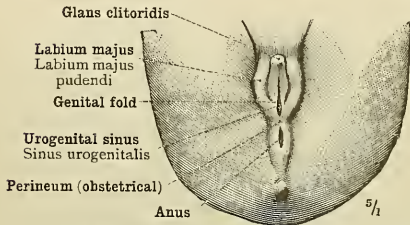


FIG. 910.—EXTERNAL GENITAL ORGANS OF A FEMALE FŒTUS IN THE MIDDLE OF THE THIRD MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 5.6 CENTIMETRES (2.2 INCHES).

The separation of the anus from the urogenital sinus is completed.

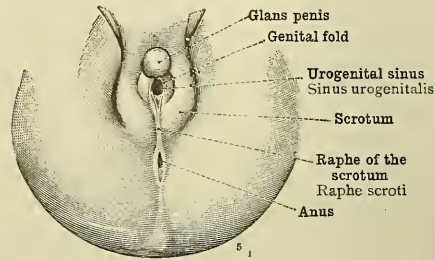


FIG. 911.—EXTERNAL GENITAL ORGANS OF A MALE FŒTUS IN THE BEGINNING OF THE FOURTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 8.1 CENTIMETRES (3.2 INCHES). UNION OF THE GENITAL FOLDS TO FORM THE URETHRA.<sup>1</sup>

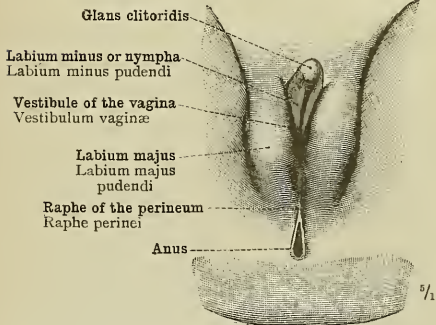


FIG. 912.—EXTERNAL GENITAL ORGANS OF A FEMALE FŒTUS AT THE END OF THE FIFTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 11.5 CENTIMETRES (4.5 INCHES).

<sup>1</sup> See Appendix, note 93.

<sup>2</sup> See Appendix, note 94.

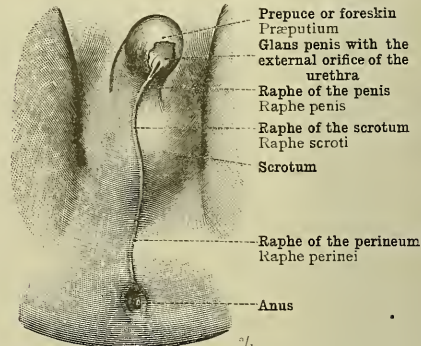


FIG. 913.—EXTERNAL GENITAL ORGANS OF A MALE FŒTUS AT THE END OF THE FIFTH MONTH (MONTHS OF FOUR WEEKS EACH), HAVING A BODY-LENGTH OF 12 CENTIMETRES (4.7 INCHES).

The Development of the External Genital Organs.



THE MUSCLES OF THE PERINEUM  
AND  
THE TOPOGRAPHICAL ANATOMY OF THE  
PELVIC VISCERA

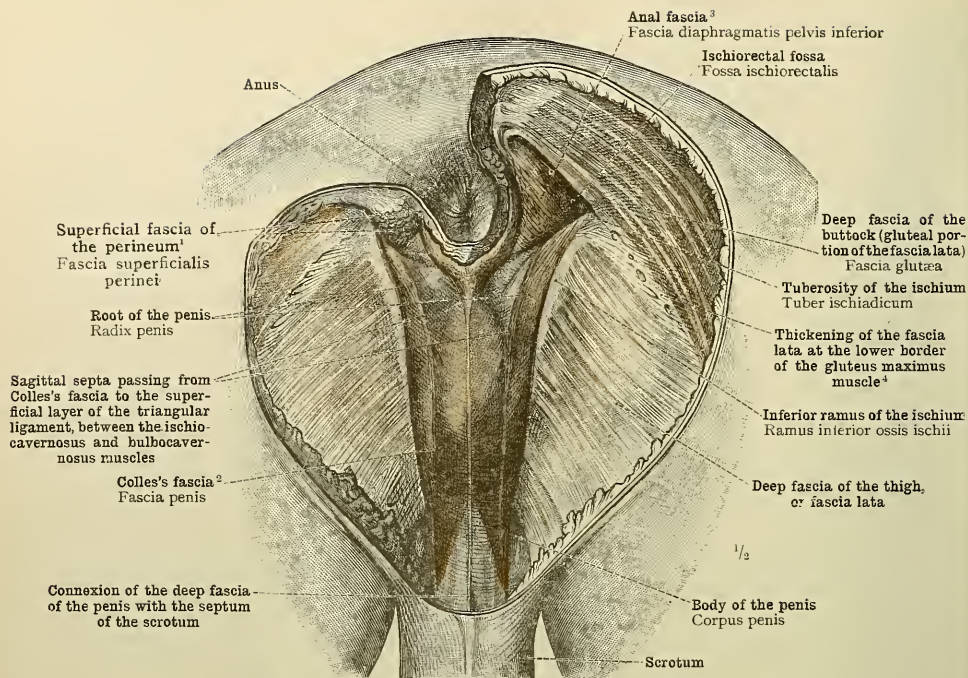


FIG. 914.—THE SUPERFICIAL LAYERS OF THE PERINEAL REGION OF THE MALE.

On the right side of the body, the skin and the superficial fascia<sup>1</sup> having been removed as far back as the posterior limit of the perineal region, the fat has been cleared out of the ischioanal fossa, and the anal fascia covering the inferior surface of the levator ani muscle (fascia diaphragmatis pelvis inferior—see Appendix, notes 85 and 106) has been laid bare. On the left side of the body, in the posterior part of the perineal region, the skin and the superficial fascia have not been entirely removed, and the fat occupying the ischioanal fossa has been left undisturbed.

THE POSTERIOR PART OF THE DEEP FASCIA OF THE PENIS, OR COLLES'S FASCIA,<sup>2</sup> AND ITS CONNEXIONS WITH THE PERIMYSIUM OF THE EXTERNAL OR SUPERFICIAL SPHINCTER OF THE ANUS AND WITH THE SEPTUM OF THE SCROTUM. THE PARTS OF THE DEEP FASCIA OF THE THIGH (FASCIA LATA) ADJOINING THE PERINEUM, INCLUDING THE LOWER PART OF THE DEEP FASCIA OF THE BUTTOCK OR GLUTEAL PORTION OF THE FASCIA LATA.<sup>4</sup>

<sup>1</sup> Sometimes distinguished in England as the *superficial layer* of the superficial fascia, Colles's fascia being then called the *deep layer* of the same. The former is, however, the true superficial fascia, and is continuous with the dartos layer of the scrotum.—Tr.

<sup>2</sup> Colles's Fascia.—This is the posterior part of what is called by the author *fascia penis* (see note 1 to p. 508). Though in fact continuous with the deep fascia of the penis and scrotum, this fascia is in the anterior half of the perineal region (for it does not extend into the posterior half of that region), always distinguished by English anatomists by a separate name. It is usually, and most suitably, known as Colles's fascia, but is sometimes called the *deep layer of the superficial fascia* (see note 1 above), and sometimes the *deep perineal fascia*. The last name should be avoided, since it is liable to cause confusion, having been applied also to the triangular ligament of the urethra.—Tr.

<sup>3</sup> See Appendix, note 85.

<sup>4</sup> The deep fascia of the buttock or gluteal portion of the fascia lata (the fascia glutea of the author) is thick and white where it overlies the gluteus medius in front of the gluteus maximus muscle, representing here an obsolete anterior portion of the latter muscle. At the upper border of the gluteus maximus, it divides into two thin layers to enclose that muscle; and when these reunite at the lower border there is again a thickening, a dense band of transverse fibres being formed. This is perforated a little external to the tuberosity of the ischium, by the inferior or long pudendal branch of the small sciatic nerve; and further out, by the ascending or recurrent gluteal cutaneous branches of the same nerve.—Tr.

Regio perinealis—The perineal region.

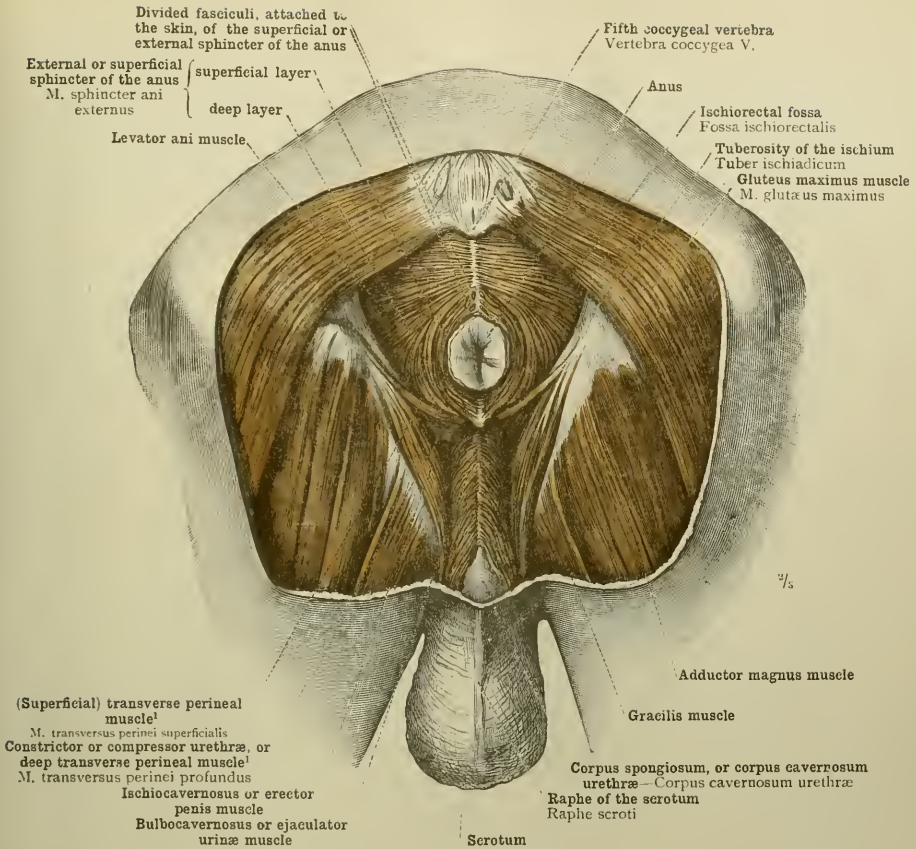


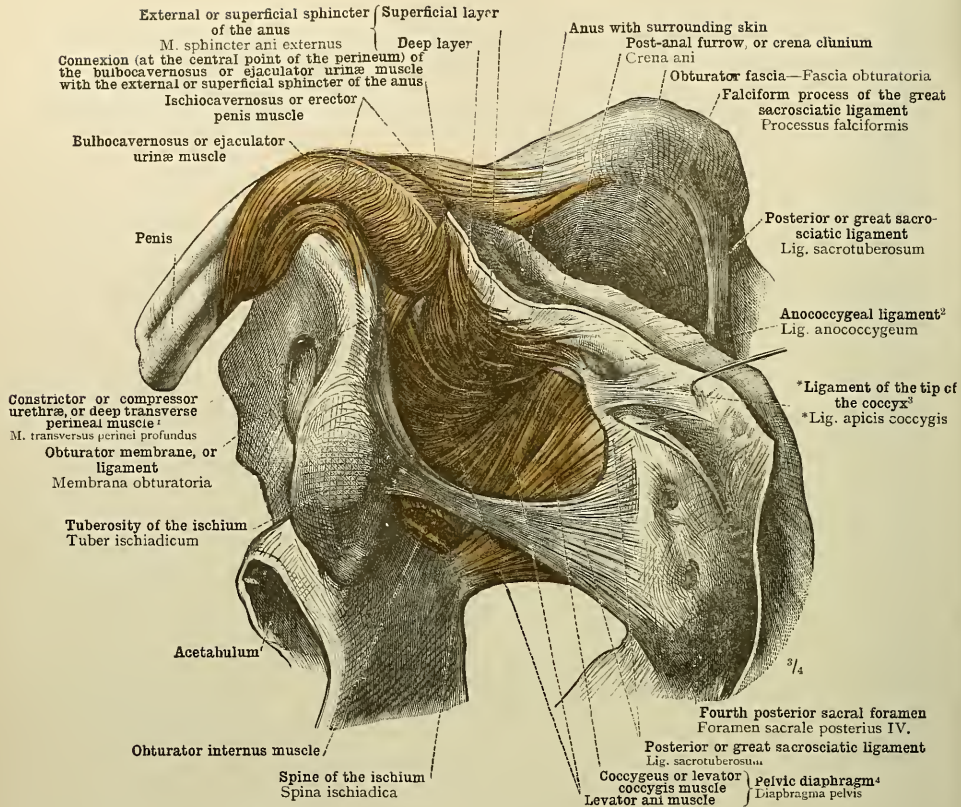
FIG. 915.—THE MUSCLES OF THE PERINEAL REGION OF THE MALE SEEN FROM BELOW AND BEHIND: LEVATOR ANI MUSCLE; MUSCULUS SPHINCTER ANI EXTERNUS, THE EXTERNAL OR SUPERFICIAL SPHINCTER OF THE ANUS; BULBOCAVERNOSUS OR EJACULATOR URINÆ MUSCLE; ISCHIOCAVERNOSUS OR ERECTOR PENIS MUSCLE; MUSCULUS TRANSVERSUS PERINEI SUPERFICIALIS, THE (SUPERFICIAL) TRANSVERSE PERINEAL MUSCLE;<sup>1</sup> MUSCULUS TRANSVERSUS PERINEI PROFUNDUS, THE CONSTRICTOR OR COMPRESSOR URETHRÆ, OR DEEP TRANSVERSE PERINEAL MUSCLE.<sup>1</sup> THE ADJOINING PORTIONS OF THE GLUTEUS MAXIMUS, ADDUCTOR MAGNUS, AND GRACILIS MUSCLES.

Behind the anus, certain fasciculi of the superficial or external sphincter of the anus, attached to the skin and the anocecygeal ligament<sup>2</sup>, have been divided in removing the skin and the ligament; in front of the anus, the fasciculi of the sphincter attached to the integument close to the median line have been left intact with the part of the superficial fascia in which they are inserted (the central point of the perineum of English anatomists).

<sup>1</sup> Todd calls the constrictor or compressor urethrae muscle of English anatomists the *transversus perinei profundus* (the deep transverse perineal muscle), in contradistinction to the *transversus perinei superficialis* or *superficial transverse perineal muscle*. In England, however, the latter muscle is commonly spoken of as the *transversus perinei* muscle without qualification; whilst the hindmost, transverse fibres of the constrictor or compressor urethrae are occasionally distinguished as the *transversus perinei profundus* muscle.—Tr.

<sup>2</sup> *Ligamentum anocecygeum* the *anocecygeal ligament*, is a firm band of areolar tissue stretching in the median line from the tip of the coccyx to the skin of the hinder angle of the anus. It gives origin on each side to the fibres of the superficial or external sphincter of the anus.—Tr.





<sup>1</sup> See note <sup>1</sup> to p. 527.

<sup>2</sup> See note <sup>2</sup> to p. 527.

<sup>3</sup> *Ligamentum Apicis Coccygis*.—"From the tip of the coccyx," writes Quain ("Anatomy," 10th ed., vol. ii., part ii., p. 178), "a fibrous band passes to the integument, which is often, especially in the infant, marked by a depression (*foveola coccygea*) at this spot." This is the ligament shown in the accompanying figure, and called by Tollet the *Ligament of the tip of the coccyx*.—Tr.

<sup>4</sup> See Appendix, note <sup>2</sup>.

FIG. 916.—THE MUSCLES OF THE PERINEAL REGION OF THE MALE SEEN FROM THE LEFT SIDE. LEVATOR ANI, AND COCCYGEUS OR LEVATOR COCCYGIS MUSCLES, FORMING THE PELVIC DIAPHRAGM.

The skin surrounding the anus, and covering the coccyx and the lower part of the sacrum, has been drawn away from the tissues beneath, in order to display the radiation to the skin of fasciculi of the external or superficial sphincter of the anus (*musculus sphincter ani externus*). A portion of the posterior or great sacrosciatic ligament has been removed, in order to display somewhat more fully the inferior surface of the coccygeus or levator coccygis muscle.

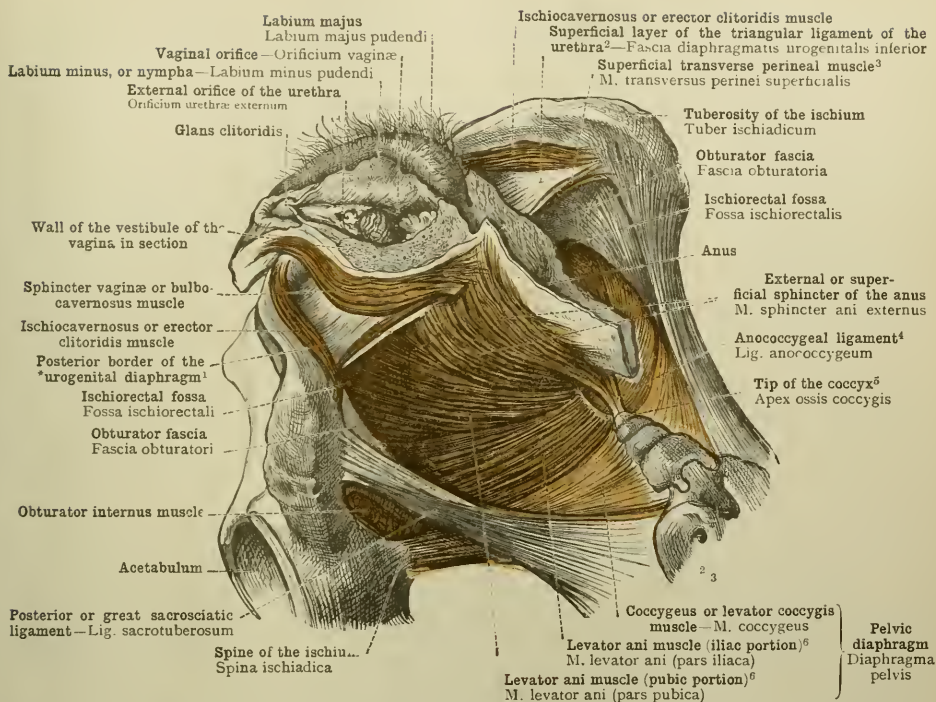


FIG. 917.—THE MUSCLES OF THE PERINEAL REGION OF THE FEMALE SEEN FROM THE LEFT SIDE. OF THE EXTERNAL GENITAL ORGANS, THE LABIUM MAJUS AND THE LABIUM MINUS OR NYMPHA HAVE BEEN REMOVED ON THE LEFT SIDE. LEVATOR ANI AND COCCYGEUS OR LEVATOR COCCYGIS MUSCLES, FORMING THE PELVIC DIAPHRAGM.

<sup>1</sup> That is, the connected posterior borders of the superficial and deep layers of the triangular ligament of the urethra (see Appendix, note 99).—Tr.

<sup>2</sup> Known also as the anterior or inferior layer of the triangular ligament (see Appendix, note 99).

<sup>3</sup> See note <sup>1</sup> to p. 527.

<sup>4</sup> See note <sup>2</sup> to p. 527.

<sup>5</sup> *Apex Ossis Coccygis*.—In the first part of this work (p. 32), I gave *extremity of the coccyx* as the English equivalent of this Latin term. The *apex*, however, has two extremities, and for this reason the expression *tip of the coccyx*, which, though somewhat colloquial, is employed by most anatomists, to designate the inferior extremity of the coccyx, is to be preferred. Macalister, like Toldt, speaks of the *apex of the coccyx*, a term that would be more suitable if the coccyx were more distinctly triangular in form.—Tr.

<sup>6</sup> *Parts of the Levator Ani Muscle*.—The levator ani muscle is divided into two parts by a cleft beginning just below the obturator canal. The anterior portion only is directly connected with the rectum; it springs from the pubis and adjoining part of the fascial origin (i.e., the *transversus perinei superficialis* muscle—see Appendix, note 99); it is called by Toldt the *pubic portion of the levator ani muscle*, and by Savage the *pubococcygeus muscle*. The posterior portion arises from the white line of the pelvic fascia behind the obturator canal and from the spine of the ischium; it is called by Toldt the *iliac portion of the levator ani muscle*, by Henle the *ischio-coccygeus muscle*, and by Savage the *obturatococcygeus muscle*.—Tr.



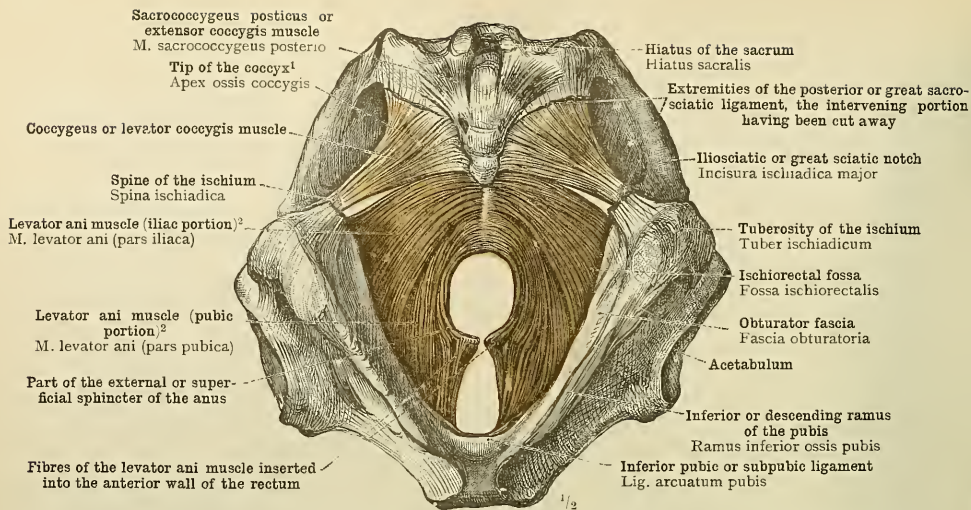


FIG. 918.—LEVATOR ANI AND COCCYGEUS OR LEVATOR COCCYGIS MUSCLES, SEEN FROM BELOW.

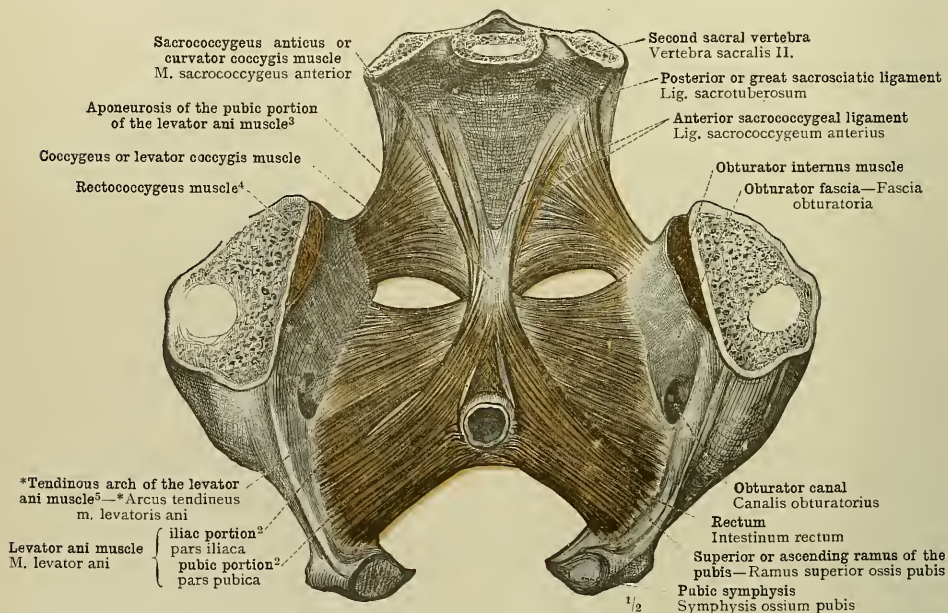


FIG. 919.—LEVATOR ANI AND COCCYGEUS OR LEVATOR COCCYGIS MUSCLES, SEEN FROM ABOVE.

After division of the pubic symphysis, the innominate bones have been drawn apart

<sup>1</sup> See note 5 to p. 529.

<sup>2</sup> See note 6 to p. 529.

<sup>3</sup> Or aponeurosis of the pubococcygeus muscle. See note 6 to p. 529.

<sup>4</sup> See Appendix, note 9<sup>o</sup>.

<sup>5</sup> See Appendix, note 9<sup>o</sup>.



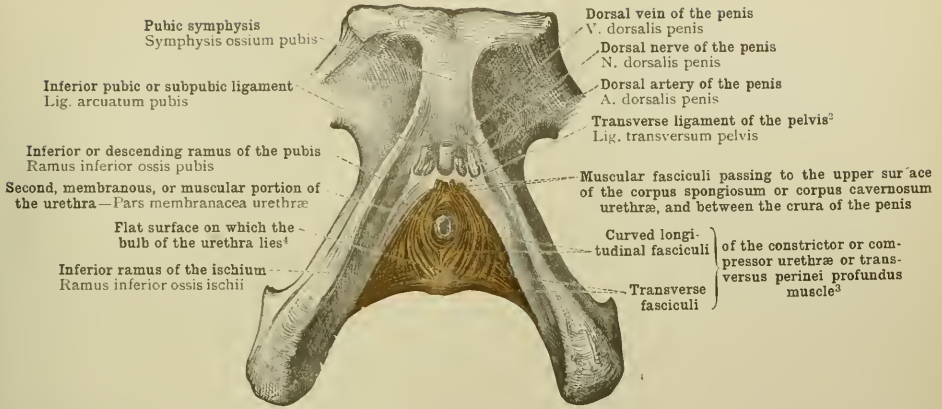


FIG. 920.—CONSTRICTOR OR COMPRESSOR URETHRAE OR TRANSVERSUS PERINEI PROFUNDUS MUSCLE<sup>3</sup> OF THE MALE, FORMING THE MUSCULAR PART OF THE \*UROGENITAL DIAPHRAGM.<sup>1</sup> SEEN FROM BEFORE AND BELOW.

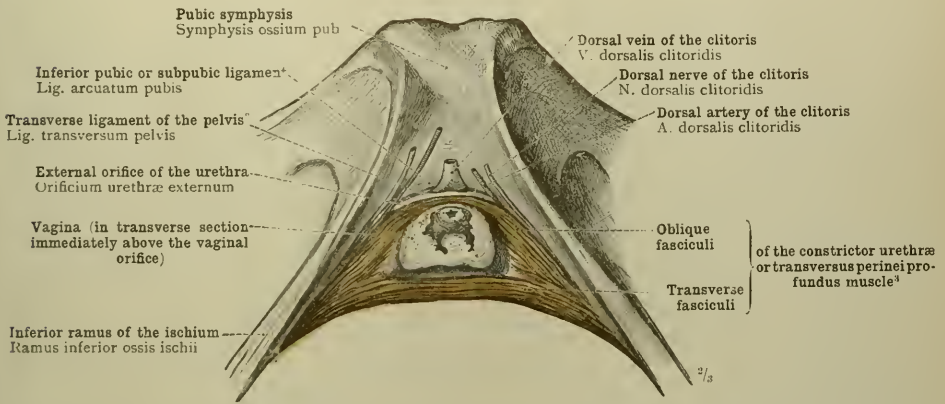


FIG. 921.—CONSTRICTOR URETHRAE OR TRANSVERSUS PERINEI PROFUNDUS MUSCLE<sup>3</sup> OF THE FEMALE, FORMING THE MUSCULAR PART OF THE \*UROGENITAL DIAPHRAGM.<sup>1</sup> SEEN FROM BEFORE AND BELOW.

<sup>1</sup> See Appendix, note <sup>2</sup>.

<sup>2</sup> See Appendix, note <sup>3</sup>.

<sup>3</sup> See Appendix, note <sup>4</sup>.

<sup>4</sup> The superficial layer of the triangular ligament, of course, intervening.—*Tr.*

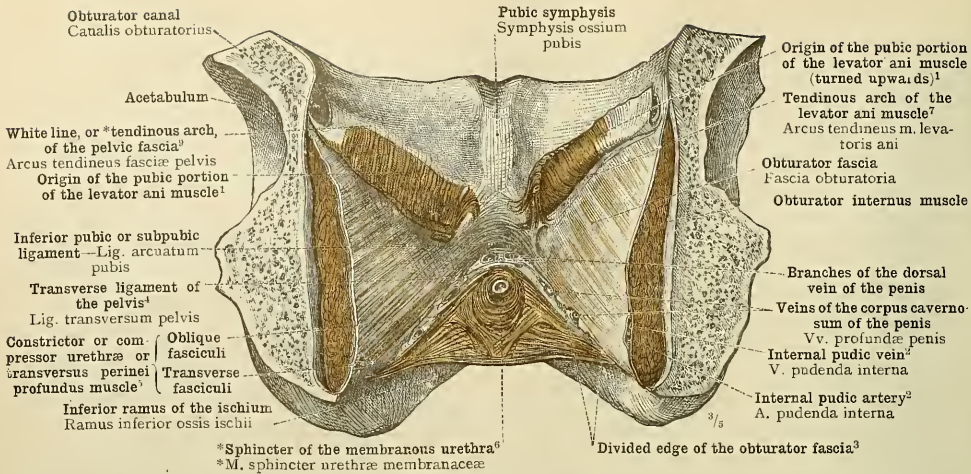


FIG. 922.—CONSTRUCTOR OR COMPRESSOR URETHRÆ OR TRANSVERSUS PERINEI PROFUNDUS MUSCLE<sup>5</sup> OF THE MALE, FORMING THE MUSCULAR PART OF THE \*UROGENITAL DIAPHRAGM.<sup>3</sup> SEEN FROM BEHIND AND ABOVE. ORIGIN OF THE PUBIC PORTION OF THE LEVATOR ANI MUSCLE.<sup>1</sup>

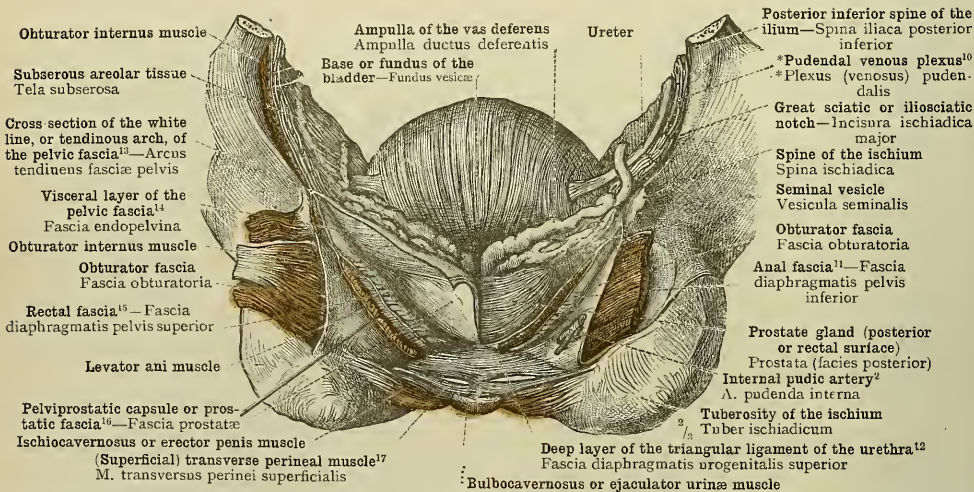


FIG. 923.—THE POSITION OF THE SEMINAL VESICLE AND OF THE AMPULLA OF THE VAS DEFERENS IN RELATION TO THE BASE OR FUNDUS OF THE BLADDER AND TO THE PROSTATE GLAND. FASCIE OF THE PELVIC OUTLET. SEEN FROM BEHIND.

The levator ani has been divided coronally. The pelvicoprostatic capsule or prostatic fascia<sup>16</sup> has on the right side been completely removed; on the left side, its upper part, extending over the seminal vesicle, has been detached from that organ, and turned backwards.

<sup>1</sup> See note <sup>6</sup> to p. 520.

<sup>5</sup> See Appendix, note 101.

<sup>9</sup> See Appendix, note 59.

<sup>13</sup> See Appendix, note 59.

<sup>2</sup> See Appendix, note 102.

<sup>6</sup> See Appendix, note 104.

<sup>10</sup> See Appendix, note 105.

<sup>14</sup> See Appendix, note 106.

<sup>3</sup> See Appendix, note 103.

<sup>7</sup> See Appendix, note 98.

<sup>11</sup> See Appendix, notes 85 and 87.

<sup>15</sup> See Appendix, notes 86 and 87.

<sup>4</sup> See Appendix, note 100.

<sup>8</sup> See Appendix, note 99.

<sup>12</sup> See Appendix, note 99.

<sup>16</sup> See Appendix, note 74.

<sup>17</sup> See note <sup>1</sup> to p. 527.



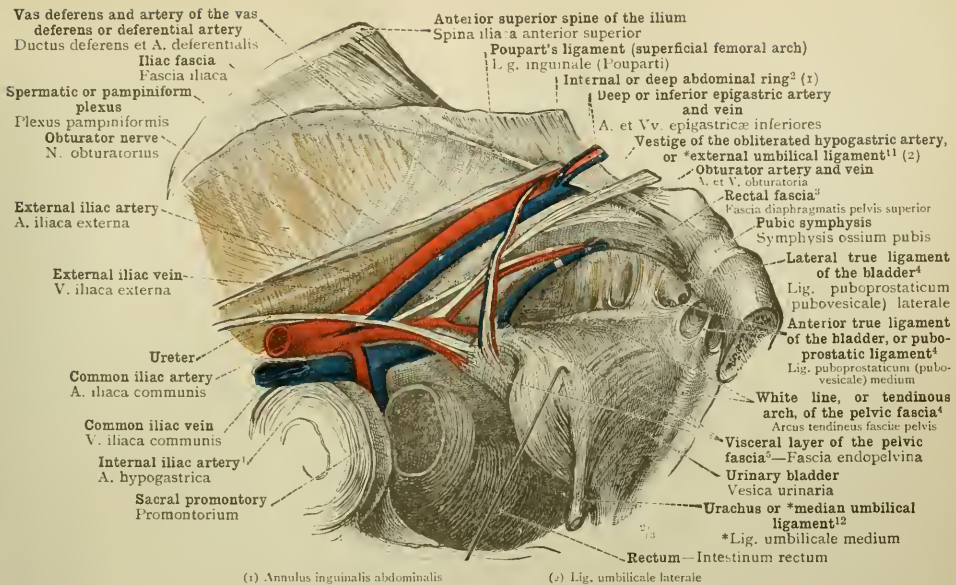


FIG. 924.—FASCIA ENDOPELVINA, THE VISCERAL LAYER OF THE PELVIC FASCIA (see Appendix, note 106), WITH THE ARCUS TENDINEUS FASCIAE PELVIS, THE WHITE LINE OR TENDINOUS ARCH OF THE PELVIC FASCIA (see Appendix, note 50). THE POSITION OF THE VESSELS AND NERVES AT THE UPPER PART OF THE LATERAL WALL OF THE PELVIS, SEEN OBLIQUELY FROM ABOVE AND WITHIN.

The urinary bladder has been drawn away from the wall of the pelvis as far as possible in a backward and downward direction.

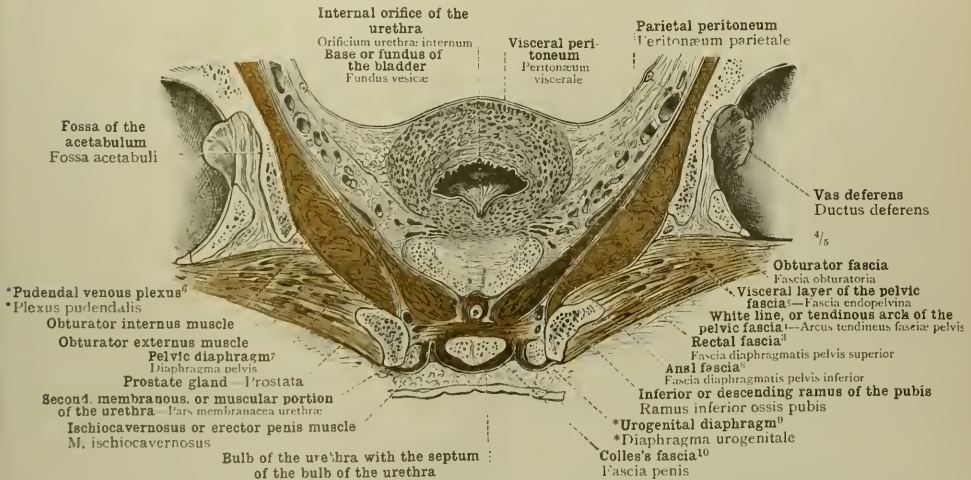


FIG. 925.—CORONAL SECTION THROUGH THE MALE PELVIS IN THE PLANE OF THE INTERNAL ORIFICE OF THE URETHRA. FASCIA ENDOPELVINA, THE VISCERAL LAYER OF THE PELVIC FASCIA (see Appendix, note 106); FASCIA DIAPHRAGMATICIS PELVIS SUPERIOR, THE RECTAL FASCIA (see Appendix, notes 89, 87, 106); AND THE UPPER PART OF THE OBTURATOR FASCIA—AS CONSTITUENT PARTS OF THE PELVIC FASCIA. SEEN FROM BEFORE.

The urinary bladder is in a state of almost complete contraction.

1 See Appendix, note 17.  
4 See Appendix, note 99.  
7 See Appendix, note 97.  
10 See note 2 to p. 26.

2 Called also the internal inguinal aperture.  
5 See Appendix, note 106.  
8 See Appendix, notes 86, 87.  
11 See note 4 to p. 387 in Part III.

3 See Appendix, notes 86, 87, 106.  
6 See Appendix, note 105.  
9 See Appendix, note 99.  
12 See note 3 to p. 387 in Part III.



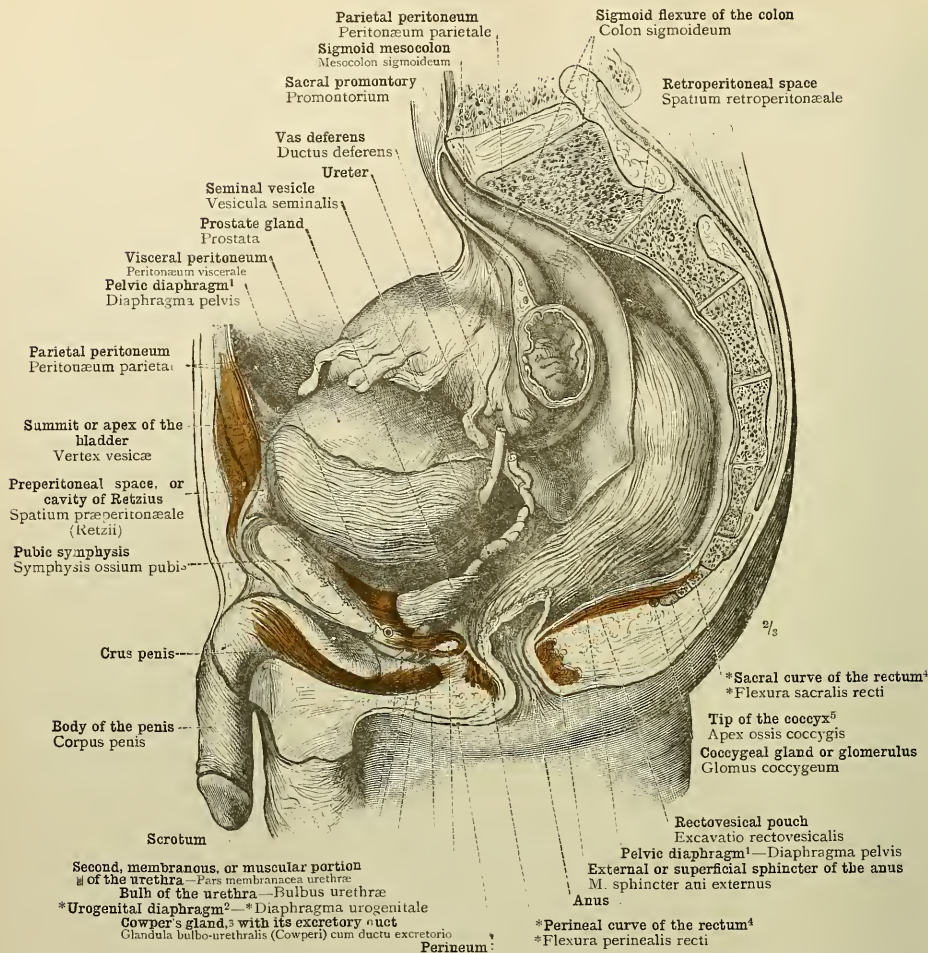


FIG. 926.—POSITION OF THE PELVIC VISCERA IN THE MALE AND THEIR RELATIONS TO THE MUSCLES OF THE PELVIC OUTLET (OR PERINEAL MUSCLES), SHOWN IN THE RIGHT HALF OF THE PELVIS, SEEN FROM THE LEFT SIDE.

The urinary bladder is fully distended, the rectum nearly empty.

<sup>1</sup> See Appendix, note 97.

<sup>2</sup> See Appendix, note 99.

<sup>3</sup> Known also as the *suburethral gland*.

<sup>4</sup> *Curves of the Rectum*.—“The rectum follows the posterior wall of the pelvis, in a curve the concavity of which is directed forward, as far as the tip of the coccyx, and thence, still continuing the same curve, runs forwards along the upper surface of the posterior part of the pelvic diaphragm; then, bending downwards and a little backwards at an angle slightly more obtuse than a right angle, it perforates that diaphragm in a direction perpendicular to its plane to form the anal canal. In this course the rectum describes two curves; a larger, with the concavity directed forwards, *flexura sacralis*; and a smaller, with the concavity directed backwards, *flexura perinealis*” (Von Langer and Toldt’s “Anatomy,” 7th ed., pp. 446, 447). In choosing English equivalents for these terms (which are not to be found in the works of Quain and Macalister), I have preferred to speak of the *sacral* and *perineal curves of the rectum*, for the reason that the former, at any rate, is too prolonged and too open a bend to be appropriately termed a flexure.—R.

<sup>5</sup> See note 5 to p. 529.

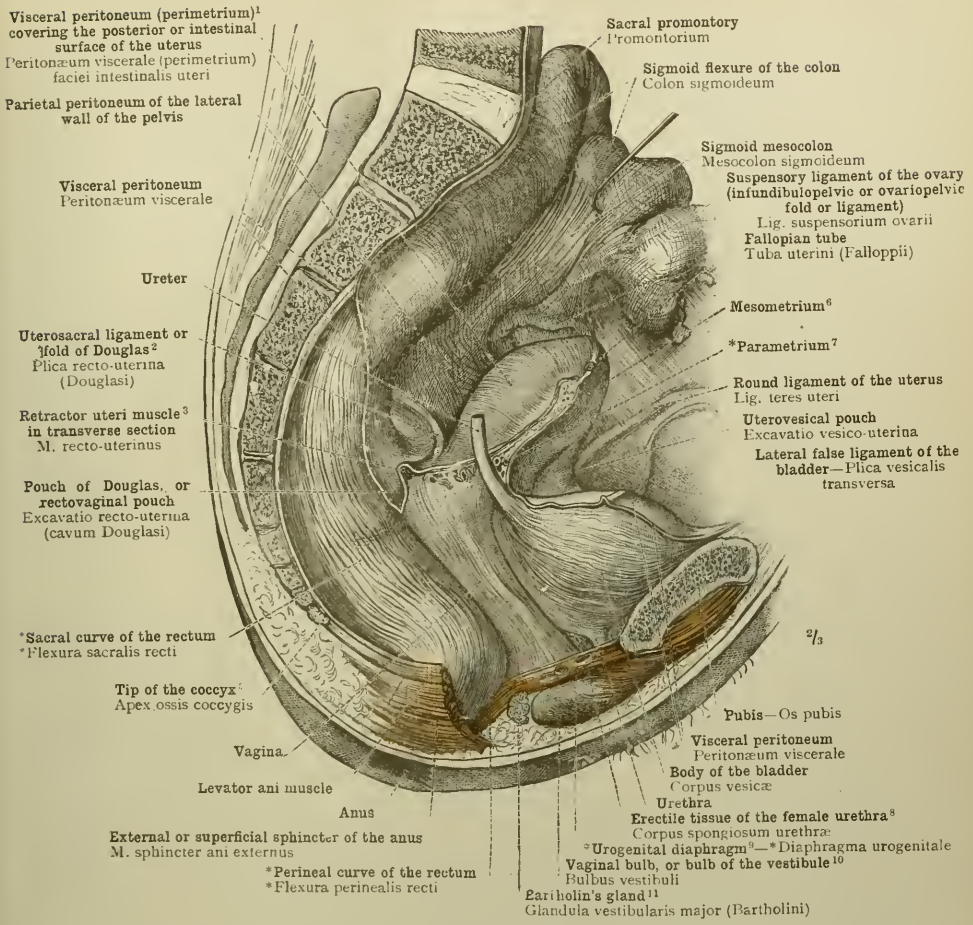


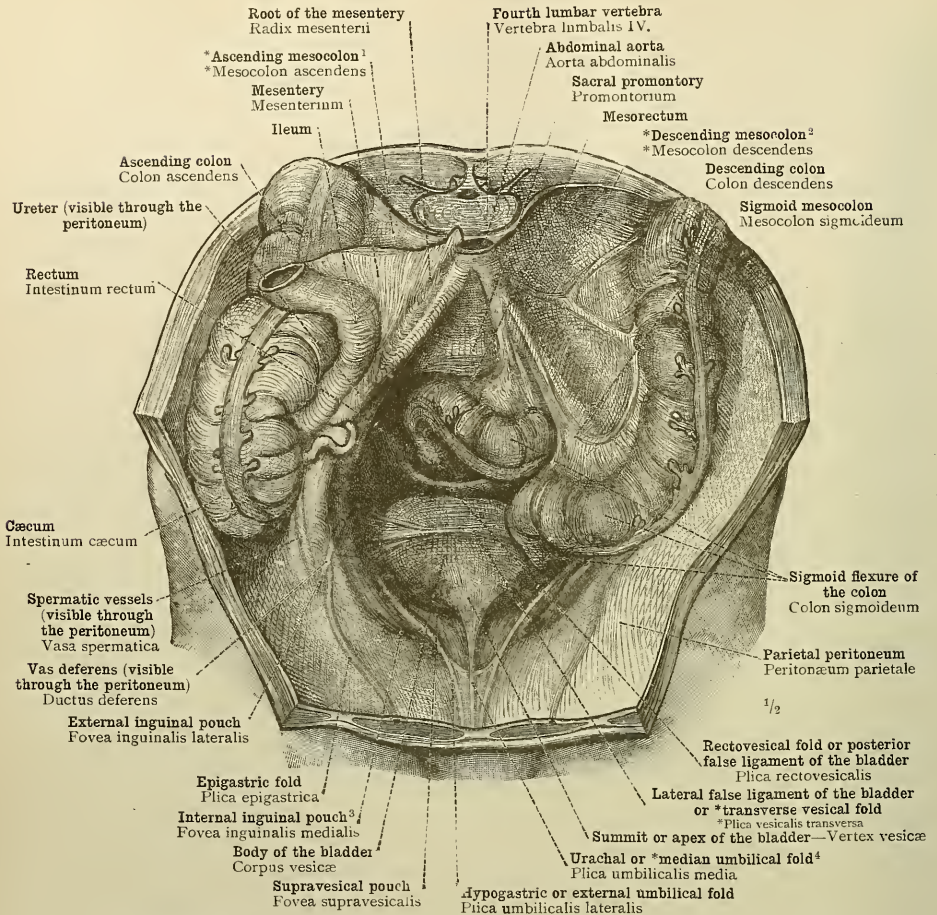
FIG. 927.—POSITION OF THE PELVIC VISCERA IN THE FEMALE, AND THEIR RELATIONS TO THE MUSCLES OF THE PELVIC OUTLET (OR PERINEAL MUSCLES), SHOWN IN THE LEFT HALF OF THE PELVIS, SEEN FROM THE RIGHT SIDE. THE \*PARAMETRIUM (see Appendix, note 84).

The urinary bladder and the rectum are nearly empty. The sigmoid flexure of the colon has been drawn up out of Douglas's pouch, and the right broad ligament of the uterus, the right Fallopian tube, the right ovary, and the right round ligament of the uterus, have been cut away together by a sagittal section passing close to the body of the uterus. The connexion of the two layers of the broad ligament of the uterus with the parietal peritoneum of the floor of the pelvis is seen, also the reflection of the visceral peritoneum covering the uterus (*perimetrium*—see note 1 above) on to the wall of the bladder in front and the wall of the rectum behind.

Topographical Anatomy of the Pelvic Viscera.

<sup>1</sup> *Perimetrium*.—This name, for the peritoneal coat of the uterus, is rarely employed by English anatomists. Clinically, however, the derivative term *perimetritis* is in frequent use.—1k.  
<sup>2</sup> Known also as the *recto-uterine fold of ligament*. See note 3 to p. 516.  
<sup>3</sup> Quain mentions the presence in the *Fold of Douglas* of some non-striped muscular fibres, but leaves them unnamed. Macalister, however, calls them the *retractores uteri*.—1k.  
<sup>4</sup> See note 4 to p. 534.  
<sup>5</sup> See note 5 to p. 529.  
<sup>6</sup> See Appendix, note 84.  
<sup>7</sup> See Appendix, note 108.  
<sup>8</sup> See Appendix, note 99.  
<sup>9</sup> See Appendix, note 99.  
<sup>10</sup> See Appendix, note 99.  
<sup>11</sup> Known also as *Ducroix's gland* or the *suburethral gland*. See Appendix, note 99.





<sup>1</sup> See Appendix, note 39.

<sup>3</sup> By some authorities the space between the *urachal fold* and the *hypogastric fold* (called here *supravescical pouch*) is named the *internal inguinal pouch*, and the space between the *hypogastric fold* and the *epigastric fold* (called here *internal inguinal pouch*) is named the *middle inguinal pouch*. The author's nomenclature is to be preferred.—T.

<sup>4</sup> Often called the *superior false ligament of the bladder*, and sometimes the *suspensory ligament of the bladder*.

FIG. 928.—VIEW FROM ABOVE AND BEFORE OF THE PELVIC VISCERA OF THE MALE *IN SITU* AND COVERED BY THE PERITONEUM: THE BODY AND THE SUMMIT OR APEX OF THE BLADDER AND THE UPPERMOST PORTION OF THE RECTUM. THE POSITION OF THE CÆCUM AND OF THE SIGMOID FLEXURE OF THE COLON. THE RELATIONS OF THE PERITONEUM IN THE PELVIC CAVITY AND ON THE ADJOINING PORTION OF THE ANTERIOR WALL OF THE ABDOMEN: PLICA UMBILICALIS MEDIA, THE URACHAL OR \*MEDIAN UMBILICAL FOLD (see note <sup>4</sup> above); PLICA UMBILICALIS LATERALIS, THE HYPogastric or \*EXTERNAL UMBILICAL FOLD; PLICA VESICALIS TRANSVERSA, THE LATERAL FALSE LIGAMENT OF THE BLADDER OR \*TRANSVERSE VESICAL FOLD; PLICA RECTOVESICALIS, THE RECTOVESICAL FOLD OR POSTERIOR FALSE LIGAMENT OF THE BLADDER. THROUGH THE PERITONEUM, THE FOLLOWING STRUCTURES ARE VISIBLE: THE EPIGASTRIC ARTERY, THE URETER, THE VAS DEFERENS, AND THE SPERMATIC VESSELS.



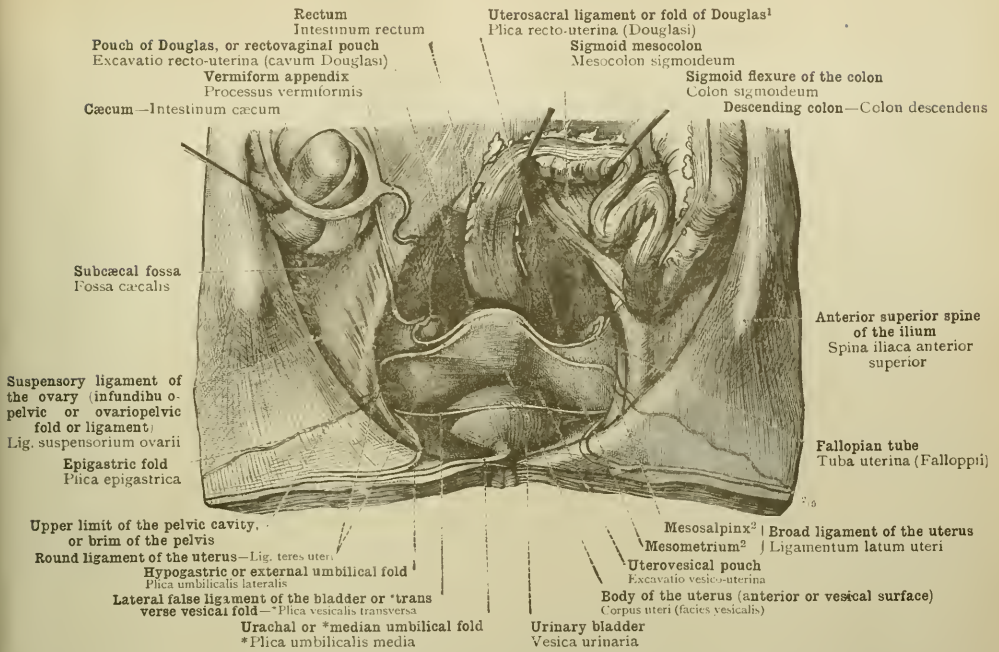


FIG. 929.—PELVIC VISCERA OF A FEMALE AGED TWENTY-NINE YEARS, SEEN FROM ABOVE AND BEFORE.

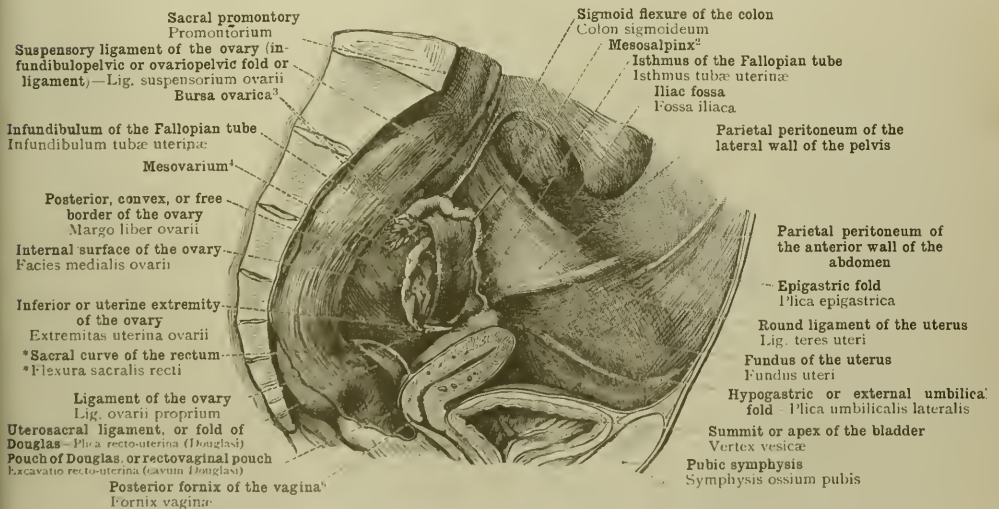


FIG. 930.—POSITION OF THE OVARY IN RELATION TO THE LATERAL WALL OF THE PELVIS.

The Fallopian tube has been drawn upwards, and the cavity of the bursa ovarica (see Appendix, note 7) has thus been obliterated.

<sup>1</sup> Known also as the *recto-uterine fold or ligament*. See note 3 to p. 510.

<sup>3</sup> See Appendix, note 9.

<sup>4</sup> See Appendix, note 2.

<sup>5</sup> See note 4 to p. 534.

<sup>2</sup> See Appendix, note 82.

<sup>6</sup> See Appendix, note 28.

<sup>7</sup> Often called the *superior false ligament of the bladder*, and sometimes the *suspensory ligament of the bladder*.

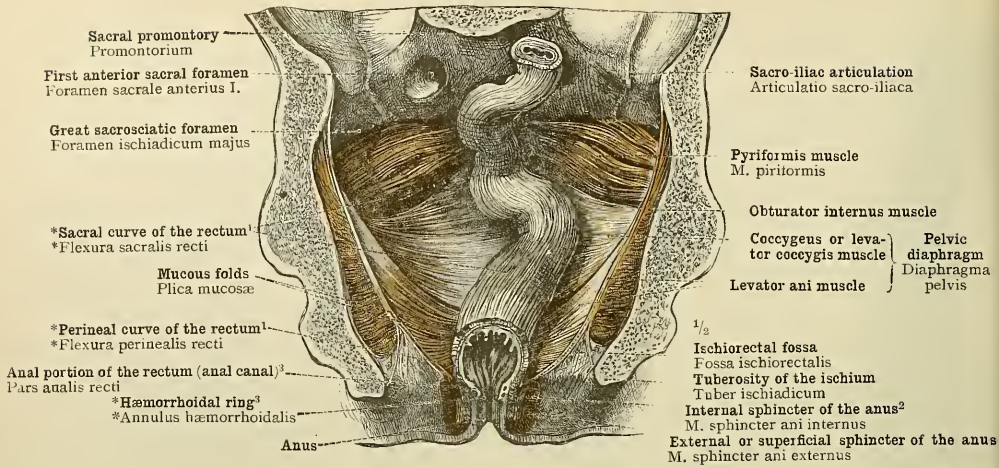


FIG. 931.—POSITION AND FORM OF THE EMPTY AND CONTRACTED RECTUM AS SEEN IN A CORONAL SECTION THROUGH THE PELVIS OF A FROZEN BODY. SEEN FROM BEFORE.

The inferior extremity of the rectum is opened by a section passing obliquely downwards and backwards. After removing the peritoneum and the great vessels, the muscles of the pelvis have been exposed.

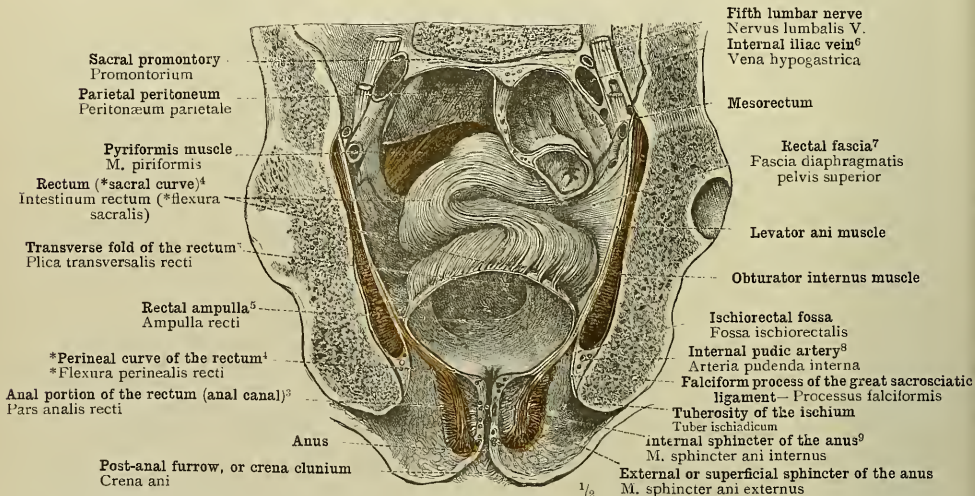


FIG. 932.—POSITION AND FORM OF THE RECTUM WHEN GREATLY DISTENDED WITH FÆCES, AS SEEN IN A CORONAL SECTION THROUGH THE PELVIS OF A FROZEN BODY. SEEN FROM BEFORE.

In the region of the first and second sacral vertebrae, the peritoneum and the mesorectum have been left intact; in the lower part of the pelvis, the pelvic fascia is laid bare. The inferior extremity of the rectum has been opened as in the previous figure.

<sup>1</sup> See note 4 to p. 534.

<sup>2</sup> Known also as the *deep* or *circular sphincter of the anus*.

<sup>3</sup> See Appendix, note 12.

<sup>4</sup> See note 4 to p. 534.

<sup>5</sup> See Appendix, note 109.

<sup>6</sup> See Appendix, note 127.

<sup>7</sup> See Appendix, notes 86, 87, and 106.

<sup>8</sup> See Appendix, note 110.

<sup>9</sup> Known also as the *deep* or *circular sphincter of the anus*.

# APPENDIX TO PART IV.

## NOTES BY TRANSLATOR

<sup>1</sup> *Lingual Duct* (Fig. 675, p. 420).—According to His, the foramen cæcum indicates the position of the epithelial outgrowth from which the middle portion of the thyroid body has been formed. As in course of development the thyroid body becomes more remote from the tongue, a long, slender tube, connecting it with that organ, persists, the *thyroglossal duct* or *tubotracheal tube*. The upper part of this tube may remain pervious as a canal leading from the foramen cæcum towards the hyoid bone. This is known as the *lingual duct*. (His, "Der Tractus Thyroglossus und seine Beziehungen zum Zungenbein," *Archiv. für Anatomie*, 1891. But see also Kanchack's views in his article on "The Thyroglossal Duct," *Journal of Anatomy and Physiology*, 1891.)

<sup>2</sup> *Periglottis* (Fig. 675, p. 420).—This somewhat inappropriate name is given by Macalister to the structure shown in the figure, a tough, elastic, areolar and fatty mass, which intervenes between the front of the epiglottis and the back of the thyrohyoid membrane. It was at one time, but erroneously, called the *epiglottic gland*. The middle portion of the upper border of the periglottis is elastic, and constitutes the *hyo epiglottic ligament*. Still higher, a median sagittally placed fold attaches it to the base of the tongue, and it is the mucous membrane covering this fold that forms the *median glosso epiglottic fold*, or *frænum epiglottidis*. (See Fig. 673, p. 419.)

<sup>3</sup> *Sublingual Ducts* (Fig. 687, p. 424).—I have preferred in the text the names of *greater sublingual duct* and *lesser sublingual ducts* for the excretory ducts of the sublingual gland, for the reason that the other names used by English anatomists to denote these structures are applied in a somewhat conflicting manner. Quain terms the *lesser ducts*, six to twenty in number, the *ducts of Rivinus*. They open separately in a row along the sublingual fold; the foremost of their number, however, usually terminates in the duct of Wharton. The long slender duct (proceeding, according to Toldt, from the *anterior lobe* of the gland) which runs parallel with the duct of Wharton, called in the text *greater sublingual duct*, may join the duct of Wharton near its anterior extremity, but more commonly has an independent orifice beside that duct on the submaxillary papilla. To this duct Quain gives the name of *duct of Bartholin*. Macalister, on the other hand, calls the lesser ducts the *ducts of Walther*, and to the greater duct (which he describes as proceeding from the *posterior lobe* of the sublingual gland, and therefore nearly an inch in length) he gives the name of *duct of Rivini*. Macalister's authority notwithstanding, this duct is far more often spoken of as the *duct of Bartholin*.

<sup>4</sup> *Note on the Anatomy of the Lateral Wall of the Naso-pharynx* (Fig. 710, p. 436).—The pharyngeal orifice of the Eustachian tube is bounded in front by a small fold passing to the soft palate, the *salpingopalatine fold*; and below the orifice of the tube is to be seen a *mucæ* or less prominent swelling over the fibres of the levator palati muscle, the so-called *levator prominens* [or *levator cushion*, according to Quain]. From the lower end of the cushion of the Eustachian orifice (which bounds that orifice above and behind) a vertical fold of mucous membrane, the *salpingopharyngeal fold*, extends downwards, and is lost below in the lateral wall of the pharynx" (Von Langer and Toldt's "Anatomy," p. 301).

"The posterior extremity of the outer wall of the nasal fossa consists of a shallow vertical furrow, the *posterior nasal sulcus*, immediately behind the posterior extremities of the middle and inferior turbinate bones. This is situated over the hinder part of the vertical plate of the palate bone and the internal pterygoid plate, and represents the *nasopharyngeal meatus* of lower mammals" (*op. cit.*, p. 297). "The part of the inferior meatus which lies behind the incisor canal, together with the space immediately behind the posterior end of the superior and middle turbinals as far back as the orifice of the Eustachian tube, belongs to the primitive buccal cavity of the fetus, having become separated from the permanent mouth by the growth of the palate. It is known as the *nasopharyngeal part* (*ductus nasopharyngeus*), and its mucous membrane is marked off behind from that of the pharynx by a prominence which is termed the *nasopharyngeal fold*" (Quain's "Anatomy," 10th ed., vol. iii., part iii., p. 138).

<sup>5</sup> (Fig. 711, p. 438.) "Two lateral bands (*ligaments of Helvetius*), mostly of connective tissue, but containing a few muscular fibres belonging to the longitudinal layer, produce the sacculation of the antrum pylori" (Macalister's "Anatomy," pp. 396, 397).

<sup>6</sup> *Superior and Inferior Flexure of the Duodenum* (Ibid.).—These flexures are not named by Quain or Macalister. The *superior flexure* is between the *superior* and the *descending portion* of the duodenum; and the *inferior flexure* is between the *descending* and the *transverse portion* of the duodenum. (See note <sup>7</sup> below.)

<sup>7</sup> (Ibid.) The *duodenum* was formerly described as consisting of three portions: *first*, or *superior*; *second*, or *middle*; and *third*, or *inferior*. The first two parts of the old description are now usually called *superior* and *descending* portions, respectively; while the third or inferior part of the old description has been divided into two, called respectively *transverse* and *ascending* portions.

<sup>8</sup> (Fig. 712, p. 438.) Though the author uses the term *valvula pylori*, there is at the pylorus no valve, properly so called, and I have therefore avoided using that term in the translation.

<sup>9</sup> *Diverticulum Duodenale (Valeri)* (Figs. 718, 719, p. 440).—This so-called diverticulum is a sac-like dilatation of the extremity of the united common bile-duct and pancreatic duct, or duct of Wirsung, as it passes obliquely through the duodenal wall. The dilatation is so frequently met with that it can hardly be regarded as pathological. The vertical fold covering the diverticulum is called by Macalister *caruncula major*, and the smaller vertical fold beneath the orifice of the diverticulum, *frænum caruncule*. See Macalister, *op. cit.*, pp. 402 and 412, and Quain, *op. cit.*, vol. iii., part iv., p. 142.

<sup>10</sup> (Fig. 719, p. 440.) The author regards the folds in the duodenal diverticulum as valvular in nature, their function being to prevent the entrance of intestinal secretions into the common bile-duct and the pancreatic duct.

<sup>11</sup> *Plica Transversalis Recti* (Fig. 736, p. 445).—"When the rectum is empty and contracted, it exhibits numerous folds, most of which are obliterated by distension. Several transverse or oblique folds are, however, of a more permanent character, and have been designated 'valves of the rectum'



(Houston) or 'plicæ recti.' One of these, usually the largest, is situated on the right side opposite the reflection of the peritoneum from the rectum to the bladder, and was named by Kohlräusch the *plica transversalis recti*. There are generally two other folds, both on the left side, one about an inch above, the other about the same distance below, the fold on the right side. From the position and projection of these folds they may more or less impede the introduction of instruments. The dilatation of the rectum between the anal canal and the lowest of these folds is called the *rectal ampullæ*" (Quain, "Anatomy," 10th ed., vol. iii., part iv., pp. 115, 116). According to Von Langer and Toldt ("Anatomy," 7th ed., pp. 337, 338), the *plica transversalis recti* is on the right and anterior walls of the rectum, about 10 centimetres (4 inches) from the anus (in Fig. 736, 2 inches only). In its substance is the thickening of the circular muscular fibres of the rectum which is known as the *sphincter ani tertius*. According to these authors, *Houston's valves* are prominent only when the rectum is greatly distended, and are obliterated when the organ is quite empty and contracted.

<sup>12</sup> *The Columns of the Rectum, the \*Sinuses of the Rectum, and the Hæmorrhoidal Ring* (Ibid.).—"We have to mention a further peculiarity of the lower end of the rectum, one which marks the transition from the mucous membrane to the skin. There are in this region from five to eight longitudinally disposed elevations of the mucous membrane, the *columnæ rectales* of Morgagni, which widen as they approach the anus. Here their lower ends unite to form a ringed swelling, the *annulus hæmorrhoidalis*, surrounding the gut; and the columns and the ring thus bound a number of depressions or pockets in the mucous membrane, the *sinus rectales*. This portion of the rectum, in the male about 2.6 centimetres (1 inch) in length, but somewhat shorter in the female, is known as the *pars analis recti, or anal canal*; while the actual external orifice is termed the *anus*" (Von Langer and Toldt, *op. cit.*, p. 338).

<sup>13</sup> (Fig. 737, p. 446.) Folds of peritoneum connecting a solid viscus with the abdominal wall are called *ligaments*; those passing from one viscus to another are called *omenta*; but the distinction is not always strictly maintained.

<sup>14</sup> *\*Fibrous Appendix of the Liver* (Figs. 737, 738, p. 446).—"Attached to the free extremity of the left lobe of the liver there is often a membranous appendix, *appendix fibrosa hepatis*, of variable size, from which the parenchyma of the liver has completely disappeared, only connective tissue and *aberrant vessels* remaining. The disappearance of the parenchymatous tissue in this region can perhaps be explained in the following manner: In the embryo the umbilical veins open into the left portal vein, so that the left lobe of the liver is directly supplied with arterial blood from the placenta, and is thus placed under more favourable nutritive conditions than the right lobe; but this advantage is lost with the cessation of the placental circulation. . . . After the disappearance of the parenchyma, however, the bile-ducts, and the branches of the portal vein and hepatic artery, persist, and all of these structures are included in the term *vasa aberrantia hepatis*" (Von Langer and Toldt's "Anatomy," 7th ed., p. 349). In rare cases there may be a small *accessory liver* in the situation of the fibrous appendix, connected with the left lobe by a fold of peritoneum and a leash of vessels. (See also note <sup>17</sup> below.)

<sup>15</sup> *Ligament of the Ductus Venosus* (Fig. 738, p. 446).—This is a fine white cord, the vestige of the obliterated ductus venosus, lying in the *furrow of the ductus venosus* (the posterior portion of the *longitudinal furrow*). It is not usually termed a *ligament* by English anatomists.

<sup>16</sup> *Lobes of the Liver* (Ibid.).—The author enumerates *four lobes only*: *lobus dexter*, right lobe; *lobus sinister*, left lobe; *lobus quadratus*, quadrate lobe; and *lobus caudatus* (Spigelii), caudate lobe (of Spigelius): the ridge connecting the *lobus dexter* with the *lobus quadratus* (Spigelii), between the *transverse or portal fissure* (below), and the lower extremity of the *fissure or fossa of the vena cava* (above), he calls the *processus caudatus* (see Fig. 740, p. 447). English anatomists enumerate *five lobes*: the *right*, the *left*, the *quadrate*, the *Spigelian*, and the *caudate*; the three first-named being identical with those of the author; the *Spigelian lobe* corresponding with the author's *lobus caudatus* (Spigelii), minus the *processus caudatus*; and this latter being the *caudate lobe* of English anatomists.

<sup>17</sup> *Ponticulus Hepatis* (Ibid.).—The inferior vena cava lies in a deep groove on the posterior surface of the liver, the *fissure or fossa of the vena cava*. Passing behind the vessel is a strand of fibrous tissue which forms a bridge connecting the right lobe with the Spigelian lobe. It is called by the author *\*ligamentum venæ cavae*, but is known in England as the *ponticulus*. Like the *\*fibrous appendix of the liver* (see note <sup>14</sup> above), it is the remains of a rudimentary lobe, and contains *aberrant vessels*. Not very rarely it consists of perfectly formed hepatic tissue, so that the fissure of the vena cava is converted into a canal.

<sup>18</sup> (Fig. 747, p. 450.) The *gastro-splenic omentum* is connected below with the *great omentum*, and is often regarded as a part of it. With regard to the preference of the name of *omentum* for this structure over the name *ligament*, see Appendix, note <sup>13</sup> above.

<sup>19</sup> *Descriptive Anatomy of the Spleen* (Fig. 746, p. 450).—The author enumerates *three surfaces only*: *phrenic, renal, and gastric*. By some anatomists (e.g., Cunningham) the blunt lower and outer end is regarded as a *fourth surface*, the *basal*. This surface lies against the tail of the pancreas, the splenic flexure of the colon, and the costocolic ligament (see note <sup>41</sup> below). In addition to the *anterior and posterior borders*, it is usual in England to speak of the ridge just internal to the hilum, which separates the gastric from the renal surface, as the *inner border*.

<sup>20</sup> *Duodenal Folds and Fossæ* (Fig. 757, p. 454).—Two folds of peritoneum usually pass to the left from the front of the ascending portion (fourth part) of the duodenum: one, the lower, with its free edge directed upwards, from the junction of the transverse with the ascending portion of the duodenum; the other, the higher, with its free edge directed downwards, from the duodenojejunal flexure. These are called by the author the *duodeno-mesocolic and duodenojejunal folds*, but it is perhaps better to use the names *inferior and superior duodenal folds*. Between these folds, to the right of the ascending portion of the duodenum, is a recess or fossa, called by the author *recessus duodenojejunalis, the duodenojejunal fossa*. The extension of this fossa behind the inferior fold is termed the *inferior duodenal fossa*; the extension behind the superior fold the *superior duodenal fossa*. The folds and fossæ in this region are, however, somewhat variable in their disposition. (See Quain's "Anatomy," 10th ed., vol. iii., part iv., p. 326.)

<sup>21</sup> *Peritoneal Fossæ* (Ibid.).—Some authors speak of all the peritoneal fossæ as *pouches*—e.g., *duodenojejunal pouch, subcecal pouch*. I have not thought it necessary to indicate the alternative name in each individual instance.

<sup>22</sup> *Phrenohepatic Fossa* (Fig. 758, p. 454).—"The *phrenohepatic or diaphragmaticohepatic fossa* of the peritoneum is occasionally present on the abdominal surface of the diaphragm. It is an elongated pouch or sinus of varying

dimensions, formed by the partial adhesion of the borders of the fibrous appendix of the liver [see note <sup>11</sup> above] and the left lateral ligament of the liver to the peritoneal investment of the diaphragm" (Von Langer and Toldt's "Anatomy," 7th ed., p. 306).

<sup>23</sup> *Ileoæcal Fossa* (Fig. 760, p. 455).—These are two in number, *superior* and *inferior*. The *superior ileoæcal fossa* (see Fig. 805, p. 475) is situated in the angle between the ileum and the commencement of the ascending colon; the *inferior ileoæcal fossa* is behind and below the junction of the ileum and the cæcum. It may extend upwards behind the ascending colon nearly as high as the right kidney and duodenum. Its mouth looks downwards and is bounded in front by the ileoæcal fold (*bloodless fold* of Treves). In Fig. 760 a sound is passed into the mouth of this fossa. By some authors the *superior ileoæcal fossa* is termed the *ileocolic fossa*, and in this case the *inferior ileoæcal fossa* is called the *ileoæcal fossa* without qualification.

<sup>24</sup> *Cavum Mediastinale* (Fig. 761, p. 456).—The author divides the mediastinal cavity into two portions only: *cavum mediastinale anterius* and *cavum mediastinale posterius*. English anatomists divide it into four portions: *anterior mediastinum*, *middle mediastinum*, *posterior mediastinum*, and *superior mediastinum*. The English *posterior mediastinum* is nearly identical with the author's *cavum mediastinale posterius*; while his *cavum mediastinale anterius* corresponds, with a slight variation, to the three others combined; the *superior mediastinum* being that portion of the cavity above a plane passing from the lower border of the body of the fourth dorsal vertebra to the superior sternal synchondrosis, and thus including the upper portions of both anterior and posterior divisions of the aorta; the *anterior mediastinum* being the portion of the cavity below the plane above mentioned and in front of the pericardium; and the *middle mediastinum* being the enlarged central portion of the cavity containing the pericardium with its contents, the roots of the lungs, and the bronchial lymphatic glands. (See also note <sup>2</sup> to p. 410.)

<sup>25</sup> (Fig. 765, p. 458.) The *oblique line*, connecting the *superior* and *inferior* tubercles of the thyroid cartilage, is regarded by the author as a variety. Though it varies greatly in prominence, and may be very indistinct, it is seldom entirely absent. Sometimes it is represented by a fibrous band, the *oblique ligament*, stretched between the tubercles. The oblique line or ligament serves for the insertion of the sternothyroid muscle and for the origin of the sternohyoid and thyropharyngeus muscles.

<sup>26</sup> *Arytenoid Cartilage* (Figs. 766 to 768, p. 458).—As several of the terms descriptive of the parts of this cartilage are used neither by Quain nor by Macalister, I quote the following passage from Von Langer and Toldt's "Anatomy," 7th ed., p. 318: "The cartilage consists of an elongated plate, narrowing above to a point, the *apex*, and presenting beneath a thickened, nearly triangular *base*. The anterior border is very sharp, and exhibits just above the middle a small blunt protuberance, the *\*colliculus*, and at its lower extremity a forwardly directed process for the attachment of the posterior extremity of the vocal cord, hence called the *vocal process*. The concave *articular surface* of the base looks downwards, and exhibits a blunt *muscular process* directed outwards. The *inner surface* is very narrow, and wider below, where it is continued on to the *vocal process*. The *outer surface* gives attachment to muscles: it presents two hollows, the upper of which, *\*fovea triangularis*, is a rounded triangle, embraced by a semicircular lip, the *\*crista arcuata*, which begins above in the *colliculus*: while the lower, a rounded rectangle, *\*fovea*

*oblonga*, runs along the base and on to the muscular process, and is separated above from the *fovea triangularis* by the *crista arcuata*."

<sup>27</sup> *\*Corniculo-pharyngeal Ligament* (Fig. 771, p. 459).—This is a slender strand of fibrous tissue which passes downwards and inwards on each side from the corniculum laryngis or cartilage of Santorini to the mucous membrane of the pharynx. Below these ligaments in the median plane is the *\*crico-pharyngeal ligament*, a flattened band with surfaces laterally directed, attached by its anterior edge to the back of the cricoid cartilage, and by its posterior edge to the mucous membrane of the pharynx. These two ligaments are described neither by Quain nor by Macalister.

<sup>28</sup> (Fig. 770, p. 459.) The *crico-arytenoid articulation* is usually, as in this instance, a syndesmosis, but is occasionally a synovial joint.

<sup>29</sup> (Ibid.) This foramen, when present, transmits an abnormal branch of the superior laryngeal artery.

<sup>30</sup> *\*Conus Elasticus* (Figs. 772, 773, p. 459).—As this term is not found in most English textbooks of anatomy, I quote the following description from Von Langer and Toldt's "Anatomy," pp. 320, 321: "The *\*membrana elastica trachea* [the fibro-elastic membrane in which the tracheal cartilages are embedded] passes upwards into the larynx to form the *\*membrana elastica laryngis*. First of all it sheathes the inner surface of the cricoid cartilage in its whole extent, but above this it becomes detached from the cartilaginous wall of the larynx, and forms on each side a flat membrane, the only attachments of which to the cartilages are in front to the angle of union of the *alæ* of the thyroid cartilage, and behind to the vocal processes of the arytenoid cartilage. Thus, the *\*elastic membrane of the larynx* exhibits two surfaces, converging from each side of the upper border of the cricoid cartilage upwards towards the median plane, and at the level of the vocal processes terminating in two parallel free borders. This arrangement of the elastic membrane is known as the *\*conus elasticus*, and the somewhat thickened free borders are called *\*ligamenta vocalia* [the inferior thyro-arytenoid ligaments or ligaments of the true vocal cords]. At this level the *\*elastic membrane of the larynx* terminates, being replaced above by a thin layer of areolar tissue. That portion of the *\*elastic cone* which connects the upper border of the front of the cricoid cartilage with the lower border of the front of the thyroid cartilage is seen from the front as a triangular membrane filling in the gap between the two cartilages, and is called the *middle cricothyroid ligament* [middle portion of the cricothyroid membrane]." This description appears alike more intelligible and more accurate than that given in most English textbooks, which is to the effect that the vocal cord may be regarded as the upper free edge of the cricothyroid membrane.

<sup>31</sup> *Mucous Glands of the Larynx* (Figs. 775, 777, p. 460).—The names used by Toldt—*anterior*, *middle*, and *posterior laryngeal glands*—are not commonly employed by English anatomists. The *anterior* glands, situate on the back of the epiglottis, I have called the *post-epiglottic glands*. The *middle* glands, most numerous above, where they form a prominence beneath the mucous membrane of the aryteno-epiglottic fold immediately behind the cartilage of Wrisberg, and a chain running thence downwards and forwards along the false vocal cord, may be best distinguished as the *glands of the aryteno-epiglottic fold*. The *posterior* glands form a mass behind the arytenoid cartilage and beneath the cartilage of Santorini, and may be called *post-arytenoid glands*. All these must be carefully distinguished from the so-called *epiglottic gland* between the anterior surface of the epiglottis, the hyoid bone,

and the root of the tongue, which is not a gland at all, but a mass of yellow fat and fibrous tissue. (See *periglottis* in Fig. 675, p. 420, and note <sup>2</sup> above.)

<sup>32</sup> *Labium Vocale* (Fig. 779, p. 461).—The true vocal cords, writes Quain ("Anatomy," 10th ed., vol. iii., part iv., p. 155), "are situated at the inner and free edge of a mass of tissue triangular on coronal section [see Fig. 780]. One surface of this mass looks upwards, and forms the floor of the ventricle; another looks downwards and inwards, and bounds the lower division of the laryngeal cavity; while the third is external." This triangular mass constitutes the author's *labium vocale*, or, as it may be called, the \**lip of the glottis*, but the term is not current in England.

<sup>33</sup> *Macula Flava, the Cartilage of Luschka* (Fig. 781, p. 461).—"In the anterior part of the vocal cord, near its attachment to the thyroid cartilage, there is a circumscribed mass of dense elastic tissue containing numerous cells. This is visible through the intact mucous membrane as a *yellow spot (macula flava)*, of about the size of a poppy-seed" (Von Langer and Toldt's "Anatomy," 7th ed., p. 323). "A small nodule of elastic cartilage (*cartilage of Luschka*) is found in the anterior and inferior part of the vocal cord" (Quain's "Anatomy," 10th ed., vol. iii., part iii., p. 155).

<sup>34</sup> *Tunica Adventitia Pharyngis* (Fig. 791, p. 466).—"The outermost layer of the wall of the pharynx consists of a thin stratum of connective tissue, the *tunica adventitia pharyngis*, which forms a fascial covering for the constrictor muscles of the pharynx, and may be regarded as a continuation of the bucco-pharyngeal fascia. It is of importance for the reason that the primary ramification of the vessels and nerves of the pharynx takes place in its substance. In the middle line behind it is connected with the *raphe of the pharynx*, and above with the *fascia pharyngobasilaris* [the *pharyngeal aponeurosis* of English authors; see pp. 432, 433, and 436] . . . which (with the mucous membrane) alone forms the uppermost portion of the posterior and lateral walls of the pharynx, the muscular coat being here deficient, as the superior constrictor of the pharynx does not extend up to the base of the skull" (Von Langer and Toldt, *op. cit.*, p. 305). The outer fibrous coat of the pharynx thus separates the constrictor muscles from the prevertebral fascia. On either side it is attached to the sheath of the great vessels of the neck. It is most strongly developed behind and (above) at the sides, and this portion is called by Macalister the *post-pharyngeal fascia*, which name I have given in the text as an alternative, the name *adventitious coat of the pharynx* not being used by English anatomists.

<sup>35</sup> *Broncho-oesophageus and Pleuro-oesophageus Muscles* (Fig. 799, p. 470).—"The longitudinal fibres of the oesophagus are sometimes joined by a broad band of smooth muscle, passing from the left pleura, and sometimes also by another from the left bronchus. According to Cunningham, the former is almost constantly present, and the latter very frequently" (Quain's "Anatomy," 10th ed., vol. iii., part iv., p. 66).

<sup>36</sup> *Supplemental Pleural Spaces* (Ibid.).—The use of the term *sinus* for those regions of the pleural cavity in which two portions of parietal pleura are in apposition appears inappropriate. Quain suggests the preferable name of *supplemental or complementary pleural space*. There are three such regions in which the pleural cavity is unoccupied by lung: the *phrenocostal* (shown in Fig. 799), between the chest wall and the diaphragm, below the inferior border of the lung; the *pericardiosternal* or *costomediastinal* (shown in Figs. 800 and 801, p. 471), between the anterior surface of the pericardium and the posterior surface of the sternum and

costal cartilages, internal to the anterior border of the lung, and more extensive on the left side than on the right; and the *mediastinodiaphragmatic* (Macalister) or *pericardiophrenic*, between the lower margin of the pericardium and the diaphragm.

<sup>37</sup> (Ibid.) The *crura* or *pillars* of the diaphragm described by English anatomists are two only in number—a longer *right crus* and a shorter *left crus*. Each of these is composed of all the fibres passing from the right and left sides, respectively, of the bodies of the lumbar vertebræ and the intervertebral discs to the central tendon. Thus, the *crus* of English authors corresponds to the combined *inner crus* and *intermediate crus* of Toldt; while the *outer crus* of the latter is in England not considered to belong to the crural portions of the diaphragm.

<sup>38</sup> *Bulb of the Aorta* (Fig. 800, p. 471).—This name is often given to the somewhat enlarged portion of the *ascending aorta* immediately above the aortic valve, which contains the three *sinuses of Valsalva*.

<sup>39</sup> *Ascending Mesocolon* (Fig. 805, p. 475).—Fig. 756, on p. 453, shows an abnormal condition of the large intestine in which the posterior layer of the ascending mesocolon has failed to become adherent to the parietal peritoneum, and the ascending colon, like the transverse colon, is freely movable. Normally, however, as shown in Fig. 805, this adhesion takes place, and a strip of the posterior surface of the ascending colon is connected by areolar tissue with the fascia covering the quadratus lumborum muscle, and with the front of the right kidney. To call the adherent layer of peritoneum internal to the ascending colon by the name of *ascending mesocolon* is contrary to English usage. See also note <sup>1</sup> to p. 453.)

<sup>40</sup> *Gastrocolic Ligament* (Fig. 806, p. 476).—This name is given by the author to that part of the *great or gastrocolic omentum* which connects the great curvature of the stomach with the transverse colon.

<sup>41</sup> *Saccus Lienalis* (Fig. 807, p. 477).—A fold of peritoneum, the *costocolic* or *phrenocolic ligament*, or *pleurocolic fold*. Attached externally to the diaphragm opposite the tenth and eleventh ribs, passes horizontally inwards to the splenic flexure of the colon. It has a lunated free border directed forwards. It forms the lower boundary of a hollow containing the spleen; the basal surface of this organ (see note <sup>19</sup> above) resting upon the ligament as on a shelf (see also Fig. 813, p. 483). Hence this ligament, though not attached to the spleen, is sometimes called *sustentaculum lienis*, while the hollow above is called by the author *saccus lienalis*—the *splenic pouch*. This must be carefully distinguished from the \**splenic fossa of the omental sac*. See Fig. 809, p. 479, and note <sup>44</sup> below.

<sup>42</sup> *Parts of the Small Omentum* (Ibid.).—The *small omentum* consists of the following portions, enumerated in their position from left to right: (1) a *thick* portion (*pars condensata omenti minoris*), passing to the cardia; (2) a *thin* portion (*pars flaccida omenti minoris*), passing to the lesser curvature—these form the gastrohepatic omentum proper; (3) a thicker portion again, passing from the transverse or portal fissure of the liver to the pylorus and the first part of the duodenum, with a free border directed to the right, forming the anterior boundary of the foramen of Winslow, and containing between its layers the hepatic artery, portal vein, common bile-duct, and nerves and lymphatics of the liver (this portion of the small omentum is called by the author the *hepatoduodenal ligament*, but the term is not used by English anatomists). In the specimen shown in Fig. 807 the small omentum extends abnormally far to the left, to form a *hepatocolic ligament* or *omentum*.



<sup>32</sup> *Superior Mediastinum* (Fig. 809, p. 479).—The lower margin of the cut surface of the aorta in this figure is at the level of the plane separating the *superior mediastinum* of English authors from the three lower divisions of the mediastinal cavity. See note <sup>2</sup> to p. 410 and note <sup>24</sup> above.

<sup>44</sup> *Divisions of the Omental Sac* (Ibid.).—<sup>45</sup> The omental sac is attached to the posterior abdominal wall in the median line in front of the aorta by the root of the mesogastrium. Here also is the boundary of the principal part of the cavity and the orifice giving access from the right to its interior. The boundary is constituted by a fold of peritoneum, the *pancreatogastric fold*, which extends from the superior border of the pancreas vertically upwards along the line of attachment of the mesogastrium to the cardia of the stomach; between the layers of this fold the coronary artery runs from the celiac axis to the small curvature of the stomach. The pancreatogastric fold forms the boundary between the principal part of the omental sac and the cavity situated behind the small omentum, and known as the *vestibule of the omental sac*. Regarding that portion of the omental sac which lies behind the stomach as the principal or middle portion of the cavity, we can distinguish three supplementary compartments: the largest of these extends downwards below the stomach between the two layers of the great omentum, and is called *recessus inferior omentalis*, the *inferior fossa of the omental sac*; the second lies behind the gastrosplenic omentum, and is bounded on the left by the hilum of the spleen—this is known as *recessus lienalis*, the *splenic fossa of the omental sac*; the third, finally, stretches upwards, close to the abdominal portion of the œsophagus, and is termed *recessus superior omentalis*, the *superior fossa of the omental sac*" (Von Langer and Toldt's "Anatomy," p. 357). I have given this long extract because the omental sac is not adequately described in Quain's "Anatomy." Macalister, who treats the subject more fully and accurately, describes the omental pouch [sac] as "hour-glass-shaped," and terms the opening between the two sections, bounded behind by the pancreatogastric fold, the *mesental opening*. The part of the sac to the right of this opening, and between it and the foramen of Winslow, he calls the *lesser omental sac*, which comprises the combined superior fossa and vestibule of the omental sac of Toldt. The *splenic fossa of the omental sac* is to be carefully distinguished from the *splenic pouch* of the greater peritoneal cavity, the two being separated by the gastrosplenic omentum. See Fig. 807, p. 477, and note <sup>41</sup> above.

<sup>45</sup> (Ibid.) The *gastrosplenic omentum* is connected below with the great omentum, and is often regarded as a part of it. The name "omentum" is to be preferred to "ligament" for this structure (see note <sup>12</sup> above).

<sup>46</sup> (Fig. 816, p. 486.) The *sternal line* is a vertical line traced on the front of the trunk passing over the sternoclavicular articulation.

<sup>47</sup> (Ibid.) The *parasternal line* is a vertical line traced on the front of the trunk midway between the sternal line and the mamillary line.

<sup>48</sup> (Ibid.) The *mamillary line* is a vertical line traced on the front of the trunk passing through the centre of the nipple or mamilla. "When the mammae are pendulous, the mamillary line may be taken as corresponding to the perpendicular dropped from the middle of the clavicle" (Macalister).

<sup>49</sup> (Fig. 818, p. 488.) The *axillary line* is a vertical line traced on the side of the trunk passing through the anterior fold of the axilla (Macalister), or through the summit of the axillary fossa (Toldt). It will be seen that the axillary line as defined by Macalister is a little behind the axillary line as

defined by Toldt. The latter line is, of course, the one shown in the figure.

<sup>50</sup> *Calices and Infundibula* (Figs. 823 to 825, p. 491).—Quain writes: "The pelvis, within the sinus, divides usually into three, but sometimes only two, primary tubular divisions, and these at length end in a large number of short, truncated, but comparatively wide branches named *calices* or *infundibula*, which receive the papillæ into their wide mouths. . . . A single calix often surrounds two, sometimes even three, papillæ, which are in that case united together; hence the calices are in general not so numerous as the papillæ" ("Anatomy," 10th ed., vol. iii., part iv., p. 193). The author, it will be noticed, calls the primary divisions of the pelvis *calyces majores*; the secondary and terminal divisions, *calyces minores*. Macalister, whose usage I have followed, discriminates between infundibula and calices, applying the former name to the primary, the latter to the secondary divisions of the pelvis. Toldt and Macalister alike state that there is a calix for each papilla; but Quain's description is the more accurate. The calices usually number from eight to twelve, the papillæ from twelve to twenty.

<sup>51</sup> *Area Cribrosa* (Fig. 827, p. 492).—"At the summit of each pyramid the *ductus papillares*—the *uriniferous* or *excretory tubules*, or *ducts* of Bellini—five to fifteen in number, open by as many separate orifices. The area of the papilla containing these orifices (*foramina papillaria*), which are almost distinguishable by the naked eye, is known as the *area cribrosa*" (Von Langer and Toldt's "Anatomy," 10th ed., p. 370). A number of the orifices are often aggregated at the bottom of a slight depression near the summit of the papilla. This depression, when present, is termed the *foveola*.

<sup>52</sup> (Fig. 831, p. 492.) Quain's nomenclature of the surfaces of the suprarenal capsules differs somewhat from that of Toldt. According to the former authority, the *posterior surface of the left capsule* "is divided into two parts by a prominent vertical ridge, the area mesial to the ridge looking inwards and backwards and resting upon the left crus of the diaphragm, and the lateral area outwards as well as backwards against the kidney" ("Anatomy," 10th ed., vol. iii., part iv., p. 303). The *mesial* of these two areas is the *facies posterior* of Toldt; the *lateral* is named by him *basis glandulæ suprarenalis*. Similarly in the case of the *right capsule*, the *posterior surface*, according to Quain, consists of two areas: one, the upper and larger, in contact with the diaphragm, being identical with the *facies posterior* of Toldt; the other, lower and smaller, in contact with the kidney, called by Toldt the *basis*. This aspect of the right capsule is, however, not shown in the Atlas.

<sup>53</sup> (Fig. 835, p. 493.) The portion of the uriniferous tubule between the peripheral extremity of Henle's looped tubule and the commencement of the collecting tubule, called in Germany the *Schaltstück* (intermediate portion), "because it is, in a sense, intermediate between the secretory and the excretory portion of the tubule" (Toldt), comprehends the *irregular* or *zigzag tubule*, the *second convoluted tubule*, and the *junctional tubule*, of English authors.

<sup>54</sup> (Ibid.) This comprises the *descending tubule of Henle*, the *loop of Henle*, and the *ascending tubule of Henle*, of English authors.

<sup>55</sup> (Ibid.) The term *straight tubule*, as used by the author, includes all the tubules forming part of the pyramids and the medullary rays, whether these are *descending* and *ascending tubules of Henle*, *collecting tubules*, or *ducts of Bellini*.

<sup>56</sup> *Blood Supply of the Medulla of the Kidney* (Ibid.).—It will be noticed that I have written "psudarteria recta, or *vasa recta spuria*" as the counterpart in the English nomen-

clature of the author's "*arteriola recta*." There is, in fact, a conflict of opinion regarding the blood-supply of the medulla of the kidney. In Von Langer and Toldt's "Anatomy," 7th ed., p. 373, we find the following views expressed: "An important problem, with regard to the blood-supply of the kidney, is whether all the blood circulating in that organ, the medulla as well as the cortex, must necessarily pass through the glomeruli; for if this be so, the nutrition of the medulla is dependent on the vessels of the cortex. It is an established fact that the efferent vessels of the large glomeruli adjacent to the medulla break up into leashes of straight vessels, *arteriola recta*, which are continued into the capillary plexus of the pyramids of Malpighi. The question arises, whether, in addition to these vessels proceeding from the glomeruli, other arterioles, directly derived from the arterial arches, supply this capillary plexus. We may answer with considerable confidence that, even if such a direct arterial blood-supply to the pyramids exists, the blood thus conveyed would be insufficient in quantity, and that the nutrition of the pyramids is, in any case, dependent to a notable extent upon the blood-vessels of the cortex." Quain, on the other hand, writes ("Anatomy," 10th ed., vol. iii., part iv., p. 202): "The efferent vessels from the lowermost glomeruli break up wholly into pencils of straight vessels (*pseudarteria recta*), which pass directly into the boundary layer of the medulla, and there supply the continuation downwards of the medullary rays into the pyramid. . . . With the exception of the blood brought by the false *arteriæ rectæ*, the blood-supply of the medulla is to a great extent independent of that of the cortex, although, of course, the capillary network is continuous throughout. The pyramids are chiefly provided with blood by branches which come off directly from the concave side of the arterial arches, and passing down into the boundary layer of the medulla there divide to form bunches or pencils of parallel or slightly diverging minute vessels (*arteria recta*), which, by alternating with the bundles of uriniferous tubules which are passing up to the cortex to form the medullary rays, produce the characteristic streaked appearance of this part of the pyramid." To sum up: In Toldt's view the blood-supply of the medulla is principally dependent on that of the cortex, and the existence of a direct blood-supply to the medulla must even be regarded as doubtful; whereas, according to Quain, though the existence of a cortical element in the blood-supply of the medulla (by means of the false *arteriæ rectæ*) is admitted to be "an established fact," the direct element in the blood-supply of the medulla (by means of the true *arteriæ rectæ*) must be regarded as having considerably greater importance. Other English authorities—Foster, Halliburton, and Macalister—are in agreement on this question with the views of Schäfer and Symington as set forth in Quain's "Anatomy." Foster, indeed, lays especial stress, from the physiological point of view, on the fact that "the blood-supply of the pyramids, consisting chiefly of conducting tubules, is to a very large extent distinct from that of the cortex, where the tubules are chiefly secreting tubules" ("Physiology," 5th ed., p. 665). Macalister calls the true *arteriæ rectæ* *recurrent straight branches*, or *vasa recta vera*; and the false *arteriæ rectæ* *vasa recta spuria*.

<sup>87</sup> (Fig. 836, p. 494.) "The *iliacosubfascial fossa* is a roomy recess or pouch of the peritoneum met with as a very rare variety in the inner part of the iliac fossa. When present, it is formed in the following manner: The tendon of the *psaos parvus* muscle, as it passes to its insertion into the iliac fascia covering the iliopectineal line and eminence, separates a little from the iliacus muscle, forming a hollow, which extends for a certain distance inwards behind the *psaos magnus* muscle. The parietal peritoneum, as it coats the interior of this hollow,

necessarily forms a peritoneal recess or pouch, and this recess, if, as usually when present, it is on the left side, is occupied by the lowermost portion of the descending colon" (Von Langer and Toldt's "Anatomy," 7th ed., p. 466).

<sup>88</sup> *Cervix or Neck of the Bladder* (Fig. 839, p. 496).—This name is given by English anatomists to that portion of the bladder immediately in front of the base, at the junction of the organ with the urethra. The term is not used by Toldt. Other terms employed by English anatomists and not by the author, in describing the bladder, are given in note <sup>61</sup> below.

<sup>89</sup> \**Tendinous Arch of the Pelvic Fascia* (Figs. 840, 841, p. 497).—"The origin of the *visceral layer of the pelvic fascia* and of the *rectal and anal fascia* (see note <sup>100</sup> below) from the parietal layer of the pelvic fascia or obturator fascia takes place along a tendinous band that runs across the lateral wall of the pelvis, the *arcus tendineus fasciæ pelvis*. This is seen as soon as the parietal peritoneum and the delicate subserous areolar tissue have been removed. It begins in front behind the pubic symphysis, at the level of the inferior pubic or subpubic ligament, runs backwards, crossing the upper part of the levator ani muscle about an inch below the obturator canal, towards the spine of the ischium, and can be traced yet further backwards, though thinner and less defined, on the surface of the coccygeus muscle, and as far as the fourth sacral vertebra. The foremost portion of this tendinous arch, which has a well-defined edge, is called *ligamentum puboprostaticum (pubovesicale) medium*—the anterior true ligament of the bladder, or puboprostatic ligament; this ligament, with its fellow, bounds a deep hollow behind the symphysis, *fossa pubovesicalis*—the \*pubovesical fossa—at the bottom of which the dorsal vein of the penis is seen entering the pelvis and dividing into two lateral branches. . . . Flattened bands of fibrous tissue, reinforcing the pelvic fascia, and radiating from the tendinous arch upwards near the entrance of the obturator canal (often, however, but slightly developed), receive the name of *ligamentum puboprostaticum (pubovesicale) laterale*—the lateral true ligament of the bladder" (see Fig. 924, p. 533).—Von Langer and Toldt's "Anatomy," 7th ed., pp. 444, 445. This passage shows that Toldt's *arcus tendineus fasciæ pelvis* corresponds with the *white line of the pelvic fascia* of English authors; but also that the former term is used in a more comprehensive sense than the latter.

<sup>90</sup> *Pubovesical Muscle* (Fig. 840, p. 497).—See Quain's "Anatomy," 10th ed., vol. iii., part iv., p. 213, and Macalister's "Anatomy," p. 447. By the latter authority these unstriated muscular fibres connecting the anterior wall of the bladder with the back of the pubis and with the prostate gland (in the male) are called *puboprostaticovesical fibres*.

<sup>91</sup> *Boundaries of the Trigone of the Bladder* (Figs. 842, 843, p. 498).—The base or posterior boundary of the trigone is formed by a curved elevation of varying prominence connecting the summits of the ureteric orifices, and known as *Mercier's bar*; it corresponds in position with a muscular band which joins these orifices to one another and to the neck of the bladder. At its outer extremities Mercier's bar is continuous with the *ureteric folds*, above and outside the ureteric orifices; these folds are supposed to act as valves preventing the regurgitation of urine into the urethra. The ureteric folds are continued downwards by the lateral boundaries of the trigone, two faint ridges which converge to the lower extremity of the uvula of the bladder and the back of the urethral orifice. These ridges correspond, like Mercier's bar, to muscular bands, which in this case, however, belong to the internal layer of longitudinal fibres, and they are known as

*Bell's muscles.* Behind Mercier's bar there is often, especially in old age, a depressed area, the *post-trigonal pouch*.

\* *Urethral Ring* (Fig. 842, p. 498).—The internal orifice of the urethra, *orificium urethrae internum*, is seen, in the contracted bladder, to be surrounded by a circular elevation of the mucous membrane, *annulus urethralis*, dependent on the great development in this region of the circular layer of the muscular coat. When the bladder is greatly distended, the urethral ring is hardly discernible" (Von Langer and Toldt's "Anatomy," 7th ed., p. 376). This is the *sphincter vesicae (internus)* of some authors. Griffiths states there is no thickening of the circular fibres in this situation sufficient to justify the use of the term sphincter ("Observations on the Urinary Bladder and Urethra," *Journal of Anatomy and Physiology*, 1891). These fibres at the base of the prostate are called by Macalister *sphincter vesicae internus* to distinguish them from an envelope of striated muscle fibres surrounding the urethra at the apex of the prostate, and called by Macalister *sphincter vesicae externus*.

\* (Ibid.) Toldt distinguishes the *colliculus seminalis* as the middle thickened section of the *crest of the urethra*, in which the prostatic utricle opens. In England, however, the names *colliculus seminalis*, *verumontanum*, and *caput galinaginis*, are commonly employed as alternative names for the whole length of the *crest of the urethra*.

\* (Ibid.) Known also as the *prostatic sinus*, *prostatic vesicle*, *sinus pocularis*, and *uterus masculinus*.

\* *Crest of the Female Urethra* (Fig. 843, p. 498).—"The mucous membrane of the female urethra exhibits in the median line of the posterior wall a longitudinal prominence, *crista urethralis*, which can be traced from the internal to the external orifice" (Von Langer and Toldt's "Anatomy," 7th ed., p. 490). This is the most prominent of several longitudinal folds in the female urethra. It is mentioned by Quain and Macalister, but not named.

\* (Fig. 845, p. 500.) Known also as *Duverney's gland*, or the *suburethral gland*. The latter name, though suitably applied to Cowper's gland, is given to Bartholin's gland only on the ground of its homology with Cowper's gland.

\* *Os Uteri Externum* (Ibid.).—This is commonly spoken of by clinicians as the *os uteri*, without qualification, though the word *externum* is properly added to distinguish it from the *os uteri internum*. The external os was in former times called the *os linca*, from its supposed resemblance to the mouth of a trench.

\* *Fascial Coverings of the Testicle and Spermatic Cord* (Figs. 846, 847, p. 501).—The names given to these are various and conflicting. According to the best-established nomenclature of English anatomists, the covering derived from the intercolumnar fibres of the external oblique muscle of the abdomen is called the *intercolumnar or spermatic fascia*. Next within this comes the cremaster muscle and the aponeurotic layer connecting its fibres, to which, considered as a whole, Quain gives the name of *cremasteric fascia*. Thirdly, within this, we come to the covering derived from the transversalis fascia, and generally known in England as the *infundibuliform fascia*. But the divergencies from the nomenclature just given are manifold. Taking Toldt first, we find he gives the name of *fascia cremasterica* (Cooperi) to the intercolumnar or spermatic fascia of English anatomists; and the name of *tunica vaginalis communis testis et funiculi spermatis* to the infundibuliform fascia of English anatomists. (In England the use of the term *tunica vaginalis* is entirely restricted to the serous sac of the testicle.) Macalister further complicates the use of the term *cremasteric* by describing as the *tunica cremasterica*, all three of the fascial

layers enumerated at the beginning of this note, "which are so closely united as to be with difficulty separable from each other." It will be noted that Toldt appends the name of Astley Cooper to the layer he terms "cremasteric," but this is a further divergence from English usage. By the term *fascia propria of Astley Cooper* we denote, in England, the penultimate covering of an oblique inguinal hernia, that next to the peritoneum, which consists of the combined infundibuliform fascia and the subserous areolar tissue between that fascia and the peritoneum. As a final alternative in the nomenclature of the fascial layers in this region, I give that of Young (U.S.), who enumerates the coverings of the cord as consisting of (1) *external spermatic or intercolumnar fascia*, (2) *cremaster muscle*, and (3) *internal spermatic fascia or fascia propria*. From this medley, the student will do well to select and impress on his memory the distinctive names of *intercolumnar fascia*, *cremasteric fascia*, and *infundibuliform fascia*.

\* *Hydatids of Morgagni* (Fig. 848, p. 502).—"On the upper extremity of the testis and beneath the head or globus major of the epididymis is situated a hemispherical body of varying size, consisting of delicate and very vascular connective tissue, and often containing the remnant of a duct. This is known as the *sessile hydatid of Morgagni*, or *appendix testis* (Morgagni), and is the rudiment of the cephalic extremity of the foetal Müllerian duct. Similar but smaller stalked bodies are frequently met with on the head or globus major of the epididymis, and are termed *pedunculated hydatids*, *appendices epididymidis*" (Von Langer and Toldt's "Anatomy," pp. 383, 384). The terms *sessile* and *pedunculated hydatid* are employed by Macalister, but not by Quain; the latter authority uses *appendix of the testicle* as an alternative name for the (*sessile*) *hydatid of Morgagni*. Some authorities call it *corpus Morgagni*. For the development of these structures from Müller's duct, see Figs. 896, 897, p. 520.

\* *Ligaments of the Epididymis* (Fig. 849, p. 502).—The epididymis is attached to the posterior border of the testicle (1) by the efferent ducts passing from the gland to the head or globus major of the epididymis; (2) by a duplicature of the tunica vaginalis containing numerous bloodvessels passing between the testicle and the posterior border of the epididymis; (3) within the digital fossa (*sinus epididymidis*) are two strands of fibrous tissue covered by reflections of the tunica vaginalis connecting the upper and lower ends respectively of the body of the epididymis with the testicle. It is these last that are called by the author *superior and inferior ligaments of the epididymis*. The names are not used by Quain or Macalister.

\* *Vas Aberrans* (Fig. 851, p. 502).—"The so-called *ductulus aberrans* is a tube with a blind termination, which opens by its proximal extremity into the canal of the epididymis near the tail of that organ. Coiled tightly, it forms a small lobe not attached to the testicle proper; but occasionally also it is seen as a straight tube of varying length. It is a glandular canal, and represents that part of the Wolfian body which was not used up in the formation of the head or globus major of the epididymis. A similar canal, *ductulus aberrans superior*, is sometimes met with attached to the head or globus major of the epididymis. This, however, is attached to the testicle, and is merely an efferent duct which has become strictured off from the canal of the epididymis, and has thus lost its connexion with the head of that organ" (Von Langer and Toldt's "Anatomy," 7th ed., p. 383).

\* *Lobes or Lobules of the Epididymis* (Fig. 854, p. 503).



—Toldt by this term denotes the coils of the various efferent ducts of the testicle. These, however, form the *coni vasculosi* of English anatomists, who use the term *lobes of the epididymis* to denote the larger masses of the coiled canal of the epididymis, these lobes or masses being separated by incomplete transverse fibrous partitions.

<sup>75</sup> *Middle Lobe or Isthmus of the Prostate Gland* (Fig. 858, p. 504).—This is that portion of the prostate gland lying between the ejaculatory ducts and the neck of the bladder; its forward projection lies beneath the vulva of the bladder. The term *isthmus*, though not commonly employed in England, is preferable to *middle lobe*, for it is only in pathological senile enlargement of the prostate that the organ becomes distinctly trilobate. The middle lobe of the prostate gland is sometimes also known as *Home's lobe*.

<sup>74</sup> (Fig. 861, p. 505.) The outer fibrous coat of the prostate gland is derived in part from the visceral layer of the pelvic fascia and the deep layer of the triangular ligament of the urethra, and in part from a dense but thin fibrous layer peculiar to the prostate beneath the outer fascial investment. To the compound fibrous coat thus formed Macalister gives the name of *pelvi-prostatic capsule*, expressing its joint origin. The *prostatic plexus of veins* ramifies between the two layers of this capsule; and immediately beneath the inner layer is the external layer of unstriated muscular fibres to which Toldt gives the name of *musculus prostaticus*.

<sup>76</sup> *Divisions of the Cervix* (Fig. 873, p. 511).—Most authorities are in agreement with the author in his division of the cervix uteri into two parts only—*vaginal* and *supra-vaginal*. Schroeder, however, speaks of three portions—*infravaginal*, *intermediate*, and *supravaginal*. (See Hart and Barbour's "Gynecology," 3rd ed., pp. 16, 17.)

<sup>76</sup> (Figs. 873, 874, p. 511.) The *mesovarium*, or *mesentery of the ovary*, is the bilaminar fold of peritoneum by which the ovary is attached to the broad ligament of the uterus. (See also note <sup>82</sup> below.)

<sup>77</sup> *Position of the Ovary* (Fig. 873, p. 511).—Owing to the manner in which the broad ligament has been drawn out to its full length, the ovary has been pulled into a horizontal position, differing from that it normally occupies in the body, in which, according to some authorities, its long axis is oblique, according to others, vertical. Hence *in situ* the tubal extremity becomes *superior*; the uterine extremity *inferior*; and the surfaces, here represented as directed upwards and downwards, become *external* and *internal*.

<sup>78</sup> *Vaginal Fornix* (Figs. 873, 874, p. 511).—This is the upper portion of the vagina, surrounding the vaginal portion of the cervix. Most English anatomists, however, speak, not of the vaginal fornix as a whole, but of its four parts: *anterior fornix*, *posterior fornix*, and *right and left lateral fornices*.

<sup>79</sup> *Bursa Ovarica* (Fig. 874, p. 511).—This term is not used by Quain. Macalister describes it as a pouch at the back of the broad ligament of the uterus in which the ovary lies, between the *ovariopelvic ligament* (*ligamentum suspensorium ovarii*, according to Toldt's nomenclature—see also note <sup>8</sup>, p. 511) and the rest of the broad ligament. The *ovarian bursa* must be distinguished from the *ovarian fossa* or *fovea* (*fossa ovarii*, Quain), which is a recess in the parietal peritoneum on the lateral wall of the pelvis, corresponding to the external surface of the ovary, and situated between the external and internal iliac arteries in front of the sacro-iliac articulation; the ovarian fossa is often bounded behind and below by the ureter.

<sup>80</sup> (Fig. 875, p. 512.) Owing to the irregular, torn appearance of the *imbriated extremity* of the Fallopian tube, sur-

rounding the abdominal orifice, this orifice was by ancient anatomists named *morsus diaboli*.

<sup>81</sup> (Ibid.) English anatomists usually speak of separate *uterine* and *vaginal* venous plexuses. These, of course, communicate somewhat freely; but on the whole the venous blood from the body of the uterus passes by means of the uterine plexus to the ovarian or pampiniform plexus and the inferior vena cava, that from the neck of the uterus and the vagina by means of the vaginal plexus to the internal iliac vein.

<sup>82</sup> *Mesometrium*, *Mesovarium*, and *Mesosalphinx* (Figs. 875, 876, p. 512).—As these terms are not employed by all English authorities, I append a description from Von Langer and Toldt's "Anatomy," 7th ed., p. 401: "That portion of the broad ligament of the uterus which passes to the lateral wall of the pelvis, there to become continuous with the parietal layer of the peritoneum, conveys the vessels and nerves and the round ligament to the uterus, and is therefore called the *mesentery of the uterus* or *mesometrium*; that part of the broad ligament which lies between the ligament of the ovary and the Fallopian tube, sometimes rising above the plain of the pelvic inlet, and terminating laterally in a free border (the *infundibulo-ovarian border*) is the *mesentery of the Fallopian tube*, or *mesosalphinx*; and from this there branches off backwards the short *mesentery of the ovary*, or *mesovarium*." (See Fig. 876.)

<sup>83</sup> *Corpus Albicans* (Fig. 876, p. 512).—This name is given to the white, stellate mass of scar tissue into which the *corpus luteum* is ultimately transformed.

<sup>84</sup> *Parametrium* (Fig. 881, p. 513).—This name was first given by Virchow (*Archives*, No. xxiii.) to that part of the subserous connective tissue of the pelvis, abundantly supplied with bloodvessels and lymphatics, that lies beside the cervix and the upper part of the vagina, and between the layers of the broad ligament of the uterus at its lower and inner part. The term *parametrium* is rather a clinical than an anatomical one, and since, as Spiegelberg points out ("Midwifery," Eng. ed., vol. i., p. 43), the name conveys the idea of a definite organ whilst there is no line of demarcation between the parametric and the paravaginal, paravesical, and pararectal tissue, the name *parametric connective tissue* is to be preferred.

<sup>85</sup> (Ibid.) The *anal fascia* is continued in front into what is called (in the male) the *deep* or *superior layer* of the *triangular ligament of the urethra*, and by Macalister called the *subpubic fascia*. The name *anal fascia* is limited to that part which forms the inner wall of the ischio-rectal fossa.

<sup>86</sup> *Rectal Fascia* (Ibid.).—This appears to be the most suitable English equivalent for the author's *fascia diaphragmatis pelvis superior*, the fascia covering the upper surface of the levator ani muscle.

<sup>87</sup> *Pelvic Diaphragm* (Ibid.).—In this the author includes, in addition to the *coccygeus* or *levator coccygis* and *levator ani* muscles, the *superior* and *inferior fasciæ* of the *pelvic diaphragm*—i.e., the *rectal* and *anal fasciæ* of English anatomists. (See also notes <sup>85</sup> and <sup>86</sup>.)

<sup>88</sup> (Fig. 883, p. 514.) *Skene's tubules* (*ductus para-urethrales*) are two canals running parallel with the female urethra on either side, beneath the mucous membrane and embedded in the muscular coat. They open either just within or just without the urethral orifice (within, probably, in the virgin, and without, in the multipara, in whom slight eversion of the urethral orifice is almost constant). Their diameter is about 1 millimetre ( $\frac{1}{16}$  inch), and their length from  $\frac{1}{2}$  to 3 centimetres ( $\frac{1}{2}$  inch to  $\frac{1}{4}$  inches), but they never extend beyond the internal orifice of the urethra. Though not distinctly glandular in character, they are often called *Skene's glands*.

They were first described by Skene in the *American Journal of Obstetrics* for April, 1880. A third tubule, Schüller's tubule, is occasionally present in the middle line behind, midway between Skene's tubules.

<sup>89</sup> *Vestibule* (Ibid.).—Toldt includes in this the space at the sides of the vaginal orifice within the edges of the labia minora, as well as the space in front of that crifice. As defined by English anatomists, however, the *vestibule* is the triangular space of which the clitoris forms the apex, the labia minora the sides, and a transverse line through the front of the vaginal orifice the base.

<sup>90</sup> *Fossa Navicularis* (Ibid.).—Macalister stands alone in applying this term to the space behind the fourchette, between that fold and the posterior commissure of the vulva. By all other authorities the fossa navicularis is defined as the space in front of the fourchette, between it and the posterior margin of the vaginal orifice.

<sup>91</sup> *Bulbus Vestibuli* (Figs. 884, 885, p. 515).—Though this mass of erectile tissue is commonly known in England as the *bulb of the vestibule*, the use of this term is altogether inconsistent, since it is only the partially detached anterior portion (*pars intermedia* of Kobelt) that lies in the region of the vestibule as defined by English anatomists (see note <sup>89</sup> above). Hence the alternative name of *vaginal bulb* is to be preferred.

<sup>92</sup> (Fig. 884, p. 515.) This *venous plexus* is the lower part of the vaginal plexus, which communicates freely behind with the lower part of the hemorrhoidal plexus.

<sup>93</sup> *Marginal Lip of the Clouca* (Fig. 895, p. 520).—The name of *cutaneous fold* or *greater cutaneous fold* is sometimes given to this structure, which forms the scrotum in the male and the labia majora in the female. To avoid confusion, however, it is better to speak of it as the *marginal lip*, and to reserve the name *fold* for the *genital folds* (see Figs. 908-911, p. 524), which develop on each side within the marginal lip, and form in the male (by their fusion in the median line) the floor of the penile urethra, in the female the labia minora or nymphæ.

<sup>94</sup> *Cloaca* (Ibid.).—We must distinguish between the *cloaca*, which is the cavity formed by the united distal extremities of the alimentary and urogenital canals, and the *cloacal orifice*, by which the cloaca opens externally.

<sup>95</sup> *Ligaments of the Wolffian Body* (Figs. 898 and 899, p. 521).—A strand of fibrous tissue mixed with involuntary muscular fibres is attached to each end of the Wolffian body, the upper passing to the diaphragm, the lower to the groin. These are called *superior* and *inferior*, or *diaphragmatic* and *inguinal ligaments of the Wolffian body*; the *inferior* or *inguinal ligament* in England is, however, usually known as the *plica gubernatrix*. As the Wolffian body becomes atrophied, the superior or diaphragmatic ligament disappears; but concurrently with the development of the genital or reproductive gland, in the female into the ovary, in the male into the testis, the *plica gubernatrix* becomes in the former the *round ligament of the uterus*, in the latter the *gubernaculum testis*.

<sup>96</sup> *Genital Cord* (Fig. 899, p. 521).—Behind the stalk of the allantois (subsequently the base of the bladder) the Wolffian ducts are closely approximated to one another before opening into the urogenital sinus (the ventral segment of the cloaca). Between and somewhat behind them lie the uniting lower extremities of the Müllerian ducts. The ducts are all embedded in a mass of connective tissue, and to the whole structure thus formed is given the name of *genital cord*.

<sup>97</sup> (Fig. 919, p. 530.) The *rectococcygeus muscles* are bands of unstriated but reddish muscular tissue which passes

backwards on each side of the rectum. Both Quain and Macalister describe these bands as attached behind to the front of the second and third pieces of the coccyx; but as Toldt points out, and Fig. 919 shows, the actual muscular tissue does not extend so far back as this, and the attachment to the coccyx is through the intermediation of the aponeurosis of the pubic part of the levator ani muscle.

<sup>98</sup> *\*Tendinous Arch of the Levator Ani Muscle* (Ibid.).—“The levator ani muscle arises for the most part from a tendinous arch in the obturator fascia, *arcus tendineus musculi levatoris ani*, which can be traced from the ischial spine to near the obturator canal” (Von Langer and Toldt's "Anatomy," 7th ed., p. 438).

<sup>99</sup> *Diaphragma Urogenitale* (Figs. 920 and 921, p. 531).—The author's application of the term *pelvic diaphragm* has been explained in note <sup>97</sup> above. In that structure there are two apertures—a circular one in the centre for the rectum, and a triangular one anteriorly for the urogenital canal (see Fig. 918, p. 530). The triangular space between the inferior or descending rami of the pubes is, however, too large to be completely filled in by the urogenital canal, and it is occupied by a musculo-fibrous plate bearing the same relation to that canal that the pelvic diaphragm bears to the rectum, and called by the author the *urogenital diaphragm*. The muscular portion of this diaphragm is by the author named *musculus transversus perinei profundus*, and in England *constrictor* or *compressor urethrae*. Its superficial and deep surfaces are covered by fascial layers which, like the muscle, are triangular in shape, with a truncated apex anteriorly and a free base posteriorly; these constitute the bilaminar *triangular ligament of the urethra* of English authors. The *superficial* layer of this ligament, called also *anterior* or *inferior* layer, is the author's *fascia diaphragmatis urogenitalis inferior*; it is continuous around the posterior margin of the (superficial) transverse perineal muscle with Colles's fascia, combining with that fascia to enclose a space in which lies the root of the penis and its accompanying muscles; it thus belongs to the extrapelvic system of fasciæ. The *deep* layer of the triangular ligament of the urethra, called also *posterior* or *superior* layer, is the author's *fascia diaphragmatis urogenitalis superior*; though connected around the posterior margin of the compressor urethrae with the superficial layer of the ligament, it belongs to the intrapelvic system of fasciæ; traced backwards it is seen to be a forward continuation of the *anal fascia*; laterally it joins the obturator fascia. The triangular ligament as a whole is sometimes called the *deep perineal fascia*, but this name should be avoided, having been applied also to Colles's fascia. The name of *subpubic fascia* may also give rise to confusion, being applied by Macalister to the deep layer only of the triangular ligament, but by Quain to that structure in its entirety. The *triangular ligament* exists also in the female, and between its layers lies the *constrictor urethrae* or *transversus perinei profundus* muscle, but the *\*urogenital diaphragm* thus formed is almost completely divided by the vagina and the urethra into lateral halves (see Fig. 921, p. 531).

<sup>100</sup> *Transverse Ligament of the Pelvis* (Ibid.).—This occupies the subpubic angle adjacent to the truncated apex of the triangular ligament of the urethra, on a plane between that of the two layers of that ligament. Between the transverse ligament of the pelvis and the inferior pubic or subpubic ligament (*ligamentum arcuatum pubis*, according to Toldt) which occupies the apex of the subpubic angle are three foramina: a central foramen for the dorsal vein of the penis or clitoris, and lateral foramina for the dorsal artery and nerve of the penis or clitoris (see Figs. 920 and 921,

p. 531, and also Part II., Fig. 456, p. 220, and Figs. 458 and 459, p. 221).

<sup>101</sup> *Transversus Perinei Profundus* (Ibid.).—This name is here applied to the whole triangular mass of muscle between the layers of the triangular ligament, not merely, as is sometimes the case in English works on anatomy, to the posterior strand of transverse fibres only. Other names have been applied, especially by Guthrie and by Wilson, to different strands of fibres, which they described as distinct muscles, but later English authorities agree with Von Langer and Toldt in regarding this separation as purely artificial. In the female, owing to the greater width of the subpubic angle, the muscle is wider than in the male, and the name *transversus perinei profundus* is obviously preferable to that of constrictor urethrae. (See Fig. 921.)

<sup>102</sup> *Internal Pudic Artery and Vein* (Figs. 922 and 923 p. 532).—Macalister calls these vessels *pudic* without qualification. Usually, however, they are known as *internal pudic*, to distinguish them from the *external pudic* branches (*superior* and *inferior*) of the femoral vessels. Macalister calls these latter the *pubic* vessels. (See also note <sup>110</sup> below.)

<sup>103</sup> (Fig. 922, p. 532.) Though the author calls this the *divided edge of the obturator fascia*, it is, rather, the junction of the lower edge of this fascia with the lateral margins of the deep layer of the triangular ligament, the latter having been dissected off the upper surface of the transversus perinei profundus muscle. (See also notes <sup>99</sup> and <sup>101</sup> above.)

<sup>104</sup> *M. Sphincter Urethrae Membranacea* (Ibid.).—The muscle called by the author the *sphincter of the membranous urethra* consists merely of the circular fibres of the transversus perinei profundus muscle (see note <sup>101</sup> above) immediately surrounding the membranous part of the urethra.

<sup>105</sup> *\*Pudendal Venous Plexus* (Fig. 923, p. 532).—This term is not employed by English anatomists. Von Langer and Toldt ("Anatomy," 7th ed., p. 550) write: "The *pudendal plexus* receives beneath the symphysis the dorsal vein of the penis or clitoris, and, running back beside the base of the bladder and in the female beside the vagina, receives in both sexes the blood from the vesical plexus, and in the female also the blood from the uterine and vaginal plexuses. The pudendal plexus opens by several large vessels into the internal iliac vein." From this account it is evident that the pudendal plexus of these authors is made up of veins belonging in the male to the prostatic and vesical plexuses, and in the female to the vesical, vaginal, and uterine plexuses, of English anatomists.

<sup>106</sup> *Fascia Endopelvicina* (Ibid.).—Von Langer and Toldt's "Anatomy," 7th ed., p. 444: "The *visceral layer of the pelvic fascia* is exposed by the removal of the peritoneum and the subserous areolar tissue from the parietes of the bladder and the rectum. It is given off along the *white line of the pelvic fascia* [see note <sup>99</sup> above] from the *parietal layer* of that fascia (*obturator fascia*), and, reaching the bladder, gives a complete fibrous investment to its anterior and lateral surfaces. Along the white line, the visceral layer is connected with the rectal fascia (*fascia diaphragmatis pelvis superior*), but as they pass inwards the two layers separate, the rectal fascia, following the levator ani, the upper surface of which it covers, dips deeply into the pelvis, whilst the visceral layer stretches transversely across to the bladder. Thus, between the rectal fascia and the visceral layer there

exists on each side of the bladder a space, the *perivesical space*, in which, in addition to the ureter, the nerves of the bladder and the vesical plexus are enclosed. Behind the bladder, the visceral layer of the pelvic fascia assists in forming the pelvisprostatic capsule or prostatic fascia [see note <sup>74</sup> above], and furnishes a delicate fibrous investment for the rectum."

I quote this passage in order to indicate clearly the significance attached in this work to the names given to the different parts of the pelvic fascia. Three layers pass inwards from the parietal layer of the pelvic fascia: the lowest of these, the *anal fascia*, covers the perineal surface of the levator ani; the next layer, the *rectal fascia*, covers the pelvic surface of that muscle: these correspond with the *superior* and *inferior fascia of the pelvic diaphragm* in the author's nomenclature. The uppermost layer is that described in the above extract as the *visceral layer of the pelvic fascia*. The relative positions of the three layers are well shown in Fig. 923. It will be noticed that I have avoided the use of the term *rectoesophageal fascia*, which is in England applied, sometimes to all three of the layers just enumerated, sometimes to one or two of them separately considered, and this gives rise to much confusion. The complexity that is apt to surround the description of the pelvic fascia is also, doubtless, in part dependent on the fact that, as Macalister says, "much of the definiteness of these layers in the adult is created by the knife and forceps" ("Anatomy," p. 446).

<sup>107</sup> *Hypogastric Artery* (Fig. 924, p. 533).—In the German anatomical nomenclature, the *common iliac* is said to divide into the *external iliac* and the *hypogastric arteries*. In England, however, the name *hypogastric artery* is given to that branch of the *internal iliac artery* which at the navel becomes the *umbilical artery*. When the placental circulation ceases, it is obliterated, and is represented in the adult by a fibrous cord.

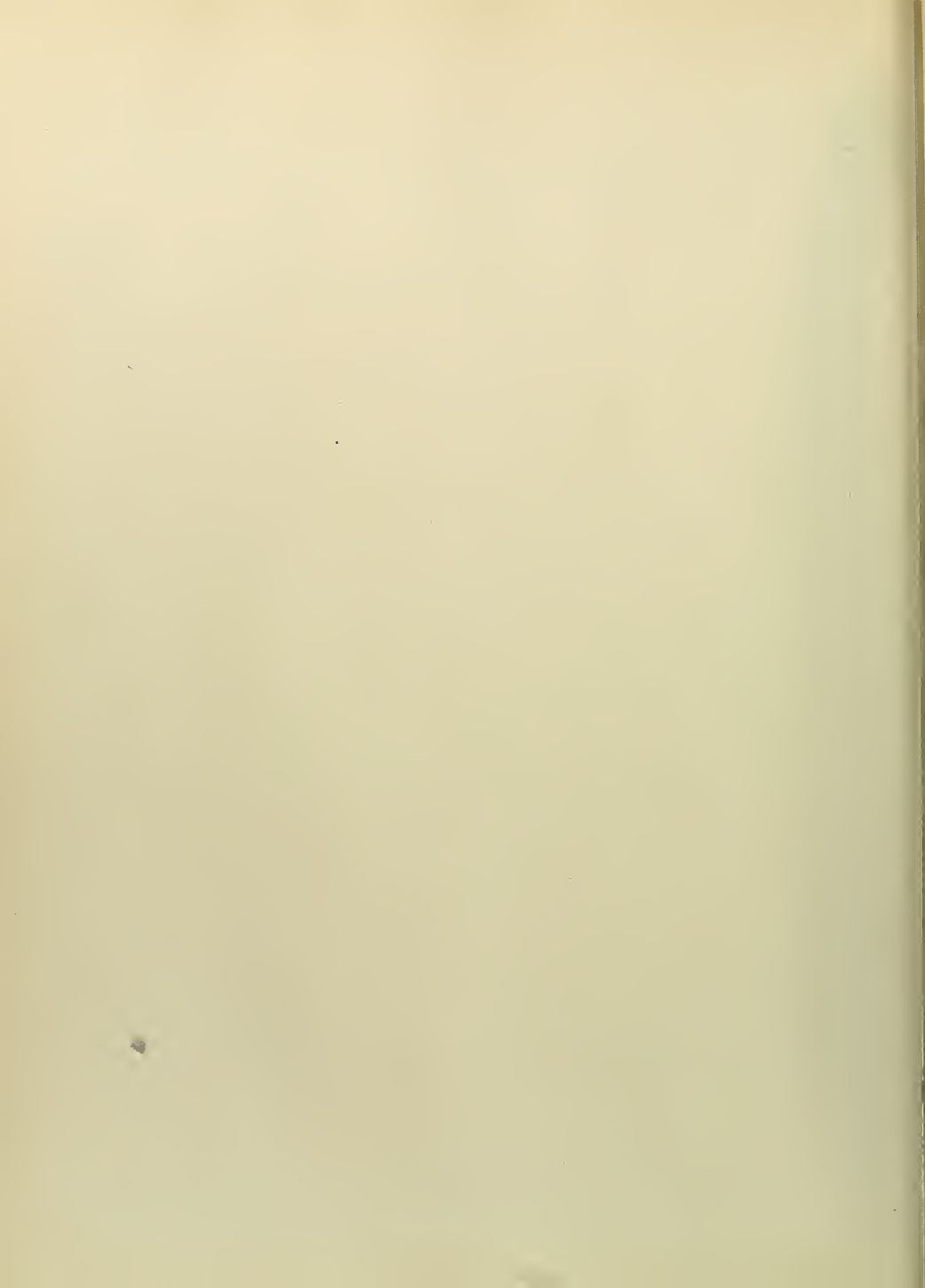
<sup>108</sup> *\*Corpus Spongiosum Urethrae* (Fig. 927, p. 535).—This term, as applied to the female urethra, is not found in any works on anatomy to which I have access, not even in Von Langer and Toldt's "Anatomy." Quain (*op. cit.*, vol. iii., part iv., p. 258) writes: "Outside the submucous areolar tissue of the female urethra, there is a highly vascular structure, in which are many large veins"; and according to Macalister (*op. cit.*, p. 454): "Outside the mucoosa [of the female urethra] is an elastic vascular submucosa covered by an imperfect erectile lamella. The use of the name *corpus spongiosum urethrae* for this erectile tissue is to be deprecated, suggesting as it does homology with the corpus spongiosum urethrae of the male. The counterparts of this structure in the female are the *vaginal bulbs* and the *partes intermediae* of Kobelt. (See Figs. 884 and 885, p. 515, and note <sup>94</sup> above.)

<sup>109</sup> *Rectal Ampulla* (Fig. 932, p. 538).—This is the portion of the rectum, usually dilated, situate immediately above the *anal canal*. According to Macalister, the upper boundary of the *ampulla* is the lowest of *Houston's valves*; according to Quain, however, the middle one of these three folds (the *plicae transversalis recti* of Kohlrusch—see note <sup>11</sup> above). The *rectal ampulla* is sometimes known as the *ampulla analis recti*.

<sup>110</sup> (Ibid.) The pudic vessels run in a canal formed by the obturator fascia, shown here (and also in Fig. 922, p. 532) in cross-section, and known as *Alcock's canal*. For the nomenclature of these vessels see note <sup>102</sup> above.



INDEX  
TO THE  
SPLANCHNOLOGY



# INDEX

## TO THE SPLANCHNOLOGY

Certain names in this Index have an asterisk (\*) prefixed; these, as more fully explained in the Translator's Preface, being terms that form part of the English nomenclature used in this work, but which are not commonly employed by English anatomists. To other names a dagger (†) is prefixed; these are Latin names used by the author in the original work, but not included in the official nomenclature of the "Anatomische Gesellschaft." Abbreviation: App.= Appendix.

### A.

ABDOMINAL ring, external, 501  
     superficial, 501  
     viscera, projection outlines of, 486-488

Acētus laryngis, 434, 435, 461

Adrenal, 480, 492, 494, 495, 521

Adventitious coat of the pharynx, 466 and App., note <sup>14</sup>

Ala nasi, 412  
     of the thyroid cartilage, left, 458  
     right, 458

Alimentary canal, 438-445

†Allantois, 468, 520

Alveoli of the mucous membrane of the gall bladder, 449  
     pulmonary, 465  
     pulmonum, 465

Alveolus dentalis, 426, 431  
     of tooth, 426, 431

†Amnion, 468, 518, 519

Ampulla analis recti, 538 and App., note <sup>100</sup>  
     ductus deferentis, 466, 500, 504, 505, 532  
     of the Fallopian tube, 511-513  
     rectal, 538 and App., note <sup>103</sup>  
     recti, 538  
     tubæ uterinæ, 511-513  
     of the vas deferens, 466, 500, 504, 505, 532

Ampulla of the galactophorous ducts, 567

Amygdala, 411 and note, 434-436

Anal portion of the rectum, 445, 538

Anatomy, topographical, of—  
     abdominal viscera, 454-488  
     bladder, 404, 496, 510, 511, 513, 532-537  
     cæcum, 472-475, 485-487, 521, 522  
     colon, 472-476, 481, 485-487  
     duodenum, 478, 479, 481, 482, 487, 495  
     Fallopian tube, 537  
     gall bladder, 476, 482, 495  
     heart, 471, 482, 484, 486  
     intestine (large), 472-476, 481, 485-487  
     (small), 472, 473, 481  
     kidneys, 480, 481, 483, 485, 487, 494, 521  
     larynx, 511  
     liver, 476, 480, 482-487, 495  
     lungs, 471, 476-478, 482-487, 494  
     oesophagus, 411, 456, 470, 471, 478, 479, 487  
     ovary, 537  
     pancreas, 478-480, 483, 484, 495  
     pelvic viscera, 532-538  
     peritoneum, 456, 472-484, 494, 495, 513, 533-538  
     pleura, 470, 471, 476-479, 481-488, 494  
     prostate gland, 467, 532, 534  
     rectum, 486-488, 533-538  
     salivary glands, 424, 425  
     spleen, 479, 480, 482-484, 486, 487, 495  
     stomach, 472, 476, 477, 480, 482-484, 486, 487, 495, 522  
     suprarenal capsules, 480, 483, 494, 495, 521  
     testis, 501  
     thoracic and abdominal viscera, 470-488  
     thymus gland, 410, 411, 467, 476  
     thyroid body, 411, 470  
     trachea, 411, 470, 471, 478, 482  
     tube, Fallopian, 537  
     ureter, 464, 532-536  
     urethra (female), 510, 511, 535

Anatomy, topographical, of—  
     urethra (male), 533, 534  
     uterus, 513, 535, 537  
     vesiculæ seminales and vasa deferentia, 466, 532-534  
     viscera, abdominal, 454-488  
     pelvic, 532-538  
     thoracic and abdominal, 470-488

Angle of the mouth, 412, 415-417

\* Venous, 482 and note

Angulus oris, 412, 415-417  
     venosus, 482 and note

Annulus hæmorrhoidalis, 445, 538  
     inguinalis abdominalis, 533  
     subcutaneous, 501  
     urethralis, 498, 506

Antrum of Highmore, 414  
     pyloricum, 438

Anus, 488, 514, 520, 524, 526-529, 534, 535, 538

Aorta, abdominal, 481, 487, 494, 495, 521, 536  
     arch of, 478, 479, 482  
     ascending, 410, 411, 471, note, 482, 486  
     bulb of, 471 and App., note <sup>88</sup>  
     descending thoracic, 470, 471, 478-480, 487

Aortic arch, 478, 479, 482

Aperture, auriculoventricular, left, 471  
     right, 471  
     of the glottis, 450, 461  
     interarytenoid portion, 461  
     intercordal portion, 461  
     respiratory portion, 461  
     vocal portion, 461  
     inguinal, external, 501  
     internal, 533  
     of the larynx, superior, 434, 435, 461  
     of the mouth, 411, 412  
     of the vestibule of the larynx, 461

\* Apex of the bladder, 404, 466, 534, 536, 537  
     cartilaginæ arytenoidæ, 458 and note  
     cordis, 482, 486  
     of the heart, 482, 486  
     linguæ, 415, 419, 420  
     of the lung, 463, 464, 483, 485, 487  
     nasi, 412  
     of the prostate gland, 505  
     pulmonis, 463, 464, 483, 485, 487  
     radicis dentis, 426, 427  
     of the root of tooth, 426, 427  
     of the suprarenal capsule (right), 492

Apneurosis, palatine, 417, 418  
     pharyngeal, 432, 433, 436

Apparatus digestorius, 400-466  
     genito-urinary, 480-524  
     respiratorius, 457-467  
     urogenitalis, 480-524

Appendices epiploicæ, 443

Appendix, auricular, 411, note  
     left, 484  
     right, 410, 411, 471  
     epididymidis, 502, 520  
     fibrosa hepatis, 446, 447, 454  
     fibrosa of the liver, 446 and App., note <sup>14</sup>, 447, 454  
     testis [Morganii], 500, 502, 520, 521  
     ventriculi laryngis, 460, 461  
     vermiciform, 444, 445, 474, 475, 537



- Appendix, vesiculosa [Morgagnii], 512, 520  
 Arbor vite uterina, 512  
 Arch of the aorta, 478, 479, 482  
 of the cricoid cartilage, 458  
 dental, inferior, 419  
 superior, 419  
 glossopalatine, 415-419, 421  
 palatine, anterior, 415-419, 421  
 posterior, 415-418, 434, 436  
 pharyngopalatine, 415-418, 434, 436  
 tendinous, of the levator ani muscle, 530 and App.,  
 note <sup>38</sup>, 532  
 of the pelvic fascia, 497 and App., note <sup>49</sup>,  
 532, 533,  
 venous, jugular, 410 and note  
 Arched summit of the pharynx, 411, 436  
 Arches, arterial, of the kidney, 491, 493  
 venous, of the kidney, 493  
 Arcus aortæ, 478, 479, 482  
 cartilaginis cricoideæ, 458  
 dentalis, inferior, 419  
 superior, 419  
 glossopalatinus, 415-419, 421  
 pharyngopalatinus, 415-418, 434, 436  
 tendineus fasciæ pelvis, 497, 532, 533  
 m. levatoris ani, 530, 532  
 Area cribrosa renis, 492 and App., note <sup>41</sup>  
 Areola mammae, 517  
 Arteria *vel* arteriæ:  
 arciformes renis, 491, 493  
 bronchiales, 464  
 cœliacæ, 451, 494  
 deferentiales, 501, 502, 533  
 dorsalis clitoridis, 531  
 penis, 508, 531  
 epigastrica, inferior, 533  
 gastrica brevis, 450  
 sinistra, 451  
 gastro-epiploica sinistra, 450  
 hepatica, 446, 451  
 hypogastrica, 533  
 iliaca communis, 533  
 externa, 533  
 interlobulares renis, 493  
 lienalis, 441, 450, 451  
 lingualis, 410, 424, 425  
 mesenterica, inferior, 451  
 superior, 451, 479, 494, 495  
 obturatoria, 533  
 omphalomesenterica, 521  
 ovarica, 511  
 profunda linguæ, 414, 421  
 penis, 506, 508  
 pudenda interna, 513, 532, 537  
 pulmonalis, 471, 482, 486, 488  
 ramus dexter, 410, 411, 456, 465, 471  
 sinister, 464, 465  
 rectæ, App., note <sup>50</sup>  
 renalis, 490, 491, 494  
 spermatica interna, 494, 501  
 submaxillaris, 405  
 suprarenales superiores, 492  
 suprarenales, inferior, 492  
 testicularis, 501, 522  
 thyreoidea, inferior, 410, 470  
 superior, 410, 425  
 umbilicales, 519, 521-523  
 uterina, 512  
 uteroplacentaris, 510  
 † Arterial arches of the kidney, 491, 493, and App., note <sup>54</sup>  
 Arteriolæ rectæ renis, 493 and App., note <sup>50</sup>  
 Artery or arteries:  
 bronchial, 464  
 cœliacæ, 451, 494  
 coronary of the stomach, 451  
 of the corpus cavernosum, 506, 508  
 deferential, 501, 502, 533  
 dorsal, of the clitoris, 531  
 of the penis, 508, 531  
 epigastric, deep, 533
- Artery or arteries:  
 epigastric, inferior, 533  
 external maxillary, 410 and note  
 facial, 410 and note  
 gastric, 451  
 short, 450  
 gastro-epiploic, left, 450  
 hepatic, 446, 451  
 hypogastric, 533 and App., note <sup>107</sup>  
 obliterated, vestige of, 533  
 iliac, common, 533  
 external, 533  
 internal, 533  
 interlobular, of kidney, 493  
 lingual, 410, 424, 425  
 mesenteric, inferior, 451  
 superior, 451, 479, 494, 495  
 obturator, 533  
 omphalomesenteric, 521  
 ovarian, 511  
 of the penis, deep, 506, 508  
 dorsal, 508, 533  
 pudic, internal, 513, 532, 537  
 pulmonary, 471, 482, 486, 488  
 left, 464, 465  
 right, 410, 411, 456, 465, 471  
 radiate, of kidney, 493  
 ranine, 414, 421  
 renal, 490, 491, 494  
 short gastric, 450  
 spermatic, 494, 501, 522  
 splenic, 440, 450, 451  
 straight (true and false), of kidney, 493 and App.,  
 note <sup>56</sup>  
 suprarenal, inferior, 492  
 superior, 492  
 thyroid, inferior, 410, 470  
 superior, 410, 425  
 umbilical, 519, 521-523  
 uterine, 512, 519  
 uteroplacental, 519  
 of the vas deferens, 501, 502, 533  
 vitelline, 521  
 Articulatio crico-arytenoidea, 459  
 cricothyroidea, 459, 460  
 Articulation, corniculo-arytenoid, 459 and App., note <sup>58</sup>  
 crico-arytenoid, 459  
 cricothyroid, 459, 460  
 Atrium, 411, note  
 (cordis) dextrum, 411, 471, 486  
 sinistrum, 411, 465, 471  
 of the left auricle, 411, 465, 471  
 of the right auricle, 411, 471, 486  
 Auricle, 411, note  
 (equivalent to "pinna"), 424  
 left, 411, 465, 471  
 right, 411, 471, 486  
 Auricula cordis dextra, 410, 411, 471  
 sinistra, 484  
 Axis, cœliacæ, 451, 494
- B.**  
 Band, ventricular, 461  
 Bands of longitudinal muscular fibres of the colon, 443, 444  
 anterior, 444, 473, 478  
 free, 443, 444, 473, 474  
 inner, 443, 444, 473, 474  
 mesocolic, 443, 444  
 omental, 444, 473, 478  
 posterior, 443, 444  
 Bar, Mercier's, 498 and App., note <sup>61</sup>  
 Bartholin, duct of, 424 and App., note <sup>3</sup>  
 Bartholin's glands, 500, 514-516, 535  
 Base of the arytenoid cartilage, 458 and App., note <sup>28</sup>  
 of the bladder, 496, 497, 532, 533  
 of the lung, 464, 483, 485  
 of the nose, 412  
 of the prostate gland, 496, 505  
 of the renal pyramid, 491, 492  
 of suprarenal capsule, 492 and App., note <sup>62</sup>  
 Basement membrane, 404

- Basis cartilaginis arytanoideæ, 458 and App., note <sup>20</sup>  
 glandulæ suprarenalis, 492  
 nasi, 412  
 prostata, 496, 505  
 pulmonis, 464, 483, 485  
 pyramidis (renis), 491, 492
- Bauhin, valve of, 444 and note  
 Bell's muscles, App., note <sup>61</sup>  
 Bellini, ducts of, 492, 493  
 Bertin, columns of (renal), 491, 492  
 Bifurcatio tracheæ, 411, 492  
 Bifurcation of the trachea, 411, 462  
 Bile-duct, common, 440-442, 446, 449, 468  
 Bladder, gall-, see "Gall-bladder"  
 urinary, 456, 480, 487, 496-498, 500, 504, 510, 511,  
 513, 520-523, 533-537
- Blandin's gland, 420, 421  
 Blood-supply of medulla of kidney, App., note <sup>24</sup>  
 Body of the bladder (gall-), 449  
 (urinary), 496, 497, 535, 536  
 of the breast, 517  
 of the clitoris, 515  
 of the epididymis, 502  
 of the gall-bladder, 449  
 of the pancreas, 441, 480  
 of the penis, 507, 526, 534  
 of the seminal vesicle, 504  
 of the stomach, 438, 480, 482, 484  
 suprarenal, 480, 492, 494, 495, 521  
 thyroid, 408, 411, 434, 466, 467, 470  
 accessory, 466  
 of the tongue, 414, 419  
 of the uterus, 510, 511, 513, 518, 535, 537  
 Wolffian, 468, 520, 521
- Border of the kidney, external, 490, 491  
 internal, 490, 491  
 of the liver, anterior, 446, 462, 486  
 of the lung, anterior, 464, 486  
 inferior, 464, 483, 485-488  
 of the mesosalpinx infundibulo-ovarian, App.,  
 note <sup>82</sup>  
 of the ovary, anterior, 511  
 attached, 511  
 convex, 511, 537  
 free, 511, 537  
 posterior, 511, 537  
 straight, 511  
 of the pancreas, anterior, 441  
 posterior, 441  
 superior, 441  
 of the prepuce, free, 508  
 of the spleen, anterior, 450  
 inner, 450  
 posterior, App., note <sup>18</sup>  
 striated, 404  
 of suprarenal capsule, internal, 492  
 superior, 492  
 of the testicle, anterior, 502, 503  
 posterior, 502  
 of uterus, lateral, 512
- Boundaries of the trigone of the bladder, App., note <sup>61</sup>  
 Bowman's capsule, 403  
 Branches of arterial arches of kidney, recurrent straight,  
 App., note <sup>68</sup>  
 bronchial, 462, 463, 465, 483, 485  
 of the hepatic duct, 448  
 splenic, of the splenic artery, 450
- Breast, the, 471, 517  
 supernumerary, 517  
 Bronchi (right and left), 462-465, 470, 471, 478  
 Bronchial branches, 462, 463, 465, 483, 485  
 Bronchioles, 465  
 lobular, 465  
 respiratory, 465
- Brunner's glands, 407, 442  
 Bucca, 412  
 Buccal fat-pad, 414 and note  
 Bulb of the aorta, 471 and App., note <sup>28</sup>  
 of the urethra, 500, 504, 506, 507, 533, 534  
 vaginal, 515 and App., note <sup>61</sup>, 515
- Bulb of the vestibule, 515 and App., note <sup>21</sup>, 535  
 Bulbus aortæ, 471  
 urethræ, 500, 504, 506, 507, 533, 534  
 vestibuli (vaginae), 515, 535
- Bursa omentalis, 452, 456, 498, 470-480, 484, 495  
 ovarica, 511 and App., note <sup>19</sup>, 537  
 pharyngea, 434 and note, 436
- C.
- Cacum, 444, 455, 472-475, 480-488, 536  
 rudiment of, 451  
 Calices of the kidney, 491 and App., note <sup>60</sup>, 492  
 Calyces renales, 491, 492  
 majores, 491  
 minores, 491, 493
- Canal, Alcock's, App., note <sup>110</sup>  
 alimentary, 438-445  
 anal, 445, 538  
 cervical, or uterus, 511, 512, 518  
 of the epididymis, 502, 503  
 incisor, 416 and note  
 nasopalatine, remnant of, 416 and note  
 obturator, 530  
 pulp, 420, 427  
 of Stensen, 416 and note  
 Canalis cervicis uteri, 511, 512, 518  
 radialis dentis, 426, 427
- Canals, portal, 448
- Capsula adiposa renis, 479, 481, 484, 485  
 articularis crico-arytanoideæ, 459  
 fibrosa [Glissoni], 448, 482  
 glomeruli, 403
- Capsule of the corpora cavernosa, fibrous, 506, 508  
 of the crico-arytenoid articulation, 459  
 of Glisson, 448, 482  
 of Graafian follicle, fibrous, 512  
 of glomerulus, 493  
 of the kidney, fatty, 479, 481, 484, 485  
 fibrous, 491, 493  
 pelvi-prostatic, 505 and App., note <sup>14</sup>, 532  
 of the spleen, fibrous, 450  
 of the submaxillary gland, 424  
 suprarenal, 480, 492, 494, 495, 521  
 accessory, 492  
 of the testicle, fibrous, 503
- Caput epididymidis, 502, 503, 521, 522  
 gallinaginis, 498 and note, 505, 506  
 pancreatis, 440, 441
- Cardia, 438, 439, 477, 484, 486, 487  
 Carina urethralis (vaginae), 514, 516
- Cartilage or cartilages:  
 arytenoid, 458 and App., note <sup>28</sup>, 459, 461  
 bronchial, 465  
 corniculate, 458  
 cricoid, 433, 458, 459, 462  
 cuneiform, 460  
 of the epiglottis, 420, 458, 459, 461  
 Eustachian, 410, 435, 436  
 of the external auditory meatus, 424  
 of the larynx, 458  
 of Santorini, 458  
 thyroid, 420, 433, 458-460, 462  
 tracheal, 401, 462  
 triticea, 459, 460  
 of Wisberg, 460
- Cartilage or cartilages:  
 arytanoideæ, 458 and App., note <sup>28</sup>, 459, 461  
 bronchiales, 465
- +  
 corniculata [Santorini], 458  
 cricoidea, 433, 458, 459, 462  
 cuneiformis [Wisbergi], 460  
 epiglottica, 420, 458, 459, 461  
 laryngis, 458  
 thyreoidea, 420, 433, 458-460, 462  
 tracheales, 461, 462  
 triticea, 459, 460  
 tubæ auditivæ, 410, 435, 436
- Caruncula major of duodenum, 440 and App., note <sup>8</sup>  
 sublingualis, 410, 424

- Carunculae hymenales, 514  
     myrtiformes, 514  
 Cauda epididymidis, 502, 503  
     pancreatis, 441, 480, 483  
 Cavity, abdominal, 472-488  
     of the amnion, 518  
     of cervix uteri, 511, 512, 518  
     lymphical, 411, 461  
     mediastinal, anterior, 456, 471, 476, 404  
         posterior, 410, 456, 470, 471, 479, 483  
         see also "Mediastinum," and in addition  
         footnote to p. 410 and App., note 21  
     nasal, 410, 411  
     oral, 414, 414-423, and note to p. 414  
     pelvic, 467, 536  
     pericardial, 410, 411, 456, 471, 482, 484  
     peritoneal, 408, 452, 456, 480, 481, 484, 495  
         lesser, see "Sac, omental"  
     pharyngeal, 415, 416, 434, 461  
     pulp, 426, 427  
     of Retzius, 456, 534  
     uterine, 511, 512, 518  
     visceral, of head and neck, 410  
 Cavum dentis, 426, 427  
     Douglasi, 535, 537  
     laryngis, 411, 461  
     mediastinale anterius, 456, 471, 476, 404  
         posterius, 410, 456, 470, 471, 479, 483  
     nasi, 410, 411  
     oris, 411, 414-423  
     pelvis, 467, 536  
     pericardii, 410, 411, 456, 471, 482, 484  
     peritonæi, 408, 452, 456, 480, 481, 484, 495  
     pharyngis, 415, 416, 434, 461  
     pleuræ, 467, 471, 476, 479, 480, 482-484  
     uteri, 511, 512, 518  
 † Cells: callicæ, 406  
     ciliated, 404  
     columnar, 404, 406  
     cubical, 404  
     cylindrical, 404  
     fusiform, 404  
     glandular, 405  
     goblet, 406  
     pavement, 404  
     pyramidal, 404  
     sphenoidal, 404  
 Cement, 426  
 Centrum tendineum (diaphragmatis), 446, 485  
 Cervix of the bladder, 406 and App., note 20  
     of the glans penis, 508  
     uteri, 510-513, 518  
         divisions of, App., note 18  
 Cheek, 412  
 Chin, 412  
 Choanæ, 434, 435  
 † Chorda dorsalis, 468  
 † Chorion, 468, 518, 519  
 Cilia, 404  
 Cisterna chyli, 404  
 Cleft, vulval, 514  
 Clitoris, 500, 514-516, 520  
 Cloaca, 520 and App., note 24, 524  
 Coat, adventitious, 407  
     of the pharynx, 466 and App., note 24  
     fibrous, of the kidney, 491, 493  
         of the spleen, 450  
     mucous, 406, 407  
     muscular, 406, 407, 452  
         of the bladder, 496-498  
         of the ileum, 407  
         of the rectum, 445  
         of the stomach, 439  
         of the urethra (female), 408  
         of the uterus, 512, 518, 519  
         of the vas deferens, 501  
     serous, 407, 408  
         of the spleen, 450  
 Cœliac axis, 451, 404  
 Cœlum, see "Cavity, visceral"  
 Colic extremity of the ileum, 444  
 Colliculus cartilaginis arytenoideæ, 458 and App., note 24  
     seminalis, 498, 505, 506  
 Collum dentis, 426, 430  
     glandis, 508  
     vesicæ fellæ, 449  
 Colon, 443, 451-456, 472-487  
     ascending (ascendens), 444, 453, 473, 475, 485-488, 522,  
         536  
     descending (descendens), 455, 474, 485, 486, 536, 537  
     hepatic flexure (flexura dextra), 472, 473, 475, 477,  
         482  
     sigmoid flexure (sigmoideum), 455, 474, 475, 521, 522,  
         534-537  
     splenic flexure (flexura sinistra), 451, 453, 474, 477-  
         479  
     transverse (transversum), 443, 446, 473-475, 481, 482,  
         485, 486, 488  
 Column, vaginal, anterior, 514 and note, 516  
     posterior, 514 and note, 516  
 Columna nasi, 411  
     rugarum anterior, 514, 516  
         posterior, 514, 516  
 Columnæ rectales [Morgagnii], 445  
     renales [Bertini], 491, 492  
 Columns of Bertin (renal), 491, 492  
     of the rectum, 445 and App., note 18  
 Commissura labiorum (oris), 419  
     (pudendi) anterior, 514  
     posterior, 514  
 Commissure of the lips, 419  
     of the vulva, anterior, 514  
     posterior, 514  
 \*Cone, elastic, 450 and App., note 20  
 Coni vasculosi, 502, 503 and App., note 22  
 Connective tissue, parametric, 513 and App., note 21, 535  
 Conus elasticus (laryngis), 459  
 Cooper, Astley, fascia propria of, App., note 68  
 Cord, genital, 521 and App., note 26  
     spermatic, 501, 502, 523  
     umbilical, 518, 519, 521, 522  
     vocal, false, 461  
         inferior, 459, 461  
         superior, 461  
         true, 459, 461  
 Corium, see "Tissue, areolar"  
 Cornicula laryngis, 458  
 Cornu inferius cartilaginis thyreoideæ, 458  
     superius cartilaginis thyreoideæ, 458  
     of the thyroid cartilage, great, 458  
         inferior, 458  
         small, 458  
         superior, 458  
 Corona dentis, 426-430  
     glandis, 506-508  
 Corpus adiposum buccæ, 414  
     albicans, 512 and note  
     cavernosum penis, 500, 504, 506-508  
         urethræ, 500, 506-508, 527  
     clitoridis, 515  
     epididymidis, 502, 503  
     glandularæ prostatæ, 505  
     Highmori, 503  
     linguæ, 414, 419  
     luteum, 512, 518  
     mammarum, 517  
     Morgagni, App., note 69; see also "Hydatid of Mor-  
         gagni"  
     pancreatis, 441, 480  
     penis, 507, 526, 534  
     spongiosum urethræ, 500, 506-508, 527  
 † muliebris, 535 and App., note 108  
     uteri, 510, 511, 513, 518, 535, 537  
     ventriculi, 438, 480, 482, 484  
     vesicæ fellæ, 449  
         (urinariæ), 496, 497, 535, 536  
     vesiculæ seminalis, 504  
     Wolffi, 468, 520, 521



- Corpuscles, Malpighian, of the kidney, 493  
of the spleen, 450  
of the Wolffian body, 520
- Corpuscula renis (Malpighii), 493
- Cortex of the kidney, 491-493  
of the suprarenal capsule, 492
- Cotyledons of the placenta, 519
- Cowper's glands, 500, 504, 509
- Crena ani, 514, 528, 538  
chitium, 514, 528, 538
- \*Crest of the urethra (female), 498 and App., note \*\*  
(male), 498 and App., note \*\*, 505, 506
- Crista arcuata cartilaginis arytanoides, 458 and App., note \*\*  
urethralis (muliebris), 498  
(virilis), 498, 506
- Crown of tooth, 426-430
- Crura of the diaphragm, 470, note
- Crus clitoridis, 515  
penis, 504, 506, 507, 534
- Crusta petrosa, 426
- Crypt of a lingual lymphoid follicle, 423
- Crypts of Lieberkühn, 407, 442, 443  
tonsillar, 418
- Cul-de-sac of the stomach, great, 438, 477, 483, 484, 486  
small, 438
- Cumulus oophorus, 512
- Cupula pleurae, 467, 470, 476-479, 483, 485, 487, 488
- Curvatura ventriculi major, 438, 450, 476, 478, 486  
minor, 438, 439
- Curvature of the stomach, great, 438, 450, 476, 478, 486  
small, 438, 439
- \*Curve of the rectum, perineal, 534 and note, 535, 538  
sacral, 534 and note, 535, 538
- \*Curves of the rectum, 534, note
- Cushion of the epiglottis, 461  
of the Eustachian tube, 434, 436
- Cusps of the crowns of the teeth, 427-429
- Cuticula, 404
- Cuticular layer, 404
- D.
- Dartos tunic, 501
- Decidua reflexa, 518  
serotina, 518, 519  
vera, 518
- Dens serotinus, 429, 430
- Dental pulp, 426
- Dentes, 426-431  
canini, 426-431  
decidui, 427, 428, 431  
incisivi, 426-431  
inferiores, 427  
molares, 427-431  
permanentes, 427-431  
præmolares, 427, 429-431  
superiores, 427
- + Dentine, 426, 427
- Dentition, 428, 429, 431
- Descensus testis, 522, 523
- Descent of the testicle, 522, 523
- Diaphragm, 470, 479, 482-487, 494, 521, 522  
of the mouth, 414  
pelvic, 513 and App., note \*\*, 528, 529, 533, 534  
urogenital, 520, 531 and App., note \*\*, 532-535
- Diaphragma, 470, 479, 482-487, 494, 521, 522  
oris, 414  
pelvis, 513, 528, 529, 533, 534  
urogenitale, 529, 531-535
- Digestive organs, 409-456  
abdominal and pelvic portions, 437-456  
cephalic and cervical portions, 409-436
- Discus proligerus, 512
- † Diverticula ampullæ (ductus deferentis), 504
- † Diverticulum duodenale [Vateri], 440, 442  
of Vater, 440 and App., note \*, 442
- Dorsum linguæ, 411, 416, 417, 419  
nasi, 412  
of the nose, 412  
of the tongue, 411, 416, 417, 419
- Douglas, fold of, 510 and note, 511, 534, 537
- Douglas, pouch of, 510, note, 511, 513, 535, 537
- Duct or ducts :  
Bartholin's, App., note \*  
of Bellini, 492, 493  
bile, common, 440-442, 446, 449, 468  
of Cowper's gland, excretory, 504, 506, 534  
cystic, 446, 449  
ejaculatory, 498, 500, 504-506  
excretory, 405, 406  
galactophorous, 517  
of Gartner, 512, 520, 521  
hepatic, 446, 449  
lingual, 420 and App., note \*  
mamillary, 517  
mesonephric, 468, 520, 521  
Müllerian, 520, 521  
pancreatic, 440-442  
accessory, 440-442  
para-urethral, 514 and App., note \*\*, 516  
parotid, 413, 416, 424, 425  
pronephric, 520, 521  
prostatic, 498, 505  
Rivini's, App., note \*  
of Rivinus, App., note \*  
Santorini's, 440-442  
seminal, 498, 500, 504-506  
of seminal vesicle, excretory, 504, 505  
Stensen's, 413, 416, 424, 425  
sublingual, greater, 424 and App., note \*  
lesser, 424 and App., note \*  
submaxillary, 414, 424, 425  
of testicle, efferent, 502, 503  
thyroglossal, App., note \*  
umbilical, 468  
vitelline, 468  
Walther's, App., note \*  
Wharton's, 414, 424, 425  
Wirsung's, 440-442  
Wolffian, 468, 520, 521
- Ductuli alveolares, 465  
efferentes testis, 502, 503  
epoophori transversi, 512
- Ductulus aberrans (inferior), 502, 503, 520  
(superior), 502, 503
- Ductus choledochus, 440-442, 446, 449, 468  
communis choledochus, 440-442, 446, 449, 468  
cysticus, 446, 449  
deferens, 404, 406, 500-504, 520, 522, 523, 533, 536  
ejaculatorius, 498, 500, 504-506  
epididymidis, 502, 503  
epoophori longitudinalis [Gartneri], 512, 520, 521  
excretorius, 405  
glandulæ bulbo-urethralis, 504, 506, 534  
vesiculæ seminalis, 504, 505  
hepaticus, 446, 449  
incisivus, 416  
lactiferi, 517  
lingualis, 420  
Muelleri, 520, 521  
nasopharyngeus, App., note \*  
omphalo-entericus, 468  
pancreaticus accessorius [Santorini], 441, 442  
[Wirsungi], 440-442
- + papillares (genitalis), 493  
para-urethrales, 514, 516  
parotides [Stenonisi], 413, 416, 424, 425  
prostatici, 498, 505  
sublinguales minores, 524  
sublingualis major, 524  
submaxillaris [Whartoni], 414, 424, 425  
venosus [Arantii], 452, 521  
Wolffi, 468, 520, 521
- Duodenum, 438 and App., note \*, 439-442, 451, 453, 456, 468,  
478, 479, 487  
ascending portion (pars ascendens), 438 and  
App., note \*, 440, 454  
descending portion (pars descendens), 438 and  
App., note \*, 440, 441, 476  
inferior portion (pars inferior), 438 and App.,  
note \*, 440

- Duodenum, superior portion (pars superior), 438 and App., note <sup>7</sup>, 440, 477, 495, 522  
transverse portion (pars horizontalis), 438 and App., note <sup>7</sup>, 440, 456, 481  
Duverney's glands, 500, 514-516, 535
- E.**
- Edge of teeth (incisor and canine), inner, 430  
of the tongue, 419-421  
outer, 429, 430
- Elevation, caudal, 524  
coccygeal, 524
- Eminence of the cartilage of Santorini, 461  
of the cartilage of Wrisberg, 461  
of the corniculum laryngis, 461  
of the cuneiform cartilage, 461  
genital, 520, 521, 524
- Enamel, 426, 427
- Epididymis, 500-503, 520, 522
- Epiglottis, 415, 419, 435, 461  
stalk of the, 458
- Epiploon, see "Omentum" and note to p. 456
- Epithelia, classification of, 404, note  
Epithelium, 404, 468  
stratified, 404, 406
- Epoophoron, 500, 512, 513, 520, 521
- Eustachian tube, 410, 411, 434-436  
bony portion, 436  
cartilage of, 410, 435, 436  
cushion of, 434, 436  
membranous portion of, 433, 436 and note  
pharyngeal orifice of, 411, 436
- Excavatio recto-uterina, 511, 513, 535, 537  
rectovesicalis, 456, 534  
vesico-uterina, 511, 535, 537
- Extremitas inferior hienis, 450, 482, 486  
renis, 490-492  
testis, 502  
superior hienis, 450, 483  
renis, 480, 490-492  
testis, 502, 503  
tubaria ovarii, 511  
uterina ovarii, 511, 537
- Extremity of the coccyx, 520, note  
of the Fallopian tube, fimbriated, App., note <sup>90</sup>  
of the kidney, inferior, 490-492  
superior, 480, 490-492  
of the ovary, inferior, 511, 537  
superior, 511  
tubal, 511  
uterine, 511, 537  
of the spleen, inferior, 450 and note, 482, 486  
superior, 450, 583  
of the testicle, inferior, 502  
superior, 502, 503
- F.**
- Face, 412  
frontal section of, 414
- Facet, arytenoid (of the cricoid cartilage), 458  
thyroid (of the cricoid cartilage), 458
- Facies, 412  
anterior glandule suprarenalis, 492  
pancreatis, 441  
prostatæ, 505  
renis, 490  
articularis arytenoidea, 458  
cartilaginosa arytenoidea, 458  
thyreoidea, 458  
buccalis dentis, 428-430  
contactus dentis, 430  
costalis pulmonis, 464, 486  
diaphragmatica hienis, 450  
pulmonis, 464  
gastrica hienis, 450, 479  
inferior hepatis, 446, 447  
linguae, 419-421  
pancreatis, 441  
intestinalis uteri, 511, 513, 535
- Facies, labialis dentis, 430  
lateralis dentium (incisivorum et caninorum), 429, 430  
ovarii, 511  
testis, 502, 521  
lingualis dentis, 428, 430  
masticatoria, 428, 429  
medialis dentium (incisivorum et caninorum), 430  
ovarii, 511, 537  
testis, 502  
mediastinalis pulmonis, 463, 464  
posterior dentium (præmol. et molarium), 428, 429  
glandulæ suprarenalis, 492  
hepatis, 446, 447  
pancreatis, 441  
prostatæ, 505, 506, 532  
renis, 490  
renalis hienis, 450  
superior hepatis, 446  
urethralis penis, 507  
vesicalis uteri, 511, 537
- Fallopian tube, 455, 500, 510-513, 518, 520, 521, 535, 537
- Fang of tooth, 426 and note, 428
- Fascia, anal, App., note <sup>88</sup>, 526, 532 and App., note <sup>106</sup>, 533  
buccopharyngea, 414, 415, 417, 418  
buccopharyngeal, 414, 415, 417, 418, 432, App., note <sup>34</sup>  
Colles's, 526 and note, 527  
cremasteric (Cooperi), 501 and App., note <sup>68</sup>, 523  
diaphragmatis pelvis inferior, 513, 526, 532, 533  
superior, 497, 513, 532, 533, 537  
urogenitalis inferior, 529  
superior, 532
- endopelvina, 532, 533  
gluteal, 526 and note  
iliac, 494, 533  
infundibuliform, 501 and App., note <sup>68</sup>, 502, 503, 523  
intercolumnar, App., note <sup>68</sup>  
linguae, 420-423  
masseteric, 415 and note  
obturator, 528-530, 532 and App., note <sup>106</sup>, 533  
parotid, 415 and note  
parotidomasseteric, 415 and note  
pelvic, parietal layer, 528-530, 532 and App., note <sup>106</sup>, 533  
visceral layer, 497 and App., note <sup>59</sup>, 532  
and App., note <sup>106</sup>, 533, 537; see also "Fascia, anal," and "Fascia, rectal"
- pelviprostatic, 505 and App., note <sup>74</sup>, 532  
of penis, deep, 508, 526, 533  
superficial, 508
- perineal, 526, note  
of the perineum, deep, 526, note; see also "Ligament, triangular (of the urethra)"  
superficial, 526 and note
- pharyngobasilaris, 432, 433, 436  
post-pharyngeal, 432, 466, and App., note <sup>34</sup>  
propria (of Astley Cooper), App., note <sup>68</sup>  
prostatic, 505 and App., note <sup>74</sup>, 532  
rectal, 497, 513, 532 and App., note <sup>106</sup>, 533  
rectovesical, App., note <sup>106</sup>  
salpingopharyngea, 436  
spermatic, App., note <sup>68</sup>  
subpubic, App., note <sup>88</sup>  
superficialis perinei, 526, 527  
of the tongue, 420-423  
visceral layer of the pelvic, 497 and App., note <sup>59</sup>, 532 and App., note <sup>106</sup>, 533, 537
- Fat-pad, buccal, 414 and note  
Fauces, 411, 415-417, 434, 435  
isthmus of the, 411, 417, 434, 435
- Faucial ring, lymphoid, 411, note  
Ferrein's pyramids, 493  
Fibræ obliquæ (tunicæ muscularis ventriculi), 430  
Fibræ oblique, of the muscular coat of the stomach, 439  
Fibrocartilage of the foramen lacernum medium, 432, 436  
Fibrocartilago basalis, 432, 436  
Fimbria, ovarica, 511  
Fimbriae of the Fallopian tube, 511  
tubæ uterinæ, 511

## Fissure or fissures :

- of the ductus venosus, 447; also footnote <sup>6</sup> on this page, and App., note <sup>15</sup>
- of the gall-bladder, 447 and note
- longitudinal, of the liver, 447; also footnote <sup>6</sup> on this page, and App., note <sup>15</sup>
- of the lung, interobar, 494 and note, 483, 485, 487, 488
- portal, 447 and App., note <sup>18</sup>
- sagittal, of the liver, 447 and note
- transverse, of the liver, 447 and App., note <sup>16</sup>
- umbilical, of the liver, 447 and note, 495
- of the vena cava, 447; also footnote <sup>6</sup> on this page and App., note <sup>16</sup>

## Flexura coli dextra, 472, 473, 475, 477, 482

- sinistra, 451, 453, 474, 477-479
- duodeni inferior, 438, 440, 481
  - superior, 438, 440, 485
- duodenojejunalis, 438, 440, 451, 454, 474, 475, 484, 494
- perinealis (recti), 534, 535, 538
- sacralis (recti), 534, 535, 537, 538

## Flexure of the colon, hepatic, 472, 473, 475, 477, 482

- sigmoid, 455, 474, 475, 521, 522, 534-537
- splenic, 451, 453, 474, 477-479
- duodenal, inferior, 438 and App., note <sup>1</sup>, 440, 481
  - superior, 438 and App., note <sup>1</sup>, 440, 485
- duodenojejunal, 438, 440, 451, 454, 474, 475, 484, 494

## Fold or folds :

- aryteno-epiglottic, 415, note, 461
  - of the bladder, mucous, 498
  - "bloodless," of Treves, 455
  - of the colon, sigmoid, 443, 444
  - of Douglas, 510 and note, 511, 534, 537
  - duodenal, inferior, App., note <sup>20</sup>, 474
    - superior, App., note <sup>2</sup>, 474
  - of the duodenal diverticulum, imbricated, 440
  - duodenojejunal, 454 and App., note <sup>25</sup>, 474
  - duodenomesocolic, 454 and App., note <sup>25</sup>, 474
  - of the duodenum, longitudinal, 440 and App., note
  - epigastric, 536, 537
  - of the Fallopiian tube (longitudinal, of the mucous membrane), 512, 513
  - fimbriated, 419, 421
  - genital, App., note <sup>13</sup>, 524
  - glosso-epiglottic, lateral, 415, note, 410, 461
    - median, 410 and note, 420, note
  - hypogastric, 472, 494, 522, 536, 537
  - ileocaecal, 455
  - infundibulopelvic, 455, 510, 511, 535, 537
  - of the laryngeal nerve (superior), 434 and note, 461
  - nasopharyngeal, 436 and App., note <sup>1</sup>
  - ovariopelvic, 455, 510, 511, 535, 537
  - pancreaticogastric, 479 and App., note <sup>44</sup>
  - peritoneal, App., note <sup>13</sup>
  - pharyngoepiglottic, 415 and note, 434, 435, 461
  - of the pleura, adipose, 476, 494
    - fatty, 476, 494
  - pleurocolic, 474 and note, 477 and App., note <sup>11</sup>, 479, 483
  - rectovesical, 536
  - recto-uterine, 510, note, 537, note
  - of the rectum, mucous, 445
    - transverse, 445 and App., note <sup>11</sup>, 538
  - salpingopalatine, 436
  - salpingopharyngeal, 434, 436
  - subcaecal, 455
  - sublingual, 414, 410, 424
  - triangular, 416 and note, 410
  - umbilical, lateral, 472, 494, 522, 536, 537
    - median, 472, 494, 536, 537
  - urachal, 472, 494, 536, 537
  - uterine, 498 and App., note <sup>41</sup>
- Follicle, Graafian, 512
  - primitive, 512
- Follicles of Lieberkühn, 407, 442, 443
  - lymphoid, 407, 440, 442, 443, 445
  - of the spleen, 450
  - of the tongue, 410, 421, 423
- Folliculi linguales, 410, 421, 423
  - oophori primarii, 512
  - vesiculosi [Graaf], 512
- Foramen apicis dentis, 426, 427

## Foramen caecum linguae [Morgagnii], 419-421

- epiploicum [Winslowi], 478, 479
  - lacerum medium, fibrocartilage of the, 432, 436
  - of the thyroid cartilage, 459 and App., note <sup>25</sup>, 460
  - thyroideum, 459, 460
  - of Winslow, 478, 479
- Foramina papillaria (renis), 492 and App., note <sup>41</sup>
- Fornix pharyngis, 411, 436
  - vaginae, 511, 512, 516, 537
- Fornix, vaginal, 511 and App., note <sup>18</sup>, 512, 516, 537
  - anterior, App., note <sup>18</sup>
  - lateral, App., note <sup>18</sup>
  - posterior, App., note <sup>18</sup>, 537

## Foreskin, 508, 524

## Fossa or fossae :

- caecalis, 455, 537
  - of circumvallate papilla, circular, 423
  - diaphragmaticohepatic, App., note <sup>22</sup>
  - digital, 502, 503
  - ductus venosi, 447
  - duodenal, inferior, App., note <sup>20</sup>
    - superior, App., note <sup>20</sup>
  - duodenojejunal, 454 and App., note <sup>20</sup>, 474
  - of epididymis, digital, 502, 503
  - of the gall-bladder, 447 and note
  - ileocaecal, 455 and App., note <sup>23</sup>
    - inferior, 455 and App., note <sup>23</sup>
    - superior, App., note <sup>23</sup>, 475
  - ileocolic, App., note <sup>23</sup>, 475
  - ilacosubfascialis, 494 and App., note <sup>67</sup>
  - intersigmoid, 455, 522
  - ischiorectal, 513, 520, 527, 529, 530
  - nasal, 410, 411
  - navicularis of the male urethra, 506, 508
    - urethrae (Morgagnii), 506, 508
    - (vestibuli vaginae), 514, 515
    - of the vulva, 514 and App., note <sup>90</sup>, 515
  - of the omental sac, splenic, 470 and App., note <sup>44</sup>, 515
    - superior, 479 and App., note <sup>44</sup>
  - paracolic, 455
  - peritoneal, App., note <sup>21</sup>
  - phrenicohepatic, 454 and App., note <sup>28</sup>
  - of Rosenmüller, 434, 436
  - sagittalis dextra (hepatis), 447
    - sinistra (hepatis), 447
  - subcaecal, 455, 537
  - supratonsillar, 415, note, 416
  - venae caevae, 447
    - umbilicalis, 447, 495
    - vesicae felleae, 447
- Fossulae tonsillares, 418
- Fovea inguinalis (medialis lateralis), 536
- oblonga (cartilaginis arytaenoidea), 458 and App., note <sup>24</sup>
- supravesicalis, 536
- triangularis (cartilaginis arytaenoidea), 458 and App., note <sup>26</sup>
- Foveola coccygea, 528, note
- of renal papilla, App., note <sup>81</sup>
- Fourchette, 514
- Fræna of the ileocaecal valve, 444 and note
- Frænulum carunculae duodeni, 440 and App., note <sup>8</sup>
  - puudenti, 514
- Frænulum of the clitoris, 514-516
  - epiglottidis, 410, note, App., note <sup>9</sup>
  - linguae, 410
    - of the lower lip, 410
    - of Morgagni, 444, note
    - of the prepuce, 508
    - præputii, 508
    - of the tongue, 410
    - of the upper lip, 416
- Framework, reticular, of the spleen, 450
- Frænula valvulae coli, 444
- Frænulum clitoridis, 514-516
  - labii inferioris, 419
    - superioris, 416
  - labiorum (puudenti), 514
  - linguae, 410
  - præputii, 508



- Fundus of the bladder (urinary), 496, 497, 532, 533  
 of the gall-bladder, 446, 449, 476, 486  
 of the stomach, 438, 477, 483, 484, 486  
 uteri, 511, 518, 537  
 ventriculi, 438, 477, 483, 484, 486  
 vesicæ fellæ, 446, 449, 476, 486  
 (urinaræ), 496, 497, 532, 533
- Funiculus spermaticus, 501, 502, 523  
 umbilicalis, 518, 519, 521, 522
- Furrow (see also "Sulcus" and "Groove"):  
 dorsal, of the penis, 507  
 post-anal, 514, 528, 538  
 urethral, of the corpora cavernosa, 507
- G.
- Gall-bladder, 446, 449, 453, 476-478, 482, 485, 486, 495, 522
- Ganglion submaxillare, 425  
 submaxillary, 425
- Gartner, duct of, 512, 520, 521
- Gaster, 438, 439
- Generative organs, female, 509-524  
 male, 499-508
- Genital cord, 521 and App., note <sup>88</sup>  
 eminence, 520, 521, 524  
 fold, App., note <sup>88</sup>, 524  
 tubercle, 520, 524
- Genito-urinary apparatus, 489-524
- Germes, dental, 428, 431  
 of the teeth, 428, 431
- Gingiva, 414-416, 419, 426, 429, 431
- Giraldès, organ of, 500, 502, 503, 520
- Glands, 405
- Gland or glands:  
 acinous, 405  
 agminated, 442  
 of the aryteno-epiglottic fold, 460 and App., note <sup>81</sup>  
 Bartholin's, 500, 514-516, 535  
 Blandini's, 420 and note, 421  
 bronchial, 465 and note  
 Brunner's, 407, 442  
 buccal, 413 and note, 415, 424  
 coccygeal, 534  
 Cowper's, 500, 504, 506  
 duodenal, 407, 442  
 Duverney's, 500, 514-516, 535  
 epiglottic, App., note <sup>2</sup>  
 follicular, of the tongue, 419, 421, 423  
 labial, 405, 413  
 laryngeal, 460 and App., note <sup>81</sup>  
 Lieberkühn's, 407, 442, 443  
 lingual, 420, 421  
 (apical), 420 and note, 421  
 lymphatic, bronchial, 411, 464, 465, note, 471, 484  
 cardiac, 482 and note, 485  
 mediastinal, anterior, 482, note  
 posterior, 482 and note, 484  
 molar, 413 and note, 415, 424  
 Montgomery's, 517  
 mucous, 406, 418, 423  
 (of the bile-ducts), 440, 448 and note, 449  
 Nuhn's, 420 and note, 421  
 palatine, 414-418  
 parotid, 415, 424, 425, 434  
 (accessory), 424  
 post-epiglottic, 460 and App., note <sup>81</sup>  
 post-arytenoid, 460 and App., note <sup>81</sup>  
 prostate, 445, 497, 498, 500, 504-506, 532-534  
 racemose, 405  
 salivary, 424, 425  
 sebaceous, 413  
 of the areola mammae, 517  
 serous (of the tongue), 423  
 Skene's, 514 and App., note <sup>88</sup>, 516  
 socia parotidis, 424  
 solitary, 407, 440, 442, 443, 445  
 sublingual, 414, 424, 425  
 submaxillary, 405, 424, 425, 434  
 suburethral, 500, 504, 506, 514-516, 526, 535  
 suprarenal, 480, 492, 494, 495, 521  
 accessory, 402
- Gland or glands:  
 thymus, 410, 411, 456, 466, 467, 476  
 thyroid, 408, 411, 434, 466, 467, 470  
 tracheal, 450, 461, 465  
 tubular, 405, 406  
 of the urethra (female), 498
- Glandulæ, 405
- Glandula vel glandule:  
 † alveolaris composita, 405  
 † simplex, 405  
 areolares [Montgomeryi], 517  
 bronchiales, 465  
 buccales, 413, 415, 424  
 bulbo-urethralis [Cowperi], 500, 504, 506, 534  
 duodenales [Brunneri], 407, 442  
 intestinales [Lieberkühni], 407, 442, 443  
 labiales, 405, 413  
 laryngeæ, 460  
 linguales, 420, 421  
 linguales anterior [Blandini, Nuhni], 420, 421  
 mucosæ, 406, 418, 423  
 biliosæ, 440, 448, 449  
 palatinæ, 414-418  
 parotidis, 415, 424, 425, 434  
 accessoria, 424  
 † salivales, 424, 425  
 † serosæ (linguæ), 423  
 sublingualis, 414, 424, 425  
 submaxillaris, 405, 424, 425, 434  
 suprarenalis, 480, 492, 494, 495, 521  
 accessoria, 492  
 thyreoideæ, 468, 411, 434, 466, 467, 470  
 accessoria suprahyoideæ, 466  
 thyreoideæ accessoris, 466  
 tracheales, 450, 461, 465  
 tubulosæ, 405, 406  
 urethrales (moliebres), 408  
 vestibularis major [Bartholini], 500, 514-516, 535
- Glans clitoridis, 498, 510, 514-516, 524, 529  
 penis, 506-508, 524
- Glisson's capsule, 448, 482
- Globus major of epididymis, 502, 503, 521, 522  
 minor of epididymis, 502, 503
- Glomeruli (renis), 493
- Glomerulus, coccygeal, 534
- Glomus coccygeum, 534
- Glottis, 461
- Graafian follicle, 512
- Groove (see also "Furrow" and "Sulcus"):  
 of the lung, aortic, 464  
 subclavian, 464  
 œsophageal, 447, note  
 (in the pancreas) for the splenic vein, 441  
 for the splenic artery, 441
- Gubernaculum testis [Hunteri], App., note <sup>95</sup>, 522, 523
- Gum, 414-416, 419, 426, 429, 431
- Guthrie's muscles, App., note <sup>101</sup>
- H.
- \*Hæmorrhoidal ring, 445 and App., note <sup>12</sup>, 538
- Hair, pubic, 514
- Haustra coli, 443
- Head of epididymis, 502, 503, 521, 522  
 of the pancreas, 440, 441
- Heister's valve, 449
- Helvetius, ligament of, 438 and App., note <sup>3</sup>, 439
- Hemisphere of the bulb of the urethra, 507
- Hemisphæria bulbi urethræ, 507
- Henle, looped tubule of, 493 and App., note <sup>84</sup>
- Hepar, 446-449, 456, 472, 476-478, 480, 482-486, 488, 495, 521,  
 Highmore, antrum of, 414 [522]  
 body of, 503
- Hilum of the kidney, 490, 492  
 of the lung, 464, 465, 484  
 of the ovary, 512  
 of the spleen, 450  
 of the suprarenal body, 492
- Hilus glandulæ suprarenalis, 492  
 lenis, 450  
 ovarii, 512

- Hilus pulmonis, 464, 465, 484  
 renalis, 490, 492
- Home's lobe (of the prostate gland), App., note <sup>73</sup>
- Homology of reproductive organs (male and female), 500, 520, 524
- Houston's valves, App., note <sup>11</sup>; App., note <sup>109</sup>
- Hyalatid of Morgagni, in the female, 512, 520  
 in the male, 500, 502 and App., note <sup>69</sup>, 520, 521  
 pedunculated, 502 and App., note <sup>69</sup>, 520  
 sessile, 500, 502 and App., note <sup>69</sup>, 520, 521
- Hymen (femininus), 510, 515, 516
- I.**
- Ileum, 407, 442, 444, 455, 456, 473, 475
- Impressio colica (hepatis), 446, 447  
 duodenalis (hepatis), 447  
 gastrica (hepatis), 446, 447  
 hepatica (renis), 490  
 lienalis (renis), 490  
 muscularis (renis), 490  
 œsophagea (hepatis), 447  
 renalis (hepatis), 446, 447  
 suprarenalis (hepatis), 446, 447
- Impression of the kidney, hepatic, 490  
 muscular, 490  
 splenic, 490  
 of the liver, adrenal, 446, note, 447, note  
 colic, 447  
 œsophageal, 447  
 renal, 446, 447  
 suprarenal, 446, 447
- Incisura cardiaca (pulmonis sinistri), 464  
 interarytænoidea, 461  
 interlobaris (pulmonis), 464, 483, 485, 487, 488  
 pancreatis, 441  
 thyreoidea (superior), 458  
 umbilicalis (hepatis), 448, 447
- Infundibula of the kidney, 491 and App., note <sup>60</sup>
- Infundibulum of the Falloppian tube, 500, 510, 511, 520, 537  
 tubæ uterinae, 500, 510, 511, 520, 537
- Intestine, large, 443, and see "Colon"  
 small, 442, 521; see also "Duodenum," "Jejunum," and "Ileum"
- Intestinum cæcum, 444, 455, 472-475, 486-488, 536  
 crassum, 443  
 ileum, 407, 442, 444, 455, 456, 473, 475  
 jejunum, 442, 454, 473-475, 481  
 rectum, 445, 456, 475, 486-488, 513, 530, 533-538  
 pars analis, 445, 538  
 tenue, 442, 521
- Isthmus of the Falloppian tube, 500, 511-513, 537  
 of the fauces, 411, 417, 434, 435  
 faucium, 411, 417, 434, 435  
 glandulæ thyreoideæ, 411, 466  
 prostatae, 504, 505  
 of the thyroid body, 411, 466  
 tubæ uterinae, 500, 511-513, 537  
 uteri, 511, note
- J.**
- Jejunum, 442, 454, 473-475, 481
- Jugular venous arch, 410 and note
- K.**
- Kerkring, valves of, 440, 442
- Kidney, 408, 479-481, 483-485, 487, 488, 490-495, 521  
 medulla of, blood-supply, App., note <sup>44</sup>
- L.**
- Labia oris (inferius, superius), 412-419
- Labium anterius cervicis uteri, 511, 516  
 inferius valvulæ coli, 444  
 majus pudendi, 510, 514-516, 520, 524, 529  
 minus pudendi, 510, 514-516, 524, 529  
 posterius cervicis uteri, 511, 516  
 superius valvulæ coli, 444  
 vocale, 461
- Labyrinth of cortex of kidney, 493
- Lacunæ urethrales [Morgagni], 506
- Lamina vel laminae:  
 cartilaginis cricoideæ, 458  
 thyreoideæ (dextra, sinistra), 458  
 mediastinales, 410, 476, 479, 483, 486, 487, 494  
 membranacea tubæ auditiva, 433, 436  
 mesenterii propria, 452  
 muscularis mucosæ, 466, 467  
 omenti, *vide* "Omentum majus"  
 propria mucosæ, 404-407, 422, 423
- † Lamina of the cricoid cartilage, 458
- Laryngeal prominence, 411
- Larynx, 458-461, 463
- Layer, circular, of muscular coat, 407, 452  
 of the rectum, 445  
 of the stomach, 439  
 cuticular, 404  
 longitudinal, of muscular coat, 407, 452  
 of the rectum, 445  
 of the stomach, 439
- Layers of the mediastinum, 410, 476, 479, 483, 486, 487, 494
- Losser pancreas, 441, note
- Levator ani muscle, tendinous arch of, 530, 532, and App., note <sup>98</sup>
- Lieberkühn's follicles, 407, 442, 443
- Lien, 450-453, 477, 479, 480, 482-484, 486, 487, 495, 522  
 accessorius, 450
- Lientaud's trigonum vesicæ, 498
- Ligament or ligaments:  
 \* annular, of the trachea, 459-462  
 anococcygeal, 527 and note, 528, 529  
 of the bladder, false, lateral, 535-537  
 posterior, 536  
 superior, 472, 494, note, 536,  
 note, 537, note  
 suspensory, 472, 494, note, 536,  
 note, 537, note  
 true, anterior, 497 and App., note  
<sup>69</sup>, 533  
 lateral, App., note <sup>69</sup>  
 broad, of the liver, 446, 447, 472, 476, 480, 495  
 of the lung, 464  
 of the uterus, 510-513, 535, 537  
 ceratocricoid, anterior, 460  
 lateral, 459  
 posterior, 459  
 of the clitoris, suspensory, 515  
 corniculopharyngeal, 459 and App., note <sup>27</sup>  
 coronary, of the liver, 446  
 costocolic, 474 and note, 477 and App., note <sup>41</sup>,  
 479, 483  
 crico-arytenoid, posterior, 450  
 cricopharyngeal, 435, 450 and App., note <sup>27</sup>  
 cricothyroid, 450, 460, 462, 466  
 cricotracheal, 450, 462  
 diaphragmatic, of the Wolffian body, 521 and  
 App., note <sup>20</sup>  
 \* of the ductus venosus, 446 and App., note <sup>15</sup>  
 \* of the epididymis, inferior, 502 and App., note <sup>70</sup>  
 superior, 502, and App., note <sup>18</sup>  
 falciform, of the liver, 446, 447, 472, 476, 480, 495  
 gastrocolic, 476 and App., note <sup>42</sup>  
 gastrosplenic, 450, 477, 479, 480, 495  
 of Helvetius, 438 and App., note <sup>3</sup>, 439  
 hepatoduodenal, 477 and App., note <sup>42</sup>, 478-480  
 hepatorenal, 478, 480  
 hypo-epiglotic, 420 and App., note <sup>3</sup>, 459  
 infundibulopelvic, 455, 510, 511, 535, 537  
 inguinal, of the Wolffian body, 521 and App.,  
 lateral, of the liver, left, 446, 447, 477 [note <sup>68</sup>]  
 right, 446, 447, 478  
 of the liver, broad, 446, 447, 472, 476, 480, 495  
 coronary, 446  
 falciform, 446, 447, 472, 476, 480, 495  
 lateral, left, 446, 447, 477  
 right, 446, 447, 478  
 round, 446, 453, 472, 476, 480  
 suspensory, 446, 447, 472, 476, 480, 495  
 oblique, of the thyroid cartilage, App., note <sup>28</sup>  
 ovarioipelvic, 455, 510, 511, 535, 537  
 of the ovary, 510-513, 518, 537

## Ligament or ligaments :

- of the ovary (suspensory), 455, 510, 511, 535, 537
- of the pelvis, transverse, 531 and App., note <sup>100</sup>, 532
- peritoneal, App., note <sup>12</sup>
- pharyngo-epiglottic, 415, note
- phrenocolic, 474 and note, 477 and App., note <sup>41</sup>, 479, 483
- pterygomandibular, 417, 433
- pterygomaxillary, 417, 433
- puboprostatic, 497 and App., note <sup>89</sup>, 533
- recto-uterine, 510, note, 537, note
- rectovaginal, 510, note
- round, of the liver, 446, 453, 472, 476, 480
- of the uterus, 455, 511, 513, 535, and App., note <sup>95</sup>, 537
- suspensory, of the bladder, 472, 494, note, 536, note, 537, note
- of the clitoris, 515
- of the liver, 446, 447, 472, 476, 480, 495
- of the ovary, 455, 510, 511, 535, 537
- thyro-arytenoid, inferior, 459 and App., note <sup>30</sup> superior, 459
- thyro-epiglottic, 459
- thyrohyoid, lateral, 459, 460
- middle, 420, 459, 460
- of the thyroid body, lateral, 466
- cartilage, oblique, App., note <sup>26</sup>
- of the tip of the coccyx, 528 and note
- transverse, of the pelvis, 531 and App., note <sup>100</sup>, 532
- triangular, of the urethra, deep layer, 529, and App., notes <sup>85</sup> and <sup>89</sup>
- superficial layer, 529, 532 and App., note <sup>89</sup>
- umbilical, lateral, 533
- median, 496, 497, 520, 533
- urachal, 496, 497, 520, 533
- of the urethra, triangular, inferior or superficial layer, 529 and note, 531, note, App., notes <sup>99-101</sup>
- superior or deep layer, 529, note, 532, App., notes <sup>85</sup>, <sup>99-101</sup>, <sup>102</sup>
- uterosacral, 510 and note, 511, 535, 537
- of the uterus, broad, 510-513, 535, 537
- round, 455, 511, 513, 535, 537
- development of, App., note <sup>93</sup>
- \* of the vena cava, 446, 447
- ventricular, 459
- of the Wolffian body, 521 and App., note <sup>88</sup>

Ligamentum *vel* ligamenta :

- † anococcygeum, 527-529
- annularia (trachealia), 450-462
- apicis coccygis, 528
- ceratocricoidaeum anterius, 460
- laterale, 459
- posterius, 459
- corniculopharyngeum, 459
- coronarum (hepatis), 446
- crico-arytenoidaeum posterius, 459
- cricopharyngeum, 435, 459
- cricothyroideum (medium), 459, 460, 462, 466
- cricotracheale, 450, 462
- epididymidis inferius, 502
- superius, 502
- falciforme (hepatis), 446, 447, 472, 476, 480, 495
- gastrocolicum, <sup>76</sup>
- gastrorenale, 450, 477, 479, 480, 495
- hepatocolicum, 477
- hepatoduodenale, 477-480
- hepatogastricum, 477, 478, 480
- hepatorenale, 478, 480
- hvo-epiglotticum, 420, 459
- thyrothyroideum laterale, 459, 460
- medium, 420, 459, 460
- latum pulmonis, 464
- uteri, 510-513, 535, 537
- ovarum proprium, 510-513, 518, 537

Ligamentum *vel* ligamenta :

- phrenocolicum, 474, 477, 479, 483
- puboprostaticum (pubovesicale), laterale, 533
- medium, 497, 533
- pulmonale, 464
- pylori, 438, 439
- suspensorium clitoridis, 515
- glandulae thyroideae, 466
- ovarum, 455, 510, 511, 535, 537
- uteri, 455, 511, 513, 535, 537
- thyreo-epiglotticum, 459
- transversum pelvis, 531, 532
- triangulare dextrum (hepatis), 446, 447, 478
- sinistrum (hepatis), 446, 447, 477
- umbilicale laterale, 533
- medium, 496, 497, 520, 533
- † venae cavae, 446, 447
- venosum [Arantii], 446
- ventriculare, 459
- vocale, 450
- Line, axillary, 488 and App., note <sup>49</sup>
- mamillary, 486 and App., note <sup>48</sup>, 488
- median, anterior, 486
- posterior, 487
- oblique, of the thyroid cartilage, 458 and App., note <sup>25</sup>
- parasternal, 486 and App., note <sup>47</sup>
- scapular, 487 and note
- sternal, 486 and App., note <sup>46</sup>
- white, of the pelvic fascia, 497 and App., note <sup>99</sup>
- Linea axillaris, 488
- mamillaris, 486, 488
- mediana anterior, 486
- posterior, 487
- obliqua (cartilaginosis thyroideae), 458
- parasternalis, 486
- scapularis, 487
- sternalis, 486
- Lingua, 419-425
- Lip of the cervix uteri, anterior, 511, 516
- posterior, 511, 516
- \* of the glottis, 461 and App., note <sup>32</sup>
- of the ileocecal valve, lower, 444 and note
- upper, 444 and note
- lower, 412-415, 419
- marginal, of the cloacal orifice, 520 and App., note <sup>93</sup>, 524
- upper, 412-414, 416, 417, 419
- Lips, commissure of, the, 419
- Liver, 446-449, 456, 472, 476-478, 480, 482-486, 488, 495, 521, 522
- accessory, App., note <sup>14</sup>
- Lobe or lobes :
- of the breast, 517
- of the bulb of the urethra, lateral, 507
- of the epididymis, App., note <sup>72</sup>
- of the external ear, 424
- Home's (of the prostate), App., note <sup>73</sup>
- of the liver, App., note <sup>14</sup>
- caudate, 447, 478 and App., note <sup>14</sup>
- left, 446, 447, 472, 476, 477, 480, 482, 484, 486, 495, 521 and App., note <sup>14</sup>
- quadrate, 447, 478 and App., note <sup>14</sup>
- right, 446, 447, 472, 476, 477, 480, 482, 483, 485, 486, 495, 522 and App., note <sup>14</sup>
- Spigelian, 446, 447, 452, 477 and App., note <sup>14</sup>
- of the lung (inferior, middle, and superior), 464, 471, 483, 485, 487, 488
- of the placenta, 519
- of the prostate gland, lateral, 505
- middle, 504, and App., note <sup>73</sup>, 550
- of the thymus gland (right and left), 467
- of the thyroid body (right, left, and middle), 466, 467
- of the upper lip, median, 412, 419
- Lobule or lobules :
- of the breast, 517
- of the external ear, 424
- glandular, 405
- accessory, 405, 406
- of the kidney, 402
- of the liver, 448
- of the lung, 464, 476



- I obule or lobules:  
of the testicle, 503  
of the thyroid body, 466
- Lobuli corticales (renis), 493  
pars convoluta, 493  
radiata, 493  
epididymidis, 502, 503  
glandulæ thyreoideæ, 466  
hepatis, 448  
mammaræ, 517  
pulmonis, 464, 476  
testis, 503
- Lobulus glandulæ, 405
- Lobus *vel* lobi:  
caudatus [Spigelii], 446, 447, 452, 477  
(glandulæ), 405  
glandulæ thyreoideæ (dexter, sinister), 466  
hepatis (dexter, sinister), 446, 447, 472, 476, 477, 480,  
482-486, 495, 521, 522  
mammaræ, 517  
placentæ, 519  
prostatæ (dexter, medius, sinister), 505  
pulmonum (inferior, medius, superior), 464, 471, 483,  
485, 487, 488  
pyramidalis (glandulæ thyreoideæ), 466, 467  
quadratus (hepatis), 447, 478  
renales, 492  
thymi (dexter, sinister), 467
- Loculi of the placenta, 519
- Loop, Henle's, 493 and App., note <sup>51</sup>  
umbilical, of intestine, 451 and note, 521
- Lungs, 463-465, 467, 471, 476-479, 482-488, 494  
Luschka, cartilage of, 461 and App., note <sup>54</sup>  
Luschka's tonsil, 411 and note, 434-436  
Lymphatic glands, see "Glands, lymphatic"  
Lymphoglandulæ bronchiales, 411, 471, 484  
mediastinales (anteriores), 482, 484  
pulmonales, 464
- Lymphoid faucial ring, 411, note
- M.**
- Macula flava (plicæ vocalis), 461 and App., note <sup>33</sup>  
Mala, 412  
Malpighi, pyramids of, 491, 492  
Malpighian corpuscles of the kidney, 493  
of the spleen, 450  
of the Wolffian body, 520
- Mamilla, 471, 486, 488, 517  
Mamma, 471, 517  
accessoria, 517
- Margin of the nostril, 412
- Margo anterior hepatis, 446, 462, 486  
lienis, 450  
pancreatis, 441  
pulmonis, 464, 486  
testis, 502, 503  
inferior pulmonis, 464, 483, 485-488  
lateralis linguæ, 419-421  
renis, 490, 491  
uteri, 512  
liber (ovariorum), 511, 537  
medialis glandulæ suprarenalis, 492  
renis, 490, 491  
mesovarius, 511  
nasi, 412  
posterior lienis, 450  
pancreatis, 441  
testis, 502  
superior glandulæ suprarenalis, 492  
pancreatis, 441
- Meatus, external auditory, cartilage of, 436  
nasal, nasopharyngeal part, App., note <sup>4</sup>  
nasopharyngeal, 436 and App., note <sup>4</sup>  
nasopharyngeus, 436
- Mediastinum, see also "Cavity, mediastinal," footnote to  
p. 410 and App., note <sup>24</sup>  
anterior, 410, note, 456, 471, 476 and App.,  
note <sup>24</sup>  
middle, 410, note, 478, 482 and App., note <sup>24</sup>
- Mediastinum, posterior, 410 and note, 456, 470, 471, 478, 483  
and App., note <sup>24</sup>  
superior, 410, note, 470, 476, 478, 479, 482, 483  
and App., note <sup>24</sup>  
testis, 503
- Medulla of the kidney, 491, 493  
blood-supply, App., note <sup>56</sup>  
of the suprarenal capsule, 402
- Medullary rays of the cortex of the kidney, 493
- Membrane decidua (basalis, capsularis, vera), 518, 519
- Membrana granulosa, 512  
hyothyreoidea, 433, 450, 460, 462  
propria (glandulæ), 405
- † Membrane, basement, 404, 405  
cricothyroid, 459 and App., note <sup>30</sup>, 460, 462, 466  
cricotracheal, 450, 462  
elastic, of the larynx, 459 and App., note <sup>30</sup>  
of the trachea, App., note <sup>30</sup>  
mucous, 404, 406, 407  
pericemental, 426, note  
peri-odontal, 426, note  
thyroid, 433, 459, 460, 462
- Mentum, 412  
Mercier's bar, 498 and App., note <sup>61</sup>
- Mesenterium processus vermiformis, 455, 475  
Mesenterium, 408, 451-456, 474, 475, 481, 512, 521, 536  
commune, 451; var., 453  
primitivum, 468
- Mesentery, 408, 451, 452, 453 and note, 454-456, 474, 475, 481,  
512, 521, 536  
common, 451; var., 453  
primitive, 468
- Meso-appendix, 455, 475
- Mesocolon, 443, 451, 474, 475  
ascending (ascendens), 451, 453, 475 and App.,  
note <sup>30</sup>, 522, 536  
descending (descendens), 451, 453 and note, 454,  
455, 474, 479, 481, 530  
sigmoid (sigmoidum), 453, 455, 474, 534-537  
transverse (transversum), 451, 454, 456, 474, 475,  
477-479, 481
- † Mesoduodenum, 451, 453
- Mesogastrium, 451, 452, 456, 468, 479
- Mesometrium, 512 and App., note <sup>62</sup>, 513; 535; 537
- Mesonepros, 468, 520, 521
- Mesorchium, 522
- Mesorectum, 455, 536, 537
- Mesosalphinx, 510, 511, 512 and App., note <sup>62</sup>, 513, 537
- Mesovarium, 511, 512 and App., note <sup>62</sup>, 537
- Mid-kidney, 468, 520, 521
- Milk-teeth, 427, 428, 431
- Mitral orifice, 471
- Mons pubis, 514, 516  
veneris, 514, 516
- Montgomery's glands, 517
- Morgagni, body of, 502, note  
frænum of, 444, note  
hydatid of, 500, 502 and App., note <sup>60</sup>, 512, 520, 521
- Morsus diaboli, App., note <sup>60</sup>
- Mouth, 414-423  
cavity of, 411, 414-423
- Mucous glands of the biliary ducts, 448 and note  
Müllerian duct, 520, 521
- Muscle or muscles:  
\* arymembranaceus, 460  
aryteno-epiglottideus, 460  
arytenoides (proprius), 460, 461  
arytenovocalis, 460 and note, 461  
azygos pharyngis, 432, note  
uvulæ, 418 and note, 435  
Bell's, App., note <sup>61</sup>  
broncho-oesophageus, 470 and App., note <sup>38</sup>  
buccinator, 413-415, 417, 424, 433  
buccopharyngeus, 433 and note  
bulbocavernosus, 527-529, 532  
ceratocricoid, 460  
ceratopharyngeus, 433 and note  
chondroglossus, 420  
chondropharyngeus, 420, 433 and note  
circumflexus palati, 410, 417, 418, 433, 435, 436  
69b

## Muscle or muscles :

- coccygeus, 528-530, 538  
 compressor urethrae, 527 and note, 528, 531, 532 and App., notes <sup>99</sup>, <sup>101</sup>, and <sup>104</sup>  
 constrictor isthmi faucium, 417 and note  
 of the pharynx, inferior, 432, 433 and note  
 middle, 432, 433 and note  
 superior, 415, 417, 418, 432, 433 and note, 435, 436  
 urethrae, 527 and note, 528, 531, 532 and App., notes <sup>99</sup>, <sup>101</sup>, and <sup>104</sup>  
 cremaster, 501, 523  
 internus, 501  
 crico-arytenoid, lateral, 460  
 posterior, 460  
 cricopharyngeus, 433 and note  
 cricothyroid, 433 and note, 460  
 ejaculator urinae, 527, 532  
 erector clitoridis, 529  
 penis, 527, 528, 532, 533  
 genioglossus, 414, 420, 421, 425  
 geniohyoglossus, 414, 420, 421, 425  
 glossopharyngeus, 433 and note  
 Guthrie's, App., note <sup>101</sup>  
 hyoglossus, 410, 420, 421, 425, 433  
 ischiocavernosus, 527-529, 532, 533  
 ischiococcygeus, 529, note  
 levator ani, 445, 497, 513, 519, 527-530, 532, 535, 538  
 parts of, 529, note  
 coccygis, 528-530, 538  
 corporis thyroideae, 466  
 palati, 410, 417, 418, 433, 435, 436  
 lingual, superficial, 420-422  
 lingualis, inferior, 420, 421  
 superior, 420-422  
 longitudinal, of the tongue, inferior, 420, 421  
 superior, 420-422  
 mastopharyngeus, 432, note  
 motor uvulae, 418 and note, 435  
 mylopharyngeus, 433 and note  
 obturatorcoccygeus, 529, note  
 obturator internus, 497, 529, 530, 532, 533, 538  
 occipitopharyngeus, 432, note  
 orbicularis oris, 413  
 palatoglossus, 417 and note  
 palatopharyngeus, 417 and note, 418, 435  
 of the perineum, 526-531 and App., notes <sup>99</sup>, <sup>101</sup>, <sup>104</sup>  
 retropharyngeus, 432 and note  
 externus, 432, note  
 of the pharynx, 410, 415, 417, 418, 432 and note, 433  
 and note, 435, 436, 440  
 subdivisions of the constrictors, 533, note  
 supernumerary elevators, 432, note  
 pleuro-oesophageus, 470 and App., note <sup>98</sup>  
 portio aryvocalis musculi thyro-arytenoidei, 461, note  
 pterygopharyngeus, 433 and note  
 pubococcygeus, 529, note  
 pubovesicalis, 497 and App., note <sup>99</sup>  
 rectococcygeus, 530 and App., note <sup>97</sup>  
 retractor uteri, 535 and note  
 salpingopharyngeus, 435 and note  
 sphenopharyngeus, 432, note  
 sphincter of the anus, external or superficial, 445, 497, 526-530, 534, 535, 538  
 internal, deep or circular, 445, 538 and note  
 third, 445  
 of the bladder, 498 and App., note <sup>92</sup>, 506  
 of the membranous urethra, 532 and App., note <sup>104</sup>  
 pylori, 438, 439  
 vaginae, 529  
 styloglossus, 410, 415, 417, 421, 425, 432, 433  
 stylopharyngeus, 410, 415, 432, 433, 435, 436, 440  
 suspensory, of the duodenum, 494  
 tensor palati, 410, 417, 418, 433, 435, 436

## Muscle or muscles :

- thyro-arytenoid (external), 460, 461  
 portio aryvocalis (Ludwig), 460, note  
 superior, 460  
 thyro-epiglottideus, 460  
 thyropharyngeus, 433 and note  
 of the tongue, longitudinal, inferior, 420, 421  
 superior, 420-422  
 superficial, 420-422  
 transverse, 420, 421  
 vertical, 421, 422  
 transverse, of the tongue, 420, 421  
 transversalis linguae, 420, 421  
 transversus perinei profundus, 527 and note, 528, 531, 532 and App., notes <sup>99</sup>, <sup>101</sup>, and <sup>101</sup>  
 (superficialis), 527 and note, 529, 532  
 Wilson's, App., note <sup>101</sup>  
 Muscular coat of the bladder, see "Coat, muscular"  
 Muscularis mucosae, 466, 467  
 Musculi perinei, 526-531 and App., notes <sup>99</sup>, <sup>101</sup>, and <sup>104</sup>  
 Musculus aryepiglotticus, 460  
 † aryemembraneus, 460  
 arytenoideus obliquus, 460, 461  
 transversus, 460, 461  
 broncho-oesophageus, 470  
 buccinator, 413-415, 417, 424, 433  
 buccopharyngeus, 433  
 bulbocavernosus, 527-529, 532  
 ceratocricoideus, 460  
 ceratopharyngeus, 433  
 chondroglossus, 420  
 chondropharyngeus, 420, 433  
 coccygeus, 528-530, 538  
 constrictor pharyngis inferior, 432, 433  
 medius, 432, 433  
 superior, 415, 417, 418, 432, 433, 435, 436  
 cremaster, 501, 523  
 internus, 501  
 crico-arytenoideus lateralis, 460  
 posterior, 460  
 cricopharyngeus, 433  
 cricothyroideus, 433, 460  
 genioglossus, 414, 420, 421, 425  
 glossopalatinus, 417  
 glossopharyngeus, 433  
 hyoglossus, 410, 420, 421, 425, 433  
 ischiocavernosus, 527-529, 532, 533  
 levator ani, 445, 497, 513, 519, 527-530, 532, 535, 538  
 glandulae thyroideae, 466  
 veli palatini, 410, 417, 418, 433, 435, 436  
 longitudinalis inferior (linguae), 420, 421  
 superior (linguae), 420-422  
 mylopharyngeus, 433  
 obturator internus, 529, 530, 532, 533, 538  
 orbicularis oris, 413  
 pterygopalatinus, 417, 418, 435  
 pleuro-oesophageus, 470  
 prostaticus, 505 and note  
 pterygopharyngeus, 433  
 pubovesicalis, 497  
 rectococcygeus, 530  
 recto-uterinus, 535  
 salpingopharyngeus, 435  
 sphincter ani externus, 445, 497, 526-530, 534, 535, 538  
 internus, 445, 538  
 tertius, 445  
 † pylori, 438, 439  
 urethrae membranaceae, 532  
 styloglossus, 410, 415, 417, 421, 425, 432, 433  
 stylopharyngeus, 410, 415, 432, 433, 435, 436, 440  
 suspensorius duodeni, 494  
 tensor veli palatini, 410, 417, 418, 433, 435, 436  
 thyro-arytenoideus (externus), 460, 461  
 superior, 460  
 † thyro-epiglotticus, 460  
 thyropharyngeus, 433, 466

Musculus, transversus linguæ, 420, 421  
 perinei profundis, 527, 528, 531, 532  
 superficialis, 527, 529, 532  
 uvulæ, 418, 435  
 verticalis (linguæ), 421, 422  
 vocalis, 460, 461

**N.**

Nares, anterior, 412  
 posterior, 434, 435  
 Nasopalatine canal, see "Canal"  
 Nasopharynx, 411, 434, 436  
 lateral wall, anatomy of, App., note 4  
 Navel, see "Umbilicus"  
 Neck of the bladder, 496 and App., note 34  
 of the gall-bladder, 449  
 of the glans penis, 508  
 of the pancreas, 441  
 of tooth, 426, 430  
 of the uterus, 510-513, 518  
 divisions of, 511 and App., note 11

Nerve, dorsal, inferior, 410, 425  
 dorsal, of the clitoris, 531  
 of the penis, 531  
 hypoglossal, 421, 425  
 inferior dental, 410, 425  
 laryngeal, inferior, 470  
 recurrent, 470, note  
 superior, fold of, 434 and note, 461  
 lingual, 410, 414, 421, 424, 425  
 obturator, 533  
 pneumogastric, 470  
 vagus, 470

Nerves, suprarenal, 492  
 Nervus alveolaris inferior, 410, 425  
 dorsalis clitoridis, 531  
 penis, 531  
 hypoglossus, 421, 425  
 laryngeus inferior, 470  
 lingualis, 410, 414, 421, 424, 425  
 obturatorius, 533  
 vagus, 470

Nipple, 471, 486, 488, 517  
 Noduli lymphatici aggregati [Peyeri], 442  
 lianales [Malpighii], 450  
 solitarii, 407, 440, 442, 443, 445

Nose, base of, 412  
 bridge of, 412, note  
 root of, 412  
 septum of, 414  
 cartilaginous, 411  
 tip of, 412

Nostrils, 412  
 Notch, cardiac, of the lung, 464  
 great median, of the thyroid cartilage, 458, note  
 interarytenoid, 461  
 of the pancreas, 441  
 thyroid, 458  
 umbilical, of the liver, 446, 447

Notochord, 468  
 Nuhn's gland, 420 and note, 421  
 Nymphæ, 510, 514-516, 524, 529

**O.**

Oesophagus, 408, 411, 433, 434, 456, 461, 470, 471, 478, 479, 487  
 pars abdominalis, 438, 479, 494  
 cervicalis, 411, 470  
 thoracalis, 411, 470, 478, 479

Omenta, App., note 12  
 Omental sac, see "Sac, omental"  
 tuberosity of the liver, 446, 447, 478  
 of the pancreas, 478, 479

Omentum, cavity of, see "Sac, omental"  
 gastrocolic, see "Omentum, great"  
 gastrohepatic, see "Omentum, small"  
 gastrosplenic, 450, 477, 479, 480, 495  
 great, 456, 472-477, 481

Omentum, great, anterior layer, 456, 472, 486-488  
 free portion, 472-477  
 posterior layer, 456, 473-477  
 hepatocolic, 477 and App., note 12  
 hepatoduodenal, 477 and App., note 12, 478-480  
 lesser, see "Omentum, small"  
 majus, 456, 472-477, 481  
 lamina anterior, 456, 472, 486-488  
 posterior, 456, 473-477  
 pars libera, 472-477  
 minus, 452, 456, 477, 480, 495, 522  
 pars condensata, 477  
 flaccida, 477  
 sac of, see "Sac, omental"  
 small, 452, 456, 477 and App., note 12, 480, 495, 522  
 thick portion, 477 and App., note 12  
 thin portion, 477 and App., note 12

Opening, mesoventral, 479 and App., note 41  
 Organ of Giraldules, 500, 502, 503, 520  
 of Rosenmüller, 500, 512, 513, 520, 521

Organa genitalia muliebrina, 509-524  
 virilia, 499-508  
 uropoëtica, 480-498

Organs, digestive, 400-456  
 genito-urinary, 480-524  
 reproductive, female, 509-524  
 male, 499-508  
 respiratory, 457-467  
 urinary, 480-498  
 urogenital, 480-524

Orifice, cloacal, 520 and App., note 11, 524  
 Eustachian, cushion of, 434, 436  
 of the Eustachian tube, pharyngeal, 411, 436  
 of the Fallopian tube, abdominal, 500, 511, 512  
 uterine, 500, 512

mitral, 471  
 of the pulp-canal, 426, 427  
 tricuspid, 471  
 of the ureter (vesical), 498  
 of the urethra, external, in the female, 498, 510,  
 514-516, 529, 531  
 in the male, 506-508,  
 524  
 internal, 499, 498, 511, 533  
 vaginal, 514, 515, 520, 531  
 of the vermiform appendix, 444

Orifices of the uriniferous tubules, 492 and App., note 11

Orificium externum uteri, 500, 511, 512, 516, 518  
 internum uteri, 511, 512, 518  
 ureteris, 498  
 urethræ externum (muliebris), 498, 510, 514-516,  
 529, 531  
 (virilis), 506-508, 524  
 internum, 496, 498, 511, 533  
 vagina, 514, 515, 529, 531

Os tincae, App., note 67  
 Os uteri, App., note 67  
 externum, 500 and App., note 67, 511, 512, 516, 518  
 internum, 511 and note, 512, 518

Ostium abdominale tubæ uterinæ, 500, 511, 512  
 pharyngeum, tubæ auditivæ, 411, 436  
 uteri, 511 and note  
 uterinum tubæ uterinæ, 500, 512  
 venosum dextrum, 471  
 sinistrum, 471

Ovary, 453, 500, 510-512, 518, 520, 535, 537  
 Ovary, 453, 500, 510-512, 518, 520, 535, 537  
 position of, App., note 11

Oviduct, see "Tube, Fallopian"  
 Ovulum, 512  
 Ovum, 512

**P.**

Pad, incisive, 416 and note, 417  
 sucking, 414, note

Palate, hard, 410, 411, 414, 416, 419, 425, 436  
 soft, 411, 416, 434-436

Palatum durum, 410, 411, 414, 416, 419, 425, 436  
 molle, 416



- Pancreas, 441, 451, 452, 456, 468, 478-480, 484, 495  
 accessorium, 441  
 lesser, 441, note  
 rudiment of, 468  
 Winslowi, 441  
 of Winslow, 441 and note
- Papilla or papillæ:  
 circumvallate, 416, 419, 421, 423  
 conicæ (linguæ), 419, 422  
 conical (of tongue), 419, 422  
 duodenal, 440  
 duodeni (Santorini), 440  
 filiform, 419, 422  
 filiformes, 419, 422  
 foliate, 419  
 foliata, 419  
 fungiform, 419, 422  
 fungiformes, 419, 422  
 incisiva, 416, 417  
 lenticular, 419, 423  
 lenticulares, 419, 423  
 mammae, 471, 486, 488, 517  
 of mucous membrane, 404  
 palatine, 416 and note, 417  
 renal, 401-403  
 renales, 401-403  
 submaxillary, 419, 424  
 vallatæ, 416, 419, 421, 423
- Paradidymis, 500, 502, 503, 520
- Parametric connective-tissue, 513 and App., note <sup>16</sup>, 535
- \*Parametrium, 513 and App., note <sup>84</sup>, 535
- Paries membranaceus tracheæ, 459, 461, 465
- Paroophoron, 500, 520, 521
- Parotid gland, retromandibular process of, 415, 425
- Parovarium, 500, 512, 513, 520, 521
- Part, nasopharyngeal, of nasal meatus, App., note <sup>4</sup>
- Partes genitales externæ (muliebres), 514, 515
- Passages, alveolar, 465
- Patches, Peyer's, 442
- Pavilion of the Fallopiian tube, 500, and see also "Infundibulum of the Fallopiian tube" and "Orifice, abdominal, of the Fallopiian tube"
- Pectiniform septum of the penis, 506, 508
- Pelvic fascia, tendinous arch of, 497 and App., note <sup>59</sup>, 532, 533  
 white line of, 497 and App., note <sup>59</sup>, 532, 533
- Pelvis of the kidney, 490-492  
 renalis, 490-492
- Penis, 501, 506-508, 520, 522-524, 534
- Pericardium, 410, 411, 456, 470, 471, 477, 482, 484, 528
- Periglottis, 420 and App., note <sup>2</sup>, also App., note <sup>31</sup>
- Perimetrium, 535 and note
- Perineal region, 526
- Perineum, 510, 514, 524, 534  
 obstetrical, 510, 514
- Periosteum, alveolar, 426 and note  
 dental, 426 and note
- Peritonæum. see "Peritoneum"
- Peritoneal folds, ligaments and omenta, App., note <sup>18</sup>  
 fossæ and pouches, App., note <sup>21</sup>
- Peritoneum, 451-456, 500  
 parietal, 408, 452-456, 472, 473, 478-481, 483-485, 494, 495, 513, 522, 523, 533-538  
 primary, 408, 453, 456  
 secondary, 408  
 visceral, 408, 445, 456, 511, 533-535
- Petiolus epiglottidis, 458
- Peyer's patches, 442
- Pharynx, 432-436  
 arched summit of, 411, 436  
 laryngeal part, 411, 434, 470  
 nasal part, 411, 434, 436  
 oral part, 411, 434  
 paries dorsalis, 436  
 lateral, 436  
 pars laryngea, 411, 434, 470  
 nasalis, 411, 434, 436  
 oralis, 411, 434  
 wall, lateral, 436  
 posterior, 436
- Philtrum, 412
- Pillar of the fauces, anterior, 415-419, 421  
 posterior, 415-418, 434, 436
- Pillars, see "Crura"
- of diaphragm, 470 and App., note <sup>27</sup>
- Pinna, 424
- Placenta, 518, 519  
 fœtal (fœtalis), 519  
 maternal, 519  
 uterine (uterina), 519
- Placental sinuses, 519
- Plate of the cricoid cartilage, 458
- Pleura, 477, 482-484, 487, 488  
 cervical, 467 and note, 470, 476-479, 483, 485, 487, 488  
 costalis, 467, 470, 471, 477-479, 482-487  
 diaphragmatica, 476, 477, 479, 484, 485, 494  
 mediastinalis, 470, 471, 478, 482  
 parietalis, 479, 484  
 pericardiaca, 471, 476, 477, 494  
 pulmonalis, 464, 477, 478, 484
- Plexus, capillary, of renal cortex, 493  
 medulla, 493  
 œsophageus (posterior nervi vagi), 470  
 pampiniformis, 501-503, 522, 523, 533  
 (venosus) ovaricus, 512, 513  
 pudendalis, 532 and App., note <sup>105</sup>, 533  
 uterovaginalis, 512, 513  
 venosus ovarianus, 512, 513  
 pampiniformis, 501-503, 512, 513, 522, 523, 533  
 prostatic, App., notes <sup>74</sup> and <sup>105</sup>  
 spermatic, 501-503, 522, 523, 533  
 uterine, 512, 513 and App., notes <sup>81</sup> and <sup>105</sup>  
 uterovaginalis, 512, 513 and App., notes <sup>81</sup> and <sup>105</sup>  
 vaginal, 512, 513 and App., notes <sup>81</sup> and <sup>105</sup>  
 vesical, App., note <sup>105</sup>  
 of venous radicles surrounding the orifices of the ducts of Bellini, 493
- Plica vel plicæ:  
 adiposæ (pleuræ), 476, 494  
 aryepiglottica, 461  
 cæcalis, 455  
 circulares [Kerkringi], 440, 442  
 duodenojejunalis, 454, 474  
 duodenoœsocolica, 454, 474  
 epigastrica, 536, 537  
 fimbriata, 419, 421  
 gastropancreatica, 479  
 glosso-epiglottica lateralis, 419, 461  
 mediana, 419  
 gubernatrix, 521 and App., note <sup>88</sup>  
 ileocæcalis, 455  
 longitudinalis duodeni, 440  
 mucosæ ventriculi, 438  
 nervi laryngei, 434, 461  
 palatinæ transversæ, 416, 417  
 palmata, 512
- † pharyngo-epiglottica, 415, 434, 435, 461  
 recto-uterina [Douglasi], 510, 511, 535, 537
- † rectovesicalis, 536  
 salpingopalatina, 436  
 salpingopharyngea, 434, 444  
 semilunares coli, 443, 444  
 serosa, 455  
 sublingualis, 414, 419, 424  
 transversalis recti, 445, 538  
 triangularis, 416, 419  
 tubariæ (ampullares), 512, 513  
 tunicæ mucosæ vesicæ felleæ, 440  
 umbilicalis lateralis, 472, 494, 522, 536, 537  
 media, 472, 494, 536, 537  
 ureterica, 498  
 ventricularis (laryngis), 461  
 vesicalis transversa, 535-537  
 villosæ of the pleura, 470, 494  
 vocalis, 459, 461
- Ponticulus hepatis, 446 and App., note <sup>17</sup>, 447
- Porta hepatis, 447
- Portal vein, 446, 480
- Portio aryocalis musculi thyro-arytenoidci, 460, note

- Portio supravaginalis (cervicis), 511, 516  
 vaginalis (cervicis), 510, 511, 516
- Portion of the cervix uteri, infravaginal, App., note <sup>72</sup>  
 intermediate, App., note <sup>73</sup>  
 supravaginal, 511 and App.,  
 note <sup>73</sup>, 516  
 vaginal, 510, 511 and App.,  
 note <sup>73</sup>, 516
- Post-nasal space, 411, 434, 436
- Post-trigonal pouch, 498 and App., note <sup>41</sup>
- Pouch or pouches:  
 of the colon, 443  
 of Douglas, 510, note, 511, 513, 535, 537  
 inguinal, external, 536  
 internal, 536  
 middle, 536, note  
 supravesical, 536  
 laryngeal, 460, 461  
 omental, see "Sac, omental"  
 peritoneal, 454, note; and see "Fossa, peritoneal"  
 post-trigonal, App., note <sup>61</sup>  
 rectovaginal, 510, note, 511, 513, 535, 537  
 rectovesical, 456, 534  
 rectocæcal, 455  
 splenic, 477 and App., note <sup>41</sup>, 483  
 uterovesical, 511, 535, 537
- Præputium clitoridis, 498, 514-516  
 penis, 508, 524
- Prepuce of the clitoris, 498, 514-516  
 of the penis, 508, 524
- Process, muscular, of the arytenoid cartilage, 458 and App.,  
 note <sup>24</sup>  
 retromandibular, of the parotid gland, 415, 425  
 uncinæ, of the pancreas, 441 and note  
 vaginal, of the peritoneum, 455, 522, 523  
 vocal, of the arytenoid cartilage, 458 and App.,  
 note <sup>24</sup>, 459
- Processus caudatus (lobi Spigeli), 447, 478  
 Ferreini, 493  
 muscularis (cartilaginosis arytenoidæ), 458  
 papillaris (lobi Spigeli), 447  
 retromandibularis (glandulæ parotidis), 415, 425  
 uncinatus (pancreatis), 441  
 vaginalis peritoneæ, 455, 522, 523  
 vermiformis, 444, 455, 474, 475, 537  
 vocalis (cartil. arytenoidæ), 458, 459
- Prominence, laryngeal, 411  
 levator, 436 and App., note <sup>4</sup>
- Prominentia laryngea, 411
- Prostata, 445, 497, 498, 500, 504-506, 512-534
- Prostate, the, 445, 497, 498, 500, 504-506, 512-534
- Pseudarteriæ rectæ, 493 and App., note <sup>26</sup>
- Pubes, 514
- Pudendum muliebrie, 514
- Pulmo (dexter, sinister), 463-465, 467, 471, 476-479, 482-488,  
 494
- Pulp dentis, 426  
 lienis, 450
- Pulp-canal, 426, 427
- Pulp-cavity, 426, 427
- Pulp, dental, 426  
 of the spleen, 450
- Pulvinar of the epiglottis, 461
- Pyloric region, 439
- Pylorus, 438-441, 482, 486, 487
- Pyramid of the thyroid body, 466, 467
- Pyramides renales, 491, 492
- Pyramids of Ferrein, 493  
 of Malpighi (renal), 491, 492
- R.**
- Radix (radices) dentis, 426, 430  
 linguae, 411, 419, 434, 435, 471  
 mesenterii, 454, 474, 475, 522, 536  
 nasi, 412  
 penis, 507, 526  
 pulmonis, 464, 465
- Rami bronchiales (eparteriales, hyperarteriales), 462, 465, 483,  
 484  
 pulmonum (†dorsales, †medialis, †ven-  
 trales), 462, 463
- ductus hepatici, 448  
 lienales (arteriæ lienales), 440
- Ramification, bronchial, 462, 463
- Raphe of the palate, 416  
 of the penis, 524  
 of the perineum, 524  
 of the pharynx, 432  
 pterygomandibularis, 417, 433  
 scroti, 501, 524, 527  
 of the tongue, median, 419
- Rays, medullary, of cortex of kidney, 493
- Receptaculum chyli, 494
- Recess, see "Fossa" and "Pouch"  
 of the pharynx, lateral, 434, 436  
 mesial, 434 and note, 436  
 pyriform (pyriform sinus), 434 and  
 note 461
- Recesses, urethral, 506
- Recessus duodenojejunalis, 454, 474  
 ileocæcalis inferior, 455  
 superior, 475  
 inferior omentalis, 476  
 intersigmoideus, 455, 522  
 lienalis (bursæ omentalis), 479  
 paracolic, 455  
 pharyngeus [Rosenmuelleri], 434, 436  
 phrenicohepaticus, 454  
 piriformis, 434, 461  
 retrocæcales, 455  
 superior omentalis, 479
- Rectum, 445, 456, 475, 486-488, 513, 530, 533-538  
 anal portion, 445, 538
- Recurrent straight branches of arterial arches of kidney,  
 App., note <sup>48</sup>
- Regio perinealis, 526  
 pylorica, 439  
 trigoni vesicæ, 496
- Region, perineal, 526  
 pyloric, 439
- Ren, 408, 479-481, 483-485, 487, 488, 490-495, 521
- Reproductive organs, female, 500-524  
 male, 499-508
- Respiratory organs, 457-467
- Rete testis [Halleri], 503, 520  
 vasculosum testis, 503, 520
- Reticular framework of the spleen, 450
- Retinacula of the ileocæcal valve, 444, note
- Retzius, cavity of, 456, 534
- Ridge of the palate, median longitudinal, 416  
 of the pyloric ring, 438 and App., note <sup>8</sup>  
 urethral, 514, 516
- Ridges of the mucous membrane of the gall-bladder,  
 449
- Rima glottidis, 459, 461  
 pars intercartilaginea, 461  
 intermembranacea, 461
- oris, 411, 412  
 pudendi, 514  
 urogenitalis, 514  
 vestibuli, 461
- Ring, abdominal, deep, 533  
 external, 501  
 internal, 533  
 superficial, 501
- of the cricoid cartilage, 458
- \* hæmorrhoidal, 445 and App., note <sup>13</sup>, 538
- lymphoid, faucial, 411, note
- \* urethral, 498 and App., note <sup>42</sup>, 506
- Rivini, duct of, 424, note
- Rivinus, duct of, App., note <sup>2</sup>
- Root of the lung, 464, 465  
 of the mesentery, 454, 474, 475, 522, 536  
 of the nose, 412  
 of the penis, 507, 526  
 of the tongue, 411, 419, 434, 435, 471  
 of tooth, 426, 430

Rosenmüller, fossa of, 434, 436  
organ of, 500, 512, 513, 520, 521

Rudiment of the cæcum, 451  
of the gall-bladder, 468  
of the genital gland, 520  
of the kidney, 520  
of the lungs, 468  
of the pancreas, 468  
of the reproductive gland, 520  
of the scrotum, 520  
of the spleen, 468  
of the ureter, 468 (see Erratum, p. 552g)  
of the uterus, 520  
of the vagina, 520  
of the vaginal process of the peritoneum (canal of Nuck), 455

Rudimentum processus vaginalis, 455

Rugæ of the bladder, 498  
of the duodenum, transverse, 440  
of the hard palate, 416, 417  
of the mucous membrane of the stomach, 438  
of the small intestine, 440, 442  
of the vagina, transverse, 516  
vaginales, 516

**S.**

Sac, omental, 452, 456, 468, 476-478, 479 and App., note <sup>44</sup>, 480, 484, 495  
divisions of, App., note <sup>44</sup>  
lesser, App., note <sup>44</sup>  
splenic fossa of, App., note <sup>44</sup>  
superior fossa of, App., note <sup>44</sup>  
vestibule of, 452, 479, App., note <sup>44</sup>, 495  
yolk, 468, 518

Sacculæ, laryngeal, 460, 461

Sacculæ of the ampulla of the vas deferens, 504  
of the colon, 443

Saccus henalis, 477, 483

Sacs, dental, 431

Santorini, cartilages of, 458  
duct of, 440-442

Scrotum, 500, 501, 520, 522-524, 526, 527, 534

Segment of the ilæcocal valve, lower, 444 and note upper, 444 and note

Seminal vesicle, 406, 409, 500, 504-506, 520, 532, 534

Septa of the testicle, 503

Septula testis, 503

Septum atriorum, 471  
bulbi urethrae, 533  
glandis, 508  
of the glans penis, 508  
interauricular, 471  
interventricular, 471, 484  
linguae, 420, 421  
mobile nasi, 411  
nasi, 414  
cartilagineum, 411  
of the nose, 414  
cartilagineum, 411  
pectiniforme, 506, 508  
penis, 506, 508  
scroti, 501, 523, 526  
of the tongue, 420, 421  
ventriculorum, 471, 484

Sinus or sinuses:  
costomediastinalis, 471  
epididymidis, 502, 503  
of the galactophorous ducts, 517  
glosso-epiglottic, 419, 461  
of the kidney, 491, 492  
lactiferi, 517  
of the larynx, 461  
maxillaris (Highmori), 414  
maxillary, 414  
phrenicocostalis, 470, 479, 480, 482-485  
placental, 510  
pocularis, 408, 500, 504-506, 520  
prostatic, 408, 500, 504-506, 520  
pyriform, 434, 461

Sinus or sinuses:  
rectales, 445  
of the rectum, 445 and App., note <sup>14</sup>  
renalis, 491, 492  
sphenoidalis, 436  
tonsillarlis, 415, 418, 419  
nrogenitalis, 520, 524  
of Valsalva, App., note <sup>38</sup>

Skene's glands, 514 and App., note <sup>88</sup>, 516  
tubules, 514 and App., note <sup>88</sup>, 516

Socket of tooth, 426

Space, Burns's, 410, note  
mediastinal, see "Mediastinum," footnote to p. 410, and App., note <sup>21</sup>  
pleural, supplemental, costomediastinal, 471 and App., note <sup>36</sup>  
mediastindiaphragmatic, App., note <sup>36</sup>  
phrenocostal, 470 and App., note <sup>36</sup>, 470, 480, 482-485  
pericardiophrenic, App., note <sup>36</sup>  
pericardiosternal, 471 and App., note <sup>36</sup>  
post-nasal, 411, 434, 436  
preperitoneal, 456, 534  
retroperitoneal, 408, 456, 480, 481, 494, 495, 534

† Spatium interapancreoticum suprasternale, 410, note  
præperitoneale [Retzius], 456, 534  
retroperitoneale, 408, 456, 480, 481, 494, 495, 534

Spermatic cord, 501, 502, 523

Sphincter of the anus, external or superficial, 445, 497, 526-530, 534, 535, 538  
internal, deep, or circular, 445, 538  
third, 445  
of the pylorus, 438, 439  
vesicae, 408 and App., note <sup>62</sup>, 506  
vesicae externus, App., note <sup>62</sup>  
internus, App., note <sup>62</sup>, 506

Spiral of the cystic duct, 449

Splanchnologia, 401 *et seq.*

Splanchnologia, 401 *et seq.*  
general considerations, 404-408

Spleen, 450-453, 477, 479, 480, 482-484, 486, 487, 495, 522  
accessory, 450  
descriptive anatomy of, App., note <sup>1</sup>

Stensen's canal, 416 and note  
duct, 413, 416, 424, 425

Stomach, 438, 439, 451, 452, 456, 476-478, 480, 482-484, 486, 487, 495, 514  
body, 438, 480, 482, 484  
cardiac portion, 438  
curvature, great, 438, 450, 476, 478, 486  
small, 438, 439  
fundus, 438, 477, 483, 484, 486  
great cul-de-sac, 438, 477, 483, 484, 486  
pyloric antrum, 438  
portion, 438-440, 477, 482  
small cul-de-sac, 438  
wall, anterior, 438, 472  
posterior, 478, 483

† Stratum circulare (tunica muscularis), 407, 452  
granulosum (folliculi ophori), 512  
longitudinale inferius linguae, 421, note  
superius linguae, 421, note  
tunica muscularis, 407, 452

† perpendiculare linguae, 421, note  
submucosus fibrosus, of the tongue, 420-423  
transversum linguae, 421, note

Striated border, 404

Stroma ovarii, 512

Substance, glandular, of the prostate gland, 505

Substantia adamantina, 426, 427  
corticalis glandulae suprarenalis, 492  
renis, 491-493  
eburnea, 426, 427  
medullaris glandulae suprarenalis, 492  
renis, 491, 493  
ossea (dentis), 426



- Sucking-pad, 414 and note  
 Sulcus, alar, 412, note  
 † aorticus (pulmonis), 464  
 † dorsalis penis, 507  
 medianus (linguæ), 419  
 mentolabial, 412  
 nasal posterior, App., note <sup>4</sup>  
 nasolabial, 412  
 cesophageal, 447, note  
 subclavius (pulmonis), 464  
 terminalis linguæ, 419  
 Summit of the bladder, 494, 496, 534, 536, 537  
 of the pharynx, arched, 411, 436  
 Suprarenal body, 483, 492, 494, 495, 521  
 Surface of the arytenoid cartilage, articular, 458 and App., note <sup>25</sup>  
 of the kidney, anterior, 490  
 posterior, 490  
 of the liver, inferior, 446, 447  
 posterior, 446, 447  
 superior, 446  
 of the lung, costal, 464, 486  
 diaphragmatic, 464  
 inner, 463, 464  
 lower, 464  
 mediastinal, 463, 464  
 outer, 464, 486  
 phrenic, 464  
 of the ovary, external, 511  
 internal, 511, 537  
 of the pancreas, anterior, 441  
 inferior, 441  
 posterior, 441  
 of the placenta, external, 519  
 foetal, 519  
 internal, 519  
 maternal, 519  
 uterine, 519  
 of the prostate gland, anterior, 505  
 basal, 496, 505  
 posterior, 505, 506, 532  
 pubic, 505  
 rectal, 505, 506, 532  
 vesical, 496, 505  
 of the spleen, basal, App., note <sup>19</sup>  
 gastric, 450, 479  
 phrenic, 450  
 renal, 450  
 of the suprarenal capsule, anterior, 492  
 posterior, 492 and App., note <sup>42</sup>  
 of teeth, buccal, 428-430  
 of contact, 430  
 labial, 430  
 lingual, 428, 430  
 masticatory, 428, 429  
 posterior (premolar and molar), 428, 429  
 of the testicle, external, 502, 521  
 internal, 502  
 of the tongue, inferior, 419-421  
 superior, 411, 416, 417, 419  
 of the uterus, inferior, 511, 537  
 intestinal, 511, 513, 535  
 posterior, 511, 513, 535  
 vesical, 511, 537  
 Sustentaculum lienis, 474, note, App., note <sup>41</sup>  
 †Syndesmosis arycorniculata, 459  
 corniculo-arytenoid, 459 and App., note <sup>24</sup>
- T.
- Tænia libera, 443, 444, 473, 474  
 mesocolica, 443, 444  
 omentalis, 444, 473, 478  
 Tæniæ coli, 443, 444  
 Tail of epididymis, 502, 503, 521, 522  
 of the pancreas, 441, 480, 483  
 rudimental, 524  
 Taste buds, 423  
 Teeth, 426-431  
 Teeth, absorption of temporary, 428  
 bicuspid, 427, 429-431  
 canine, 426-431  
 deciduous, 427, 428, 431  
 developmental stages, 431  
 grinders, 427-431  
 incisor, 426-431  
 lower, 427  
 milk, 427, 428, 431  
 molar, 427-431  
 multicuspid, 427-431  
 permanent, 427-431  
 premolar, 427, 429-431  
 temporary, 427, 428, 431  
 upper, 427  
 wisdom, 429, 430  
 Tela subcutanea, 508  
 submucosa, 405-407  
 subserosa, 407  
 Tendinous intersection between the cricothyroid muscle and the inferior constrictor of the pharynx, 433 and note  
 Tendon, central, cordiform, or trefoil, of the diaphragm, 446, 485  
 Testicle, 456, 500-507, 520-523  
 appendix of, 500, 502 and App., note <sup>49</sup>, 520, 521  
 descent of, 522, 523  
 Testis, 456, 500-507, 520-523  
 Theca folliculi, 512  
 Thoracic viscera, projection-outlines of, 486-488  
 Thymus (gland), 410, 411, 456, 466, 467, 476  
 Thyroid body, 408, 411, 434, 466, 467, 470  
 Tip of the coccyx, 529 and note  
 of the nose, 412  
 of the tongue, 415, 419, 420  
 Tissue, areolar, of mucous membrane, 404-407, 422, 423  
 submucous, 405-407  
 subserous, 407  
 erectile, of the female urethra, 535 and App., note <sup>108</sup>  
 subcutaneous areolar, of the penis, 508  
 Tongue, 419-425  
 body of the, 414, 419  
 edge of the, 419-421  
 lower surface of the, 419-421  
 root of the, 411, 419, 434, 435, 471  
 upper surface of the, 411, 416, 417, 419  
 Tonsil (amygdala), 411, note, 434-436  
 lingual, 411, note, 416 and note, 419  
 Luschka's, 411 and note, 434-436  
 palatine, 411 and note, 434-436  
 pharyngeal, 411 and note, 434-436  
 Tonsilla linguæ, 416, 419  
 palatina, 415-419, 424, 434-436  
 pharyngea, 411, 434-436  
 Tooth, see "Teeth"  
 Topographical anatomy, see "Anatomy, topographical"  
 Torus tubarius, 434, 436  
 Trabeculæ lienis, 450  
 of the spleen, 450  
 Trachea, 408, 411, 433, 456, 462, 463, 465-471, 478, 479  
 bifurcation of, 411, 462  
 Tricuspid orifice, 471  
 Trigone of the bladder, 466, 468 and App., note <sup>61</sup>  
 boundaries of, 468 and App., note <sup>61</sup>  
 Trigonum vesicæ [Lieutaudi], 468  
 Tuba uterina [Fallopian], 455, 500, 510-513, 518, 520, 521, 535, 537  
 pars uterina, 512  
 Tube, Eustachian, 410, 411, 434-436  
 bony portion of, 435  
 membranous portion of, 433, 436  
 Fallopian, 455, 500, 510-513, 518, 520, 521, 535, 537  
 uterine portion, 512  
 subtracheal, App., note <sup>1</sup>  
 Tuber omentale hepatis, 446, 447, 478  
 pancreatis, 478, 479  
 papillare, 447  
 Tubercle of the epiglottis, 461  
 genital, 520, 521, 524

- Tubercle of the thyroid cartilage, inferior, 458  
 superior, 458  
 of the upper lip, median, 412, 419
- Tubercles of the crown of the teeth, 427-429
- Tubercula (coronæ), dentis, 427-429
- Tuberculum corniculatum [Santorini], 461  
 cuneiforme [Wrisbergi], 460, 461  
 epiglotticum, 461  
 labii superioris, 412, 419  
 thyroideum inferius, 458  
 superius, 458
- Tuberosity, omental, of the liver, 446, 447, 478  
 of the pancreas, 478, 479
- Tubule or tubules:  
 of the epoophoron, longitudinal (duct of Gartner),  
 512, 520, 521  
 transverse, 512
- of the kidney, 402, 493  
 ascending (of Henle), 493 and App.,  
 note<sup>54</sup>  
 collecting, 493 and App., note<sup>55</sup>  
 convoluted, first, 493  
 second, 493 and App.,  
 note<sup>52</sup>  
 descending (of Henle), 493 and App.,  
 note<sup>54</sup>  
 excretory, 492 and App., note<sup>51</sup>, 493  
 irregular, 493  
 junctional, 493  
 looped (of Henle), 493 and App.,  
 note<sup>54</sup>  
 straight, 493 and note  
 zigzag, 493
- mesonephric, 520  
 Schüller's, 514 and note, 516  
 seminiferous, convoluted, 503  
 straight, 503  
 Skene's, 514 and note, 516  
 uriniferous, 492 and App., note<sup>51</sup>, 493  
 of the Wolffian body, transverse, 520
- Tubuli  
 renales (contorti, recti), 503  
 seminiferi (contorti, recti), 503
- Tubus  
 digestorius, 438-445
- Tulpius, valve of, 444 and note
- Tunica adiposa of the kidney, 470, 481, 484, 485  
 adventitia (duodeni), 407  
 pharyngis, 432, 466 and App., note<sup>54</sup>
- albinea corporum cavernosorum, 506, 508  
 of the kidney, 491, 493  
 lienis, 450  
 testis, 503
- dartos, 501  
 fibrosa (renis), 491, 493  
 mucosa, 406, 407
- muscularis, 406, 407, 452  
 ductus deferentis, 501  
 intestini ilei, 407  
 recti, 445  
 urethræ, 408  
 uteri, 512, 518, 519  
 ventriculi, 439  
 vesicæ (urinariæ), 496-498
- propria of the spleen, 450  
 serosa, 407, 408  
 vaginalis, 456, 501-503, 523  
 communis testis et funiculi sperm.),  
 501-503, 523  
 propria testis, 456, 501-503, 523
- U.
- Umbilical cord, 518, 519, 521, 522  
 loop of intestine, 451 and note, 521  
 vesicle, 468, 518
- Umbilicus, 481, 488, 523
- Uncinate process of the pancreas, 441 and note
- Urachus, 496, 497, 520, 533
- Ureter, 490-492, 494, 496, 497, 513, 520-522, 532-536  
 abdominal portion (pars abdominalis), 494  
 pelvic portion (pars pelvina), 496, 513
- Ureter, rudiment of, 468 (see Erratum, p. 552g)
- Urethra, female (muliebris), 498, 500, 510, 511, 535  
 male (virilis), 488, 500, 505-508, 522  
 membranous or muscular portion (pars mem-  
 branacea), 498, 504-506, 531, 534  
 penile or spongy portion (pars cavernosa),  
 504, 506, 508  
 prostatic portion (pars prostatica), 498, 504 5 6
- \*Urethral ring, 498 and App., note<sup>51</sup>, 506
- Urinary organs, 480-498
- Urogenital organs, 480-524  
 sinus, 520, 524
- Uterus, 500, 510-513, 520, 521, 535, 537  
 gravidus, 518  
 masculinus, 498, 500, 504-506, 520
- Utriculus, prostaticus, 498, 500, 504-506, 520
- Utriculus prostaticus, 498, 500, 504-506, 520
- Uvula of the bladder (uvula vesicæ), 498, 504  
 of the palate (uvula palatina), 416, 417, 435
- V.
- Vagina, 500, 510, 511, 516, 520, 521, 531, 534  
 anterior wall (paries anterior), 511, 516  
 posterior wall (paries posterior), 511, 516
- Vaginal process of the peritoneum, 455, 522, 523
- Vallecula epiglottica, 419, 461
- Vallum, circular, of circumvallate papilla, 423
- Valsalva, sinuses of, App., note<sup>38</sup>
- Valve or valves:  
 aortic, 482  
 of Bauhin, 444 and note  
 of the cystic duct, spiral, 449  
 Eustachian, 482  
 Houston's, App., notes<sup>71</sup> and<sup>100</sup>, and see also "Fold  
 of the rectum, transverse"<sup>71</sup>  
 ileocaecal, 444 and note  
 ileocolic, 444 and note  
 of Kerkring, 440, 442  
 mitral, 471, 482
- \* pyloric, 438 and App., note<sup>8</sup>  
 semilunar, 482  
 spiral, of the cystic duct, 449  
 tricuspid, 471  
 of Tulpius, 444 and note  
 of the vermiform appendix, 444
- Valvula vel valvulae:  
 bicuspidalis, 471, 482  
 coli, 444  
 conniventes, 440, 442  
 processus vermiformis, 444  
 pylori, 438  
 semilunares aortæ, 482  
 spiralis [Heisteri], 449  
 tricuspidalis, 471  
 venæ cavæ [Einstachii], 482
- Vas aberrans (of epididymis), inferior, 502 and App., note<sup>71</sup>,  
 503, 520  
 superior, 502 and App.,  
 note<sup>71</sup>, 503
- afferens (glomeruli renis), 493  
 deferens, 494, 496, 500-504, 520, 522, 523, 533, 536  
 efferens (glomeruli renis), 493
- Vasa aberrantia hepatis, 446-448  
 recta spuria, 493 and App., note<sup>54</sup>  
 vera, App., note<sup>56</sup>
- Vater, diverticulum of, 440 and note, 442
- Vein or veins:  
 azygos (right, or large), 471  
 capsular, 492  
 central, of the liver, 448  
 of the clitoris, dorsal, 531  
 of the corpus cavernosum, 532  
 dorsal, of the clitoris, 531  
 of the penis, 508, 531, 532  
 epigastric (deep or inferior), 533  
 facial, 424, note  
 anterior, 424, note  
 common, 424, note  
 posterior, 424, note

- Vein or veins :  
   hepatic, 446, 447, 494  
   hypogastric, App., note <sup>107</sup>  
   iliac, common, 533  
     external, 533  
     internal, 533 and App., note <sup>107</sup>  
   interlobular of the kidney, 493  
     of the liver, 448  
   intralobular, of the liver, 448  
   of the kidney, interlobular, 493  
     radiate, 493  
     stellate, 493  
   of the liver, central, 448  
     interlobular, 448  
     intralobular, 448  
     peripheral, 448  
     sublobular, 448  
   mesenteric, inferior, 454  
     superior, 479, 495  
   obturator, 532  
   ovarian, 511  
   of the penis, dorsal, 508, 531, 532  
   peripheral, of the liver, 448  
   portal, 446, 480  
   pudic, internal, 532 and App., note <sup>108</sup>  
   pulmonary, 464, 465, 470, 471  
   radiate (of the kidney), 493  
   renal, 490, 494  
   spermatic, 494, 522  
   splenic, 441  
   stellate (of the kidney), 493  
   suprarenal, 492  
   temporomaxillary, 424, note  
   umbilical, 519, 521, 522  
   uterine, 519  
   uteroplacental, 519  
 Velum palatinum (velum pendulum palati), 411, 416, 434-436  
 Vena *vel* vena :  
   arciformes (renis), 493  
   azygos, 471  
   cava inferior, 446, 471, 479-481, 494, 495, 521  
     superior, 471, 477, 478, 482, 486  
   centralis (hepatis), 448  
   dorsalis clitoridis, 531  
     penis, 508, 531, 532  
   epigastrica inferiores, 533  
   hepatica, 446, 494  
   hypogastrica, 537  
   iliaca communis, 533  
     externa, 533  
   interlobulares hepatis, 448  
     renis, 493  
   lienal, 441  
   mesenterica inferior, 454  
     superior, 479, 495  
   obturatoria, 533  
   ovarica, 511  
   portæ, 446, 480  
   profunda penis, 532  
   pudenda interna, 532  
   pulmonales, 464, 465, 470, 471  
     renalis, 493, 494  
   spermatica interna, 494  
   stellata (renis), 493  
   sublobularis (hepatis), 492  
   suprarenalis, 492  
   testicularis, 522  
   thyroidæ inferiores, 411  
   umbilicales, 519, 521, 522  
   uteroplacentares, 519  
 + Venous arch, jugular, 410 and note  
  
 Venous arches of kidney, 493  
 Ventricle of the larynx, 461  
   left, 471, 484  
   right, 471, 484  
 Ventriculus, 438, 439, 451, 452, 456, 472, 476-478, 480, 482-484,  
   486, 487, 495, 514  
   paries anterior, 438, 472  
   posterior, 478, 483  
   pars cardiaca, 438  
   pylorica, 438-440, 477, 482  
 Ventriculus cordis dexter, 471, 484  
   sinister, 471, 484  
   laryngis [Morgagnii], 461  
 Venulæ rectæ (renis), 493  
 Vertex vesicæ, 494, 496, 534, 536, 537  
 Verumontanum, 498 and App., note <sup>63</sup>, 505, 506  
 Vesica fellea, 446, 449, 453, 476-478, 482, 485, 486, 495, 522  
   urinaria, 456, 486, 487, 496-498, 500, 504, 510, 511, 513,  
   520-523, 533-537  
 Vesicle, prostatic, 504-506, 520, and App., note <sup>64</sup>; see also  
   "Utricle, prostatic"  
   seminal, 496, 497, 500, 504-506, 520, 532, 534  
   umbilical, 468, 518  
 Vesicula seminalis, 496, 497, 500, 504-506, 520, 532, 534  
   umbilicalis, 468  
 Vessel, afferent, of renal glomerulus, 493  
   efferent, of renal glomerulus, 493  
 Vessels, aberrant, of the liver, 446-448, and App., notes <sup>14</sup>  
   and <sup>17</sup>  
 Vestibule, bulb of the, 515 and App., note <sup>91</sup>, 535  
   of the larynx, 411, 461  
   of the mouth, 411, 414-417  
   of the omental sac, 452, 479, 495, and App., note <sup>44</sup>  
   of the vagina, 498, 500, 510, 514 and App., note <sup>99</sup>,  
   515, 520, 524, 520  
   of the vulva, 498, 500, 510, 514, and App., note <sup>99</sup>,  
   515, 520, 524, 529  
 Vestibulum bursæ orientalis, 452, 479, 495  
   laryngis, 411, 461  
   oris, 411, 414-417  
   vagina, 498, 500, 510, 514, 515, 520, 524, 529  
 Vestige of the Müllerian duct, 521; see also "Hydatid of  
   Morgagni"  
 Villi, chorionic, 519  
   fetal, 519  
   intestinal, 407, 432  
 Viscera, abdominal, projection-outlines of, 486-488  
   capitis et colli, 411  
   cephalic and cervical, 411  
   general considerations, 403-408  
   relations of, to body-wall, 408  
   thoracic, projection-outlines of, 486-488  
 Vulva, the, 514  
  
 W.  
 Wall, membranous, of trachea, 459, 461, 465  
 Walther, duct of, App., note <sup>3</sup>  
 Wharton's duct, 414, 424, 425, and App., note \*  
 Wilson's muscle, App., note <sup>101</sup>  
 Winslow, foramen of, 478, 479  
   pancreas of, 441 and note  
 Wirsung, duct of, 440-442  
 Wisdom-teeth, 420, 430  
 Wolffian body, 468, 520, 521  
   duct, 468, 520, 521  
 Wrisberg, cartilages of, 460  
  
 Y.  
 \*Yellow spot (of the larynx), App., note <sup>11</sup>  
 Yolk-sac, 468, 518

## ERRATUM

In the letterpress of Fig. 797, p. 468, right-hand column, "Rudiment of the uterus" is a misprint for "Rudiment of the *uteri*."—T.R.

















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