Anatomy of the horse / by E.F. Gurlt ; translated from the original German, by J. Willimott, and dedicated by permission to Edward Coleman. In two parts.

ANATOMY OF THE HORSE;

BY

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TRANSLATED FROM THE ORIGINAL GERMAN,

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MEMBER OF THE UNIVERSITY OF BERLIN, &c.

AND DEDICATED BY PERMISSION TO

EDWARD COLEMAN, ESQ.

PROFESSOR OF THE VETERINARY COLLEGE OF LONDON.

IN TWO PARTS.

PART I.

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PREFACE.

The Author of this Treatise is already well known from his valuable set of "Anatomical Plates of the Domestic Mammalia," as well as from his "Manual of Pathological Anatomy" on the same subject; which have met with a most extensive sale on the Continent, and in this country. The present work has also experienced the most decided patronage in Germany; and the publisher trusts that in undertaking its translation, he is rendering a real service, not only to professional men, but also to the very numerous amateurs of the Horse in England.

The name of the celebrated Professor to whom, by kind permission, this work is dedicated is, in fact, a sufficient guarantee for its excellence.

The Translator only begs to remark that, to render the book more generally useful, he has added to the technical expressions, those veterinary terms most commonly made use of in English society.

The work, with the German and English letter-press, will be completed in Two Parts, of which the concluding one will speedily appear.

London; November 21, 1832.

ANATOMY OF THE HORSE.

PLATE I.

THE SKELETON WITH THE CERVICAL LIGAMENT, SEEN FROM THE LEFT SIDE.

The Skeleton is divided into the bones of the Head, Trunk, and Extremities.

In the Head.

1. Shows the Os Intermaxillare, in the body of which
2, 2. The Dentes Incisorii are apparent.
2, 2. On the Lower Jaw mark the analogous teeth.
3. The Os Maxillare Superius, has on its facial surface
4. The Foramen Infraorbitale, through which the Nervus Infraorbitalis and the Arteria Dentalis Superior pass out.
5, 5. The Left Dentes Canini of the Upper and Lower Jaw, which are perfect only in the human race.
6, 6. The six Dentes Molares of the Upper Jaw; those of the Lower Jaw are almost concealed by the former.
7. The Os Nasi.
8. The Os Lacrymale.
9. The Os Zygomaticum, s. Os Malæ, which three are all united with the Maxilla Superior, by means of sutures.
10. The Processus Orbitalis Ossis Frontis is united with
12. The Processus Zygomaticus Ossis Temporalis, and has above it

11. The Os Bregmatis s. Parietale, and
12. Pars Squamosa Ossis Temporum.
13. Meatus Auditorius Externus.
14. Os Occipitis, and
15. Maxilla Inferior.

The Trunk

Is composed of

1—7. Seven Vertebræ Colli, of which, 1, is called Atlas; 2, Epistropheus. Further of

8—25. Eighteen Vertebræ Dorsi, of which the Processus Spinosi of the Third, to the Sixth, (10—13,) form the Withers.

26—31. Six Vertebræ Lumborum.

32. Os Sacrum, composed of Five Vertebræ, and

33, 33. Eighteen Ossa Coccygis, or Bones of the Tail. All the Vertebræ together form the Columna Vertebrarum lying in the central line of the body. With the 18 Vertebræ dorsales are united

a—s. 18 Pair of Ribs, (in the engraving only those of the left side are visible,) of which the Anterior 8 pair

a—h. Are called Costræ Veræ, being connected with the Sternum by means of the Inferior Cartilage, and the Posterior Ten Pair

l—s. Costræ Spuriæ, being connected only with each other by their cartilage. All the Ribs together with the Dorsal Vertebræ and

t. The Sternum, form the Thorax. To the Trunk belong also

34, 34. Ossa Pelvis s. Innominata.

The Head is connected with the Vertebral Column, and the Vertebræ with each other, by means of

A, A, A. The portion of the Ligamentum Nuchæ attached to the Nape of the Neck and Dorsum, and

B. Its Cervical Portion.

Each Anterior Extremity

Is made up of

1. Scapula, which forms an angle of 45°, with
2. Os Brachii, s. Humeri,
3, 3 Radius, and

4. The Ulna, form the Fore-arm, which is placed perpendicularly upon the Carpus, or Fore-knee. This is composed of seven bones, namely,
5. Os Semilunare.
6. Os Triquetrum.
7. Os Hamatum, (which are visible on the left extremity); further of
8. Os Naviculare,
9. Os Multangulum Majus,
10. Os Multangulum Minus, (which are visible on the right extremity,) and
11. Os Capitatum, (visible on the left extremity).

The Metacarpus comprehends three bones, called Shank-bones, namely:

12, 12. Os Metacarpi Medium.
13. Os Metacarpi Internum.
14. Os Metacarpi Externum. On the Posterior Surface of the Inferior Portion of the Os Metacarpi Medium are placed

15, 16. Ossa Sesamoidea Superiora.

The Pes Anterior, (properly the Digitus Medius,) which is directed obliquely forwards, is composed of

17, 17. Phalanx Prima Digiti, or great Pastern.
18, 18. Phalanx Secunda, the Coronet or Little Pastern.
19, 19. Phalanx Tertia, Hoof-bone, or Coffin-bone, and
20, 20. Os Sesamoideum Inferius.

Each Posterior Extremity is divided into the Femur, composed of

1, 1. Os Femoris, and
2, 2. Patella, or Stiffle, which answers to the Olecranon of the Ulna of the Anterior Extremity. Further it is divided into the Crus, which is formed of
3, 3. Tibia, and
4. Fibula; into the Tarsus, or Hock-joint, in which we find six bones, namely:
5. Calcaneus s. Os Calcis.
6, 6. Astragalus, s. Talus.
7, 7. Os Naviculare.
8, 8. Os Cuneiforme Tertium.
9. Os Cuboideum.
10. Os Cuneiforme Primum; (Os Cuneiforme Secundum is wanting in the Horse.) The Metatarsus, like the Anterior, is formed of

11, 11. Os Metatarsi Medium,
12. Os Metatarsi Internum,
13. Os Metatarsi Externum, and lastly
14, 15. Ossa Sesamoidea. The Pes Posterior, or properly the Digitus Medius Pedis, has the same number of bones as the Pes Anterior, namely:
16, 16. Phalanx Prima.
17, 17. Phalanx Secunda.
18, 18. Phalanx Tertia, and
19, 19. Os Sesamoideum Inferius.

PLATE II. FIG. I.

The Head (without Lower Jaw,) seen from above.

1. Crista Ossis Occipitis, serving for the origin of several Extensor Muscles of the Head; has no corresponding Crista, and is connected with
2, 2. Ossa Bregmatis, s. Parietalia, by means of the Sutura Lambdoidea s. Angularis.

The Ossa Parietalia are connected in the central line by means of the Sutura Sagittalis, and have at the side

3, 3. Partes Squamosæ Ossium Temporum, of which each is connected with the Os Parietale of its side, by means of the Sutura Squamosa.
4, 4. Meatus Temporales are placed at the origin of
5, 5. Processus Zygomatici Oss. Temporal., and serve for the exit of the Venæ Cerebrales Superiores.
6, 6. Ossa Frontis are connected with each other in the central line, by means of the Sutura Frontalis, and with the Ossa Parietalia, (2, 2,) by means of the Sutura Coronalis on their Posterior Edges. Each has in the outwardly-directed Processus Orbitalis,
7, 7. Foramen Supraorbitale, through which the Arteria Temporalis and the Nervus Temporalis, (of the fifth pair,) pass out of the Orbitar Cavity.
8, 8. Orbita, in the Horse is in the form of a circle.

9, 9, (10.) Ossa Nasi, are connected with the Ossa Temporalia (6, 6,) by means of a Sutura Lamellosa, with each other by a False Suture, (harmonia), and with

10, 10. Ossa Lacrymalia, by means of a Sutura Vera. Each Os Lacrymale is, in its Facial Portion, connected by means of sutures with the Os Tempor. with

11, 11. Os Zygomaticum, and with

12, 12, 12, 12. Os Maxillare Superius of its side. The Os Zygomaticum Ossis Tempor. forms by means of the Crista Ossis Zygomatici the lateral limits, and the Ossa Maxillar. Superiora the basis of the Facial Portion of the Head. These have on the Superficies Facialis

13, 13. Foramina Infraorbitalia, through which the Nervus Infraorbital. and the Arter. Dental. Superior pass to the Face.

14, 14, 14, 14. Ossa Intermaxillaria; each of these is united by its Processus Nasalis with the Os Maxillare Super. and the Os Nasi, and by its body with its fellow. Between both bodies is

15. Foramen Incisivum s. Palatinum Anterius, for the passage of the united Arter. Palatinæ. At the Anterior Extremity of each Os Maxillare Super. we find in male animals

16, 16. Dens Caninus s. Laniarius. In the bodies of the Ossa Intermaxill. are placed

17, 17. Dentes Incisorii Externi.

18, 18. Dentes Incisorii Medii.

19, 19. Dentes Incisorii Interni.

FIG. II.

The Head (without the Lower Jaw,) seen from below.

1. Protuberantia Occipitalis Externa, for the origin of the Ligamentum Nuchæ and the lessor Extensors of the Head.

2. Foramen Magnum Occipitis, for the passage of the Spinal Chord, and on the sides bounded by

3, 3. Processus Condyloidei of the Os Occipitis, which are connected with the First Cervical Vertebra.

4, 4. Processus Styloidei, also belong to the Os Occipitis as well as

Pars Basilaris, which at an early age is connected by cartilage with the Os Sphenoideum.

6, 6. Partes Petrosæ Ossium Temporum, contain the organ of hearing; each has on the Tympanum

7, 7. Processus Styloideus, which serves for the origin of the Eustachian Tube, and two small Musculi Palatini. The Partes Squamosæ Ossium Temporum have on their Processus Zygomat.

8, 8. Tubercula Articularia, and before these

10, 10. Foveæ Articulares, for the Maxillaria Inferior; each squamous portion bounds exteriorly

9, 9. Foramen Lacerum, through which the 9th, 10, and 11th nerve, and the Vena Cerebral. Inferior pass out of, but the Arterior Carotis into, the Skull.

11, 11. Alæ Parvæ; and

12. Corpus s. Diaphysis Ossis Sphenoidei, form a part of the basis of the skull. At the origin of each Process Pterygoid. Ossis Sphenoid. is placed

13, 13. Foramen Pterygoideum, for the passage of the Arteria Mentalis Interna. In the central line is placed the single

14. Vomer, which assists in forming the Septum of both Nasal Sinuses, and of the Posterior Nasal Apertures, (19, 19.)

15, 15. Processus Orbitales Ossium Temporum

16, 16. Os Zygomaticum, which are connected with

17, 17. The Posterior Extremities of the Ossa Maxillaria Superiora.

18, 18. Ossa Pterygoidea, are connected with the Processus Pterygoid. Ossis Sphenoid.

19, 19. The Posterior Nasal Apertures (Choanæ,) are bounded anteriorly by

20, 20. Ossa Palatina. Between these Bones, and the Ossa Maxillaria Super. are found

21, 21. Canales Pterygopalatini Anteriores, through which the Arteria Palatina and Nerv. Palatin. on each side pass.

22, 22, 22, 22. Processus Palatini. Oss. Maxill. Superior. have small apertures, which lead to the Sinus Nasales, and form, together with

23, 23. Processus Palatini Ossium Intermaxillar. the floor of the Nose.

24, 24. Corpora Ossium Intermaxillar. with

25. Foramen Incisivum in the middle, contain the six Incisory Teeth, the crowns of which, with their surfaces of attrition are here visible, namely:
28, 28. Dentes Incissori Externi.
29, 29. ——————— Medii.
30, 30. ——————— Interni.
The Ossa Maxillaria Superior. contain
26, 26, 26, 26. Twelve Dentes Molares, and
27, 27. Two Dentes Canini, s. Laniarii.

FIG. III.

The Right Half of the perpendicularly and longitudinally divided Head, without the Septum Narium, from the inner side.
1. The Body
2. Processus Nasalis of the Os Intermaxillar.
3. Os Nasi.
4. Superficies Nasalis Maxillæ Superioris.
5. Meatus Narium Infimus, lies between
6. The Processus Palatini Maxillæ Superior; and
8, 8. Concha Nasalis Infima. Between it and
7, 7. The Concha Superior, (media,) is the Meatus Narium Medius, and above this is Meatus Narium Supremus.
9, a. Concha Suprema, and
9, b. 9, b. Labyrinthus belong to the Os Ethmoideum.
10. Foramen Sphenopalatinum serves for the passage of the Nerv. Nasal. Posterior and Arter. Nasal. Posterior.
11. Sinus Maxillaris s. Antrum Highmori.
12, 12. Sinus Sphenoidalis and
15. Sinus Frontalis are connected with the Sinus Nasalis.
13. Hamulus and
14. Corpus Ossis Pterygoidei.
16. Os Parietale,
17, 17. Os Occipitis form, together with the posterior part of the Os Temporale, the superior, posterior, and lateral wall of the
18, 18. Cavitas Cranii, which, by means of
19. Tentorium Osseum, is divided into an anterior larger half, for the Cerebrum, and into a posterior smaller half, for the Cerebellum.

19, b. Meatus Temporalis,
20, 20. Superficies Interna Partis Petrosæ, with
21. Meatus s. porus Acusticus Internus.
22. Foramen Lacerum.
23. Foramen Condyloideum Anterius, serves for the passage of the 12th nerve.
24. Corpus Ossis Sphenoid.
25. Basis Ossis Occipitis.
26. Dentes Incisorii.
27. Dens Caninus.
28, 28. Dentes Molares.

FIG. IV.

The right half of the perpendicularly and longitudinally divided Head, with the Septum Narium, from the inner side.

1. Corpus Ossis Intermaxillar.
2. Os Nasi.
3. Os Frontale.
4. Os Parietale.
5, 5. Os Occipitis.
6, 6. Septum Sinuum Frontalium.
7, 7. Septum Narium Cartilagineum is attached posteriorly to
8. Lamina Perpendicularis Ossis Ethmoidei, inferiorly in the Furca
9, 9. Of the Vomer, and to the Processus Palatini of the Maxillar. Superior, and Os Intermaxillar. Inferior, superiorly to the Os. Nasi. (2. 2.) Anteriorly the Septum is without attachment.
10—19. Designate the same parts, as 12—25 in Fig. 3.
20. Choana Nasi Posterior.
21. Processus Palatin. Maxilla. Superior.
22—24. The Teeth, as 26—28 in Fig. 3.

FIG. V.

The Cerebral Portion of the Skull, with the Cavitas Cranii laid open, and seen from above, (and behind.)

1, 1 Partes Nasales Ossium Frontis.
2, 2. Ejus Processus Orbitales.

3, 3. Foramina Supraorbitalia.
4, 4. Process. Zygomatici of the Os Tempor., are connected in the Horse with the Ossa Frontal. and Ossa Zygomatica.
5, 5. Fossæ Temporales are filled up by the Musculi Tempor.
6, 6. Sinus Frontales.
7. Crista Galli Ossis Sphenoidei has on either side the
8, 8. Lamina Cribrosa Ossis Ethmoidei, through the Foramina of which the branches of the Nerv. Olfactorius pass into the Sinus Nasalis. On the Superior Surface of the Os Sphenoid are seen
9, 9. Foramina Optica, for the passage of the Nerv. Optici into the Orbit; on each side
10, 10. A small Foramen, pro nervo trochleari, then
11, 11. Fissuræ Orbitales Superiores, through which the 3d, 6th, and 1st branch of the Fifth Pair of Nerves take their course; below them are placed the Foramina Rotunda, serving for the passage of the 2d branch of the Fifth Pair. In the centre of the body of the Os Sphenoid, is a depression
12. Called the Sella Turcica s. Equina, which receives the Glandula Pituitaria Cerebri.
13, 13. Partes Petrosæ Oss. Temp.
14, 14. Foramina Lacera.
15. The Superior Surface of the Process. Basilaris of the Os Occipitis.
16, 16. Foramina Condyloid. Anter. Ossis Occip.
17, 17. Meatus Auditorii Externi.
18, 18. Process. Mastoidei Ossis Tempor.,
19, 19. Process. Styloidei, and
20, 20. Process. Condyloidei Ossis Occip.

FIG. VI.

Transverse Section of the Posterior Part of the Skull.

1. Occiput.
2, 2. Tentorium Osseum, which is found only in the horse, dog, and cat; it serves for the attachment of the Tentorium Cerebri, and separates the Cerebrum from the Cerebellum; so that behind it lies
3. Cavitas Pro Cerebello, and before it,

4, 4. Cavitas Pro Cerebro.
5. Foramen Magnum Occipitis.
6, 6. The transversely divided Process. Zygom. Oss. Tempor.
7, 7. Process. Styloid. Oss. Occip.
8, 8. ———————— Part. Petros. Oss. Tempor.
9, 9. Part. Petros. Oss. Temp.
10. Process. Basilar. Oss. Occip., and
11. The transversely divided Body Ossis Sphenoidei.

FIG. VII.

Maxilla Inferior (s. Posterior,) seen from above. The Maxilla Inferior is divided into the Corpus, (4,) and the two Rami; on these are seen
1, 1. Process. Condyloidei, which are connected with the Foveæ Articulares, on the Oss. Tempor.
2, 2. Proc. Coronoidei, to which the Musculi Tempor. are attached,
3, 3, 3, 3. Superficies Internæ Ramorum, which in part are hidden by the Musculi Masseterici Interni; the space between the Internal Surface of both Rami is taken up by the tongue.
4. Corpus Maxillaris Inferior passes posteriorly into (5. 5,) the Limbi Alveolares Inter Dentes Caninos et Molares. The dental edges of the Rami, contain
6, 6. Twelve Dentes Molares, of which only the crowns, with their Triturating Surfaces are seen. In the body of Max. Infer. are placed
7, 7. Dentes Canini,
8, 8. ——— Incisorii Externi,
9, 9. ———————— Medii, and
10, 10. ———————— Interni.

PLATE III. FIG. I.

THE Occiput and the three first Cervical Vertebræ, with the Ligaments, seen from behind and above.

Bones:

1. Os Occipitis,
2, 2. Ossa Parietalia.
3, 3. Proc. Zygomat. Oss. Temporum.
4, 4. Proc. Condyloidei Max. Infer.
5, 5. Alæ s. Processus Transversi Atlantis.
6, 6. Foramina Antica Externa Atlantis, through which the Anterior branch of the Arter. Occipital. passes upwards.
7, 7. Foram. Antica Interna Atlantis, for the passage of the Arteria Basilaris, and the first Nerv. Cervicalis.
8, 8. Foram. Postica Atlantis, through which the Posterior branch of the Arter. Occipit. ascends.
9. Crista s. Process. Spinosus (dentatus,) Epistrophei, to the Posterior depression of which the cervical portion of the Ligamentum Nuchæ, (Tab. 1. B.) is attached.
10, 10. Arcus Epistrophei, under which the Canalis Vertebræ lies.
11, 11. Foramina Intervertebralia, through which the 2d pair of Nerv. Cervic. passes out.
12. 12. Proc. Transversi, for the attachment of muscles, and
13, 13. Proc. Obliqui Postici, assisting in the articulation with the 3d Cervical Vertebra.
14. Proc. Spinosus,
15, 15. Arcus,
16, 16. Proc. Transversi,
17, 17. Foramina Vertebralia, through which the Arter. Verteb. Cervical. passes, and

18, 18. Proc. Poster. Obliqui Verteb. Cervic. Tertiæ. Ligaments:

a. The removed Ligament. Nuchæ, (Tab. 1. A.)

b. Ligamentum Obturatorium Superius, s. Posterius, which fills up the opening between the Occiput and First Cervical Vertebra.

c, c. Ligamenta Lateralia, s. Accessoria Atlantis, which connect this bone with the Proc. Styloidei Ossis Occipitis, (Tab. 1. Fig. 5. No. 19.) and hinder dislocation sidewards;

d, d. Ligam. Capsularia Max. Inferior. which enclose the Cartilages, (Fig. 4 and 5.)

e, e. Ligam. Recta Postica Max. Infer., connecting this bone with the Tubercula Articularia of the Os. Tempor. (Tab. 2, Fig. 2, No. 8.)

f. Ligam. Interspinosum Atlantis et Epistrophei,

g, g. Ejus Lig. Intercrurale, which, like b, protects the Medulla Spinalis from above.

h, h. Lig. Capsularia Process. Obliquorum, and

i. Lig. Intercrurale of the 2d and 3d Cerv. Vertebræ.

FIG. II.

The same view of the same figure; but the Arcus Vertebrarum has been removed, and the Canalis Verteb. is in consequence laid open.

Bones:

1—5. as in Fig. I.

6, 6. The Second Cerv. Vertebra.

7, 7. The Third

Ligaments in the Canal. Vertebralis:

a. Lig. Epistrophei Suspensorium, which allows the rotation of the First Cerv. Vert. upon the Proc. Dentatus of the Second.

b, b. Lig. Longitudinale Superius s. Posterius, which arises on the Second Cerv. Vertebra, and passes through the whole Vertebral Column to the Os Sacrum.

c, c. Lig. Capsularia Process. Condyloideorum, which are concealed by the Lig. Obturator. Superius.

FIG. III.

The Posterior part of the Basis of the Skull, and the three first Cerv. Verte. with Ligaments, seen from below.

Bones:

1, 1. Partes Petrosæ Oss. Tempor.
2. Proc. Basilar. Oss. Occipitis.
3, 3. Proc. Styloidei ejusdem.
4, 4. The Pterygoid Depressions of the Atlas.
5. Ejusdem Corpus.
6. } The bodies of the Second and Third Cerv. Vertebræ.
7. }

Ligaments:

a. Lig. Rectum s. Lacertus Medius, by which the Atlas is connected with the Occiput,
b, b. Lig. Obturatorium Inferius s. Anterius, which protects the Lig. Capsularia, (Fig. 2 c, c.) and Medulla Spinalis, from below.
c, c. Lig. Lateralia Atlantis, (Fig. 1 c. c.)
d. Lig. Proc. Odontoidei Inferius, above which
e, e. The Lig. Capsulare of this process is placed,
f. Lig. Intervertebrale, covers the Cartilago Interverteb., and strengthens the connection of the bodies of the Vertebræ.

FIG. IV.

Cartilago Interarticularis Max. Infer. of the Right Side, seen from above.

The Cartilage is serviceable in perfecting the joint, because the Articulating Bones do not fit into each other.

1. The Internal Extremity.
2. The External Extremity.
3. The Anterior.
4. The Posterior Edge.
5. The Superior Surface, which touches the Articulating Depression on the Proc. Zygomat. Oss. Tempor.

FIG V.

The same Cartilage from below.

1. The Internal. 2. The External Extremity.

3. The Posterior. 4. the Anterior Edge.
5. The Inferior Surface, which receives the Proc. Condyloid. Maxillæ Infer., and therefore is more excavated than the superior surface.

FIG. VI.

The five last Dorsal Vertebræ and four ribs with Ligaments, from the left side.

Bones:

1, 1, 1, 1, 1. Proc. Spinosi.
2, 2, 2, 2, 2. Proc. Obliqui.
3, 3, 3, 3, 3. Corpora Vertebrarum.
4, 4, 4, 4, 4. Proc. Transversi.
5, 5, 5, 5, Foramina Intervertebralia, for the passage of the Nervi Dorsales, and Arter. Medullæ Spinalis.
6, 6, 6, 6. The last four False Ribs, (Costæ Spuriæ).

Ligaments:

a, a, a, a. Lig. Interspinalia, hinder a too great torsion of the back,
b, b, b, b. Lig. Capsularia Capitulorum Costarum, connect each rib with the antecedent and the equivalent body of the vertebra.
c, c, c, c. Lig. Colli Costarum Externa, arise from the antecedent body of the vertebra, and afford resistance against a weight pressing against the ribs from the side.
d, d, d, d. Lig. Capsularia Tuberculorum Costarum, connect the Tubercle with the Proc. Transvers. of the equivalent vertebra.
e, e, e, e. Lig. Transversaria Externa, arise also from the Processus Transv., and resist a weight pressing from above.

FIG. VII.

The five last Dorsal Vertebræ and the four last pair of Ribs with Ligaments, seen from below.

1—1. The Inferior Surface of the Bodies of the Vertebræ.
2—2. The Internal Surface of the Ribs.

Ligaments:

a, a. Lig. Longitudinale Inferius s. Anterius.

b—b. Lig. Intervertebralia.
c—c. Lig. Capsular. Capitulor. Costarum.
d—d. Lig. Colli Costarum Interna, act against a force from below,
e—e. Lig. Capsul. Tubercul. Costarum.
f, f. Lig. Teretia Capitulorum, are seen after the removal of the Lig. Capsularia.

FIG. VIII.

The fifth and sixth Lumbar Vertebræ, and the Os Sacrum with Ligaments, seen from below.

Bones:

1, 1. Proc. Transversi, and
2. Corpus Quintæ Verteb. Lumborum.
3, 3. Proc. Transversi, and
4. Corpus Sextæ Vert. Lumb.
5, 5. The Anterior Angle of the Os Sacrum.
6, 6. The Five False Vertebræ of this Bone,
7, 7. Foramina Intervertebralia, and
8, 8. The Inferior Foramina Ossis Sacri, are severally for the passage of branches of the Inferior Nerves.

Ligaments:

a. Cartilago Intervertebralis.
b. The Posterior Extremity of the Lig. Longitud. Inferius.
c—c. Lig. Intervertebralia.
d, d. Lig. Intertransversaria.
e, e. Lig. Sacrolumbalia. As in the Horse, the Transverse Processes of the last Lumbar Vertebræ, are connected with each other and with the Os Sacrum: motion in the lumbar region is in consequence lessened; but they are on that account more capable of carrying heavier weights.

PLATE IV. FIG. I.

The Bones and Ligaments of the Left Anterior Extremity, from the external side.

Bones:

a. The Scapula with the Cartilage.
b. The Humerus.
c, c. The Radius.
d, d. The Ulna.
e. Os Hamatum,
f. Os Metacarpi Medium, or Shank-bone.
g. Os Metac. Externum.
h. Ossa Sesamoidea.
i. Phalanx Prima Digiti, or great Pastern.
k. Phalanx Secunda, or Coronet-bone.
l. ——— Tertia, or Coffin-bone.
m. Cartilago Phalangis Tertiæ.

Ligaments:

The joint of the Humerus has only

1. Lig. Capsulare, and the connexion of the Scapula with the Os Humeri, is strengthened by means of the Musculi Supra-et-infraspinati, the Musc. Biceps Brachii, as well as by the Musculus Subscapularis. At the joint of the fore-arm are found three Ligaments, namely,
2. Lig. Capsulare,
3. Lig. Laterale Externum, and the Lig. Later. Internum, (3. Fig. 2.) by means of which the fore-arm has only motion forwards and backwards, but not towards the sides; Radius and Ulna are inseparably united below, but connected above by the internal and
4. Lig. Transversum Radii et Ulnæ Externum.

At the joint of the Carpus (Fore-knee) are three common

ligaments, (which reach from the Radius downwards to the bones of the Metacarpus,) and one especially visible, namely:

5. Lig. Capsulare, which forms three Capsules between both rows, and the bones lying above and below them.
6. Lig. Carpi Laterale Extern. Longum.
7. Lig. — — — — — — — — Breve;
8. Lig. Volare Rectum Ossis Hamati, is a particular ligament.
9. Lig. Interosseum disappears in the Horse, when in age the Ossa Metacarpi become united. At the Pastern-joint the ligaments connect the Shank-bone with the Pastern-bone, and the Sesamoid bones with the same; to the first, belongs,
10. Lig. Capsul. Phalang. Primæ and
11. Lig. Lateris Ulnaris Phalang. Primæ. The Ossa Sesamoid. are united with the Phalanx Prima, by
12. Lig. Lat. Uln. Ossium Sesamoid. Superiorum, and by
13. Lig. Volare Rectum Oss. Sesam. Superior.; therefore they must always follow the motions of the Phalanx Prima. At the Coronet and Coffin-joint, we remark, at each, a Lig. Capsul. and two Lig. Lateralia, and beside these, the ligaments of the Cartilage, of the Coffin-bone, and of the Infer. Sesam. bone;
14. Lig. Capsul. Phalang. Secundæ.
15. Lig. Cartilaginis Phalang. Tertiæ Superius.
16. Lig. Lateris Ulnaris Phalang. Secundæ.
17. Lig. Later. Uln. Oss. Sesam. Inferioris.
18. Lig. Caps. Phal. Tertiæ, and
19. Lig. Cartilag. Phal. Tertiæ Inferius.

FIG. II.

Bones and Ligaments of the Right Anterior Extremity, from the inner side.

Bones:

a—f. As in Fig. 1.
g. Os Metac. Internum.
h—l. As in Fig. 1.
m. Os. Sesam. Inferius.

Ligaments:

1. Lig. Capsul. of the Arm.
2. ———————— Fore-arm.
3. Lig. Laterale Anti-brachii Internum.
4. Lig. Transversarium Radii et Ulnæ Internum. The ligaments lying in common on the internal side of the Carpus, are:
5. Lig. Capsulare.
6. — Carpi Lateris Radialis Anticum.
7. ———————— Medium.
8. ———————— Posticum.
9. Lig. Volare Rectum Ossis Hamati (8, Fig. 1.) The remainder of the ligaments seen in the Plate are like those on the external side, except that the ligaments of the Cartilage of the Coffin-bone have been removed, together with the cartilage, and those of the Coffin-bone are more plainly visible.
10. Lig. Interosseum.
11. — Capsul. Phal. Primæ.
12. — Later. Radial. Ph. Primæ.
13. ———————— Ossium Sesamoid. Superiorum.
14. Eorundem. Lig. Rectum Posticum.
15. Lig. Lat. Radi. Phal. Secundæ.
16. ———————— Oss. Sesam. Inferioris.
17. Lig. Capsul. Ejusdem.
18. ———— Phal. Tertiæ.
19. ——Lat. Radi. Phal. Tertiæ.

FIG. III.

Bones and Ligaments of the Left Posterior Extremity, from the external side.

Bones:

a, a. The Left Os Innominatum.
b. Os Sacrum.
c. The First Os Coccygis.
d. Os Femoris.
e, e. Patella.
f, f. Tibia.
g. Fibula.
h. Os Calcis.
i, i. Os Metatarsi Medium.

k. Os Metat. Externum.
l—p. and h—m. As in Fig. 1.
Ligaments:
1. Lig. Ilio-sacrum Longum.
2. —— Spinoso et Tuberoso Sacrum, unites both bones and fills up the space between the Os Sacrum et Innominatum, but leaves anteriorly and posteriorly a fissure for the passage of blood-vessels and nerves.
3. Lig. Capsul. Femoris.
4. ———— Patellæ.
5. Lig. Transvers. Patellæ Externum, by means of both ligaments, the Patella is connected with the Os Femoris.
6. Lig. Patell. Rectum Anticum.
7. ———— Externum, and the Lig. Pat. Rect. Intern. (10. Fig. 4.) connect it with the Tibia.
8. Lig. Capsul. Tibiæ.
9. —— Laterale Tibiæ Externum, and the Lig. Lat. Tib. Internum, (12. Fig. 4.) connect externally the Femur and Tibia; for the deeper-seated ligaments of this joint, vide Tab. 5. Fig. 5, 6.
10. Lig. Fibulæ Inferius.
11. —— Tarsi Capsulare, forms four Capsules, namely: the superior between the Tibia and Astragalus, the second, between the Astragalus and Os Naviculare, the third, between the latter and the Os Cuneiforme Tertium, the inferior between the Os Cuneif. Tertium and Os Metatarsi Medium.
12. Lig. Tarsi Laterale Externum.
13. —— Fibulare Calcanei et Astragali.
14. —— Tarsi Plantare; these three ligaments, as well as the Lig. Capsul. (11.) belong to the common ligaments of the Tarsus. The ligaments on the Pes Posterior have the same names as those on the Pes Anterior, therefore,
15—25. Mark the same as 9—19, in Fig. 1.

FIG. IV.

Bones and Ligaments of the right posterior extremity, from the inner side.
Bones:
a, a. The Right Os Innominatum, from the Internal and Inferior side.

b. Inferior Surface of the Os Sacrum,
c—n. as d—o. in Fig. 3.
o. Os Sesamoideum Inferius.
Ligaments:
1. Lig. Ilio-sacrum Inferius s. Laterale Anticum Hominis conceals the fibrous cartilage connecting the Sacrum with the Ilium;
2. Lig. Ilio-sacrum breve.
3. —— Spinoso-et-tuberoso-sacrum, (only partly visible).
4. —— Obturatorium, shuts up the Foramen Ovale and has a fissure, through which blood-vessels and nerves pass.

The Femur is connected in the Horse, beside the Lig. Capsul. (3, Fig. 3,) by a twofold round ligament with the Pelvis, namely, by the

5. Crus Breve Ligamenti Teretis, which passes from the Acetabulum of the Os Innominatum to the head of the Femur, and by
6. Crus. Longum Ligam. Teretis, which passes under the supplementary ligament of the Acetabulum, to the anterior edge of the Os Pubis.
7. Lig. Capsul. Patellæ.
8. —— Transvers. Patellæ Internum.
9. —— Rectum Patellæ Anticum.
10. ———————— Internum.
11. —— Capsul. Tibiæ.
12. —— Laterale Tibiæ Internum.
13. —— Capsul. Tarsi.
14. —— Laterale Tarsi Internum.
15. —— ———————— breve s. Deltoideum,
16. —— Dorsale Talo-naviculare, is a particular Lig.
17. —— Posticum Tarsi; these are the common ligaments on the internal side;

18—27. as 10—19, Fig. 2.

PLATE V. FIG. I.

Bones and Ligaments of the Right Carpus (Fore-knee), seen from the front.

Bones:

1. The Inferior Extremity of the Radius.
2. Os Hamatum s. Unciforme.
3. Os Triquetrum.
4. Os Semilunare.
5. Os Naviculare.
6. Os Capitatum.
7. Os Multangulum Majus, (the Os Multang. Minus is concealed by the lateral ligaments.)
8. Os. Metacarp. Externum.
9. Os. Metac. Medium, (the Os Metac. Internum is also hidden.)

Ligaments:

The common Capsular Ligament and the small Caps. Ligaments of the single bones have been removed, in order the more plainly to show the Fibrous Ligaments.

a. Lig. Later. Extern. Breve (a common ligament.)
b, b. ———————— Longum, is divided above and below.
c. Lig. Carpi Dorsale Transversum Ossis Triquetri et Semilunaris.
d. ———————————————— Semilunaris et Navicularis.
e. ———————————————— Capitati et Multang. Majoris.
f. Externum and
g. Lig. Carpi Dorsale Obliquum, Ossis Multang. Majoris et Metac. Medii, Externum et Internum.
h, h. Lig. Anticum Internum, divided above and below.
i, i. —— Medium Internum, (6 and 7, Fig. 2. Tab. 4.)

FIG. 11.

The same Parts from Behind.

Bones:

1. Inferior Extremity of the Radius.
2. Os Naviculare.
3. — Semilunare.
4. — Triquetrum.
5. — Hamatum.
6. — Multangulum Minus.
7. ———— Majus.
8. — Capitatum.
9. — Metac. Internum.
10. ———— Medium.
11. ———— Externum.

Ligaments:

a, a. Lig. Anticum Internum, divided above and below.
b. — Medium Internum, and
c, c. — Posticum Internum, (6, 7, 8, Fig. 2. Tab. 4.)
d. — Carpi Volare Obliquum Radii et Ossis Navicul.
e. ———— Transversum Ossis Navic. et Semilunaris
f. ———— Obliquum Ossis Navicul., Multang. Minoris et Majoris, which connects the superior row with the inferior.
g. Lig. Carpi Volare Transvers. Oss. Multang. Maj. et Minoris.
h. ———— Obliquum ———— Minor et Metac. Medii.
i. ———— Transvers. ———— Major et Capitati.
k. ———— Ossis Semilun. et Triquetri.
l. ———— Rectum Radii et Ossis Hamati.
m. ———— Transvers. Oss. Triquetri. et Hamati.
n. ———— Rectum Oss. Hamati et Capitati.
o. ———— Ossis Triquetri et Capitati.
p. — Externum Longum Laterale, (divided.)
q. — Rectum Posticum Oss. Hamati is also divided, 6 and 8, Tab. 4. Fig. 1.)

r. } Lig. Interosseum Internum et Externum.
s. }

FIG. III.

Bones and Ligaments of the Right Tarsus (Hock-joint) seen from the front.

Bones:

1. Inferior Extremity of the Tibia.
2. Os Astragalus.
3. A Portion of the Os Calcis, (Hock.)
4. Os Cuboideum.
5. The Os Naviculare, and
6. Os. Cuneiforme Tertium.
7. Os Metat. Externum.
8. ——— Medium.
9. ——— Internum.

Ligaments:

a. Lig. Later. Extern. Breve.
b. ——— Intern.—(Tab. 4, Fig. 3, 4.)
c. Lig. Tarsi Laterale Ossis Calcan. et Cuboidei.
d. — Dorsale Obliquum Oss. Calcan. et Navicularis.
e. ——— Transvers. Oss. Cuboidei et Navicul.
f. ——— Obliquum ——— et Metatarsi Medii.
g. ——— Transvers. ——— et Cuneiformis Tertii.
h. Lig. Dors. Obliquum Oss. Cuneif. Tertii et Metat. Medii.
i. ——— Oss. Navic. et Cuneif. Testii.
k, k. ——— Astragali, Ossis Navic. Cuneif. Tertii et Metat. Medii; those of c—k are particular fibrous ligaments, the capsular ligaments having been removed.

FIG. IV.

The same Parts seen from behind.

Bones:

1. Inferior Extremity of the Tibia.
2. Os Astragalus.
3. — Calcis.
4. — Cuboideum.
5. — Cuneiforme Forinum.
6. — Naviculare.
7. — Metatar. Internum.
8. ——— Medium.
9. ——— Externum.

Ligaments:

a. Lig. Laterale Internum Breve, (common.)
b. — Plantare Rectum Oss. Calcan. et Cuneif. Primi.
c. ——— ——————— Astragali et Navicularis.
d. ——————————— Cuneif. Primi et Metat. Interni.
e. ——————————————— Medii.
f. ——————————— Cuboidei et ——
g. — Posticum Tarsi, divided above and below.
h. — Plant. Rect. Ossis Calcan. et Cuboidei.
k, l. Lig. Interosseum Internum et Externum.

FIG. V.

Bones and Ligaments of the right Knee-joint (Hock)—(without the Patella)—seen from the Front.

Bones:

1. The External Ridge on the Lower Part of the Femur.
2. Depression for the Patella.
3. Internal Ridge on the Femur.
4. External Condyle of Femur.
5. Internal ————————
6. External Head of the Tibia.
7. Its Anterior Tubercle.
8. Internal Head of Tibia.
9. Body of the Bone.
10. Fibula.

Ligaments:

a. Lig. Later. Externum Tibiæ. (Tab. 4, Fig. 3.)
b. — Cruciatum Posticum.
c. ——————— Anticum, both are concealed by the Ligam. Capsul. Tibiæ.
d. Lig. Later. Internum Tibiæ. (Tab. 4. Fig. 4.)
e. Cartilago Semilunaris Externa.
f. Lig. Cartil. Semilun. Externæ Anticum.
g. ——————————— Internæ ————
h. Cartilago Semilun. Interna.
i. Lig. Inteross. Fibulæ et Tibiæ.

FIG. VI.

The same parts, seen from behind.

Bones:

1. The Body, and
2, 2. The Condyles of the Femur.
3. The Body of the Tibia.

Ligaments:

a. Lig. Later. Internum, and
b. ——— Externum Tibia.
c. Cartilago Semilun. Interna, and
d. ——————— Externa.
e. Lig. Cartil. Semilun. Internæ Posticum.
f. ——————— Externæ Posticum Inferius.
g. ——————————————— Superius.
h. — Cruciatum Posticum.
i. — Interosseum Fibulæ et Tibia.

FIG. VII.

The two Semilunar Cartilages of the Knee-joint, with the Ligaments, seen from above.

1, 1, 1. The Superior Extremity of the Tibia, upon which are placed
2. Cartil. Semilun. Interna, and
3. ——————— Externa; and with which they are so connected, that, during the flexion and extension of the joint, they may be driven inwards and outwards. By means of these interarticular cartilages, which are more raised on the external than on the internal edge, slight depressions are formed for the Condyles of the Femur. The connexion with the Tibia takes place by means of
4. Lig. Cartil. Semilun. Internæ Anticum, and
5. ——————————— Posticum, (Fig. 5, and 6,) by
6. Lig. ——————— Externæ Posticum Inferius, and
7. ——————————— Anticum; the Lig. Posticum Superius Cartil. Semil. which is here not shown, connects it with the Femur.

FIG. VIII.

Ligaments of the Sesamoid Bones, seen from below.

a. Os Metatarse Medium.
b, b. Phalanx Prima.
c. ——— Secunda.
d. Os Sesam. Inferius.
e. Phalanx Tertia.
1, 1. Ligam. Lateralia Ossium Sesamoid. Superiorum:
2. ——— Eorum Transversum is composed of Fibrous Cartilage, and fills up the space between both Sesamoid Bones, and serves as a resting point for the Extensor Tendon of the Coffin-bone.
3, 3, 3. Lig. Volare Rectum Oss. Sesam. Superiorum is composed of three divisions, of which the central one passes to the Coronet-bone.
4. Lig. Capsularia Oss. Sesam. Inferioris.
5, 5. — Lateralia ——————

FIG. IX.

The Os Hyoides, the Glottis, and a portion of the Trachea, with Ligaments, seen from above.

Bones and Cartilages:

1. Manubrium.
2. Basis, and
3. Cornua Majora Ossis Hyoidei.
4, 4. Cornua Lateralia Inferiora s. Minora Hominis.
5. ——————— Superiora, by which the Os Hyoides is connected with the petrous portion of the Temporal Bone.
6. Epiglottis, for closing the Rima Glottidis during the act of swallowing.
7, 7. Cartilagines Arytænoideæ form, by means of their Ligaments, the Rima Glottidis.
8. Cartilago Cricoidea, the body of which is only visible.
9, 9. Annuli Tracheæ.

Ligaments:

a. Lig. Hyo-Thyreoideum Medium, and
b, b. Lig. ——————— Lateralia, by which the Os Hyoides is connected with the Glottis, but readily moveable.

c, c. Lig. Crico-Arytenoidea, and
d, d. —— Crico-Thyroidea Lateralia, are Capsular Ligaments.
e. e. —— Annulorum Tracheæ.
f, f. —— Capsularia Cornuum Lateralium Superiorum.
g, g. ———————————— Inferiorum.

FIG. X.

The same Parts, seen from the left side.
Bones and Cartilages:
1. Manubrium.
2. The Left Cornu Majus.
3. The Left Cornu Laterale Inferius, and
4. The ———————— Superius.
5. Epiglottis.
6. The Left Cartilago Arytenoidea.
7. The Left External Surface of Cartil. Thyroidea.
8. The Left Extern. Surface of the Ring of the Cart. Cricoidea.
9, 9. Annuli Tracheæ.
Ligaments:
a. Lig. Capsul. Cornu Later. Superioris.
b. ———————————— Inferioris.
c. —— Hyo-Thyroideum Medium.
d. ———————————— Laterale Sinistrum.
e. —— Crico-Arytenoideum Later. Sinistrum.
f. —— Thyro-Cricoideum ——————
g. ———————————— Medium.
h. —— Crico-Tracheale.
i, i. Lig. Annular. Tracheæ.

PLATE VI. FIG. I.

THE Muscles of the Integuments, seen from the left side.

Immediately beneath the skin lie the Muscles of the Integuments, and are connected with their whole Superficies, for the purpose of shaking them and freeing them from dust, moisture, and insects.

They are called after the regions of the body where they lie:

1. Musculus Subcutaneus Faciei, which arises superiorly on the neck and throat, passes over the Maxilla Infer. to the face, and ends partly with slight fibres in the Cutis; partly as
2. M. Risorius Santorini s. Zygomaticus Minor, passing with strong muscular fibres to the angle of the mouth, serving to raise it backwards and upwards:
3. M. Subcutaneus Colli arises from the Cartilago Ensiformis Sterni, (which, however, cannot be seen in the figure,) passes forwards over the neck, and upwards to the nape of the neck, ends in a tendinous expansion on the side of the neck, and contracts the skin of this part. Of greater strength than these muscles, is the

4, 4. M. Subcutaneus Humeri, which has its origin on the withers, passes over the shoulder and arm downwards, ends with a tendinous expansion on the forearm, and moves the skin from below upwards, or vice versâ, and draws it into folds. Behind this, is situated,

5, 5. M. Subcutaneus Maximus s. Abdominis. This is attached to the back, shoulder, breast, abdomen, and, with a fold to the knee, is over the whole surface intimately connected with the Cutis, and gives it so considerable a motion, that the rider and other loads are shaken backwards and forwards.

PLATE VII. FIG. I.

Muscles of the Head, seen from the left side.

The Musc. Subcut. Faciei, and the Cellular Tissue, which more or less conceal the muscles of this part, have been removed.

1. M. Pyramidalis Nasi has its origin tendinous on the external surface of the Maxilla Superior, passes between the Crura of 3. forwards, and is inserted on the external edge of the nostrils, which it enlarges under a strong respiration:

2, 2. M. Orbicularis Oris is situated at the opening of the mouth, between the external Cutis and the Mucous Membrane; forms the basis of the upper and under lip, and assists in closing the mouth.

3, 3. M. Levator Labii Superioris Alæque Nasi, has its origin on the Nasal, Lacrymal, and Superior Maxillary Bones; is divided inferiorly into two Crura, between which the M. Pyramid. Nasi passes, and is inserted, with the superior crus, into the edge of the nostril, with the inferior into the upper lip. It raises both. Partly concealed by this muscle, is

4, 4. M. Levator Labii Superioris Proprius. This originates on the Lacrymal bone, passes into a rounded tendon, which forms a junction with the analogous muscle of the other side, (1. Fig. 3.) and is inserted into the middle of the upper lip; this is raised during the action of feeding.

5. M. Buccinator. (3. Fig. 2.)

6, 6. M. Zygomaticus Major is long and thin, has its origin on the ridge of the Os Malæ, is inserted into the M. Buccinator, and draws the cheek upwards:

7. M. Risorius Santorini. (2. Tab. 6.)

8. M. Masseter has its origin on the whole ridge of the Malar bone, covers in part the external surface of

the lower jaw, and is inserted into its posterior and inferior edge. It moves the lower jaw, during mastication, sidewards and upwards with great power. Above this, arises on the ridge of the Os Malæ

9. M. Depressor Palpebræ Inferioris; this passes obliquely upwards to the lower eyelid, and draws it down:

10. M. Orbicularis Palpebrarum lies between the external Cutis and the skin of the eyelids, is attached by a tendon to the lacrymal bone, and draws the eyelids together, on the contact of foreign substances or during sleep. The Superior Palpebra is raised by

11. M. Corrugator Superciliorum. This has its origin on the frontal bone, and is inserted into the M. Orbicul. Palpebr.

For the Motion of the External Ear are the following Muscles:

12, 12. M. Auricularum Communis s. Frontalis Hominis. (4. Fig. 6.)

13. M. Adductor Auriculæ Inferior, which has its origin on the malar bone, is inserted into the base of the Concha of the ear, and turns its concavity forwards.

14. M. Depressor Auriculæ arises from the external surface of the Glandula Parotis, which it conceals, is inserted into the base of the Concha and draws it downwards, as a sign of the viciousness of the horse;

15. M. Adductor Auric. Brevis s. Retrahens, and

16. M. ———————— Longus s. Retrahens. (2, 3, Fig. 7.)

FIG. II.

The deeper seated Muscles on the Head, seen from the left side.

The Muscles 1. 3. 6—9. 11—16. of Fig. 1. are here removed.

1, 1. M. Dilatator Nasi Brevis arises on the Os Nasi and Nasal Process of the Intermaxillary Bone, is inserted below the Nasal Tube into the S shaped Cartilage, and raises it.

2, 2. M. Levator Labii Superioris Proprius. (4, Fig. 1.)

3. M. Buccinator has its orgin on the inter-dental edges of both jaws, runs forwards near the M. Orbic. Oris, posteriorly near the

4. M. Molaris, which has its origin on the dental edges of both jaws; both muscles cause a contraction of the space between the cheeks and molar teeth, and press, during mastication, the food between the teeth. On the inferior edge of this lies

5, 5. M. Depressor Labii Inferioris having its origin on the Coronoid Process of the Max. Inferior; it is inserted into the under lip, and draws it downwards. In the orbit, when opened from above and exteriorly, we find

6. M. Levator Palpebræ Superioris having its origin at the base of the orbit, covering, in part, the M. Superior Rectus, (8.) and inserted into the upper eye-lid. It raises it, when the M. Orbicularis has drawn it down.

7. M. Obliquus Superior Oculi is only partly visible. It arises also at the base of the orbit, passes over the Cartilaginous Trochlea to the greatest convexity of the eye-ball, and turns it upwards and inwards.

8. M. Rectus Superior.

9. M. Rectus Externus Oculi originate with 7, and are inserted superiorly and exteriorly on the eye-ball, which they draw upwards and outwards.

10. M. Obliquus Inferior Oculi has its origin in the Fossa Ossis Lacrymalis, is inserted inferiorly into the eye-lid, and turns it downwards and outwards.

11, 11. M. Temporalis arises on the Parietal and Temporal Bones, is inserted into the Proc. Coronoid. Max. Infer., and draws it directly (not obliquely) against the superior, during mastication.

As Antagonist to this Muscle, there is

12. M. Stylo-Maxillaris, which arises from the Styloid Process of Os Occipitis, is inserted into the posterior edge of Max. Inferior, and draws this from the Max. Superior; the same action has also

13. M. Sterno-Maxillaris. (9. Fig. 5. Tab. 8.)

14. M. Tragicus Auris arises from the External Meatus Auditorius, and is inserted into the base of the Concha, which it draws slightly downwards.

FIG. III.

Muscles of the Nose and Lips, seen from before.

1. The united (flattened) Tendon of both M. Levatores Labii Superior. Proprius (4, Fig. 1, Tab. 7,) it lies above

2, 2. M. Transversus Nasi, which is attached to the Alæ of both the X shaped cartilages, which it raises, and thereby enlarges the nostrils.

FIG. IV.

Muscles of the Tongue, of the Velum Palati, of the Larynx and Pharynx, seen from the left side.

The Left Ramus Maxill. Infer., and all the Facial Muscles, have been removed.

1, 1. M. Genio-Hyoideus is rounded; it has its origin with

2, 2. M. Genio-Glossus, which is Semi-Pennated, on the angle of the Max. Infer.; the former is inserted into the Manubrium Ossis Hyoidei, the latter into the fleshy part of the tongue: both extend the tongue out of the mouth.

3, 3. M. Stylo-Glossus arises nearly at the Inferior Extremity of the Cornu Laterale Superius Oss. Hyoidei, runs along the edge of the tongue, and is inserted into its apex. It draws the tongue into the mouth and the apex to the side; it bounds internally

4, 4. M. Baseo-Glossus, which arises from the Cornu Majus Ossis Hyoidei, then passes into the substance of the tongue, and ends at its anterior extremity. It draws the tongue into the mouth, and from the palate downwards.

To the Os Hyoides belong also the following Muscles:

. M. Stylo-Hyoideus, which, arising on the Posterior Inferior Angle of the Cornu Later. Superius, is inserted, with a divided tendon, into the Cornu Majus Oss. Hyoid., through which the tendon

6, 6. Of the M. Digastricus s. Biventer Max. Infer. passes; the Superior Crus of the M. Digastr. arises from the Proc. Styloideus Oss. Occipitis, the Inferior from the inferior edge of the Max. Infer. When

both the bellies and 5. act together, they draw the basis of the tongue backwards and outwards; if the superior belly acts singly, the Max. Infer. is drawn downwards.

7. M. Stylo-Ceraloideus is small, arises from the Proc. Styloid. Oss. Occip., and is inserted into the Cornu Later. Super. Oss. Hyoidei, which it renders firm.
8. M. Omo-hyoideus. (7, Fig. 5, Tab. 8.)
9. M. Thyreo-Hyoideus arises on the external surface of the Thyroid Cartilage, and is inserted into the Cornu Majus Oss. Hyoidei. It brings both together, as in the act of deglutition. For the motion of the Velum Palati (2, Fig. 5.) are found
10. M. Tensor Veli Palatini, and
11. M. Levator ————, which arise together on the Proc. Styloid. Part. Petros. Oss. Temp.; 10. passes round the Hamulus of the Proc. Pterygoid. Oss. Spheroidei to the tendon; 11. to the fleshy part of the M. Veli Palat., and both extend and raise it during deglutition. Of the Larynx and Pharynx the parts visible are,
12. M. Pterygo-Pharyngeus. (4, Fig. 5.)
13. M. Palato-Pharyngeus. (3, Fig. 5.)
14. M. Chondro-Pharyngeus. (4, Fig. 5.)
15. M. Thyreo-Pharyngeus. (8, Fig. 5.)
16. M. Crico-Pharyngeus. (9, Fig. 5.)
17. The Esophagus lies above the Trachea, and is the passage to the stomach.
18. M. Crico-Thyroideus arises on the ring of the Cartil. Cricoidea, is inserted into the posterior edge of the Cartil. Thyroidea, and brings both towards each other.

FIG. V.

Muscles of the Palate and Pharynx, seen from the left side and from below.

The Head lies upon the right side, in other respects it is prepared as that in Fig. 4.

1, 1. The Palatum Durum is composed of 18—19 arch-shaped elevations, or ridges, interrupted by depressions, which are divided by a longitudinal furrow: they give support to the particles of food passing upwards during deglutition.

2. M. Veli Palatini lies between the two folds of the mucous membrane; it has its origin with a tendinous expansion on the Ossa Palati, reaches as far as the Larynx, and is connected on each side with the Pharynx; in the centre it is unattached. It covers, during the act of swallowing, the Posterior Nares, and guides the food into the Pharynx.

3. M. Palato-Pharyngeus arises from the tendon of the former muscle, forms the lateral Paries of the Pharynx, and raises it when the food is about to pass into it. More to the outer side lies

4. M. Pterygo-Pharyngeus, which originates on the Proc. Pteryg. Ossis Spheroidei, and is inserted into the posterior Paries of the Pharynx, which it contracts when the food has entered.

5. M. Stylo-Pharyngeus has its origin on the internal surface of the Cornu Later. Super. Oss. Hyoid., and is inserted into the lateral Paries of the Pharynx, which it widens; it acts also during the entrance of the food. As, also,

6. M. Cerato-Pharyngeus, which arises from the internal surface of the Cornu Later. Super., near to the inferior extremity, and is inserted into the lateral Paries of the Pharynx. For the contraction of the Pharynx, as well as for the projection onward of the food, we find

7. M. Chondro-Pharyngeus, arising on the Cornu Majus Oss. Hyoidei, and inserted into the posterior Paries of the Pharynx;

8 M. Thyreo-Pharyngeus, arising on the external surface of the Thyroid Cartilage; and also inserted into the Post. Paries of the Pharynx: lastly,

9. M. Crico-Pharyngeus, having its origin on the external surface of the Annulus of the Cartil. Cricoidea, and inserted with 7. and 8.

10. M. Tensor Veli Palatini,

11. M. Levator Veli Palatini. (10. 11. Fig. 4.)

12. M. Pterygoideus arises on the Max. Super., and on the Proc. Pteryg. Oss. Sphenoid.; is inserted into the internal surface of the Maxilla Inferior, and draws it upwards and sidewise during mastication;
13. The Tongue thrown back.

FIG. VI.

Muscles of the Ears, seen from above and before.

1, 1. M. Levator Auriculæ Longus. (1. Fig. 7.)
2. M. Levator Medius s. Attollens Auriculæ, is concealed by 4.; it arises on the Crista Ossis Parietalis, and is inserted into the convex surface of the Concha, which it raises, rendering the ear consequently pointed: in the same manner acts
3. M. Levator Brevis, which arises from the superior surface of the Cartil. Anterior, and is inserted with both the former muscles.
4. M. Auricularum Communis s. Frontalis Hominis, is seen on the left side. It arises from the superciliary ridge of the orbit, from the Os Frontis and from the Os Parietale, and is inserted into the anterior cartilage, which it renders tense; a continuation of this is
5. M. Adductor Auriculæ Superior, but which is attached to the superior surface of the Cartil. Anterior, and is inserted near the anterior edge of the Concha; it turns the concavity forwards; in which it is assisted by
6. M. Adductor Medius, and
7. M. Adductor Inferior; both arise from the Cartil. Anterior, and are inserted into the anterior edge of the Concha.

FIG. VII.

Some of the Muscles of the Ear, seen from behind.

1. M. Levator Auriculæ Longus, is the most superficial: it arises from the Ligam. Nuchæ, and is inserted into the convex surface of the Concha, which it raises: below it arises

2, 2. M. Abductor Auric. Longus s. Retrahens, which is visible on both ears; it is inserted into the external surface of the Concha, and turns its concavity outwards; in the same manner acts

3. M. Add. Auric. Brevis s. Retrahens, which arises on the muscles at the nape of the neck, and inserted below the former.

FIG. VIII.

Some of the Muscles of the Left Ear, seen from the front.

1. M. Helicis Major.
2. M. Helicis Minor; both are attached to slight elevations on the anterior edge of the Concha, and bring these towards each other;
3. M. Antitragicus lies on the external side, near to the posterior edge of the Concha, and has no observable action.

FIG. IX.

Some deep-seated Muscles of the Ear, seen from behind.

1. M. Rotator Auric. Brevis,
2. M. Rotator Aur. Longus; both arise on the inferior surface of the Cartil. Anterior, and are inserted into the base of the Concha, which they turn forwards and backwards.
3. M. Auric. Retrahens Brevis. (3, Fig. 7.)
4. M. Auric. Transversus, is composed merely of a few fibres, lying on the convex surface of the Concha, and are without visible action.

PLATE VIII. FIG. I.

Muscles on the Pharynx and Larynx, seen from behind and above.

1. The Pharynx thrown back, which conceals the other muscles, namely:

2, 2. M. Aryteno-pharyngei, which are very small, arising on the posterior edge of the Cartil. Arytenoidea, and inserted into the posterior paries of the Pharynx, which they in some degree enlarge.

3, 3. M. Aryten. Transversi, cover the superior surface of the Cartil. Aryten. to which they are attached, become united from each side in the median line, and raise these cartilages, by which means the Rima Glottidis, is enlarged.

4, 4. M. Crico-arytenoidei Postici, arise from the flat surface of the Cart. Cricoidea, which they cover, and are inserted into the external angle of the Cart. Aryten. which they draw outwards, and enlarge the Rima Glottidis.

FIG. II.

Some of the Muscles of the Larynx and Os Hyoides, seen from above.

1. M. Hyoideus Transversus, is without a fellow; it has its origin on the Cornua Lateral. Inferiora, and brings them together, whereby the basis of the tongue is raised.

2. M. Hyo-epiglotticus, is also without a fellow; it arises on the body of the Os Hyoides, is inserted on the anterior surface of the Epiglottis, and raises it, when it has been depressed by the food; both muscles act therefore in deglutition.

FIG. III.

Muscles of the Os Hyoides and Larynx, seen from the left side.

1. M. Cerato-hyoideus, is attached to both Cornua Lateralia and the Cornu Majus; brings these towards each other, and renders them firm.
2. M. Thyreo-arytenoid. Superior, and
3. ———————— Inferior; both have their origin within the Larynx, on the Thyroid Cartilage, and are inserted into the Cartil. Aryten. which they draw downwards, and thereby contract the Rima Glottidis. Antagonist to these is
4. M. Crico-aryten. Lateralis, which arises from the Annulus of the Cartil. Crico, and is inserted with
5. M. Crico-aryten. Posticus (4, Fig. 1.) on the Cartil. Arytenoid.; both enlarge the Rima Glottidis.

FIG. IV.

The Muscle of the Sternum, seen from above.

The M. Triangularis Sterni s. Sternalis Brutorum, is geminal; it arises on the superior edge of the Sternum and is inserted into the 2d to the 8th Cartilag. Costarum, which it can only slightly raise.

FIG. V.

Muscles on the inferior side of the Head, Neck, and Breast, seen from below.

1. M. Quadratus Menti, lies on the body of the Max. Inferior, and is connected with the Cutis on the Chin, it renders this tense;
2. M. Mylo-glossus, is very thin; it arises on both rami of the Jaw, and is connected with the Tendons of the M. Genio-hyoideus, which it raises: the same action, but stronger, have
3, 3. M. Mylo-hyoidei, which have their origin on the internal alveolar edges of the Max. Infer. meet together in the Median Line, and are there connected with the Tendons of the M. Genio-hyoidei, as well as

with the Manubrium Oss. Hyoidei; they press the tongue, during deglutition, against the palate.

4. M. Digastricus, on the Left Side, (6, Fig. 4, Tab. 7.)

5. M. Thyreo-hyoideus, on the Right Side. (9, Fig. 4, Tab. 7.)

6, 6. M. Sterno-hyoidei have their origin on the Cartil. Ensiformis Sterni, (concealed by 9,) are tendinous in the middle of the neck, and are inserted into the Manubrium Oss. Hyoidei: they saw the base of the tongue, during deglutition, downwards from the palate; thus, also, acts

7, 7. M. Omo-hyoideus, which is visible only on the left side; it arises on the first ribs, and is inserted near the former to the outer side.

8, 8. M. Sterno-thyroidei have their origin with the M. Sterno-Hyoidei, become connected with the tendon of these, and are inserted on the Cartil. Thyroidea: they draw the larynx downwards during deglutition.

9. The (right) M. Sterno-maxillaris, arises on the Cartil. Ensif. Sterni, is inserted with a tendon into the angle of the lower jaw, and draws it from the upper jaw, or when the mouth is shut, bows (nods) the head.

10. M. Deltoides. (4, Fig. 1, Tab. 9.)

11. M. Latissimus Pectoris, is covered immediately by the skin; it has its origin on the inferior edge of the sternum, and is inserted into the extremity, near the fore-arm, which it moves inwards, and, in standing still, hinders its deviation from the trunk;

12. M. Pectoralis Minor, is concealed by the former muscle (which has therefore been removed); it arises on the anterior cartilages of the ribs and on the sternum, and is inserted into the anterior edge of the scapula, which it draws downwards during the setting down of the extremities.

13. M. Pectoralis Major, arises behind the former from the cartilages of the ribs, the Cartilago Ligonis; and from the M. Obliquus Abdominis Externus, is inserted into the superior end of the Os Humeri and inferior edge of the Scapula, and acts like the minor, and contemporaneously with it.

FIG. VI.

Flexors of the Head and Neck, seen from below.

1, 1. Partes Posteriores M. Longi Colli have their origin on the bodies of the Anterior Dorsal Vertebræ, and are inserted into the Proc. Transversi of the Posterior Cervical Vert.; they flex the head, as well as

2, 2. Pars Anterior M. Longi Colli; this arises on the Transv. Processes, and is inserted into the bodies, as far as the Atlas.

3. M. Scalenus Inferior s. Anterior Hom. (5, Fig. 1, Tab. 10.)

4, 4. M. Rectus Capitis Anticus Major arises on the 4th Cerv. Vertebra, is inserted into the Basis Ossis Occipitis, and flexes the head, as well as the two following muscles, namely,

5. M. Rectus Capitis Anticus Minor, which arises from the body of the first Cerv. Vert., and is inserted under the former; then

6. M. Rectus Lateralis, which arises from the Pterygoid Fossa of the Atlas, and is inserted into the Proc. Styloid. Ossis Occipitis. Somewhat deeper lies

7. M. Flexor Colli Brevis; this originates on the Transv. Process of the third, is inserted into the body of the second Cerv. Vertebra, and assists the action of the other flexors of the neck.

FIG. VII.

The Diaphragm, Muscles of the Loins, and internal Muscles of the Femur.

1, 1. Pars Carnosa Diaphragmatis, arises from the false ribs and Cartil. Ligonis, and is inserted into

2, 2. Pars Tendinosa Diaphragm. s. Speculum Helmontii, which contains

4. Foramen pro Vena Cava, which passes through the diaphragm obliquely from above downwards;

3, 3. Crura Diaphragmatis, are attached to the Pars Tendinosa and Vertebræ Lumborum; they contain

5. Foramen pro Œsophago, through which the œsophagus passes from the cavity of the thorax into that of the abdomen; then

6. Foramen pro Aorta, through which the Aorta Posterior passes from the thorax into the abdomen. The diaphragm approaches, during inspiration, to the abdominal cavity, by which the thorax is enlarged, and during expiration reverts towards the thoracic cavity, by which this is contracted.

7. M. Quadratus Lumborum has its origin on the bodies, and is inserted into the transv. processes of the Lumbar Vert., which it brings towards each other;

8, 8. M. Psoas Parvus lies beneath the former; it arises from the Vertebræ Dorsales Posticæ and Lumbales Anticæ, is inserted with a tendon into the pelvis, and brings this nearer to the chest, the back being at the same time curved; near to this, exteriorly, lies

9, 9. M. Psoas Magnus, which arises like the former, is also attached to the last ribs, and is inserted into the internal Trochanter of the Femur, which it flexes, when the limb is raised from the ground.

Between these two Muscles we find

10. M. Psoas Tertius; it arises from the Sacro-iliac Symphysis, is inserted and acts like 9.

11. M. Iliacus Internus arises from the inferior surface of the Ilium, is inserted and acts like 9, 10. In part concealed by this is

12. M. Rectus Femoris, which has its origin on the Pelvis, is inserted into the Patella, and draws this upwards, at the same time extends the Tibia when the limb is set down; the same action has

13. M. Vastus Internus, which arises from the Pelvis and Femur, and is inserted into the inner angle of the Patella.

14. M. Adductor Femoris Magnus, (5, Fig. 4, Tab. 12,) on the right side 8 and 9, are entirely removed; 10—14, concealed by other muscles.

15,15. M. Semimembranosi arise, connected in the median line of the Pelvis, and each is inserted into the superior part of the Tibia, which it draws inwards; when both act, the hind limbs are prevented from opening too wide. With

16. Funiculus Spermaticus, the

17. M. Cremaster passes out of the Pelvis; this has its origin on the tendon of 18, and is inserted into the

Septum and Tunica Vaginalis of the Scrotum, which it raises towards the abdomen.

18. M. Gracilis arises in the Pelvis, and is inserted into the knee-joint; it draws the limb inwards.

19. M. Tensor Fasciæ Latæ. (11, Fig. 1, Tab. 9.)

PLATE IX. FIG. I.

The second Muscular Layer, seen from the left side.

1. M. Stylo-Maxillaris. (12, Fig. 2, Tab. 7.)

2, 2. M. Sterno-Maxillaris. (9, Fig. 5, Tab. 8.)

3, 3. M. Omo-hyoideus. (7, ————————)

4, 4. M. Deltoides has its origin on the Os Occipitis and neck, is inserted into the Humerus, and raises it, when the head and neck are fixed by other muscles, or bears the head and neck when the limb stands firmly.

5. M. Quadratus Impar, and

6. M. Trapezius s. Cucullaris originate from the Ligam. Nuchæ, and are inserted (united) into the spine of the Scapula, when both act; the Scapula is drawn upwards, if 5. acts forwards, and if 6. alone backwards; behind and beneath the shoulder lies

7, 7. M. Latissimus Dorsi, which arises from the Dorsum, is inserted into the Humerus, and draws this backwards when the limb is raised.

8. M. Pectoralis Major. (13, Fig. 5, Tab. 8.)

9, 9. M. Obliq. Abdom. Externus arises from the greater number of the ribs and Lumbar Vertebræ, is covered by

10. An Aponeurosis Flava, which is thrown back, and is inserted into the median line of the abdomen, assisting in forming the Paries Abdominis, and in contracting it during expiration or pressure.

On the posterior extremity is seen

11. M. Tensor Fasciæ Latæ, which has its origin on the

external angle of the Ilium, and spreads itself on the whole Femur; it draws this forwards, and renders tense the deeper-seated muscles; connected with it is

12. M. Glutæus Externus, the origin of which is on the internal and external angle of the Ilium and on the Dorsum, and which is inserted into the Trochanter Major Femoris, in order to draw it backwards, and at the same time to render tense the Muscles of the Croupe. Posteriorly to this lie

13. The Long,
14. The Short,
15. The Middle,

} M. Triceps Femoris s. Biceps Femoris Hominis; these arise from the Sacrum and Ischium, and are inserted into the Tibia, which they draw outwards and backwards, when the limb is raised. The same origin has

16. M. Adductor Tibiæ Longus, and its insertion is on the inner side of the Tibia, moving it inwards and backwards.

FIG. II.

Third Layer of Muscles, seen from the left side.

1, 1. M. Splenius Capitis, is situated at the nape of the neck; it arises from the tendon of the M. Serratus Anticus Major, (6, Fig. 1, Tab. 10,) and is inserted into the Occiput and first Cerv. Vertebra; it therefore raises the head and neck.

2. M. Rectus Capitis Anticus Major. (4, Fig. 6, Tab. 8.)

3. M. Omo-hyoideus. (7, Fig. 5, Tab. 8.)

4. M. Sterno-hyoideus. (6, ————————)

5. M. Scalenus Inferior s. Anterior Hominis. (5, Fig. 1, Tab. 10.)

6, 6. M. Levator Anguli Scapulæ arises on the nape of the neck, (lying above 1,) and is inserted into the cartilage of the Scapula; it draws the Scapula forwards on the setting down of the limb; in the same manner acts

7. M. Rhomboideus, which has its origin on the withers, and is inserted behind the former into the cartilage of the Scapula.

8, 8. M. Serratus Anticus Major arises from the four Poster. Cervic. Vert. and the nine anterior ribs, is inserted into the inner surface of the Scapula and renders this firm, drawing it also towards the thorax.

9. M. Pectoralis Minor. (12, Fig. 5, Tab. 8.)

10. M. Supraspinatus. (1, Fig. 1, Tab. 11.)

11. M. Infraspinatus. (2, ——————)

12. M. Teres Minor arises from the M. Infraspinatus, and is inserted into the external protuberance of the Humerus, which it moves outwards and backwards.

13. M. Deltoides, divided above. (4, Fig. 1.)

14. M. Anconæus Longus. (5, Fig. 1, Tab. 11.)

15. —————— Externus. (6, ——————)

16, 16. M. Serratus Posticus Superior has its origin on the withers, and is inserted from the 5th to the 11th rib; it draws them during inspiration forwards; as antagonist to this, acts

17, 17. M. Serratus Posticus Inferior, which has its origin on the Dorsum, and is inserted from the 11th to the 17th rib, which it draws backwards during expiration. With this also acts

18. M. Obliquus Abdom. Internus, which arises from the external angle of the Ilium, and is inserted into the posterior ribs, and into the median line (Linea Alba) of the abdomen; (its tendon is here concealed by the M. Obliq. Abd. Externus.) To the posterior extremities belong

19, 19. M. Glutæus Maximus, which arises upon the M. Longissimus Dorsi, and is inserted into the superior extremity of the Femur, which it extends when the limb is set down, or when the horse kicks out behind;

20. M. Iliacus Internus. (11, Fig. 7, Tab. 8.)

21. M. Adductor Tibiæ Longus. (16, Fig. 1, Tab. 2.)

22. M. Rectus Femoris. (12, Fig. 7, Tab. 8.)

23. M. Vastus Externus, which has its origin from the superior extremity of the Femur, and is inserted into the external angle of the Patella, which it draws upwards, and extends the Tibia.

24. The Inferior end of the M. Glutæus Externus. (12, Fig. 1, Tab. 9.)

PLATE X. FIG. I.

The Fourth Layer of Muscles seen from the left side.

1—1. The Three Heads of the M. Splenius Capitis (1, Fig. 2, Tab. 9).

2, 2. M. Complexus Major, is concealed by the former muscle; it has its origin from the Transv. Processes of the first six Cerv. Vert., is inserted into the neck and occiput, and raises the head and neck.

More inferiorly lies

3. M. Splenius Colli, which arises on the first Dors. Vert. and is inserted into the first Cerv. Vert., which it raises with the head, or depresses, according as the extensors or flexors are in action.

4, 4. M. Rectus Capitis Anticus Major (4, Fig. 6, Tab. 8).

5. M. Scalenus Inferior S. Anterior Hom. has its origin on the anterior edge of the first rib, and its insertion into the Transv. Proc. of the four Poster. Cerv. Vert.; it draws the neck down and to the side;

6—6. M. Serratus Anticus Major, (8, Fig. 2, Tab. 9,) is here visible in its whole extent.

7. M. Transversus Costarum arises on the first rib, and is inserted into the cartilage of the fourth; it draws the costal cartilages forwards during inspiration.

On the Dorsum lie:

8, 8. M. Spinalis et Semispinalis Dorsi, which has its origin in the middle of the Dorsum, on the Lig. Nuchæ, and on the M. Longissimus Dorsi, (9,) and is inserted into the arches of the Poster. Cerv. Vert.;

9, 9. M. Longissimus Dorsi, its origin is on the Pelvis, and its insertion into the Post. Cerv. Vert.; both muscles (8 and 9) raise the whole fore part of the body when the hind limbs rest upon the earth, or the hind

part when the fore limbs are fixed, as in the gallop, or in leaping.

10, 10. M. Sacro-Lumbaris (11, Fig. 2).

11. M. Costarum Retrahens, arises on the Transv. Proc. of the Anter. Lumbar Vert., is inserted into the last rib, and draws it backwards during expiration.

12. M. Transversus Abdominis, is the innermost of the abdom. muscles; it arises on the Lumbar Vert. and on the false ribs, is inserted into the Linea Alba Abdom. (with both obliq. m.) and contracts the abdom. cavity; beneath it lies

13, 13. M. Rectus Abdom. which has its origin on the cartilages of the 4th to the 8th rib, and is inserted into the Os Pubis; it has 9—11. Interstitia tendinosa, and presses from below upon the abdomen, by which the back is curved. To the muscles of the hinder parts belong

14. M. Glutæus Medius, it arises on the Ilium, is inserted into the middle part of the Trochanter of the Femur, and draws it backwards during extension of the limb; thus also acts

15. M. Glutæus Minimus, which arises above the Acetabulum, and is inserted with the former muscle.

For the motion of the tail and anus there are

16. M. Coccygeus, which has its origin on the internal surface of the Ligam. Sacro-ischiaticum, and is inserted into the side of the tail, which it draws to one side. Beneath this muscle arises

17. M. Levator Ani, which is inserted into

18. M. Sphincter Ani, which encircles the opening of the rectum. 17. acts during the evacuation of the dung; 18. closes the opening after the evacuation. By means of

19. Levator Caudæ Longus, and

20. ———— Brevis, is the tail raised or carried; both arise on the Sacrum, and are inserted into the Coccygeal Vertebræ, the short one reaching to the middle, the long one to the end.

21. M. Rectus Femoris, (12, Fig. 7, Tab. 8,) beneath which lies

22. M. Cruralis, this arises from the superior extremity of the Femur, is inserted with the M. Rectus into the Patella, and acts like it.

23. M. Tenuis Femoris, arises above the Acetabulum, and is inserted into the external side of the Femur; it renders the Capsular ligament rather tense. 22. and 23. are first visible when the M. Vast. Externus (23, Fig. 2, Tab. 9) has been removed.
24. M. Adductor Femoris Brevis, arises on the Ischium and is inserted into the Femur, which it draws inwards and backwards. Before it lies
25. M. Adductor Fem. Magnus, (5, Fig. 4, Tab. 12,) and behind this
26. M. ——— Tibiæ Magnus S. M. Semitendinosus Hom. which has its origin on the tail (from which it is here separated) and Ischium, is inserted into the internal side of the Tibia, and moves it inwards and backwards.

FIG. II.

Fifth Layer of Muscles, seen from the left side.

1. M. Obliquus Capitis Superior, arises on the Transv. Proc. of first Cerv. Vert., and is inserted into the Os Occipitis: it assists in extending the head, as well as
2. M. Complexus Parvus, arising on the second Cerv. Vert. and inserted into the Occiput.
3. M. Obliq. Cap. Inferior, has its origin on the Spinous Proc. of the second, and is inserted into the Transv. Proc. of the first Cerv. Vert., which it turns with the head.
4. M. Interspinalis Cervicis, arises on the second Dors. Vert., and is inserted into the second Cerv. Vert.; this also extends the neck.
5, 5. M. Intertransversarii Cervicis fill up the space between the Transv. Proc. of the Cerv. Vert. and render the neck stiff.
6. M. Semispinalis Cervicis, arises on the Anter. Dors. Vert. and is ins. into the Post. Cerv. Vert., which it assists in extending:
7. M. Splenius Colli, divided above (3, Fig. 1).
8. M. Spinal. et Semispin. Dorsi, divided behind (8, Fig. 1).

9. M. Longissimus Dorsi, divided behind (9. Fig. 1).
10. M. Scalenus Superior s. Posterior Hom. has its origin on the anterior edge of the first rib, and is ins. into the Transv. Proc. of the seventh Cerv. Vert., it assists in flexing the neck.
11. M. Sacro Lumbalis, has its origin from all the ribs, and is ins. into the Ant. Lumb. Vert. and moves the ribs forwards in inspirat., backwards in expiration.
12, 12. M. Levatores Costarum, arise on the Transv. Proc. of the Dors. Vert., are inserted always on the following rib, which they move forwards during inspiration.
13, 13. M. Multifidus Spinæ, ar. on the Trans. Proc. of the Dors. and Lumb. Vert., is ins. into the Spin. Proc. of the foregoing Vert. and renders the back stiff when the animal carries a load, or when it leaps. Thus also act
14, 14. M. Intertransversarii Lumbor., which fill up the space betw. the Trans. Proc. Lumb. Vert. The ext. and int. layer of Intercostal muscles are visible on the ribs, but are not marked.

PLATE XI. FIG. I.

Muscles of the Left Anterior Extremity, seen from the external side.

1, 1. M. Supraspinatus. has its orig. on the Cartil. of the Scapula, fills up the fossa before the Spine, and is ins. into the super. extrem. of the Humerus, which it extends:

2, 2. M. Infraspinatus, fills up the post. fossa of the Spine, and is also ins. into the super. extrem. of the Humerus on the ext. side; it draws this outwards and backwards; bounded by this is

3. M. Abductor Brachii Brevis, which ar. on the post. edge of the Scapula, and is ins. into the ext. protuberance of the Humerus; it draws this backw. and inwards.

4. M. Extensor Cubiti Longus, ar. near to the sup. part of the Scapula, and is ins. connected with a broad part, on the int. surface of the Olecranon of the Ulna (7, Fig. 2).

5. M. Anconæus Longus, takes up almost the whole post. edge of the Scapula, and is ins. into the Ulna; it, as well as the former and the following muscle, extend the fore-arm when the limb is set down.

6. M. Anconæus Externus, ar. from the sup. extrem. of the Humerus, (concealed by 3,) and is ins. into the ext. side of the Olecranon of the Ulna.

7. M. Biceps Brachii Hom. (1, Fig. 3).

8. M. Brachialis Internus (2, Fig. 4).

9. M. Extensor Carpi Radialis (3, Fig. 4).

10, 10. M. Extensor Digitorum Longior, ar. on the Humerus under 9, is connect with the tendon of 11, and is ins. into the Coffin-bone; it extends the whole toe when the limb is set down; behind it lies

11, 11. M. Extensor Digit. Brevior, which ar. on the ext. edge of the fore-arm, and is ins. into the great Pastern-bone; it acts like 10., and with it.

12. M. Abductor Pollicis Longus (4, Fig. 4).

13, 13. M. Flexor Carpi Ulnaris Externus, ar. on the inf. extrem. of the Humerus, and is ins. into the Os. Hamatum and Os. Metat. Ext.; it flexes the Carpus and Pes Anterior.

14. M. Lumbricalis Externus, ar. on the tendon of the flexor of the Coffin-bone, and is ins. into the cellular substance of the fetlock, which it renders tense.

15. The Ext. Tendon of the M. Interosseus Medius (3, Fig. 6).

FIG. II.

Muscles on the Right Anterior Extremity, seen from the inner side.

1. M. Levator Anguli Scapulæ, divided above (6, Fig. 2, Tab. 9).
2. M. Rhomboideus (7, Fig. 2, Tab. 9).
3. The Inner Crus of the M. Supraspiratus (1, Fig. 1).
4. M. Subscapularis, takes up the greater part of the internal surface of the Scapula, is ins. into the super. part of the Humerus, and draws it inwards and backwards. Connected with this in origin is
5. M. Teres Major, which arises on the post. edge of the Scapula; it is inserted, connected with
6. M. Latissimus Dorsi (7, Fig. 1. Tab. 9,) into the inner side of the Humerus, which both muscles draw backwards when the limb is raised; beneath these lies the inner portion of
7. M. Extensor Cubiti Longus, (4, Fig. 1,) the tendon of which renders tense the upper muscles.
8. M. Anconæus Internus (5, Fig. 3).
9. M. Coraco Brachialis, ar. on the Proc. Coracoid. Scapulæ, where also
10. M. Pectoralis Major (13, Fig. 5, Tab. 8) inserts itself with a tendon, and is inserted then into the Humerus, which it raises when the limb is extended.

11. M. Biceps Brachii Hominis (1, Fig. 3).
12. M. Extensor Carpi Radialis (3, Fig. 4).
13. The Tendon of the M. Abductor Pollicis Longus.
14. M. Flexor Carpi Radialis, ar. from the infer. extrem. of the Humerus, and is ins. into the sup. extrem. of the Os. Metac. Medium, which it flexes; with this also arises
15, 15. M. Flexor Carpi Ulnaris Internus, which is ins. into the Os Hamatum, and has the same action as the former muscle;
16. M. Lumbricalis Internus has the same attachments as the Externus (14, Fig. 1).

FIG. III.

Muscles on the Right Anter. Extrem. seen from the inner side.

1, 1. M. Biceps Brachii Hominis, ar. by a strong tendon from the protuberance of the Scapula, and is ins. into the sup. extrem. of the Radius; it flexes the forearm.
2. M. Coraco-Brachialis (9, Fig 2).
3. M. Tensor Ligam. Capsularis, ar. from the Scapula, is attached to the Ligam. Capsul. and is ins. into the Humerus, it renders the Caps. Lig. tense in the motions of the limb.
4, 4. M. Brachialis Internus (2, Fig. 4).
5. M. Anconæus Internus, ar. above the middle of the Humerus, is ins. into the inner side of Olecranon of the Ulna, and assists in extending the forearm.
6. M. Anconæus Longus (5, Fig. 1). Beside 4, 5, 6, Fig. 1, and 5, Fig. 2, there is still a fifth extensor of the forearm, namely, the Parvus, but which is not visible on any figure.

For the flexion of the Foot or Toes serve:

7. Caput Ulnare Flexoris Digiti Profundi, which ar. on the inner side of the Olecranon Ulnæ, and is ins. into the common tendon of the M. Flex. Dig. Profundi (6, Fig. 5).
8, 8. M. Flexor Digiti Sublimis, which ar. from the infer.

extrem. of the Humerus, receives an additional tendon from the Radius, and is ins. into 1, Fig. 5.

9. Caput Externum et Medium Flex. Digiti Profundi (2, 3, Fig. 5).

FIG. IV.

Muscles on the Left Anterior Extremity, seen from the front.

1. M. Biceps Brachii Hom. is divided from the Scapula, and so turned that the inferior hollow surface of the large tendon is seen.
2. M. Brachialis Internus, ar. from the super. extrem. of the Humerus, twines itself round this, and is ins. into the super. extrem. of the Radius; it flexes with 1, the forearm;
3. M. Extensor Carpi Radialis, ar. from the infer. extrem. of the Humerus, and is ins. into the super. extrem. of the Os. Metac. Medium; it extends the infer. part of the limb. More concealed lies

4, 4. M. Abductor Pollicis Longus, it ar. from the middle of the forearm, is ins. into the inner side of the Carpus, and has no visible action in animals in which the thumb is wanting.

5, 5. M. Extensor Digitorum Longior (10, Fig. 1).

6, 6. M. ——— ——— ——— Brevior (11, Fig. 1).

7. M. Coraco-Brachialis (9, Fig. 2).

FIG. V.

Muscles on the Right Forearm, seen from behind.

1. The Super. and Infer. Extrem. of the M. Flexor Dig. Sublimis.
2. Caput Externum.
3. Caput Medium.
4. Caput Internum Flexoris Digiti Profundi, ar. connected on the infer. extrem. of the Humerus, become united into

6. The Tendo Communis, which passes through the M. Flexor Digiti Sublimis on the Coronet-bone, and is ins. into the infer. surface of the Coffin-bone (4, Fig. 6.)
5. Caput Radiale Flex. Dig. Profundi, is the fourth head of the M. Flex. Dig. Sublimis; it ar. from the Radius, and is ins. into the Tendo Communis, as also
7. The Tendon of the Cap. Uln. Flex. Dig. Prof. (7, Fig. 3); these five muscles flex the Pes Anterior, or the toe, when the limb is raised in stepping forwards.
8. Tendon of the M. Flex. Carpi Radialis (14, Fig. 2).

FIG. VI.

Interosseal Muscles on the Right Pes Anterior, seen from behind.

1. M. Interosseus Internus.
2. ———— Externus, are very thin muscles, and only rudiments; they ar. from the infer. row of the bones of the Carpus, and are ins. into the cellular substance, near the Pastern-joint, whilst the Sesamoid Bones and Pastern Bones, for the motion of which they are actually formed, are wanting.
3. M. Interosseus Medius, ar. with the former, is almost entirely tendinous, and is ins. into the Sesamoid Bones, but sends off two tendons forwards to the extensors of the Coronet and Coffin-bones; in the setting down of the limb it hinders the giving way of the Os Metac. Medium backwards.
4. Infer. end of the Tendon of the M. Flex. Dig. Prof. which receives an impression from the Os. Sesamoid. Inferius.

PLATE XII. FIG. I.

Muscles on the Pelvis, seen from above.

The two Sacro-ischiatic Ligaments have been removed, in order more plainly to shew the passage of the muscles out of the pelvis.

1, 1. M. Glutæus Minimus, (15. Fig. 1, Tab. X.)

2. ———— Medius of the Right Side, (14. Fig. 1, Tab. X.)

3. M. Pyriformis ar. from the sacro-iliac Symphysis in the Pelvis, passes out over the Sup. Ext. edge of the Ischium, and becomes united with

4, 4. M. Gemelli, which, composed of two portions, ar. from the super. surface of the Os Pubis and Ischium.

5. Tendo Communis of both muscles, (3. and 4.) is inserted into the fossa of the Trochanter Major of the Femur, which is rotated outwards by these muscles.

6—6. M. Obturator Internus, ar. from the int. edge of the Foramen Ovale, passes under the Pelvis outwards to the Fossa of the Trochanter Major, and acts like the former muscles.

7. M. Pectinæus, (1. Fig. 3.)

8, 8. M. Adductor Femoris Brevis, (3. Fig. 3.)

9. M. Quadratus Femoris, ar. from the super. exter. edge of the Ischium, is ins. into the fossa of the Trochanter Major, and rotates the femor outwards.

FIG. II.

Muscles of the Tail, Anus, and Penis, seen from behind.

1. M. Depressor Candæ Longus, ar. from the infer. surface of the Sacrum, and is ins. into all the coccygeal vert.

2. M. Depressor Candæ Brevis, lies more internally, and ar. from the middle of the Sacrum, it reaches only beyond the middle of the tail, and both muscles, (1. and 2.) draw the tail with great force downwards.

In the middle between the short Depressors lies

3. M. Inter Anum et Caudam, which ar. from the Anter. Coccyg. Vert. and is ins. into the rectum; by means of this the too great protrusion of the Rectum is prevented.
4. M. Coccygeus (16. Fig. 1. Tab. 10.)
5. M. Levator Ani (17. ——————)
6. M. Sphincter Ani (18. ——————)
7. M. Erector Penis, ar. from the tuberosity of the Ischium, and is ins. into the Corpus Spongiosum Penis, which it, in common with that of the other side, draws towards the abdomen when in erection;
8. M. Perinæi, is very thin; ar. from the M. Sphincter Ani, and is ins. into the skin of the Perinæum, which it renders tense.
9. The Ano-penal Muscles divided inferiorly.
10, 10. M. Accelerator Urinæ et Spermatis, is without a fellow; attached to the Corp. Spongios. Penis and infer. surface of the Urethra, which it contracts spasmodically during the evacuation of the urine or semen.

FIG. III.

Some muscles of the Pelvis, seen from below.

1. M. Pectinæus, ar. on the infer. surface of the Os Pubis, and is ins. into the fossa of the Trochanter Major; it rotates the limb inwards; behind it lies
2. M. Obturator Externus, which conceals the Foramen Ovale below: it ar. on its edge, and is ins. and acts like the former.
3. M. Adductor Femoris Brevis, has its origin on the infer. surf. of the Ischium, and its insert. into the post. surf. of the Femur, which it draws inwards and backwards.

FIG. IV.

Muscles on the right Poster. Extremity, seen from the inner side.

1, 1. M. Pyriformis (3. Fig. 1.)
2. M. Rectus Femoris (12. Fig. 7. Tab. 8.)
3. M. Vastus Internus (13. ————————)
4. M. Adductor Femoris Longus, ar. from the ant. edge of the Os Pubis, is ins. into the middle of the Femur, and draws it backwards; in the same manner, acts
5. M. Adductor Fem. Magnus, which ar. on the infer. surf. of the Os Pubis and Ischium, and is ins. into the inf. extrem. of the Femur.

Beneath it arises

6, 6. M. Gastrocnemius Internus, above the internal Condyle of the Femur, and is ins. by means of the Tendo Achilles, into the Os Calcis; it extends the Pes Posterior in setting down the limb.
7. M. the lesser flexor of the Coffin-bone, s. m. Flexor Hallucis Longus Hom. (2. Fig. 5.)
8. The larger Flex. of the Coffin-bone, s. m. Flexor Digiti Longus (4. Fig. 5.)
9. M. Lumbricalis Internus. (16. Fig. 2. Tab. 11.)

FIG. V.

Muscles on the Right Crus, seen from behind.

1. M. Popliteus, ar. from the external condyle of the Femur, and is ins. into the post. surf. of the Tibia, which it flexes;
2, 2. M. Flexor Hallucis Longus Hom. ar. on the Tibia, and is ins. below the Hock-joint into the tendon of M. Flexor Dig. Longus (4).
3, 3. M. Tibialis Posticus, ar. with 2. and 5. on the Tibia and is ins. into the tendon of
4, 4. M. Flexor Digiti Longus, which lies by much the most exteriorly; its tendon passes through
5. The Tendon of the M. Solæus et Flex. Brevis Digiti, and is ins. into the Coffin-bone as on the fore limb; it plexes the toe or foot.

FIG. VI.

Muscles on the Left Crus of the Horse, seen from the outer side.

1, 1. M. Extensor Digiti Longus (2, Fig. 7.)

2. M. Peronæus Tertius, ar. from the super. extrem. of the Fibula, is connected with 1. below the Hock-joint, and assists in extending the toe;

3. M. Plantaris, ar. with 2. and is ins. into the Tendo Achilles (4.) which it renders tense;

4—4. M. Gastrocnemius Externus, ar. above the outer condyle of the Femur, is ins. with the internal (6, Fig. 4.) into the Tendo Achilles, and extends the foot; it is divided above in order to shew more plainly the origin of

5, 5, 5. M. Soleus et Flexor Brevis Digiti; this ar. namely in the fossa on the Femur, concealed by 4. passes down over the Tendo Achilles and Os Calcis, and is ins. divided into the Coronet-bone, and flexes the toe.

6. M. Flexor Digiti Longus (4, Fig. 5.)

7. M. Lumbricalis Externus, has the same relations as the Internal.

FIG. VII.

Muscles on the Left Crus, seen from the front.

1, 1. M. Tibialis Anticus, ar. partly on the Femur, partly on the Tibia, and is ins. with three tendons into the Os Metat. Medium and Ossa Metat. Inter. and externa; it flexes the foot;

2, 2. M. Extensor Digiti Longus, ar. with the former muscle above the exter. condyle of the Femur, and is ins. into the Coffin-bone; it extends the toe, and is assisted in this by

3, 3. M. Peronæus Tertius (2, Fig. 6.) and by

4. M. Extensor Brevis Digiti; this ar. from the infer. row of the Tarsal Bones, and is ins. into the tendons of 2 and 3.

PLATE XIII. FIG. I.

The Superficial Salivary Glands of the Right Side.

1, 1. Glandula Buccalis, is the smallest on the head, and is concealed by the M. Buccinator, (9, 9); it has several small excretory ducts, which open upon the inter. surface of the cheeks (1, 1, Fig. 3).

2, 2. Gland. Parotis, is the largest; it belongs, like all the salivary glands, to the Gland. Conglomeratæ, lies between the first Cerv. Vert. and Maxilla Infer. and has one excretory duct, namely,

3, 3. Ductus Stenonianus, which ar. by several small branches in the gland, passes through the Laryngeal Region over the infer. edge of the lower jaw to the face, there appears under the Arteria Labialis (7.) and Vena Labialis (8.), and pierces the M. Buccinator, ending near the third molar tooth of the upper jaw. (2, Fig. 3.) The gland is bounded below by

4. Vena Jugularis, which is formed by
5. Vena Facialis S. Maxillaris Interna, and
6. ———————— Externa.
7. Arteria Labialis,
8. Vena Labialis,
9, 9. The M. Buccinator (divided in the middle).

FIG. II.

View of the Glands of the Ear from below.

1, 1. The Two Gland Parotidæ (2, Fig. 1).

2—2. Ductus Stenoniani (3, Fig. 1.), which lie by much the most superiorly in the throat; below them lie

3—3. Venæ Labiales, and still more inferiorly
4, 4. Arteriæ Labiales;
5. Cavity of the Larynx,
6. Cavity of the Pharynx,
7, 7. The First Cerv. Vertebra.

FIG. III.

Side View of the Right Maxilla Inferior and Glandula Sublingualis.

The Right Ramus of the Lower Jaw has been removed, the M. Masseter and M. Buccinator are reflected.

1, 1. Openings of the Excretory Ducts of the Gland. Buccalis (1, Fig. 1).
2. Opening of the Duct. Stenon. (3, Fig. 1).
3. Papillæ Sublinguales, beneath which the Ductus Whartoniani terminate (beneath the right one the sound appears in the duct).
4. Glandula Sublingualis, lies on the right side of the tongue, has several small openings, called Ductus Riviniani, of which
5, 5. The terminations are above the Gland, on the smooth surface of the Mucous Membrane.
6, 6. Gland. Submaxillaris, extends from the Fossa of the first Cerv. Vertebra (8,) as far as the Larynx, is covered by the Gland. Parotis, and has only
7, 7. Ductus Whartonianus, which terminates beneath the Papillæ Sublinguales.

PLATE XIV. FIG. I.

The Stomach, seen from the superior side.

1. The Esophagus guides the food and liquids into the stomach, and terminates in an oblique direction, from above downwards, into it.

The Stomach (Ventriculus) is divided into

2. Extremitas Ventriculi Sinistra S. Saccus Cœcus, into
3. Paries Superior (and Inferior) further into
4. Curvatura S. Arcus Minor,
5. Curvatura S. Arcus Major, and into
6. Extremitas Dextra. It is composed of three coats, namely, of

7, 7. Tunica Externa S. Serosa, which at the right and left extremity is reflected; further of Tunica Carnea S. Media, aud of Tunica Intima S. Mucosa (3—5, Fig. 2) The muscular coat is composed at the Esophagus of oblique and of

8. Fibræ Circulares, on the stomach of
9. Fibræ Obliquæ,
10. Fibræ Longitudinales, and also of
11. Fibræ Circulares, which serve conjointly in the contraction of the cavity, and thus to the passing onwards of the food into
12. Intestinum Duodenum.

FIG. II.

The Stomach and Intestinum Duodenum laid open, and seen from above.

1. Esophagus,
2. Ostium Esophageum S. Cardia,

3 , 3. The Left Half of the Tunica Intima S. Mucosa, which is whitish and smooth, and by means of
4, 4. Margo Plicatus S. Fimbriatus, borders on
5, 5. The Right Half of the Tunica Mucosa, which is greyish-red and rugous. At the right extremity is
6. Ostium Duodenale S. Pylorus; both openings have valves (Fig. 3 and 4). In the cavity of this intestine are three apertures, of which two are surrounded by
7. A Swelling of the Mucous Membrane, namely,
8. Orificium Ductus Hepatici, and
9. Orificium Ductus Wirsunghiani, which comes from the Pancreas with the small Excretory Duct, of which
10. Is the Opening.

FIG. III.

Esophageal Portion of the (dried) Stomach, with the Esophageal Valve, seen from the cavity.

1. Esophagus.
2. The Superior,
3. The Inferior Curvature of the Valvula Cardiæ, which is formed by a doubling of the internal Mucous Membrane, and prevents the return of the food into the Esophagus.
4, 4. The Paries Ventriculi.

FIG. IV.

Right Extremity of the (dried) Stomach, with the Pyloric Valve, seen from the cavity of the stomach.

1. Superior Portion of Intest. Duodenum.
2. Valvula Pylori, is semi-crescent shaped, sometimes almost circular, and prevents the return of the food from the duodenum into the stomach.
3, 3. Paries Ventriculi.

FIG. V.

A Portion of the Thin or Small Intestines.

1. Tunica Externa S. Serosa, has been separated and reflected, in order to see the middle or muscular coat; this is composed of
2. Fibræ Longitudinales, which lie superficially, and shorten the intestine, and of
3. Fibræ Circulares, which lie beneath these, and contract the Intestine.

FIG. VI.

A Portion of the Intest. Rectum.

1. Tunica Externa S. Serosa reflected,
2. Fibræ Longitudinales Tunicæ Carneæ s. Ligamentum Intestini Recti Inferius; these fibres are connected, and, therefore, have received the name of ligament; they shorten the intestine but very slightly, and form the depressions or cells; so that they are originally shorter than the intestine.

3, 3. Fibræ Circul. Tunicæ Carneæ.

PLATE XV. FIG. I.

Intestinal Canal, seen from below.

The arrows show the direction in which the pulpy mass of the food is carried onward.

1. Pars Media s. Corpus Intestini Cœci, has four ligaments, (as in 2, Fig. 6, Tab. 14,) of which two are visible, and several cells which are formed by these ligaments; at
2. The Apex of it, the ligaments are wanting, and, consequently, the cells. The Intest. Cœcum is the first division of the thick or large intestines; to the second belongs the Intest. Colon, which is composed of

3, 3. Stratum Intest. Coli Inferius, which arises from the Intest Cœcum, and of

4, 4. Stratum Intest. Coli Superius; the former has several, the latter but few cells. The two strata form three curves in the abdominal cavity, namely,

5. Curvatura Anterior Inferior,
6. ———————— Superior, and
7. ———— Posterior, at which part the inferior stratum passes into the superior, and where the intestine is considerably smaller.

Both strata are connected with each other by

8. Mesocolon, which on the anterior part is very short, so that they lie quite close together. The small intestines (Intestina Tenuia) are divided into
9. Intest. Duodenum, which originates at the stomach and passes into

10—10. Intest. Jejunum; this is the longest portion of the small intestines, makes several irregular and very changeable convolutions, and passes into the third division, namely, into

11, 11. Intest. Ileum, which is marked by a thicker muscular coat, and opens into the Intest. Cœcum. The whole of the small intestines are connected by means of

12, 12. Mesenterium, which is composed of two folds of the Peritoneum, and incloses the blood-vessels, lymphatic vessels and glands, and nerves of the intestines; with the vertebral column and the Intest. Cœcum.

13. A Portion of the Intest. Rectum (10, Fig. 2).

FIG. II.

Large Intestines, seen from above.

The arrows designate here, also, the direction in which the mass of the food is carried onward. The small intestines, with the exception of the Ileum, have been removed.

1—1. Stratum Superius Intest. Coli, (4, Fig. 1,) is very broad at the 3. Curvat. Anter. Superior, (6, Fig. 1,) and forms the so-called stomach-shaped enlargement; on the right side, however, is very narrow, and passes into the Intest. Rectum (10).

2, 2. Intest. Coli Stratum Inferius, (3, Fig. 1,) forms

4. Curvat. Anter. Inferior, (5, Fig. 1,) and passes at the

5. Curvat. Posterior, (7, Fig. 1,) into the superior stratum; under it passes out

6, 6. The Middle Portion of the Intest. Cœcum (1, Fig. 1).

7. Saccus Cœcus Intest. Cœci, lies by much the most to the right; on it, and on the superior stratum of the Intest. Colon is

8—8. The part for the attachment of the Pancreas, where the external coat of both intestinal portions is wanting, it having been separated with this gland.

9. End of the Intest. Ileum (11, Fig. 1). The third division of the large intestines forms

10—10. Intest. Rectum, which ends at the anus, and is attached to the vertebral column by means of

11—11. Mesenterium Intest. Recti, which is formed like the mesenterium of the small intestines (12, Fig. 1).

PLATE XVI. FIG. I.

The Intestinum Cœcum, laid open, seen from behind, one fourth part of the natural size.

1. The Middle Portion.
2. The Blind Sac of the Intest. Cœcum.
3. Origin of the Intest. Colon.

4, 4, 4. Folds of the Mucous Membrane in the cavity of the Middle Portion,

5. Termination of the Intest. Ileum, which is closed by the Valvula Bauhini s. Ileo-cœca,
6. Opening to the Int. Colon, before which
7. Valvula Cœco-colica lies, which prevents the return of the pulpy mass of food into the Int. Cœcum.

FIG. II.

Intest. Cœcum, from the left side.

1. Apex.
2. Middle Portion, or Body of the Intest. Cœcum (Tab. 15, Fig. 1).
3. The Base, or Blind Sac.

4, 4. Fibræ Longitudinales s. Ligamenta Intest. Cœci, by which the cells are formed. The Int. Cœcum has, like the stomach, a large arched curvature, (which on the figure lies inferiorly,) and a small excavated curvature, in which

5. Intest. Ileum terminates, and
6. Intest. Colon commences.

FIG. III.

The Liver, seen from before.

The here shown Anterior Surface of the Liver is turned towards the Diaphragm. The Liver, which serves for the preparation of the gall, is divided into

1. Lobus Hepatis Dexter, which is generally the largest, into
2. Lobus Hep. Medius, which has several fissures in its inferior edge, and into
3. Lobus Hep. Sinister. On the superior surface it has
4. Sinus Pro Esophago, and on the anterior edge, a canal for the Vena Cava Posterior s. Inferior Hom. in which
6. Venæ Hepaticæ terminate. By means of ligaments, which are composed of two folds of the external coat (Peritoneum), is the Liver attached to the diaphragm, namely, by
7. Ligament. Hepat. Dextrum, which arises from the external edge of the right lobe, by
8. Lig. Hep. Sinistrum, which arises from the superior edge of the left, and the anterior surface of the middle lobe, further by
9. Lig. Suspensorium, which arises from the anterior surface of the middle lobe, and, lastly, by
10. Lig. Teres; this is the closed, but in the fœtus blood-carrying Vena Umbilicalis. On the right lobe is
11. A Portion of the External Coat, separated and reflected, in order to see
12. The Substance, or Parenchyma hepatis.

FIG. IV.

View of the Posterior Surface of the Liver.

1. Lobus Sinister.
2. ——— Medius.
3. ——— Dexter.
4. The Superior, or Lobulus Spigelii, lies on the poster.

surf. of the right Lobe, and has a depression, (13,) which is filled by the anter. extrem. of the right kidney.

5. Ligam. Hep. Sinistrum.
6. ———— Dextrum.
7. ———— Suspensorium.
8. ———— Teres.

9, 9. Vena Portarum, which carries dark-coloured blood to the Liver, for the preparation of the gall, (it is held to one side by a needle).

10, 10. Rami Ductus Hepatici, which have their origin in the substance of the Liver, and

11. Ductus Hepaticus, which carries the gall into the Intest. Duodenum, lie in

12. Fossa Transversa s. Porta Hepatis. The artery, lymphatic vessels, and nerves, which also lie in this fossa, are not marked.

FIG. V.

A portion out of the middle of the Liver, seen from the side. Natural size.

1, 1. Tunica Externa s. Serosa Hepatis,

2, 2. Parenchyma Hepatis, in which

3—3. The (divided) Rami Venæ Portarum, with their open terminations, are visible, because the firm substance of the Liver prevents its falling together.

4, 4. The (divided) Rami Arteriæ Hepaticæ, have a much smaller diameter, and

5, 5. The (divided) Ductus Biliferi, are always yellowish, and thus distinguishable from the arteries.

FIG. VI.

A portion of the Right Lobe, seen from the side. Natural size.

The numbers are the same as in Fig. 7.

PLATE XVII. FIG. I.

The Spleen, seen from the inner side.
The Ligam. Lieno. Ventriculare and the Blood-vessels are separated, in order to see more plainly the external form.

1. The Broad, or Extremitas Lienis Superior, lies under the Left Kidney (1, Fig. 2. Tab. 18).
2. Extrem. Lienis Inferior, is small and turned towards the right;

3, 3. Hilus Lienis, in which
4, 4. The Blood-vessels pass in and out, lies near to

5. Margo Anterior, which is hollowed out; opposite to this
6. Margo Posterior, which appears arched.

FIG. II.

Spleen, seen from the external side.

1. Margo Posterior. 2. Margo Anterior.
3. Tunica Externa, s. Serosa, is in part separated and reflected; but is very intimately connected with
4. Tunica Propria Lienis, which is fibrous, and which dips into the substance or Parenchyma with several processes, and thereby forms a firmer groundwork for the soft substance.

FIG. III.

View of a transverse section of the Spleen.
This was meant to shew the sponge-like matter of the interior of the Spleen, which is caused by the processes of

the internal coat, and in which the substance of the Spleen, composed of small vesicles, lies; but the lithographic drawing is very faulty.

FIG. IV.

The Abdominal Cavity laid open from below.
The Intestinal Canal has been removed, because it conceals the here displayed organs.

1. Ligam. Suspensorium et Teres Hepatis (9, 10, Fig. 3. Tab. 16,) pass from the Cartilago Ligonis to the poster. surf. of the Diaphragm upwards, to the anter. surface of
2, 2. The Liver (Fig. 4. Tab. 16,) of which the Margo Infer. and post. surf. are here visible; behind it lies
3. The Stomach (Tab. 14. Fig. 1,) as it is turned during digestion:
4. The Spleen.
5, 5. Omentum Majus (10. Fig. 3. Tab. 18).
6. Lobus Rectus Pancreatis.
7. ——— Medius ———
8. ——— Sinister ———
9. Intest. Duodenum, which is connected by
10. Ligam. Duodeno-renale, with the Right Kidney.
11, 11. The Right and Left Kidney are in part concealed.
12, 12. The Ureters convey the urine from the Kidneys to the Urinary Bladder;
13. Glandula Suprarenalis Sinistra.
14. Vena Portarum.
15, 15. Vena Cava Posterior, which receives
16. The Left (and Right) Vena Renalis,
17, 17. The Left and Right Venæ Seminales Internæ, which proceed from the Ovaria.
18, 18. The descending Aorta gives off
19. Arteria Mesenterica Anterior, and
20. ——— ——— Posterior, (both which have been separated,) also
21, 21. Arter. Seminalis Interna Sinistra et Recta.
22, 22. The Left and Right Ovarium.

23, 23. The fringed edges of the Fallopian Tubes, which are the free terminations
24, 24. Of the Tubæ Fallopianæ.
25, 25. Cornua Uteri, become united into
26. The body of the Uterus, which is connected with the Abdominal Parietes by
27, 27. Ligam. Uteri Teretia, and by
28, 28. Ligam. Uteri Lata (compare Tab. 20.)
29. The Urinary Bladder lies immediately on the inferior wall of the Pelvis.

PLATE XVIII. FIG. I.

The Kidneys and Large Vessels of the Dorso-abdominal region in natural position, seen from above.

The last Dorsal Vert., all the Lumbar Vert., the Os Sacrum, the Tail, and the Muscles lying on the Vertebral Column, have been removed, so that the Abdom. Cavity is only closed superiorly by

1—1. Saccus Peritonei. The Peritoneum is on the exter. surface rough; on the inter., smooth; it forms a closed sac, which lines the Abdominal Parietes, and sends off processes inwards, which cover the intestine. Upon this sac, consequently outside its cavity, lie:
2. Ren. Sinister,
3. Ren. Dexter, the latter more anteriorly than the former;
4. Glandula Suprarenalis Sinistra,
5. ———————— Dextra.

From each Kidney is sent off

6—6. An Ureter backwards, which conveys the urine into the Urinary Bladder, (13, Fig. 3.) Between both Kidneys lie the trunks of the large vessels, namely:

7, 7. Arteria Aorta Posterior, s. Descendens Hom. from which
8, 8. Arter. Crurales, and
9, 9. Arter. Hypogastricæ, are sent off; further
10, 10. Vena Cava Posterior, s. Inferior Hom. which receive
11, 11. Venæ Iliacæ, and carry the blood back to the heart.
12. Musc. Inter. Anum et Caudam, (3, Fig. 2. Tab. 12.)

FIG. II.

The Abdominal Cavity with its contents, opened from above.

The Kidneys and the large Blood-vessels have been removed, and the Sac of the Peritoneum has been opened, whereby the organs within the Peritoneum are rendered visible.

1. Super. Extrem. of the Spleen (1, Fig. 3,) lies in the Left Infero-costal region; on the opposite side in the Right Infero-costal region.
2. Right Lobe of the Liver, behind which lies
3. Lobus Pancreatis Sinister, which is connected by a Pons, with Lobus Pancreatis Dexter. On its right side, proceeds
5, 5. Intest. Duodenum (9, Fig. 1. Tab. 15,) from the stomach, and makes a curvature to the left side, where it passes into
6—6. Intest. Jejunum, the situation of which, however, between the large intestines, is very variable. Of the Left and Right Super. Stratum of
7—7. Intest. Colon (1, Fig. 2. Tab. 15,) to which the gland of the Pancreas is attached, only a few parts are visible; also of
8—8. Intest. Rectum, only a portion appears between the other intestines.
9. Mesenterium (12, Fig. 1. Tab. 15,) and
10, 10. Mesenterium Intest. Recti (11, Fig. 2. Tab. 15,) are processes which are sent off from the Sac of the Peritoneum inwards; at the Post. Extrem. of the Intest. Rectum, (at 10,) the latter passes again into the lateral parietes of the sac.
11, 11. Ovaria, lie in the Lumbar Regions; from them proceed
12, 12. Tubæ Fallopianæ, to

13, 13. Cornua Uteri, which are connected with the Vertebral Column by means of
14, 14. Ligamenti Uteri Lata, which are also processes of the Peritoneum. Of the blood-vessels which carry blood to the organs, we have here visible
15. Truncus Arteriæ Cœliacæ,
16. ———————— Mesentericæ Anterioris, which in the Horse also assists in connecting the large intestines with the vertebral column, and
17. Truncus Arter. Mesenter. Posterioris; further
17 b. Vena Lienalis.
18, 18. Vena Mesenter. Anter. et Posterior, which form
19, 19. Truncus Venæ Portarum; this passes over the Lobes of the Pancreas (3, 4,) forwards, and carries the venous blood to the Liver.

FIG. III.

Abdom. Cavity, seen from above.
The Intest. Canal and Pancreas have been removed.

1. Super. Extrem. of the Spleen (external surface)
2. Its Internal Surface, to which the Omentum Majus is attached by
3. Ligam. Phrenico-renale, the Spleen is connected with the Diaphragm and Left Kidney. The stomach lies as it is found during digestion; it having become turned in its transverse axis from
4. Extremitas Sinistra, to
5. Extrem. Dextra (Fig. 1, Tab. 14), so that
6. The Superior Surface is directed backwards, (the Inferior forwards, the small curvature upwards, the large downwards.)
7. Intest. Duodenum is connected with
8. Lobus Pancreatis Medius, which contains the small excretory duct.
9, 9. The Liver, (Tab. 16. Fig. 4,) is only partly visible;
10, 10. Omentum Majus, is a process of the Peritoneum, lies in the Horse between the convolutions of the Intest. Colon, and does not cover the Inferior Paries of the Abdomen, (as in other animals.)
11. Vena Cava Posterior, (10, Fig. 1,) passes downwards from the Vert. Column at the Liver, as far as the tendinous portion of the Diaphragm.

12. Venæ Portarum (19, Fig. 2) terminate in the Liver.

In the pelvic cavity the Seminal Organs and Urinary Bladder are visible, the superiorly lying Intest. Rectum having been removed.

13. Fundus Vesicæ Urinæ reaches beyond the cavity of the Pelvis;

14, 14. Vesicula Seminalis Sinistra et Dextra, serve for the preservation of the male Semen.

15. Vesic. Semin. Media, has only a small cavity, and lies between

16, 16. Vas Deferens Sinistrum et Dextrum, which carry the Semen from the Testicles into the Urethra, and into the Vesic. Seminales (the left is too small in the plate). At the part where these terminate in the Urethra, which is here dilated, lies

17. Glandula Prostata, and behind it

18, 18. Glandula Cowperi Sinistra et Dextra, behind which

19. Urethra, is again more contracted, with it

20. 20. Corpora Cavernosa Penis, which arise from the Os Ischium, become united.

PLATE XIX. FIG. I.

The Urinary and Generative Organs (without the Testis and Penis) of the Stallion, seen from above.

The Male Penis is represented in Fig. 2., and the Testes in Tab. 20.

1. Ren Sinister is somewhat different in form from

2. Ren Dexter, which is more heart-shaped. On each Kidney is a superior (here visible) and an inferior surface, an anter. and a poster. extremity, and an external arched, as well as an internal hollowed margin, through which the blood-vessels and ureter pass in and out. Further, each Kidney is enclosed by

3. Tunica Propria, under which lies
4. The Substance s. Parenchyma Renis. On the interior margin of the Left Kidney lies
5. Ren Succenturiatus Sinister s. Glandula Suprarenalis Sinistra; on the internal margin of the Right Kidney lies
6. Ren Succent. Dexter s. Gland. Suprar. Dextra (compare Fig. 6 and 7).
7, 7. The Two Ureters are the canals carrying off the urine from the Kidneys; each passes through the fissure on the internal margin of its kidney, goes under its posterior extremity backwards, and terminates on the neck of the Urinary Bladder (6, Fig. 2). Above
8. Vesica Urinaria, which is divided into fundus, body and neck, lie the Seminal Reservoirs, namely,
9. Vesicula Seminalis Media, which is only present in the Horse; it has a small cavity, is enclosed between the Vasa Deferentia (11, 11,) and passes anteriorly into a fibrous process;
10, 10. Vesic. Semin. Sinistra et Dextra, lie on the sides of the Urin. Bladder, are larger, and serve for the containing of the male Semen, which is carried up from the Testes by
11, 11. Vasa Deferentia s. Ductus Deferentes; these are, towards their extremity, thick and spongy, nearer to the testes, thinner.
12. Glandula Prostata, is a conglomerate gland, has two lateral lobes, and embraces the commencement of the Urethra, into which it pours the fluid, serving for impregnation (Succus Prostaticus, 12. Fig. 2).
13, 13. Glandulæ Cowperi, which are like the former in structure and office, and void the secreted fluid likewise into
14. Urethra.
15. Aorta Posterior.
16. Vena Cava Posterior.
17, 17. Arter. Renalis Sinistra et Dextra.
18. Vena Renalis Sinistra.
19, 19. Venæ Seminales Internæ.
20, 20. Arter. ——— ———.
21, 21. Arter. Iliacæ Circumflexæ.
22, 22. Arter. Crurales.
23, 23. Art. Hypogastricæ.

24, 24. Art. Umbilicales of the Fœtus, or the round ligaments of the Urinary Bladder in the grown animal.
25, 25. Venæ Iliacæ.

FIG. II.

Male Organs of Generation, (without the Testes,) seen from below.

1, 1. The Round Ligaments of the Bladder, (24, Fig. 1,) which are connected by means of a doubling of the Peritoneum with the Urin. Bladder; this latter is composed of three coats, namely, of
2. Tunica Externa, which is a continuation of the Peritoneum and here reflected;
3. Of Tunica Muscalosa, the fibres of which run in various directions, and which become contracted during the evacuation of urine; and, lastly, of
4. Tunica Mucosa, which lines the cavity, and which, by the secretion of mucus, lessens the hurtful action of the urine. By the obliquely entering Ureters (7, 7, Fig. 1) is formed
5—5. Corpus Trigonum, on which
6. Orificia Ureterum are visible.
7, 7. The Lateral Lobes of the Prostate Gland (11, Fig. 1).
8. Caput Gallinaginis, is an elevation of the Mucous Membrane in the Urethra, where several orifices are found, namely,
9. Termination of the Middle Vesicula Seminalis (9, Fig. 1),
10. ——————— Left Vas Deferens (11, Fig. 1),
11. ——————— Vesicula Seminalis (10, Fig. 1), which, of these, has the largest diameter, and lies most exteriorly. The larger duct, where 10 and 11 terminate, and which on the left side has been laid open, on the right is in its natural state, is called
11, b. Ductus Ejaculatorius Spermatis, through which, during coition, the male semen is poured out of the Vas Deferens and Vesic. Seminalis into the Urethra, and at other times the Semen proceeds out of the Vas Deferens through the duct, into the Vesic. Seminalis. On each side of the Caput Gallinaginis are

12, 12. The Orifices of the Excretory Ducts of the Gland. Prostata, and further back

13, 13. Those of the Glandulæ Cowperi (13, Fig. 1). The Urethra is dilated at the part where all the ducts terminate; behind it is more contracted, and this part is called

14. Isthmus Urethræ. From here it passes out of the Pelvis between

15, 15. The two Corpora Spongiosa s. Cavernosa Penis into the inferior groove on

16. Pars Media Penis, passes on in this as

17, 17. The Urethral Portion of the Penis, as far as the anterior extremity of the Penis, and has

18. Its Anterior Extremity before the Glans Penis. The Corp. Cavernosa Penis (15, 15,) are attached to the Ossa Ischii, and surrounded by the Musc. Erectores Penis (7, Fig. 2, Tab. 12); the Pars Media Penis and

19. Glans Penis are covered by

20. Præputium, which is formed by the skin; they only are protruded out of this latter during coition, and evacuation of the urine.

FIG. III.

Anterior Portion of the Penis, divided longitudinally.

The anter. extrem. of the Penis has an Apex, (which on the figure, however, is not thin enough,) which is surrounded, by the glans (4).

1. A thick, firm, fibrous Cutis, incloses

2. The Cavernous or Spongy Texture of the Penis, by which, also,

3. Corpus Cavernosum Urethræ is enlarged. This accompanies the Urethra anteriorly, and forms

4, 4. Glans Penis, which is also divided;

5. Cavity of the Urethra.

FIG. IV.

Glans Penis of the natural size; seen from before.

1, 1. Anterior Surface, or Sheath of the Glans, which is lined by a continuation of the Prepuce;
2. Orificium Urethræ Externum.

FIG. V.

Transverse Section of the Male Penis.

1. The External Fibrous Tunic sends off inwards.
2—2. Rounded Processes, which form an imperfect septum in the middle, and between which
3, 3. The Spongy or Cavernous Texture lies.

FIG. VI.

Left Glandula Suprarenalis, of the natural size; seen from above.

It has an anter. and poster. extremity, a super. and infer. surface, an inter. and exter. margin, and
1. Tunica Propria, surrounds
2. The Substance s. Parenchyma Gland. Suprarenalis.

FIG. VII.

The same, divided longitudinally.

Upon the cut surface is seen
1, 1. Substantia Externa s. Corticalis, and
2. Subst. Interna s. Medullaris; nearly in the centre is found a small cavity, which in the centre is found a small cavity, which in the fœtus contains a reddish fluid. Respecting the use of the Suprarenal glands, nothing is known.

PLATE XX. FIG. I.

Female Organs of Generation, seen from above.

The Female Organs of Generation are divided into those of formation and those of copulation; to the first belongs the Womb or Uterus, which has

1, 1. Cornua Uteri, and

2. Corpus Uteri. It is composed of three coats, namely, of

3. Tunica Externa s. Serosa, which at one part is here reflected; then of

4. Tunica Media s. Fibrosa, which causes the contractions, or labour-pains; and, lastly, of the Tunica Int. s. Mucosa (2, Fig. 2).

From the exter. extrem. of the Cornua Uteri proceed

5, 5. Tubæ Fallopianæ, which are small convoluted ducts, and have at their exter. extremities

6, 6. Fimbriæ Tubarum, or fringed edges, in the middle of which is

7, 7. Orificium Externum Tubæ. During copulation the Fimbriæ (5, 6,) sieze hold of

8, 8. Ovaria, in which the ovulum or germ of the future animal is contained; and if it be fertile, the germ protruded from the ovarium is taken up by the external orifice of the Tuba Fallopiana, and carried into the Uterus, where it increases and remains until perfect maturity.

Each Ovarium is connected with its Cornu Uteri by means of

9, 9. Ligamentum Ovarii, and by

10, 10. Ligamenta Uteri Lata, which are composed of two folds of the Peritoneum, between which the vessels and nerves of the Uterus lie; the whole Uterus is connected with the Trunk. The Ligam. Uteri Teretia (27, Tab. 17. Fig. 4).

11. The Vagina is the passage connected with the exterior of the body, into which the male Penis penetrates during copulation, and through which the mature Fœtus passes out.
12. Urinary Bladder, concealed by the Ligam. Uteri Lata.
13. Poster. Extrem. of Intest. Rectum, with
14. Anus. Beneath the Anus lies the Vulva, composed of
15, 15. The Two Labia Vulvæ and of
16. Rima Vulvæ. The space between the Vulva and Anus is called the Perinæum.

FIG. II.

The Same Parts, without Ovaria, Tubæ Fallopianæ, or Ligaments of the Uterus, opened from above.

1. Orificium Intern. Tubæ Fallopianæ, forms a slight protuberance, by means of it the germ reaches
2. Cavitas Uteri, which is lined by a plaited mucous membrane.
3. The Opening of the Left Cornu.
4. Orificium Uteri Externum, or Mouth of the Uterus, is the opening leading to the Vagina, which is formed by the Collum s. Cervix Uteri.
5, 5. Vagina, (11, Fig. 1,) is also lined by a mucous membrane, which has longitudinal folds, and about the middle of its length a transverse fold, which is called
6. Valvula Vaginæ s. Hymen, and which separates
7. Orificium Urethræ, which in female animals is very short, from the anterior part of the Vagina, so that the urine may not flow into the Uterus.
8. Urinary Bladder, laid to one side;
9. Clitoris s. Penis Muliebris, lies with the here visible Glans Clitoridis, in the inferior angle of the Vulva, and is the sensual organ of the female animal.
10, 10. Labia Vulvæ (15, Fig. 1).

FIG. III.

An Ovarium of the Mare, in natural size, longitud. divided.

Upon the cut surfaces is seen,

1, 1. The Substance s. Parenchyma Ovarii, which is yellowish and firm, and contains

2—2. Ovula Graafiana, these vesicles are filled with a yellow fluid, in which the actual ovum or germ is contained as a very small white corpuscle.

3, 3. Tunica Externa Fibrosa, surrounds the whole ovarium.

FIG. IV.

The Left Testis, seen from below.

The Tunicæ Vaginales inclosing the Testes, are cut open, and laid to one side, namely,

1. Tunica Vaginalis Testis Communis, a firm fibrous coat, very intimately connected with

2. Tunica Vagin. Test. Propria; this is a serous coat, a continuation of the Peritoneum, and forms

3, 3, Tunica Vagin. Funiculi Spermatici, which invests the vessels and Testis itself.

4. Testiculus s. Testis,

5. Cauda Epididymidis, (compare Tab. 21, Fig. 6—8,) of this

6, 6. Vas Deferens, is a continuation which leads to the Urethra (11, Fig. 1, Tab. 19.)

7, 7, The Blood-vessels inclosed in the Tunica Vagin. Funic. Spermatici and convoluted within each other.

FIG. V.

Right Testis, seen from above.

The Tunicæ Vaginales are also laid open, and put to the side.

1, 1. Tunica Vag. Test. Propria,

2, 2. ———— Funic. Spermat.,

3, 3. The Blood-vessels,

4. Caput Epididymidis, which passes by means of the Corpus into
5. The Cauda,
6. Testis,
7. Ligamentum Epididymidis, connects Testis and Epididymis longitudinally.

PLATE XXI. FIG. I.

Right Kidney, seen from below.

The Tunica Propria of the Kidney and a portion of its substance have been removed in order to see

1. Pelvis Renalis. It is a reservoir, which receives the urine from the papilla of the Kidney, (1, Fig. 2,) and is composed of a continuation of the mucous membrane of
3. The Ureter, which penetrates with
2—2. Several not hollow processes into the substance of the Kidney.

FIG. II.

Left Kidney, of the size of nature.

The Kidney is prepared as in Fig. 1, and the Pelvis opened, whereby

1—1. The Papilla Renalis is visible. This is composed of the extremities of all the Tubuli Uriniferi, (Fig. 4, 5,) through which the urine is poured into
2. Pelvis Renalis (which is cut open).

FIG. III.

Right Kidney, of the natural size.

It is laid open perpendicularly, and the two halves placed away from each other, so that both the cut surfaces are seen, and on them two substances, namely, externally,

1—1. Substantia Corticalis s. Glandulosa, which also penetrates inwards, and contains several small rounded corpuscles, to the unassisted eye appearing like minute red points, which have been named Glomeruli, or Corpuscula Malpighiana, (compare Tab. 38, Fig. 8,) from which the small urinary vessels of

2, 2. Substantia Tubulosa s. Medullaris proceed. This latter is composed of many small urinary vessels, which at first run convoluted, but afterwards straight, are always connected in pairs, (Fig. 4, 5,) and terminate in

3. Papilla Renalis (1, Fig. 2).

4, 4. The Blood-vessels of the Kidney, divide themselves into both substances, and form thereby several Lobuli Renales s. Reniculi, which appear the least plainly in the Horse, are much more apparent in the Sheep and Dog; and which, in the Ox, are separated during the whole life.

5. Cavitas Pelvis Renalis, from which

6. Ureter receives the urine.

FIG. IV.

Papilla Renalis, magnified twice.

It is composed of the Urinary Ducts, (Tubuli Uriniferi s. Belliniani,) which arise in the cortical substance, where they are convoluted, but here run straight, and always connect themselves in pairs, so that their number is smaller, but the diameter larger, towards the free extremity of the Papilla Renalis, where they terminate in a common infundibulum.

FIG. V.

Two Tubuli Uriniferi, with their branches, magnified twice.

1, 1. Tub. Urinif. with
2, 2. Their Terminations.

As their number is by far larger towards the cortical substance than at the free extrem. of the Papilla Ren. they form the Pyramides Renales Ferreinii, which are separated by portions of the cortical substance.

FIG. VI.

A Testis and Epididymidis, of the natural size.

The Tunica Albuginea Epididymidis has been opened, and the convolutions are laid bare.

1. The Testis is closely encircled by two coats, namely, by the continuation of the Tun. Vagin. Funic. Spermat., and under this, by the Tun. Albuginea Testis, which is a firm fibrous coat.

2, 2. Tunica Albuginea Epididymidis, is a firm fibrous coat, which closely envelopes the substance, and preserves the appointed form of the organ. The whole Epididymis is composed of innumerable vascular convolutions, which lie so together, that parallel lobes are thereby formed; it is divided into

3. Caput Epidid. which has its origin in the Testis, (3, Fig. 7,) into

4. Corpus Epidid. which commences forked, is composed of parallel lobuli, and passes into

5. Cauda Epidid. on which the convoluted vessel has a larger diameter forming a spherical mass, and, lastly, passes into

6. Vas. Deferens.

FIG. VII.

A Testis of the natural size, divided longitudinally.

1. Vasa Efferentia, come from the substance of the Testis, (4,) form exteriorly to it

2, 2. Coni Vasculosi, or Globular convolutions, and compose chiefly

3, 3. Caput Epidid. (3, Fig. 6.)

4, 4. The Substance s. Parenchyma Testis, is composed of several lobuli; it is formed from the convoluted Canaliculi Seminales, (2, Fig. 8,) and secretes the male Semen. It passes then by the Vasa Efferentia, (1,) into the endless windings of the Epidid. (3—5, Fig. 6,) and arrives at last by the Vas Deferens, at the Urethra, or the Vesicula Seminalis.

For the support of the soft substance of the Testis there is

5—5. Corpus Highmori, which is a continuation of

6—6. Tunica Albug. Testis, and which sends separate fibrous threads through the substance.

7, 7. The separated Tun. Albug. Epidid.

FIG. VIII.

A Portion of the Substance of the Testis, magnified.

1—1. Lobuli Parenchymatis Testis, which are composed of

2—2. Canaliculi Seminales s. Vasa Serpentina, in which the male Semen is secreted from the blood.

FIG. IX.

The Dug, or Teat, (Mamma,) of the Mare, of the natural size; seen from below.

1—1. The Lacteal Glands, (Mammæ,) are two Glands. Conglomeratæ, composed of separate granules (Acini); they are connected in the middle by a fibrous coat, and on the infer. surface by a common tunic (5).

Each Mamma has

2, 2. Papilla Mammæ, which contain two

3. Ductus Lactiferi. Each Duct. Lactiferus arises in

4. Sinus Mammæ, which is laid open on the right Papilla, and in which the milk is collected.

5. The Cutis, which covers the Mamma below, is wrinkled, fine, and nearly without hair.

PLATE XXII. FIG. I.

The Pregnant Uterus of the Mare, opened from below.

1—1. Uterus, the walls of which are thicker during pregnancy.

2, 2. Ligamenta Lata Uteri.

3, 3. ——— Teretia ———.

4. Vesica Urinaria.

The Germ, or Ovulum having passed out of the Ovarium through the Fallopian Tube into the cavity of the Uterus, becomes here developed, and is then composed of several coats, of which one incloses the other, and of the embryo. The most external of these coats, (Velamenta Ovi) is

6—6. Chorion, which is surrounded on its whole ext. surf. by

5, 5. The Placenta, which in the Mare is thin, in composition like a cutis, and is therefore called the Maternal Tunic.

It is composed of blood-vessels, and is the organ which connects the Fœtus with the mother. The second covering, namely, the Allantois, is not shown in the figure, it encloses the third and innermost, namely,

7, 7. Amnion, which secretes the Liquor Amnii, and in which

8. The Fœtus s. embryo lies. The curved position of this becomes afterwards more straight, so that the

head lies near to the mouth of the Uterus, the hinder part in the body, or in a cornu of the Uterus, whereby the abdomen of the Fœtus is turned towards that of the mother.

9. Funiculus Umbilicalis, is composed of vessels which connect the Fœtus with the coverings and with the Placenta.

FIG. II.

Velamenta Uteri, and the Thirteen Weeks old Fœtus, of the natural size.

1, 1. Chorion is opened and laid in folds; between it and the Allantois lies

2, 2. Vesicula Umbilicalis s. Erythroides; this is an oval-shaped reservoir, which probably is of use in the change of the blood previous to the formation of the Placenta; later it disappears entirely.

3. Allantois is connected with the exter. surf. of

4, 4. Amnion, (7, Fig. 1,) and has therefore the same form as this;

5. Funiculus Umbilicalis (9, Fig. 1.)

6. The Fœtus, in which the external parts are all formed.

7. Termination of the Funiculus Allant. s. Urachus, where it passes into the Allantois.

PLATE XXIII. FIG. I.

A Female Fœtus of about Seven Weeks old, of the size of nature; seen from the right side.

The external organs are all very clearly defined; the posterior extremities still very short compared with the anterior.

FIG. II.

The same Fœtus, seen from below.

1. Anus.
2. Vulva.
3. Clitoris.

FIG. III.

Female Fœtus, about Nine Weeks old, of the natural size; shown from the right side.

The poster. extrem. begin to have a better proportion with the anterior.

FIG. IV.

A Female Fœtus, about Thirteen Weeks old, of the natural size; seen from the right side.

FIG. V.

The same Fœtus, seen from below.

The Abdominal Cavity is laid open, and the Intestinal Canal placed on each side.

1. The Liver, still very large, takes up the whole poster. surf. of the Diaphragm.

2. The Stomach, on the contrary, is still very small.
3. Intest. Duodenum.
4, 4. ——— Jejunum.
5. ——— Ileum, are still short, but tolerably wide compared with the Large Intestines.
6. Mesenterium.
7. Intest. Cœcum, is as wide at the Apex as the base.
8. The Super. and Infer. Stratum of the Intest. Colon are still too short to form the convolutions in the Abdom. Cavity as in the new-born and more grown animal.
9. Intest. Rectum.
10. The Left Ovarium; it is already very large.
11, 11. Cornua Uteri are still divided deeply, therefore the body is short.
12. Urinary Bladder is longer than it is broad, and reaches to the Umbilicus, where it passes into the Urachus.
13. Vena Omphalo-Mesaraica, carries the blood from the Vesicula Umbilicalis (2, Fig. 2, Tab. 22,) into the Venæ Portarum.
14. Arter. Omphalo-Mesaraica is here single, as in other animals: in the Cat alone it is double; it carries the blood from the Fœtus to the Vesicula Umbilicalis.
15. Funiculus Umbilic.

FIG. VI.

Male Fœtus, about Seventeen Weeks old, of the size of nature, shown from the right side.

The Fœtus is still without hair; the external ears are still very small; the eyelids are united; the external genital organs already more developed.

FIG. VII.

The same Fœtus, seen from below.

The Abdominal Cavity is laid open; the Intest. Canal placed on either side.

1, 1. The Liver visible in its whole extent.
2—8. As 2—9 in Fig. 5.

9, 9. The two Testes and Epididymides, are large, lie behind the Kidneys, and pass down to the Scrotum only just previous to the birth or after it; they have a covering from the Peritoneum, and the Tunica Vagin. Funiculi Spermat. is formed; the Tunica Vag. Propria et Tun. Vag. Communis, originate first at their entrance into the Scrotum.

10. The two Vasa Deferentia are still very short.

11, 11. Gubernacula Hunteri are rounded cords, which pass from the Testes through the Abdom. Rings into the Scrotum, and probably are put in action during the descent of the Testes into the Scrotum.

12. Vesica Urinaria.

13. Vena Omphalo-Mesaraica.

14. Arteria ——————.

15. Funiculus Umbilicalis.

16. Præputium.

PLATE XXIV. FIG. I.

A Female Fœtus 157 Days old, of the fourth part of the natural size; shown from the right side.

The whole body is still bare, only

1, 1. On the Lips are some appearances of hairs.

FIG. II.

The same Fœtus, seen from below.

The Abdom. Cavity is laid open, and the Intest. Canal placed on each side.

1, 1. The Liver, still very large.

2. Stomach.
3. Intest. Duodenum.
4 a, 4 a. Intest. Jejunum.
4. Mesenterium.
5. Intest. Ileum.
6. —— Cœcum.
7, 7. Stratum Super. et Infer. Intest. Coli.
8. Intest. Rectum. The whole Intestines are still nearly in the same proportion as in Fig. 7, Tab. 23.
9. Ovaria are very large, and
13. Uterus is (compared with 11, Fig. 5, Tab. 23) in so far changed, that its body has become longer, the Cornua are also proportionally shorter.
11. Urinary Bladder.
12. Mamma.
13. Clitoris is not so long.
14. Vulva.

FIG. III.

A Female Fœtus, 176 Days old, half the natural size, shown from the right side.

Hairs are already seen on the lips, eyelids, and tip of the tail.

PLATE XXV. FIG. I.

The Thorax, opened from the left side.

1, 1. Trachea s. Arteria Aspera, commences at the Larynx, and terminates in the Lungs (Fig. 2 and 4.)

2, 2. The Œsophagus lies at first above the Trachea, falls then between it and the Aorta, and reaches, swinging freely, the Diaphragm, which it traverses in order to pass into the Stomach.

3. External arched surface of the Left Lung, (Pulmo Sinister,) which entirely fills up its half of the Thoracic Cavity when it is extended with air; its anterior lobe covers in part

4. Pericardium, which is attached above to the large vessels, below to the Sternum and Cartilages of the Ribs of the left side, in such a manner, that it touches anteriorly only by a sharp margin, posteriorly by one surface.

5. The Trunk of the Left Axillary Artery (Art. Subclavia Sinistra Hom.) is divided into the following branches, namely,

6. Truncus Arteriar. Intercostalium.

7. Art. Cervicalis Profunda.

7 b. — Vertebralis.

8. — Cervicalis Ascendens.

9. — Axillaris.

10. Thoracica Externa, and into

11. — Mammaria Interna.

12. Truncus Carotidum, arises from the trunk of the Right Axillary Artery.

13. Vena Cava Anterior s. Superior Hom. receives the following veins:

14. A Venous Trunk, formed by

14 a. Truncus Ven. Intercost. Anteriorum, and

14 b. Vena Cervic. Profunda; further

15. Vena Vertebralis,
16. —— Axillaris Sinistra, and
17. —— Jugularis Sinistra.
18. Aorta Posterior s. Descendens Hom. lies between both Mediastina, of which
19. Mediastinum Sinistrum is here visible; it is the Inner Paries of the Left Sac of the Pleura, which lines the half of the Thorax, gives a covering to the Lungs, and, by doubling, forms
20. Ligamentum Pulmonis, which connects the Lung with
21. The Anter. Surf. of the Diaphragm.
22, 22. The Great Sympathetic Nerve (Nervus Sympathicus.)

FIG. II.

Larynx and Super. Part of the Trachea, opened from behind and above.

1. Epiglottis.
2, 2. Internal Surfaces of the Cartilag. Arytenoideæ, which are lined like the Larynx and Trachea, with a Mucous Membrane.
3, 3. Ligam. Thyreo. Arytenoidea Superiora s. Ventriculi Laryngis, and
4, 4. ———————————— Inferiora, or Ligaments of the Rima Glottidis, are somewhat separated from each other, and have between them
5, 5. Ventriculi Laryngis s. Morgagnii. The Two Lig. Thyreo-Aryten. Infer. are connected by
6. A Transverse Fold of the Mucous Membrane.
7. On the External Surface of the Muc. Memb. of the Trachea lie
8. Fibræ Longitudinales and Fib. Transversæ. The Trachea is composed of cartilaginous rings, which, however, are not closed behind and above, but have their extremities overlying each other; it carries the air to and from the lungs.

FIG. III.

Thyroid Glands and part of the Trachea, of the natural size; seen from below.

1. Rings of the Trachea.
2, 2. Glandulæ Thyreoideæ, the use of which is unknown, are connected by
3. A small Process.

FIG. IV.

Lungs seen from above.

A. Pulmo Sinister is somewhat smaller than
B. ——— Dexter.
1. Poster. part of the Trachea, which has on the super. surface,
2, 2. Cartilaginous Plates, by which the ends of the rings are covered.

The Trachea divides itself into

3. Bronchus Dexter, and
4. ———— Sinister, of which each gives off so many branches in each Lung that the last extremities are small canals without cartilage, which terminate as cells of the Lungs. On the left, longitudinally laid open, are seen
5, 5. Terminations of the Branches. On each Lung is distinguished
6. Superficies Externa (and one Internal).
7. Margo Superior.
8. ——— Inferior.
9. Lobus Anterior.
10. —— Posterior.
11. —— Medius.
12. A Trunk of Veins of the Lungs.
13. Posterior Aorta.

The Lungs act in the change of the dark-red to the light-red blood, and at the same time in the transposition of the chyle into blood.

PLATE XXVI. FIG. I.

The Heart, with the Pericardium, seen from the Left Side.

1, 1. Pericardium is laid open and reflected to each side.
2. Paries Lateralis Ventriculi Anterioris s. Dextri is separated by the Left and Right Longitudinal Furrow from
3. Paries Later. Ventric. Posterioris s. Sinistri. Above the Ventricles lie
4. Auricula Cordis Dextra s. Anterior, and
5. ———— Sinistra s. Posterior or Right and Left Proper Auricle, which are appendages of the Auricles or Atria, (2, 3, Fig. 3.)
6. Apex Cordis is placed inferiorly, and beats in its action against the ribs; at the basis are given off
7. Arteria Pulmonalis, and
8. Truncus s. Arcus Aortæ, which is divided into
8 a. Aorta Anteria and
9. Aorta Posterior. This latter is connected with the Art. Pulmonalis by
10. Ductus Arteriosus Botalli, which, in the Fœtus, carries blood; but is here only a ligament. In the Left Longitudinal Furrow of the Heart runs
11. Art. Coronaria Cordis Sinistra and
12. Vena Coronaria Sinistra s. Magna Cordis.

FIG. II.

Basis of the Heart, seen from the Left Side.
The Right Ventricle and Art. Pulmonalis have been divided at their origin.

1. Truncus Aortæ, (8, Fig. 1.)
2. Art. Pulmonalis, (7, ——) has at its origin in the heart

3—3. Three Valvulæ Seminales, formed by a doubling of the Internal Membrane, and which prevent the return of the blood from the Art. Pulmon. into the Ventricle. In the middle of the free margin of each valve is

4. Nodulus Arantii s. Morgagnii, which is plainer on the valves of the Aorta.

FIG. III.

The Heart, with the Pericardium, seen from the Right Side.

1, 1. Pericardium, (1, Fig. 1.)

2. Paries Laterales Atrii Cordis Dextri s. Anterioris.

3. ——————————— Sinistri s. Posterioris; both Auricles or Atria, lie above the Ventricles, from which they are separated by the groove, for the Coronary Vein.

4. Paries Lat. Ventric. Dextri s. Anter. (2, Fig. 1.)

5. ——————————— Sinistri s. Post. (3, ——.) The Right Auricle receives

6. Vena Cava Anterior s. Superior Hom. and

7. ——————— Poster. s. Infer. Hom. which carry back the blood from the body to the heart; in the Left Auricle terminate

8, 8. Venæ Pulmonales. In the Coronary Furrow, coming from the left side, runs

9. Vena Coronaria Sinistra, (12, Fig. 1,) and in the Longitudinal Groove,

10. Vena Media Cordis s. Coronaria Dextra, and both open into the Right Auricle.

11, 11. Arteria Coron. Cord. Dextra, comes from the left side, and runs in the Longitudinal Furrow.

FIG. IV.

Representation of the Muscular Fibres of the Heart.

The External Tunic of the Heart, a continuation of the Pericard. has been removed, and there is seen

1—1. The Superficial Fibres, which lie in various directions, and

2. The deeper seated Muscular Fibres. By means of these Muscular Fibres lying in different directions, the Heart is contracted equally on all sides, and the cavities become smaller; consequently the blood is forced out.

FIG. V.

View of the Left, or Posterior Ventricle and Auricle of the Heart.

The Lateral Wall of the Ventricle aud Auricle is divided longitudinally.

1. Septum Atrior. s. Auriculorum, is much thinner than that of the Ventricles.
2—2. Orificia Venarum Pulmonalium, through which the light-coloured blood streams into the Auricles.
3. Cavity of the Left Proper Auricle has reticularly connected fleshy bundles, called Trabeculæ Carneæ.
4. Septum Ventriculorum is thick, fleshy, and hollowed.
5, 5. The cut surfaces of the Thick Lateral Wall.
6, 6. Musculi Papillati, are rounded muscular masses, with which the Tendinous Fibres of the Apices of the Valves are connected; and which draw these tight.
7, 7. Trabeculæ Carneæ in the Ventricle; at the boundary of the Ventricle and Auricle lies
8—8. Valvula Mitralis; it has three Apices, which are attached to the Musculi Papillati by means of
9, 9. The Fibræ Tendineæ, and which, when they are put on the stretch, prevent the return of the blood from the Ventricle into the Auricle. Behind the Middle Apex is
10. Ostium Arteriosum, through which the blood from the Auricle, arrived in the Ventricle, is driven out.

FIG. VI.

View of the Right or Anterior Auricle and Ventricle in the Heart.

1. Septum Atriorum, (1, Fig. 5,) contains in the middle
2. Cartilago Cordis, which is unattached and sometimes ossified in old horses.

3. Cavity of the Right Proper Auricle.
4. Ostium Venæ Cavæ Anterioris.
5. ——————— Posterioris; through both the dark red blood flows into the Auricles.
6. Ostium Venæ Coronariæ Cordis, before which is situated
7. Valvula Thebesii.
8. Septum Ventriculorum (4, Fig. 5,) is here arched, therefore the Ventricle is broader than long, and does not reach to the Apex Cordis.
9, 9. The cut surface of the Lateral Wall, which is weaker than in the Left Ventricle.
10—10. Three Musculi Papillati, (6, Fig. 5.)
11—11. Trabeculæ Carneæ,
12—12. Valvula Tricuspis, with its
13—13. Chordæ Tendineæ.
14. The opening to the Art. Pulmon. (ostium arteriosum,) lies behind the Anterior Apex or Cornu of the Valve, and by means of it the dark-red blood received into the Ventricle is propelled out;
15—15. The divided Right Coron. Artery of the Heart.

PLATE XXVII. FIG. I.

Arteries on the Head and Neck, seen from the Right Side.

1, 1. Arteria Carotis, passes between the Trachea and Neck upwards, and carries the blood to the Head; as far as the Head it gives off
2—2. Rami Musculares; for the common muscles of the Head, Neck, and Arm, (b, b;) for the Musc. Omo-hyoideus, (c, c,) here divided transversely; the M. Sterno-thyreoidei and Sterno-hyoidei, (e, e.)
3. Rami Tracheales, which ramify in the Mucous Memb. and Cartilages of the Trachea, (f;)
4. Art. Thyreoidea Superior, which supplies the Thyroid

Gland, (g;) the Lymphatic Glands, (h,) and the Larynx. The Art. Carotis then passes under the Gland. Parotis, (i, i,) and is divided into three branches, (9, 10, 15, Fig. 1, Tab. 28,) of which the largest, namely, Art. Carotis Facialis, (15, Fig. 1, Tab. 28,) supplies the external parts of the Head with blood. It is divided into Art. Maxill. Exter. et Interna, (24 a. 17, Fig. 1, Tab. 28;) and of the latter are here visible

5, 5. Art. Masseterica, which ramifies in the M. Masseter, (u;)

6. Art. Auricularis Magna s. Poster. Hom. which is divided into

7. ——————— Anterior, into

8. ——————— Posterior, and into the Art. Auric. Inferior, (which however is not here visible,) and which ascend in the Parotid Gland; they supply the M. Abductor Auric. Brevis et Longus, (r,) M. Levator Auric. Longus, (l,) M. Depressor, (m,) which is separated, and the Concha, (q,) at which part they anastomose; further

9. Art. Temporalis, which is divided soon into two branches, namely into

10. Art. Tempor. Posterior, which ramifies in the M. Adductor Inferior, (n;) in M. Auricularum Communis, (o, o;) and passing under the (here divided) Cartilago Anterior of the Ear, (p, p,) is lost in the M. Temporalis; further into

11, 11. Art. Transversa Faciei, which passes over the Facial Nerve. (v;) and under the Zygomatic Process downwards, and is lost in the M. Masseter, (u;) and in the Cutis.

Of the Art. Maxill. Externa, only one branch is sent to the Face, namely:

12, 12. Art. Facialis s. Labialis, which bends round the inferior edge of the Lower Jaw, (where the pulse is felt), and gives off to the Face the following branches:

13, 13. Art. Coronaria Labii Inferioris; this passes under the M. Risorius Santorini, (a, a,) and near the M. Depressor Labii Infer. (b, b,) forwards, forms on the Chin with the Art. Alveolaris Infer.

14. An Anastomosis, and ends in the M. Orbicularis Lab. Infer., giving off previously

15. Art. Anguli Oris, which ramifies in the M. Orbic. Lab. Super. (d, d.) From the Art. Facialis, (12,) after it has passed under the M. Zygomat. Major outwards, arises further

16, 16. Art. Coron. Labii Superioris, which passes under the M. Pyramidalis Nasi, (g, g,) and the M. Levator Lab. Super. Alæque Nasi, (w, w,) forwards, and ramifies in the Nose and Upper Lip.

17. Art. Tubæ Nasalis, is given off above. 16. Connects itself by Twigs with it, and anastomoses with

18. Art. Alveolaris Superior, which makes its exit from the Canal under the M. Levator Labii Super. Proprius, (x, x;) the last branch of the Art. Facialis is

19. Art. Angularis, which anastomoses superiorly with a branch of the Art. Lacrymalis, inferiorly with the Art. Coron. Labii Superioris.

FIG. II.

Arteries in the cavity of the Thorax, and on the Neck, seen from the Right Side.

1. Vena Cava Anterior, (separated anteriorly).

2, 2. Art. Aorta Anterior, lies immediately under the Trachea (k, k,) and gives off, first

3. The Trunk of the Art. Intercostalis Anterior, and Art. Cervicalis Profunda, which is, however, often wanting, and then each of these arteries arises from the Aorta itself; from it pass twigs to the Trachea and Lymphatic Glands, (l, l.)

4. Art. Intercostalis Anterior, runs over the Trachea, (k, k,) and the Musc. Longus Colli, (f, f,) upwards, and gives off

5. Art. Intercost. Secunda,

6. ———— Tertia, and

7. ———— Quarta, which run downwards over the Ribs; then

8. Art. Transversa Scapulæ, which passes out of the Chest between the Second and Third Rib, and ramifies in the M. Serratus Anticus Major, (c, c,) and in the Dorsal Muscles.

9. Art. Cervic. Profunda, gives off

10. Art. Interc. Prima, passes then between the First and Second Rib upwards, is divided into
11. Art. Cervic. Poster. Adscendens, which gives off twigs to the M. Levator Anguli Scapulæ, (a,) to the M. Rhomboideus, (b,) and afterwards passes up to the back of the Neck, (37, Fig. 2, Tab. 28;) then into
12. Art. Cervicis Transversa.
13. Art. Vertebralis, goes under the M. Scalenus Inferior, (e,) forwards, gives off
14. Ramus Muscularis, and passes from the 6th Cerv. Vert. into the Foramina Vertebralia, through which it runs upwards, (28, Fig. 1, Tab. 28.)

From the Right Art. Anonyma, which is the Right branch of the Anterior Aorta, arise the following vessels:

15. Truncus Carotidum, which runs under the Trachea forwards, and is divided into
16. Art. Carotis Dextra, and into
17. ———— Sinistra, for which see Fig. 1.
18. Art. Subclavia Dextra Hom. s. Axillaris Dextra, from which
19. Art. Mammaria Interna is first given off, which again gives off
20. Art. Mediastini Anterioris, and
21, 21. Rami Intercostales; then
22. Art. Cervicalis Adscendens is sent off, from which a twig runs to the Lymphatic Glands, (i,) and M. Deltoides, (d;) the other twig for the Pectoral Muscles is separated.
23. Art. Axillaris and
24. Art. Thoracica Externa, are the last branches of the trunk of the Art. Subclavia Dextra, and for its course see Tab. 31, Fig. 1.
25, 25. Art. Aorta Posterior s. Descendens Hom. goes under the Vertebral Column backwards, and terminates at the Pelvis; it gives off
26. A branch, which divides into
27. Rami Bronchiales, and into
28. Art. Esophagea; the former accompany the divisions of the Trachea into the Lungs, and ramify also on the surface of the Posterior, (m,) and Anterior (reflected) lobe of the Lung (n); the Art. Esoph. runs over the Esophagus, (o, o,) backwards, and anastomoses with

29. Ramus Esophageus Art. Cæliacæ, which also sends twigs to he surface of the Lung.
30. Art. Phrenica Anterior s. Superior Hom., ramifies in the Diaphragm, (p.)

From the Superior Paries of the Aorta Posterior, arise

31. The united Art. Intercost. Quinta et Sexta, and
32, 32. Art. Interc. Septima ad Decimam Septimam, which send twigs to the Vertebræ, to the origin of M. Psoas Magnus, (q,) run downwards with a twig to the rib, (compare Tab. 34, Fig. 1,) and terminate with
33, 33. The Superior Twigs to the Dorsal Muscles and Cutis.

From the Trunk, or Arch, of the Aorta arises

34. Art. Coronaria Cordis Dextra, which runs downwards under the right proper auricle, (s,) in the longitudinal groove on the Heart, (r,) and supplies its substance with blood.

PLATE XXVIII. FIG. I.

Arteries on the Head and Neck, of the Left Side.

The Left Ramus of the Lower Jaw has been removed, and the Trachea, with the Esophagus, are laid bare.

1—3. As in Fig. 1, Tab. 27.
4, 4. Rami Esophagei, ramify in the coats of the Esophagus, and anastomose with the Tracheal Twigs (3.)
5. Art. Thyreoidea Inferior, is given off deeper than the superior, from the Art. Carotis, passes to the Thyroid Gland, and anastomoses with
6. Art. Thyr. Superior, (4, Fig. 1, Tab. 27,) and this with
6.* Art. Laryngea, which often is only a twig of 6.
7. Art. Parotidis Inferior, passes into the Infer. end of the Gland. Parotis (it is cut off.)

8. Art. Pharyngea Adscendens, (4, Fig. 2.)

After the Art. Carotis has passed through between the Larynx and Glandula Submaxillaris, (h, h;) it is divided into

9. Art. Carotis Cerebralis s. Interna, (Tab. 29, Fig. 4,) into

10. Art. Occipitalis, and into Art. Carotis Facialis, (15;) the Art. Occipit. becomes divided in the depression of the Atlas, into

11. Ramus Posterior, which mounts upwards through the Poster. Foramen of the Atlas and anastom. with the Art. Vertebralis, (28,) then into

12. Ramus Anterior Externus, which runs through the Anter. External Foramen of the Atlas, and ramifies in the Muscles of the Back of the Neck (Ram. Anter. Internus, 7, Fig. 2;) previous to the division there arise from the Art. Occipit.

13. Art. Meningea Postica s. Superior, (76, Fig. 2,) and

14. ———— Inferior s. Media Hom. which passes through the Foramen Condyloideum Anterius into the Skull.

15. Art. Carotis Facialis, is the largest of the three branches of the Carotid, it passes under the Musc. Digastricus, (f,) and M. Stylo. Maxillaris (g, g) upwards, gives off

16. Art. Gland. Submaxill. Superior, and is divided into

17, 17. Art. Maxillaris Interna, and Art. Max. Externa (10, 17, Fig. 2); from the Art. Max. Inter. arises

18. Art. Masseterica (5, Fig. 1, Tab. 27.)

19. Art. Auricularis Magna (6, Fig. 1, Tab. 27.)

20, 20. Art. Alveolaris Inferior, which sends twigs to the M. Pterygoideus (e), and then passes into the canal of the lower jaw, but is here divided (compare Tab. 32, Fig. 10, 11.)

21. Art. Temporalis Posterior (10, Fig. 1, Tab. 27.)

22. Art. Transversa Faciei (11, ————————.)

23. Art. Buccinatoria, which arises in the orbit from the Art. Maxill. Interna, (30, Fig. 2,) and ramifies in the M. Buccinator (d) and M. Pterygoid (e.)

24 a. Art. Maxillaris Externa, is divided into the Art. Facialis s. Labialis and Art. Profunda Linguæ, (12, 15, Fig. 2,) but is here concealed by the M. Pterygoideus (e); from the

24 b. Art. Facialis s. Labialis, arises before it bends round the lower jaw, (12, Fig. 1, Tab. 27.)

25, 25. Art. Sublingualis, which runs forwards over the M. Mylo-Hyoideus, (b, b,) and under the Glandula Sublingualis, (c,) and terminates in the gums of the lower jaw; it gives off

26. Art. Submentalis, which ramifies in the M. Mylo-hyoideus and Cutis.

27, 27. Art. Profunda Linguæ s. Ranina, runs forwards in the fleshy part of the Tongue, (a, a,) as far as the Apex, (15, Fig. 2.)

28, 28. Art. Vertebralis, (13, Fig. 2, Tab. 27,) passes through the Foramina Vertebr. to the side of the Cerv. Vert. upwards, is covered by the M. Deltoides, (l, l,) and M. Intertransversarii, sends

29, 29. Deep branches to the Muscles at the back of the Neck, and anastomoses with the poster. branch of the Art. Occipitalis, (11.)

FIG. II.

Deeper seated Arteries on the Head and Neck, seen from the left side.

The Lower Jaw and the Muscles under the Trachea have been removed; the Tongue is so turned that anteriorly the inferior surface is visible.

1. Art. Carotis.
2. Art. Thyreoid. Superior (4, Fig. 1, Tab. 27.)
3. Art. Laryngea (6*, Fig. 1) is here a twig of Fig. 2.
4. Art. Pharyngea Adscendens, ramifies in the M. Thyreo-Pharyngeus (u) and Crico-Pharyngeus (v.)
5. Art. Occipitalis (10, Fig. 1.)
6. Ramus Exter. Anterior Art. Occipit. (12, Fig. 1,) anastom. with a superior branch of the Art. Vertebralis, (36,) and ramifies in the M. Obliquus Capitis Inferior, (w), in M. Complexus Major, (x, x,) which is separated from the Ligam. Nuchæ, (a a, a a,) and is laid to the side, and in the M. Complexus Parvus, (z, z.)
7. Ramus Anterior Internus, passes through the Anter.

Inferior Foramen of the Atlas, where it is concealed by the M. Obliq. Cap. Inferior, (w,) into the Vertebral Canal, and forms the Art. Basilaris, (12, Fig. 2, Tab. 29.)

7 b. Art. Meningea Postica s. Superior, passes with one twig to the M. Obliq. Capit Superior, the other goes through the Ductus Temporalis into the cavity of the Cranium.

8. Art. Carotis Cerebralis s. Interna, (9, Fig. 1.)

9. ———— Facialis s. Externa, (14, ——,) passes under the Musc. Digastricus (e, e,) and M. Stylohyoideus, (f, f,) upwards, and is divided into

10. Art. Maxillaris Externa, (24 a, Fig. 1,) and Art. Max. Interna, (17;) the former gives off

11. Art. Palatina Adscendens, which runs under the Cornu Later. Superius Ossis Hyoidei, (g,) to the Pharynx, (i,) further

12, 12. Art. Facialis s. Labialis, (12, Fig. 1, Tab. 27,) from which

13. Art. Gland. Submax. Inferior is sent off, but is here divided.

14. Art. Sublingualis (25, Fig. 1.)

15, 15. Art. Profunda Linguæ s. Ranina, (27, Fig. 1,) is followed up to the Apex of the Tongue, (c, c,) and sends twigs to the surface, which ascend under the Musc. Hyo-glossus, (d, d,) but previously

16. Art. Dorsalis Linguæ, which bends round the Cornu Later. Infer. Ossis Hyoidei.

17. Art. Maxill. Interna, (17, Fig. 1,) with its branches, namely,

18. Art. Masseterica, (5, Fig. 1, Tab. 27.)

19. Art. Auric. Magna, (6, ————,) from which

20. Art. Tympanica, passes behind the Meat. Auditor. Externus, (t, t,) through the Foramen Mastoideum, into the cavity of the Tympanum, (compare Tab. 32, Fig. 7.)

21. Art. Temporalis Posterior (10, Fig. 1, Tab. 27.)

22. Art. Transversa Faciei, (11, ————,) and

23. Art. Alveolaris Inferior, (20, Fig. 1,) which are all divided. After the Art. Maxill. Interna has passed over the air pouch, (m,) and M. Palatini, (n, l,) it gives off

24. Art. Meningea Media Secunda, which runs through

the Foramen Lacerum into the Cranium, then approaches the Foramen Pterygoideum Ossis Sphenoidei, and sends off, previous and subsequently to its passage through this,

25, 25. Art. Temporales Profundæ, which ramify in the M. Temporalis, (t.)

After this there is given off by the Art. Max. Interna,

26. Art. Ophthalmica, which sends off

27. Art. Frontalis s. Supraorbitalis,

28. Art. Nasalis Superior, and then is lost in the upper Eyelid, (o,) in the Lachrymal Gland, (p,) in the Muscles of the Eyeball, (q,) and in the Globe of the Eye.

From the continuation of the Art. Max. Interna arise, further,

29. Art. Adipis, sent to the fat in the cavity of the Orbit, (s.)

30. Art. Buccinatoria, (23, Fig. 1.)

31, 31. Art. Alveolaris Superior, passing through the Sinus of the Upper Jaw, (n,) where it sends twigs to the Molar Teeth, and anastomosing on the face with the Art. Tubæ Nasalis (18, Fig. 1, Tab. 27.)

32. Art. Lacrymalis, for the Lacrymal Sac and Duct,

33. Art. Nasalis Posterior, which passes through the Foramen Pterygo-palatinum into the Cavity of the Nose, (2, Fig. 6, Tab. 30.)

The last branch of the Art. Max. Interna is

34. Art. Pterygo-palatina, which runs through the Pterygo-palatine Canal to the Hard Palate, (b, b,) and in this passes forwards, as well as

35. Art. Pterygo-palat. of the right side, with which it anastomoses over the Pterygo-palatine processes of the Cartilaginous Septum Nasi, (a,) then goes through the Foramen Incisivum, and passes into the Art. Coronaria Labii Superioris.

36, 36. The Superior Branches of the Art. Vertebralis, (29, Fig. 1,) which anastomose with

37. Art. Cervicalis Adscendens, (11, Fig. 2, Tab. 27,) on the internal surface of the M. Complexus Major, (x, x.)

PLATE XXIX. FIG. I.

Anastomosis of the Two Internal Carotid Arteries on the base of the Brain, seen in half of the natural size, and from below.

The Cranium is laid open from below, so that (a) the Glandula Pituitaria, and (b) Medulla Oblongata, inclosed in their membranes are visible; (c, c) Cartilages at the articulation of the Jaw.

1, 1. Arteriæ Carotides Internæ s. Cerebrales, form some convolutions, and anastomose in the median line by
2. Ramus Communicans Externus, which lies behind the Pituitary Gland, (a,) and exteriorly to the Dura Mater; from both these branches of the Internal Carotid Art. there proceed
3. Rami ad Infundibulum.

FIG. II.

The Dura Mater and Pia Mater have been separated from the Cerebrum and Cerebellum; on the Medulla Oblong. they are still present.

1, 1. Art. Carotid. Cerebr. (1, Fig. 1,) are divided near to the Brain; each is divided into
2, 2. Ramus Anterior, which runs forwards under the Gland Pituitaria, and anastom. with that of the other side and into the Ramus Posterior, (8;) from the Ram. Anterior arise
3, 3. Art. Fossæ Sylvii, which ramifies on the inferior and lateral surface of the Cerebrum, (t, t.)
4, 4. Art. Plexus Choroidei, which passes on to the Optic

Nerves in the Lateral Ventricles, and forms there the Plexus Choroides, (compare Fig. 5.)

5, 5. Art. Meningea Antica, which sends branches to the Cerebrum and Olfactory Nerves, (a, a,) and then runs into the Falx Duræ Matris, but is here divided. Lastly, there arises from the anastomoses of the two anterior branches

6. Art. Corporis Callosi, which runs forwards and upwards over the Optic Nerves, (b, b,) between both anterior lobes, and gives off also

7, 7. Arter. Ethmoidales, which are divided.

8, 8. Ram. Poster. Art. Car. Cerebr. gives off

9, 9. Art. Cerebri Profunda, and anastom. then by means of

10, 10. Ramus Communicans Internus, with the Art. Basilaris, (12.) By means of the reciprocal anastomosis of the ant. and post. branch of the Art. Carotid Cerebralis, and with the Art. Basilaris, is formed the Circulus Willisii.

From the Ramus Communicans arises

11, 11. Art. Cerebelli Superior, which runs under the Nervus Oculo-Muscularis Communis, (d, d,) and over the Nerv. Trochlearis, (e, e,) to the Cerebellum, (3, Fig. 3.)

12, 12. Art. Basilaris, is formed by the anastomosis of the two anterior internal branches of the Art. Occipitales (15, 15.), passes under the Medulla Oblongata, (r, r,) and the Pons Varolii, (p,) forwards, and sends small twigs to the Nerv. Trigeminus, or Fifth Pair, (f, f,) to the nerve supplying the Musc. Depressor Oculi, (g, g,) the Nerv. Glosso-pharyngeus, (k, k,) the Nerv. Pneumo-gastricus, (l, l,) the Nerv. Accessorius and Nerv. Lingualis, (n, n,); further

13. Art. Auditoria Interna, which passes with the N. Facialis and Nerv. Auditorius, into the Meat. Auditor. Internus, and ramifies in the Labyrinth, (compare Tab. 32, Fig. 8, and 9.)

14. Art. Cerebelli Inferior, which runs along the infer. surf. of the Cerebellum, (q, q,) backwards, (4, Fig. 3.(

15, 15. Rami Anter. Interni Art. Occipitalis, (7, Fig. 2, Tab. 28,) penetrate the Dura Mater of the Medulla Spinalis, just where the First Cervical Pair of Nerves

is given off, (o, o,) and anastomose in the Art. Basilaris, (12, 12,) from which, posteriorly,

16. Art. Spinalis Inferior is sent off, which runs under the Medulla Spinalis (s) backwards, (Tab. 33, Fig. 1.)

FIG. III.

Arteries of the Brain, of the size of nature, seen from above.

1. Art. Corporis Callosi, (6, Fig. 3,) ramifies on the Lobes and Corpus Callosum of the Cerebrum, (a, a.)
2—2. Twigs from the Art. Fossæ Sylvii, (3, Fig. 2,) and Art. Cerebri Profunda, (9, Fig. 1.)
3, 3. Art. Superior Cerebelli, (11, Fig. 1,) which anastom. with
4, 4. Art. Inferior Cerebelli, (14, ———,) and ramifies on the Cerebellum (b, b); from the latter artery proceed near to the Fourth Ventricle, (c.)
5. Rami Spinales Superiores, which spread themselves on the Medulla Spinales, (d,) the Nerv. Accessorius, (e,) and the First Cerv. Nerve.

FIG. IV.

Arteries of the Brain, which lies in the Cavitas Cranii, of half the natural size, and shown from the Right Side.

The Cavitas Cranii has been opened on the Right Side, and the coverings of the Brain removed.

1. Art. Carotis.
2. Art. Occipitalis.
3. Art. Carotis Externa, all three divided.
4. Art. Carotis Cerebralis, passes under the Musc. Rectus Capitis Anticus Major et Minor, (h and g,) on the inner wall of the air sac forwards, makes several turns, and passes at the Eustachian Tube, (f), into the Cavitas Cranii, where it ramifies;
5. Art. Centralis Retinæ, accompanies the Optic Nerve, (d,) into the eye; (it is drawn too thick in the figure), compare Tab. 32, Fig. 3.
6. Art. Fossæ Sylvii, (3, Fig. 2,) ramifies on the Cerebrum, (a.)

7. Art. Cerebri Profunda, (9, Fig. 2.)
8. Ramus Communicans Internus, (10, Fig. 2.)
9. Art. Cerebelli Superior, (11, Fig. 2,) passes to the Cerebellum, (b.)
10. Art. Basilaris, (12, Fig. 2,) runs under the Med. Spinalis, (c,) forwards, and is formed by the
11, 11. Rami Anter. Interni Art. Occipitalium, (7, Fig. 2, Tab. 28,) it gives off
12. Art. Cerebelli Inferior, (14, Fig. 2, Tab. 29.)

FIG. V.

Choroid Plexus in the Lateral Ventricles of the Brain, of the size of nature, and shown from above.

a, a. Corpora Striata.
b. Commissura Cerebri Anterior, and behind it Aditus ad Infundibulum.
c,—c. Cornua Ammonis, of which the Anterior Crura are divided and reflected, in order to see
d, d. Thalami Nervorum Opticorum,
e, e. Plexus Choroidei Laterales, are formed each from a small artery, (4, Fig. 2,) and form by their junction
f. Plexus Choroideus Medius.

Upon the cut surface of the Brain, are seen the Vascular Twigs passing from below.

PLATE XXX FIG. I.

Arteries of the Left Eye of the natural size, seen from above.

1, 1. Branches of the Art. Opthalmica, (26, Fig. 2, Tab. 28;) the larger gives

2, 2. A twig to the upper eyelid, (a,) and to the Lacrymal Gland, (b;) from both branches are sent off

3, 3. Art. Ciliares, which penetrate the Sclerotic Coat of the Eye, (compare Tab. 32, Fig. 1 and 2,) and

4, 4. Muscular Twigs, for the M. Levator Palpebræ Superioris, (c,) M. Rectus Superior, s. Levator, (d—d,) the M. Rectus Internus, s. Adductor, (e,) and M. Rect. Externus, s. Abductor, (f,) the M. Obliquus Major, s. Superior, (g,) and for the M. Suspensorius, (h,) the Tarsus is marked with (i), and the Optic Nerve with (k.)

5. Art. Nasalis Superior, (28, Fig. 2, Tab. 28,) is the continuation of the largest branch of the Art. Opthalmica, (compare Tab. 30, Fig. 5 and 6.)

FIG. II.

Arteries of the Left Eye, of the natural size, seen from below.

1. Art. Opthalmica sends

2. A twig to the Inferior Palpebra, (a,) the Tarsus, (c,) the M. Obliq. Parvus, s. Inferior, and M. Adductor, (e.)

c. Ciliary Arteries which pass up in the M. Depressor Oculi, (f.)

FIG. III.

Deeper-seated Arteries on the globe of the Right Eye, seen from above.

a. Globe of the Eye.
b. M. Levator Oculi.
c, c. M. Suspensorius.
d. Nervus Opticus.
e, e. Art. Ciliares.

FIG. IV.

The same, seen from below.

a. Globe of the Eye.
b, b. M. Suspensorius.
c. Nerv. Opticus.
d, d. Art. Ciliares.
e. Muscular Twigs.

FIG. V.

Arteries on the Septum Nasi and Palate, seen from the Left Side.

The Facial portion of the Head is divided longitudinally, so that the Septum Nasi of the Right Half is preserved.

1, 1. Art. Nasalis Superior, is given off by the Art. Ophthal. passing through the Foramen Ethmoideum into the Cavitas Cranii, and over the Os Ethmoideum into the Nasal Cavity, where it ramifies on the Septum Nasi, (a, a,) and anastomoses with
3, 3. Rami Nasales of
2, 2. Art. Pterygo-palatina, which pass through the Foramina of the bony palate, (b, b,) into the Cavity of the Nose; the Art. Pterygo-palat. passes through the Foramen Incisivum to the Upper Lip.

FIG. VI.

Arteries of the Left Nasal Cavity, seen from the Inner Side.

1, 1. Twigs of the Art. Nasal Superior, (1, Fig. 5,) which spread themselves on the Mucous Membrane of the Superior Os Spongiosum, (a,) and Labyrinth of the Ethmoid Bone, (c, c;)

2. Art. Nasalis Posterior, passes through the Foramen Palato-nasale into the cavity of the Nose, (compare 33, Fig. 2, Tab. 28,) and ramifies on the Inferior Spongy Bone, (b,) on the Posterior Nares, and in the Inferior passage of the Nose, where it anastomoses with

4, 4. Rami Nasales of

3. Art. Pterygo-palatina.

FIG. VII.

The deep-seated Arteries on the Left Pes Anterior, seen from behind.

The Muscles have been removed, except the M. Interosseus Medius.

1. Art. Arcus Carpi Volaris Hom. or posterior Art. of the Knee, is a branch of the Art. Radialis, (15, Fig. 2, Tab. 31,) runs downwards along the radius, (a,) and ramifies in the ligaments of the Carpus, or fore-knee;

2, 2. Art. Interossea Volaris Interna, (20, Fig. 2, Tab. 31,) passes between the M. Inteross. Medius, (c,) and the Os Metacarpi Internum, (d,) downwards, and anastomoses over the Sesamoid Bones with

3, 3. Art. Inteross. Vol. Externa, (19, Fig. 2, Tab. 31,) which runs down over the Os Hamatum, (b,) on the Os Metac. Externum, (d;) both arteries are connected by

4. The Ramus Transversus, superiorly, and from the Art. Interna arises also

5. Art. Nutritia Ossis Metac. Medii, which passes through a foramen, into the Medullary Cavity of this bone.

6. Art. Volaris Sublimis, Oss. Metac. Medii, (21, Fig. 2, Tab. 31,) which is divided, forms, with 3 and 4.
7. Arcus Volaris Profundus, and is divided then into
8—8. The two Art. Digitales, which are connected by means of
9. Art. Phalangis Primæ Posterior, and by
10. Art. Phal. Secundæ Posterior, covered by the Tendon of the M. Flexor Digiti Profundi, (e, e.) The last branch of each Art. Digitalis, is
11, 11. Art. Phal. Tertiæ Inferior, or Fleshy Sole, which passes partly under the Fleshy Frog, (f,) and gives off
12. Ramus Superficialis, (compare Tab. 38, Fig. 13.)

FIG. VIII.

Arteries on the Left Pes Anterior, seen from before.

1. Arcus Carpi Dorsalis, s. Anterior, is formed by twigs of Art. Inteross. externa, (8, Fig. 3 and 4, Tab. 31,) which run down over the Tendons of the M. Extensor Carpi Radialis, and M. Abductor Pollicis Longus, and from it are given off
2. Art. Inteross. Dorsalis Externa, which runs downwards between the Os Metac. Externum, (e,) and Os. Metac. Medium, (d.)
4. Rami Articulares, pass to the Tendons of the M. Extensor Digitorum Longior, (c, c,) to the ligaments of the Poster. joint, and anastomose with
5. Art. Phal. Primæ Anterior, which anastom. with
6. ——— Secundæ Anterior, and also arises with
7. Art. Tororum Angulæ Mollium, which gives off the Rami Nutritii to the Horny Tubuli of the Hoof, and which secrete the horny matter, (compare Tab. 38, Fig. 8.)
8. Art. Phal. Tertiæ Anterior, or of the Fleshy Parietes, lies in the groove of the Coffin-bone, and anastom. with the twigs of
9. Art. Phal. Tertiæ Inferior, or of the Fleshy Sole which pass anteriorly through the foramina of the Coffin-bone, (comp. Tab. 38, Fig. 12.)

PLATE XXXI. FIG. I.

Arteries on the Superior Half of the Left Anterior Extremity, seen from the Inner Side.

The scale is one third of the size of nature.

1, 1. Art. Axillaris is the largest vessel on the fore limb; it gives off, first

2, 2. Art. Thoracica Externa, which sends twigs to the M. Pectoralis Minor, (a, a,) and Major, (b, b,) and terminates in the M. Subcutaneus Maximus, s. Abdominis, (c,) then

3. Art. Acromialis, which sends off twigs to the M. Pector. Minor, (a, a,) to the M. Supraspinatus, (d,) the M. Subscapularis, (e, e,) and to the Os Humeri; the Art. Axill. then is divided into

4, 4. Art. Subscapularis, and into the Art. Brachialis, (8;) the former passes between the M. Subscap. (e, e,) and the M. Teres Major, (f, f,) upwards, and gives off

5. Art. Circumflexa Humeri Posterior, which runs outwards between the M. Teres Major, (f,) and the M. Brachialis Internus, (i;)

6. Art. Circumflexa Scapulæ, which penetrates the M. Anconæus Longus, and gives off

7—7. Rami Musculares to (e, f,) the Lymphatic Glands, (g,) the M. Latissimus Dorsi, (h,) and M. Subcutaneus, (c.)

8. Art. Brachialis, runs down on the inner side of the Humerus, and gives off the following arteries:

9. Art. Circumfl. Hum. Anterior, runs under the M. Coraco-Brachialis, (m, m,) and the M. Biceps Brachii, (n,) forwards and outwards

10. Art. Brachii Profunda, ramifies in the M. Anconæus Internus, (n,) in the M. Extensor Cubiti Longus,

(l, l,) in the M. Anconæus Longus, and M. Anconæus Externus; it takes the place here by means of a twig, of the Art. Collateralis Ulnaris Superior;

11. Art. Nutritia Humeri Inferior, which penetrates into the Medullary Cavity of the Bone, (s.)

12, 12. Art. Collateralis Ulnaris Inferior, which runs down on the M. Flexor Carpi Ulnaris Internus, (q, q,) gives twigs to the M. Latissimus Pectoris, (o,) and terminates on the Fore-knee, (comp. 9, Fig. 4.)

13. A Ramus Cutaneus. The Brachial Art. is divided now into

14. Art. Ulnaris, (7, Fig. 3,) and into

15, 15. Art. Radialis, which preserves this name as far as below the middle of the forearm, (t,) and to that point gives off

15*. Art. Recurrens Radialis, which runs back under the M. Flexor Carpi Radialis, and anastom. with twigs of the Art. Collat. Uln. Inferior.

16. Art. Interossea Externa, (8, Fig. 3.)

17, 17. Muscular Twigs to the M. Flexor Carpi Ulnares, and M. Flexor Carpi Radialis, (r, r,) and M. Extensor Carpi Radialis, (p.)

FIG. II.

Arteries on the Inferior Half of the Left Anterior Extremity, seen from the Inner Side.

15, 15. Art. Radialis gives off further,

18. A Twig to the Arcus Volaris Anterior, (1, Fig. 8, Tab. 30.)

19. Art. Inteross. Volaris Externa, which runs down over the Os Hamatum, (comp. 3, Fig. 7, Tab. 30.)

20, 20. Art. Inteross. Volaris Interna, which passes superficially as far as the upper end of the Os Metac. Internum, and then runs deeper-seated, (comp. 2, Fig. 7, Tab. 33,); the last and largest branch of the Art. Radialis is

21, 21. Art. Volaris Sublimis, which runs down on the tendons of M. Flexor Digiti Sublimis, (v, v,) and M. Flex. Dig. Profundi, (w, w,) gives off twigs to

both, and to the skin, (a, a,) and anastom. on the sesamoid bones with

19 and 20. (comp. 6, Fig. 7, Tab. 30.)

22, 22. A portion of the Arcus Volaris Anterior, (1, Fig. 8, Tab. 30,) supplies the tendons of the M. Abductor Pollicis Longus, (u,) and from it arises

23. Art. Inteross. Dorsalis Interna. (3, Fig. 8, Tab. 30,) which runs down between the Os Metac. Medium, (x,) and Os Metac. Internum, (y;)

24, 24. Art. Digitales, (8, Fig. 7, Tab. 30.)

25. Art. Phal. Primæ Anterior (5, Fig. 8, ———.)

26. ——— Secundæ Anterior, (6, Fig. 8, ———.)

27. Art. Tororum Ungulæ Mollium, (7, Fig. 8, ———.)

28. Art. Phal. Tertiæ Anterior, (8, Fig. 8, ———.)

29, 29. Twigs of Art. Phal. Tertiæ Inferior, (11, Fig. 7, Tab. 30.)

30, 30. Cuticular Twigs.

FIG. III.

Arteries on the Superior Half of the Right Fore Limb, seen from the External Side.

1, 1. Art. Circumflexa Scapulæ, (6, Fig. 1,) ramifies in the M. Supraspinatus, (a, a,) and M. Infraspinatus, (b, b,) and gives off

2. Art. Nutritia Scapulæ;

3, 3. External Branch of the Art. Subscapularis, (4, Fig. 1,) is sent to the M. Infraspin. (b, b,), the M. Teres Minor, (d, d,) and the M. Subcutaneus humeri, (g.)

4, 4. Art. Circumflexa Humeri Posterior, (5, Fig. 1,) passes between the M. Adductor Brachii Brevis, (c,) and the M. Teres Minor, (d, d,) giving twigs to both; and to M. Anconæus Longus, (e,) and M. Anconæus Externus, (f). Between this muscle and the M. Biceps Brachii, (h, h,) passes out the Art. Circumfl. Hum. Anterior, (5,) and reaches as far as the Shoulder-joint.

6. Art. Brachii Profunda, passes between the M. Ancon. Externus, (f, f,) and the M. Brachialis Internus, (e, e,) outwards;

7, 7. Art. Ulnaris is the Last External Branch of the Art. Brachialis, passes between the Flexors of the Fore-arm, (h, e,) and M. Extensor Carpi Radialis, (k, k,) to which, as well as to the M. Extensor Digitor Longior, it sends twigs, and anastomoses with

8. Art. Interossea Externa, which is given off by the Art. Radialis, passes outwards between the Radius and Ulna, and terminates on the Fore-knee, (8, Fig. 4,) from it previously arises

9. Art. Inteross. Exter. Recurrens, which runs upwards on the M. Flexor Carpi Ulnaris Externus, (m, m,) and anastomoses with 6.

FIG. IV.

Arteries on the Lower Half of the Right Fore Limb, seen from the other side.

8, 8. Art. Interossea Externa, (8, Fig. 3,) ramifies on the M. Extensor Carpi Radialis, (k, k,) the M. Exten. Digitor. Longior. (l, l,) the M. Extens. Digit. Brevior, (n, n,) and M. Abductor Pollicis Longus, (o, o,) and then forms the Arcus Dorsalis Anterior, (1, Fig. 8, Tab. 30.)

9, 9. Art. Collater. Ulnar. Inferior, (12, Fig. 1,) passes over the M. Flexor Carpi Ulnar. Exter. (m, m,) downwards.

10. Art. Inteross. Dors. Externa, (2, Fig. 8, Tab. 30.)

11, 11. External Art. Digitalis, (8, Fig. 7, Tab. 30,) has a like course with the analogous artery on the inner side, (24, Fig. 2.)

PLATE XXXII. FIG. I.

The Ciliary Arteries of the Eye, of the natural size, seen from before and above.

The Cornea and Sclerotic Coat are laid open by crucial incisions, and reflected in four pieces, (a—a,) between which the Optic Nerve, (b,) passes out, and the Iris, (c,) with the Pupil, (d,) and the Flocculus Pigmenti Nigri in it, (e,) as well as the Choroid Coat, (f,) are thereby laid bare.

1—1. Art. Ciliares, (3, Fig. 1, Tab. 30,) are branches of the Art. Ophthalmica, which penetrate through the Sclerotic Coat, thence radiate, and anastomose with each other in a connected vascular network, which forms the basis of the Choroid Coat, (f, f.)

FIG. II.

Arteries of the Corpus Ciliare and the Iris of the Eye, of the natural size, seen from behind.

a. Pupilla,

b. Flocculi Pigmenti Nigri, are processes of the Black Pigment of the Eye.

c, c. A small portion of the Choroid Coat, (f, f,) which forms

d, d. Corpus Ciliare, upon the eminences of which the Ciliary Arteries ramify, and which also give off

e, e. Arteriæ Iridis, which run in convolutions as far as the Pupil.

FIG. III.

Arteries of the Retina of the eye, of the size of nature, seen from before.

The eye is laid open, as in Fig. 1, consequently, the pieces of the Cornea and Sclerotic Coat, (a—a,) the Iris and Corpus Ciliare are separated;

b. Nervus Opticus.
c. Tunica Choroides.
d. Entrance of the Optic Nerve, which spreads itself out as
e. Tunica Retina, and upon which
1. The twigs of the Art. Centralis Retinæ, ramify as very small vessels; (the artery itself, s. 5, Fig. 4, Tab. 29.)

FIG. IV.

Ciliary Nerves of the Eye, of the natural size, seen from before and above.

They have the same relations, as the ciliary arteries, (Fig. 1.)

FIG. V.

Arteries of the Iris and Pupillary Membrane in the Eye of the Fœtus, of the natural size, and seen from before.

a, a. Corpus Ciliare, (d, Fig. 2.)
b, b. A portion of the Choroid Coat.
1. Arteries of the Iris, (e, Fig. 2,) give off also
2. Art. Membranæ Pupillaris, which disappear with the Membrane before foaling; they are only present after birth in the Carnivoræ.

FIG. VI.

Continuation of the Central Artery of the Retina, into the Vitreous Humour, and Chrystalline Lens of the Fœtal Eye, of the natural size.

1. Art. Centralis, passes through the Vitreous Humour, (a,) and becomes divided into
2. Rami Capsulæ Lentis Crystallinæ, which spread themselves out on the Posterior Capsule of the Lens, (b.)

FIG. VII.

Arteries of the Tympanum, in the Left Ear of a six months' old Fœtus, twice magnified.

The Petrous portion is separated from the Tympanum, and laid on one side, so that the Inter. and External Wall of the cavity of the Tympanum is visible.

a. Concha of the Ear.

b. Cellulæ Tympanicæ.

c. Annulus Membranæ Tympani, on which a small artery takes its course, which gives off twigs to the cells, (b,) it is a branch of the Art. Tympanica, (20, Fig. 20, Tab. 28.)

d. Membrana Tympani, between the folds of which

e. Manubrium Mallei is fixed, on which two small twigs run downwards, which ramify on the Membrana Tympani.

e, e. Caput Mallei, is connected with

f. Corpus Incudis, by means of a Capsular Ligament, and this is connected with the Stapes, by

a, f. The Long, or Curved Process, to which the Os Orbiculare, s. Lenticulus, is attached; by means of

b, f. The Short, or Straight Process, the Incus is connected with the External Wall of the Tympanum.

g. Capitulum Stapedis, the base of which is fixed in the Fenestra Ovalis; before it lies

h. Promontorium, which is concealed by minute arterial twigs.

The Fenestra Rotunda, which lies between the letters, h, and k, is not marked.

i, i. M. Tensor Tympani, is divided transversely; it arises from the Internal Paries of the cavity of the Tympanum, and is inserted into a small process on the Manubrium Mallei, it draws the Membr. Tympani inwards, and renders it tense;

k. Musc, Stapedius, has its origin at the Posterior end of the Tympanum, and is ins. into the Stapes, which it moves in the Fenestra Ovalis.

FIG. VIII.

Cochlea from the Left Ear of a six months' old Fœtus, twice magnified.

1. Modiolus s. Columella, around which
2, 2. Lamina Spiralis, makes two turns and a half, from left to right, and terminates with
3. The Hamulus. By means of the Lamina Spiralis, are formed two passages or staircases, namely:
4, 4. Scala Posterior s. Scala Tympani, which leads to the Fenestra Rotunda, and
5, 5. Scala Anterior s. Scala Vestibuli, which leads to the Vestibule; in both, the small arteries of the Cochlea ramify; these arise from the Art. Auditoria Interna, (13, Fig. 2, Tab. 29.)
6, 6. The Processes of the Cupola, (which is here removed,) which join on to the Modiolus.

FIG. IX.

Vestibule and Semicircular Canals, from the Left Ear of the same Fœtus, magnified twice.

1. Canalis Semicircularis Superior
2. ———————— Inferior, of which
3. The common opening, leads to
4. Vestibulum, in which, along with
5. Nervus Auditorius, the Art. Audit. Interna, (13, Fig. 2, Tab. 29,) takes its course, and ramifies in the Semicirc. Canals, and the Cochlea. (The Canal Semicirc. Externus, is here not visible.)

FIG. X.

Arteries of the Incisory Teeth, and of the Canine Tooth in the Ramus of the Left Inferior Maxilla, seen from below. The roots, or fangs of the teeth are laid bare, and their cavities in part opened, in order to see the small entering arterial twigs which arise from the Art. Alveolaris Inferior, (e, Fig. 11.)

FIG. XI.

Arteries of the Molar Teeth, in the Ramus of the Right Lower Jaw, of half the natural size, and shown from the Inner Side.

a, a. The crowns of the Molar Teeth, which project over

b, b. Gingiva, or the gum;
c—c. Small bony fragments of the Inner Table of the Lower Jaw, which are attached to the laid-bare crowns,
d. Canal of the Lower Jaw, opened, in order to see
e, e. Art. Alveolaris Inferior, (20, Fig. 1, Tab. 28,) of which twigs penetrate to the roots of the Molar Teeth, (Fig. 12,) to the Osseous Substance of the Inferior Maxilla, to the Membrane of the Medulla, and to the Gums, (b;) and which runs with a branch in the body of the Lower Jaw, (Fig. 10,) passes, however, out of the Foramen Mentale with the other branch, and anastomoses with the Art. Coronaria Labii Inferioris, (14, Fig. 1, Tab. 27.)

FIG. XII.

Arteries of a Molar Tooth, of the size of nature.

a. Corona Dentis.
b, b. Radices Dentis.
c. Cavity of the Radices, in which
d. The small vessels spread themselves.

FIG. XIII.

Arteries of the Teeth, in the Ramus of the Left Lower Jaw of a Fœtus of the full period, of the natural size, and seen from the Left Side.

a, a. Three Molar Teeth, still inclosed in the Membrana Dentis Externa, upon which several vessels are spread; this external membrane passes also into cavities of the Teeth, and forms the Membrana Dentis Interna, which is shown in Fig. 14. Of the Incisory Teeth, are formed
b. Dens Incisorius Internus, and
c. ———————— Medius, which are still entirely included in the Membrana Dentis Externa;
d, d. Vessels in the canal of the Inferior Maxilla.

FIG. XIV.

A portion of a Molar Tooth of the Fœtus of the full period, on which the Membrana Dentis Interna, with its numerous arteries, is shown.

PLATE XXXIII. FIG. I.

Medulla Spinalis, with its Nerves and Arteries, of the natural size, shown from below.

The Dura Mater Medullæ Spinalis, is opened longitudinally.

a. Medulla Spinalis is the continuation of the Med. Oblongata, and is inclosed by

b—b. Dura Mater Med. Spin. Its Internal Surface is lined by a fold of the Pia Mater, which passes by means of

c—c. Ligamentum Denticulatum into the fold, which covers the Med. Spinalis.

The Posterior portion of the Med. Spin. is called

d, d. Cauda Equina.

e. Nervus Accessorius Willisii, arises in the region of the Sixth Cervical Nerve, runs forwards on the Med. Spin. and passes into the cavity of the Cranium, from whence it passes out with the Ninth and Tenth Cerebral Nerves, through the Foramen Lacerum.

f—f. The Inferior Roots of the nerves of the Med. Spin. join with the Superior Roots, and form simple knots, from which each nerve proceeds with two branches.

g. Art. Spinalis Inferior, (16, Fig. 2, Tab. 29,) runs in the Median Line backwards, and joins with

h—h. Twigs of the Cervical, Intercostal, Lumbar, and Sacral Arteries, (rami Spinales,) which run to the nerves in the different regions through the Foramina Intervertebralia.

1 to 8. Eight Pair of Nervi Cervicales, of which, the First Pair passes out through the Anterior Internal Foramina of the Atlas; the Last, between the Seventh Cervical, and First Dorsal Vertebra.

9 to 26. Eighteen Nervi Dorsales s. Thoracici, the First Pair runs between the First and Second Dorsal Vertebræ, the Eighteenth, through the Foram. Intervertebr. between the Last Dorsal, and First Lumbar, Vertebra, out of the Spinal Canal.

27 to 32. Six Nervi Lumbales; the Last Pair passes between the Sixth Lumbar Vertebra, and the First False Vert. of the Os Sacrum.

33—37. Five Nervi Sacrales, pass through the Inferior and Superior Foramina of the Os Sacrum, with its branches.

38—42. Five Nervi Coccygei pass out of the Vert. Canal between the Six Anterior Coccygeal Vertebræ.

FIG. II.

Representation of the Internal Mammary Arteries, and Posterior Epigastric Arteries, one third less than the natural size, from above.

The Sternum, with the Cartilages of all the Ribs, and the Abdom. Muscles is preserved in connection.

a. Art. Mammaria Interna, (19, Fig. 2, Tab. 27,) passes backwards on the Lateral Margin of the Sternum, (1, 1,) gives off twigs to the M. Sternalis, and

b—b, Rami Intercostales, which anastomose with the descending Arteria Intercostalis, (Tab. 34, Fig. 1,) then is divided into

c. Ramus Musculo-phrenicus, which passes backwards between the fleshy portion of the Diaphragm, (2, 2, 2,) and the M. Abdominis Transversus, (3, 3,) which is separated, and of which the tendon, (4, 4,) in the Linea Alba, (5, 5,) becomes connected with the other Abdominal Muscles, ramifies in both, and gives off the Ramus Intercost. Posterior, (b.)

The Second Branch of the Art. Mammaria Interna, is

d. Ramus Epigastricus, which passes between the Cartilago Ligonis, and Costal Cartilages, runs on to the M. Abdom. Rectus, (b, b,) and forms an

e. Anastomosis with

f. Art. Epigastrica Posterior, s. Inferior Hom.; this arises from the Art. Cruralis (comp. 21, Fig. 2, Tab. 34.)

PLATE XXXIV. FIG. I.

Several Intercostal Arteries of the Left Side, seen from the Inner Side. Each Intercostal Artery runs downwards along the Vertebral Column, (a,) to the Posterior Margin of the Rib, (b, b,) and lies superiorly at

1. More deeply-seated, being covered by the Intercostal Muscles, (c;) at

2, 2. They are laid bare, and at

3, 3. They are only covered by the membrane of the Thorax, and pass under the fleshy portion of the Diaphragm, (d, d,) and under the Musc. Abdom. Transversus, (e, e,) over the Costal Cartilages, (f,) into the Rami Intercost. Art. Mammariæ Internæ, (6, Fig. 2, Tab. 33.)

FIG. II.

Arteries in the cavity of the Abdomen and Pelvis, seen from below.

All the organs except the Kidneys have been removed out of the Abdom. Cavity, and the Peritoneum has been separated.

1, 1. Art. Aorta Abdominalis, passes out between the Crura of the Diaphragm, (a,) passes on the left side of the Vertebral Column backwards, and divides in the neighbourhood of the Pelvis.

2. Art. Renalis Dextra, runs to the Right Kidney, (b,) and sends an

3. Art. Suprarenalis, to the Right Suprarenal Capsule, (c,) which is here somewhat turned to one side.

4. Art. Renalis Sinistra, is sent to the Left Kidney, (d,) and Suprarenal Capsule, (e.) From the Inferior Paries of the Aorta arise

5. Art. Cæliaca, which (here separated,) is sent to the Stomach, Liver, Pancreas, and Intestinum Duodenum, (comp. Tab. 35.)

6. Art. Mesenterica Anterior s. Superior Hom. is also divided; it carries the blood to the Intestines, (comp. Tab. 36, Fig. 1.)

8, 8. Art. Spermaticæ Internæ, which run to the Testes in male, to the Ovaria in female, animals, (comp. Tab. 37, Fig. 2 and 3.)

9. Art. Mesenterica Posterior s. Inferior Hom. supplies the Intest. Rectum, (13, Fig. 1, Tab. 36.)

From the Superior Paries of the Aorta, arise:

7, 7. Art. Lumbales, which pass over the Psoas Muscle, (g,) outwards, and send twigs partly to the back, partly to the Abdominal Muscles.

10—10. Art. Crurales are the last arteries but one of the Aorta, carry the blood to the hind limbs, (comp. Tab. 39, Fig. 1 and 2,) and gives off the following arteries in the Pelvis.

11, 11. Art. Circumflexa Ilii, passes under the Psoæ Muscles, (g and f,) and M. Iliacus Internus outwards, and divides into

12. Ramus Anterior, which runs to the Abdom. Muscles, and into

13. Ramus Posterior, which passes over the M. Obliq. Abdom. Internus

h, h. Out of the Pelvis, to the M. Tensor Fasciæ Latæ.

From the Art. Cruralis is also given off Art. Spermatica Externa, (6, Fig, 1, Tab. 39,) and the Art. Epigastrica, (20.)

14, 14. Art. Hypogastricæ are the last branches of the Posterior Aorta, and each gives off the following arteries:

15, 15. Art. Pudenda Interna.

16, 16. Art. Sacralis Lateralis.

17, 17. Art. Ilio-lumbalis, which runs over the Psoas Parvus and Magnus, outwards.

17 b, 17 b. Art. Glutæa Anterior s. Iliaca Superior.

18, 18. Art. Circumflexa Femoris Externa, and

19, 19. Art. Obturatoria. At Poupart's Ligament the Art. Cruralis gives off also

20. Art. Epigastrica, which divides into

21. Art. Epigast. Posterior, which runs along the M. Rectus Abdom. forwards, (comp. Fig. 2, Tab. 33,) and into

22. Art. Pudenda Externa; this latter runs in female animals to the Dug, or Udder, (i;) in Males, to the Penis, and Prepuce, (9, Fig. 1, Tab. 39.)

23, 23. Art. Coccygea Hom. or Middle Art. of the Tail, is without a fellow, and arises either from the Left or Right Art. Sacralis Lateralis.

24, 24. Art. Caudæ Laterales, arise each from their Art. Sacr. Lateralis.

PLATE XXXV. FIG. I.

The Cæliac Artery, with its branches, of half the size of nature, and shown from above.

1. Art. Cæliaca has a very short trunk, and divides above the left extremity of the Stomach into three branches, namely, the Left Coronary of the Stomach, the Hepatic, and the Splenic Artery.
2. Art. Coronaria Ventriculi Sinistra, ramifies on the Inferior or Anterior Wall of the Stomach, (1, 1, Fig. 2.) From the Hepatic Art., sometimes also from the Left Coronary Artery, arises

3—3. Art. Coron. Ventric. Dextra, which ramifies on the Superior or Posterior Wall of the Stomach, (c, c,) passing between the Muscular and Mucous Coat, (d;) it also sends arteries to the Right Lobes of the Glandula Pancreas, (h,) beneath which it runs to the Right. From the Left Coron. Art. arises also

4. Ramus Esophageus, which passes along the Esophagus into the cavity of the Thorax, and anastomoses with the Ramus Esoph. of the Posterior Aorta, (comp. 28, Fig. 2, Tab. 27.)

5, 5. Art. Hepatica, sends twigs to the Left Lobes of the Pancreas, and passes to the Liver, (a,) 8, Fig. 2.

6, 6. Art. Splenica s. Lienalis, passes on the Large Curvature of the Stomach, to the Spleen, (e, e,) runs in the hilus of this organ to the right, sends several twigs to the spleen, Omentum Majus, (f, f,) the course of which is shown in Tab. 38, Fig. 2, and gives off also

7, 7. Art. Ventriculi Breves, which form

8. Anastomoses with the Coronary Art. of the Stomach. The continuation of the Splenic Artery is

9. Art. Gastro-epiploica Sinistra, which runs along the Large Curvature of the Stomach to the right, and anastomoses with

10. Art. Gastro-epiploica Dextra, (7, Fig. 2.)