porcine myology

BY R.G. KAUFFMAN & L.E. ST. CLAIR

PORCINE MYOLOGY

AUTHORS

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INTRODUCTION TO THE STUDY

Research and teaching in biological sciences include an understanding of the nutritive, pathological, and carcass characteristics associated with the production of domesticated animals. Efficient experimentation and instruction in these disciplines require fundamental information about muscles. This publication describes locations, attachments, and general actions of muscles, and presents data on lipid composition and relative nitrogen mass of individual muscles and closely associated groups of muscles in the pig. The design follows that of Bulletin 698, "Ovine Myology," published in 1963 by the University of Illinois College of Agriculture Agricultural Experiment Station.

DEFINITIONS OF ANATOMICAL TERMINOLOGY

Abduction — movement of the part away from the midline.

Adduction — movement of the part toward the midline.

Aponeurosis — a heavy fascial sheet.

Caudal — toward the tail.

Cranial — toward the head.

Deep (profundus) — away from the surface.

Distal — usually applied to the limbs, toward the more movable portion.

Dorsal — toward the back or top line of the body.

Extension — straightening of the limbs and vertebral column.

Fascia — a sheet of connective tissue.

Flexion — bending of the limbs at the joints, and bending of the vertebral column.

Lateral — away from the median plane.

Linea alba — white line in ventral midline of the abdomen made by the coming together of the aponeuroses.

Medial — toward the median plane.

Plane, frontal (dorsal) — one which divides the body into dorsal and ventral portions perpendicular to the median and transverse planes.

Plane, median — one that divides the body in the midline vertically and longitudinally.

Plane, sagittal (paramedian) — one that is parallel to the median plane but lateral to it.

Plane, transverse — one that is perpendicular to the median plane, dividing the body into segments vertically.

Pronation — the turning downward of the palm or sole of the forefoot.

Proximal — usually applied to the limbs, toward the attached or less movable portion.

Rotation — pivoting on the long axis.

Superficial (superficialis) — toward the surface.

Supination — the turning upward of the palm or sole of the forefoot.

Ventral — away from the back or top line of the body.

LATERAL VIEWS AT VARIOUS DEPTHS

Five lateral views of the porcine musculature are presented in Figures 1 through 5. In Figure 1 the subcutaneous fat and some fascia have been removed from the right side of a 64 kg. carcass to expose the superficial muscles. In the other views, superficial muscles and intermuscular fat have been removed to expose deeper muscles. In each, muscles that have been removed are listed numerically.

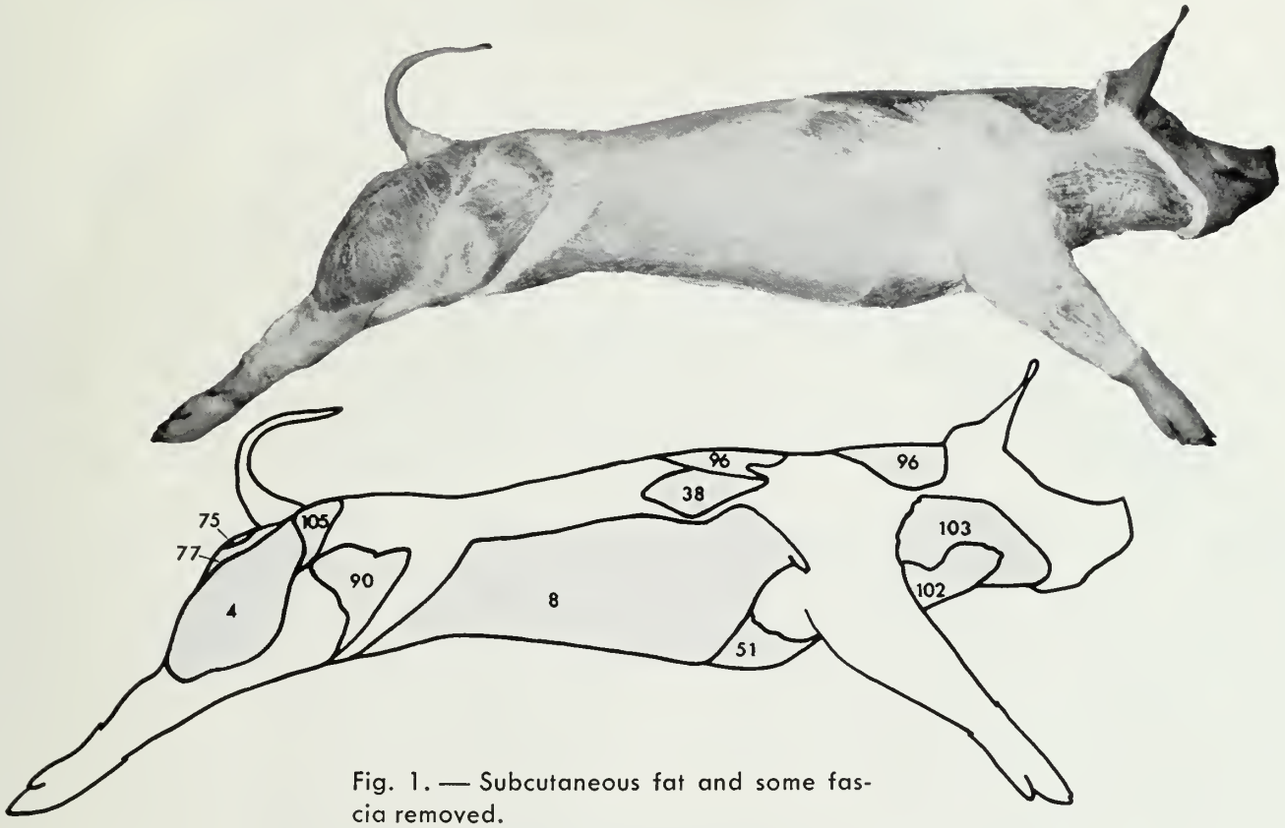


Fig. 1. — Subcutaneous fat and some fascia removed.

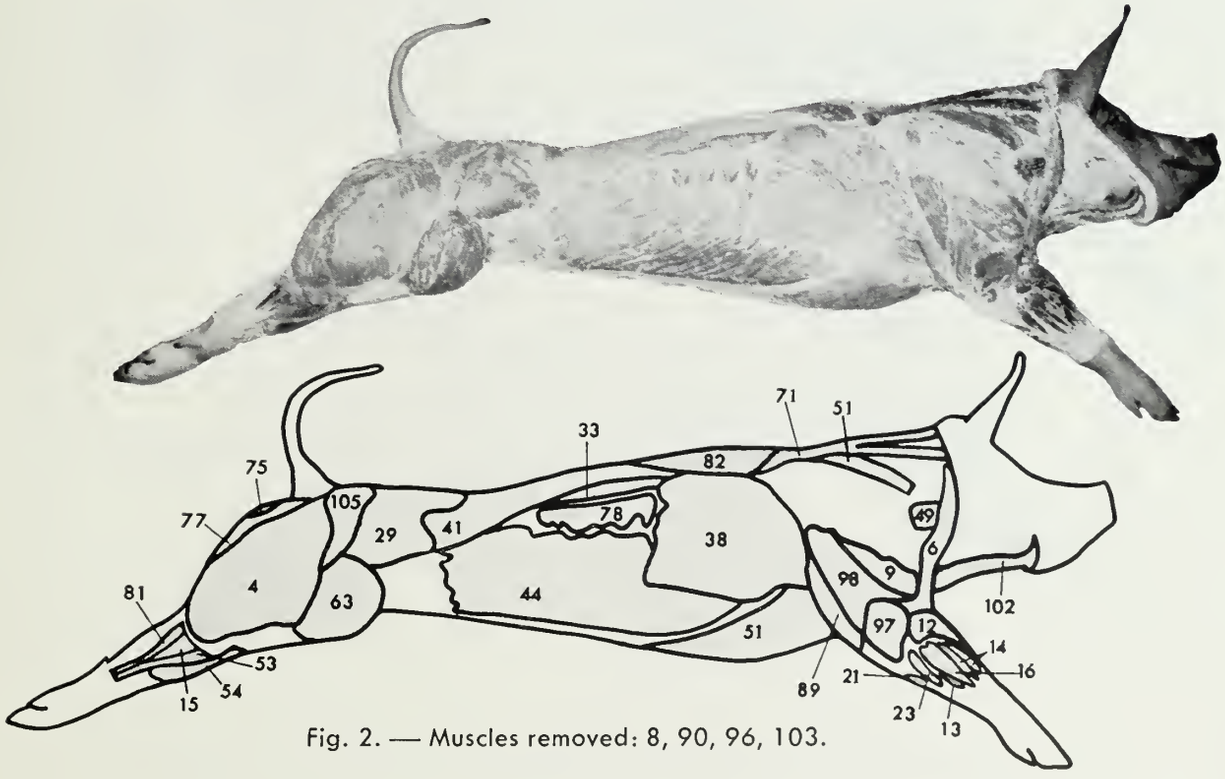


Fig. 2. — Muscles removed: 8, 90, 96, 103.

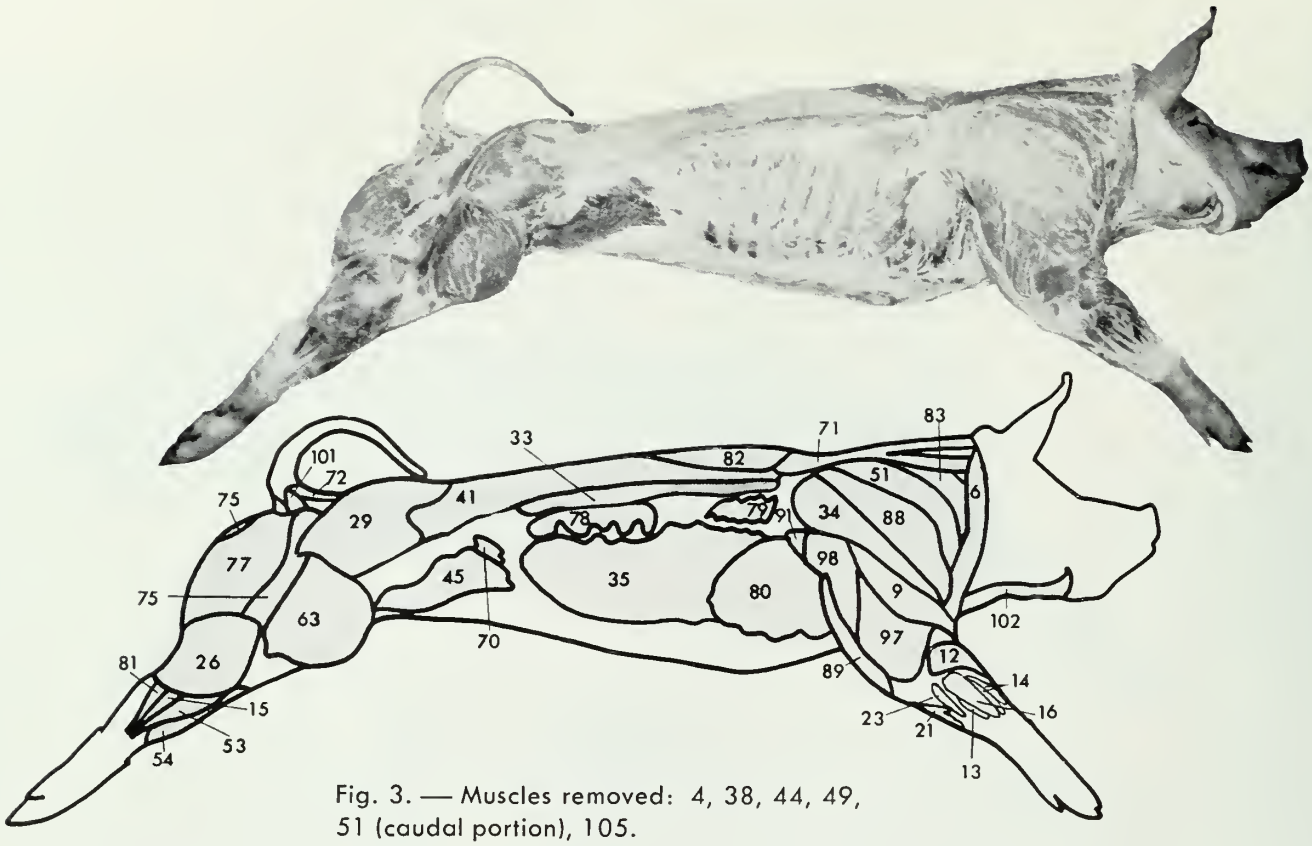


Fig. 3. — Muscles removed: 4, 38, 44, 49, 51 (caudal portion), 105.

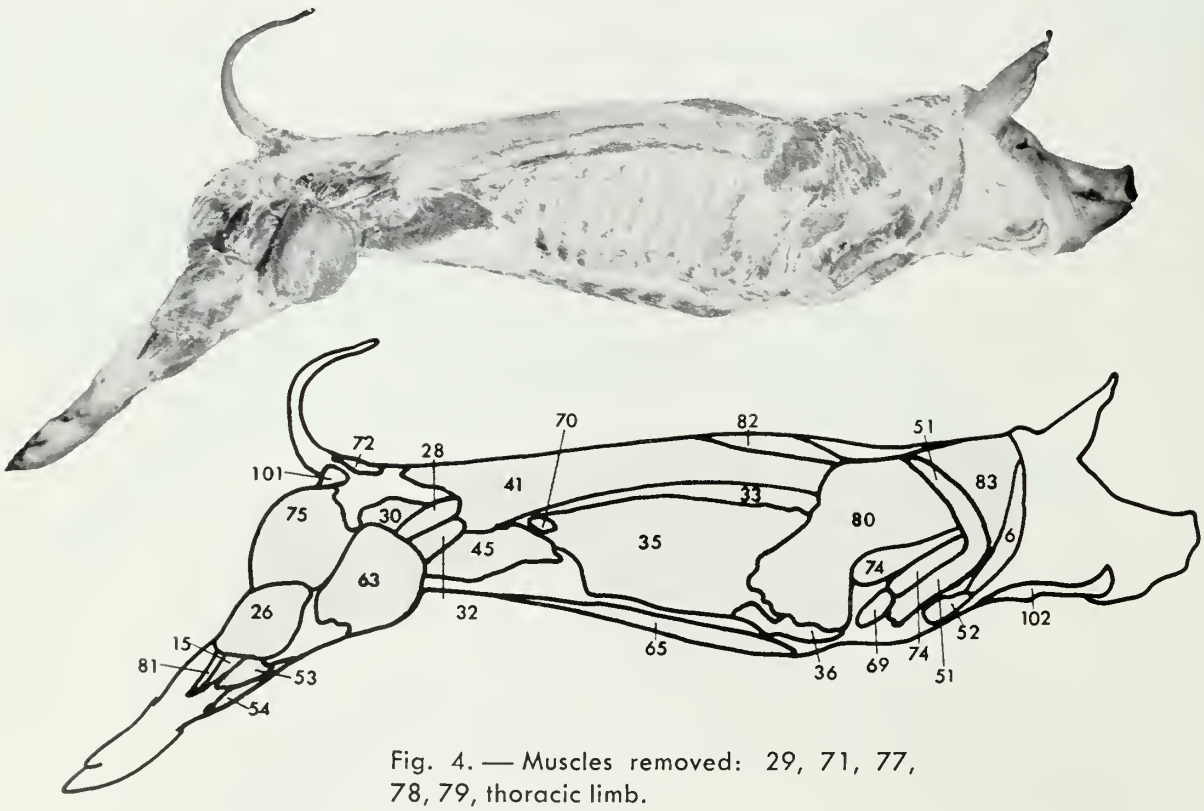


Fig. 4. — Muscles removed: 29, 71, 77, 78, 79, thoracic limb.

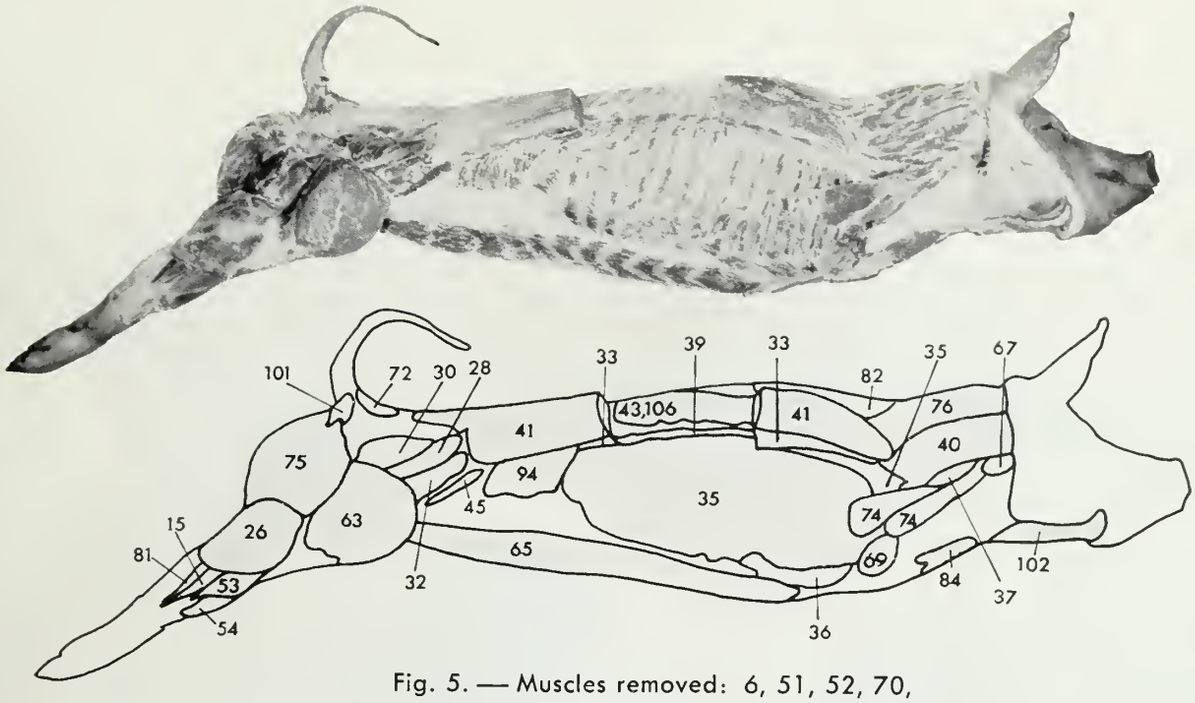


Fig. 5. — Muscles removed: 6, 51, 52, 70, 80, 83, portions of 33, 41, 45.

CROSS-SECTIONAL VIEWS

The drawing in Figure 6 identifies the portions of a pig skeleton that are included in the cross-sections shown on the following pages. Figure 7 shows the location of each of the cross-sections. The lower portions of the pelvic and thoracic limbs were removed at the tibiotarsal and radiocarpal joints, and the head was removed just cranial to the atlanto-occipital joint. A 64 kg. carcass was frozen and then separated into right and left sides. The right side was cut into cross-sections 2.5 cm. in thickness to show the longitudinal progression of muscles and their relationship to the skeleton and to fat deposits. Since all of the cross-sections could not be removed from one side, the left side was used for sections TT to JJJ, and the photographs were reversed.

The photographs of the cross-sections are 57 percent of the original size of the sections, and are in relative proportion to each other. The diagrams that accompany each of the photographs serve only to identify the items in the photographs. They are not necessarily in exact proportion to each other, but slightly smaller than the photographs. In the diagrams, individual muscles are shown in gray, bones are shown in black, and miscellaneous components are shown with diagonal lines. The white areas represent fat. Each diagram's position is identified anatomically by terms appearing to the right and below the diagram.

On the fold-out section of the back cover is a guide to the diagrams and tables in which each muscle, bone, and miscellaneous component appears, and the identifying key and section location for each.

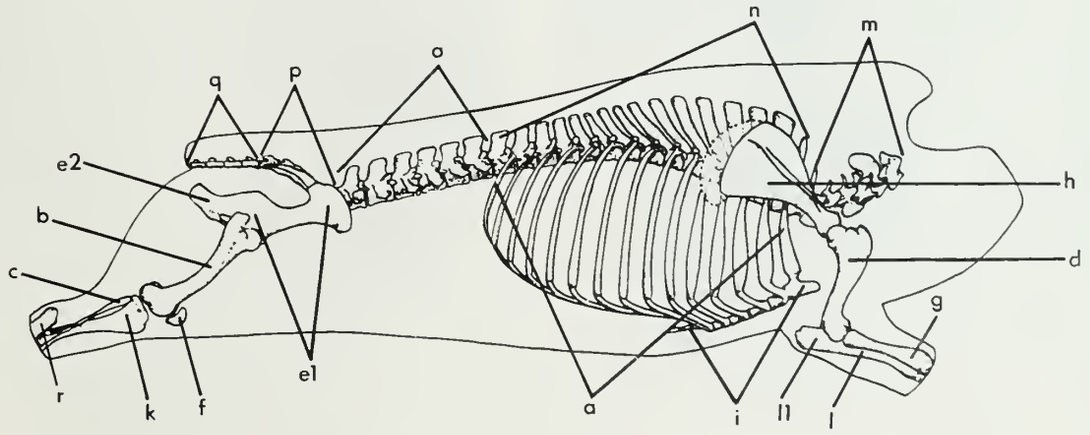


Fig. 6. — Portions of pig skeleton included in cross-sections. Number of costae and thoracic vertebrae varies from 14 to 17, and lumbar vertebrae from 6 to 7.

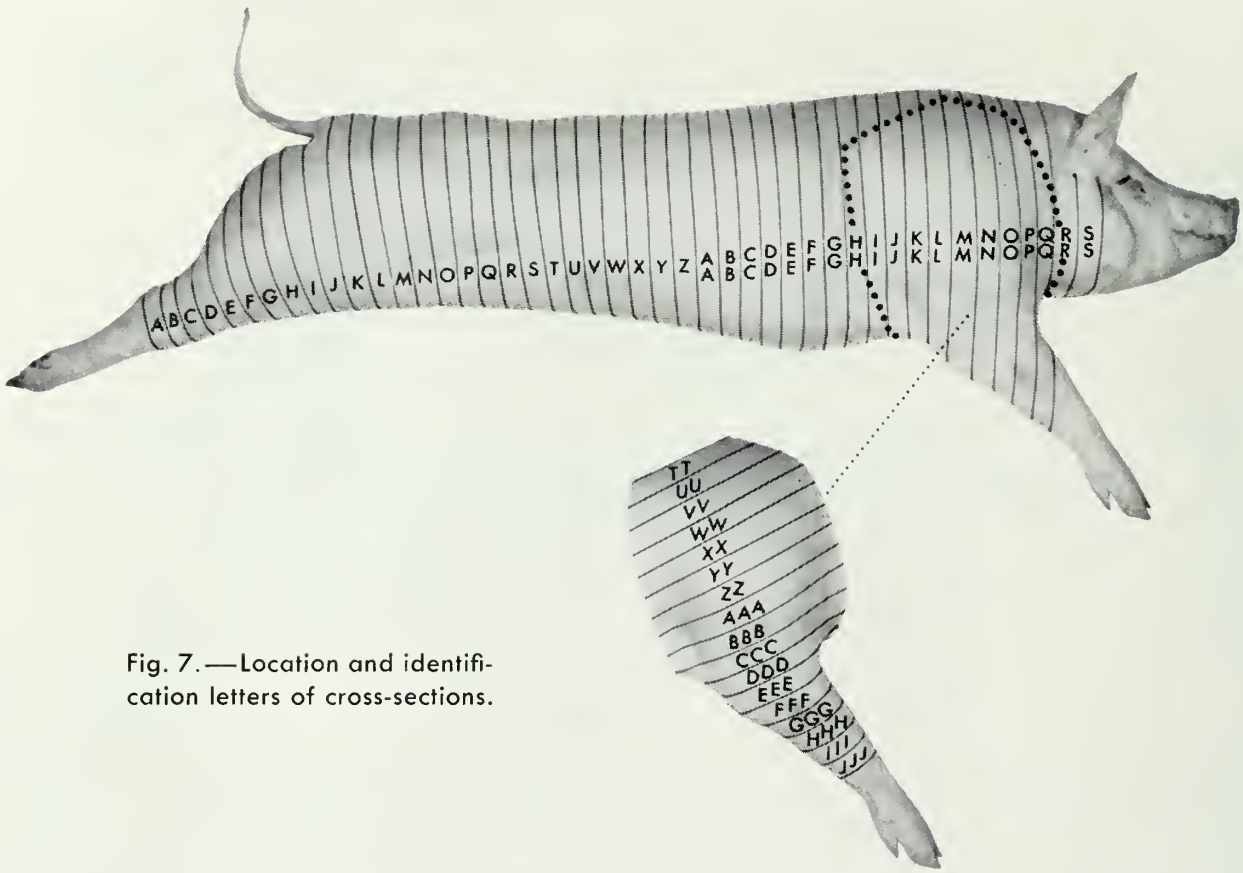
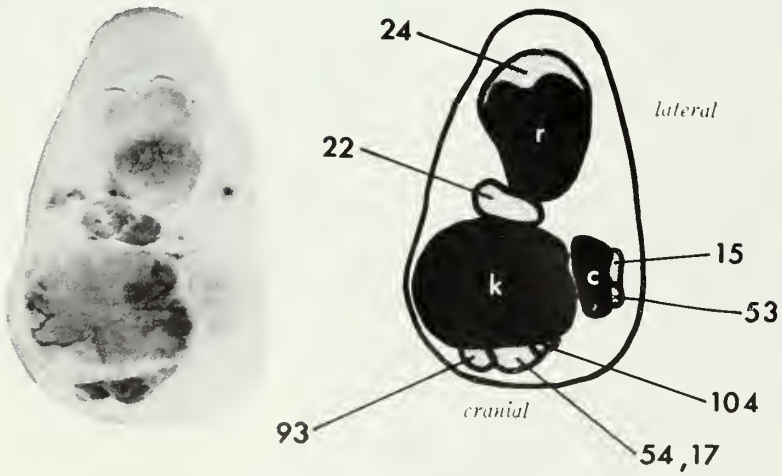


Fig. 7.—Location and identification letters of cross-sections.

CROSS-SECTIONS

Sections A through SS are transverse to the longitudinal axis of the carcass and extend from the distal extremities of the fibula (c) and tibia (k) to the caudal extremities of the skull (s). The caudal view of each section is shown.

Section A



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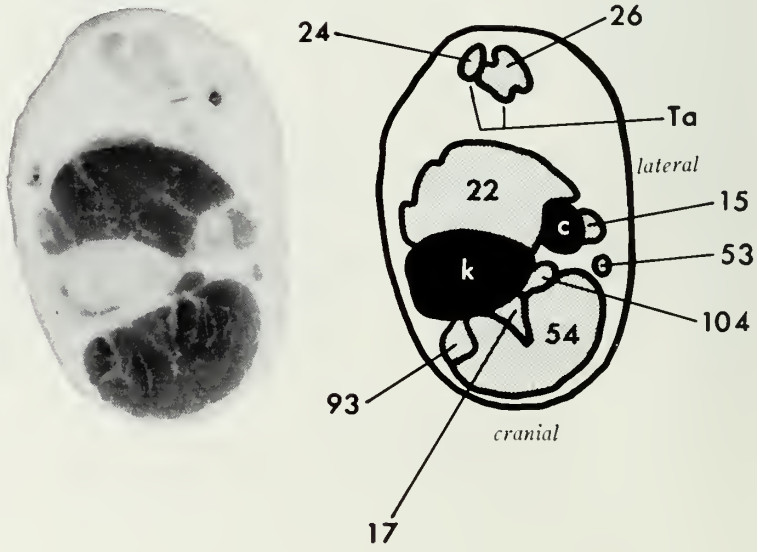

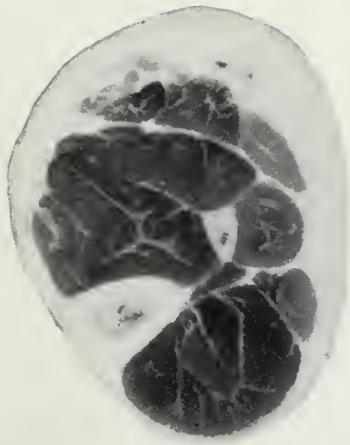

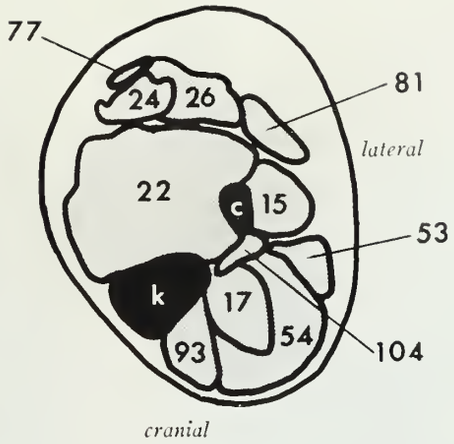

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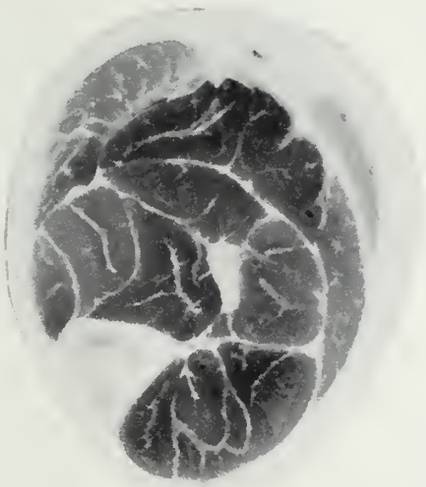
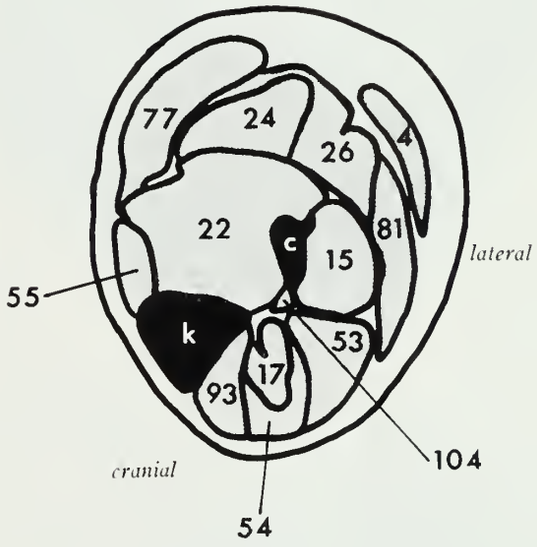
Section D





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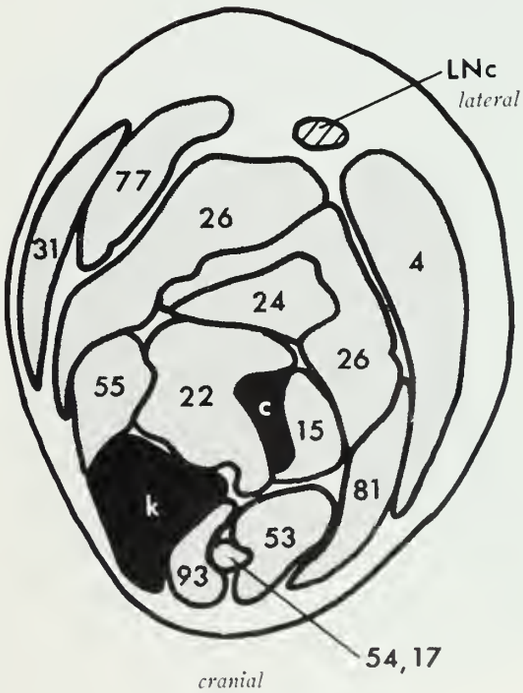

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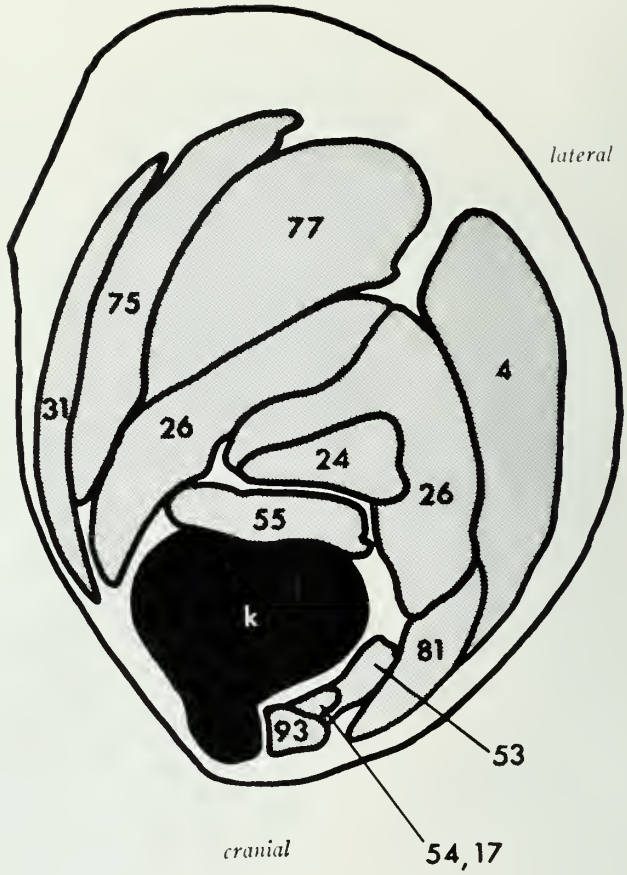

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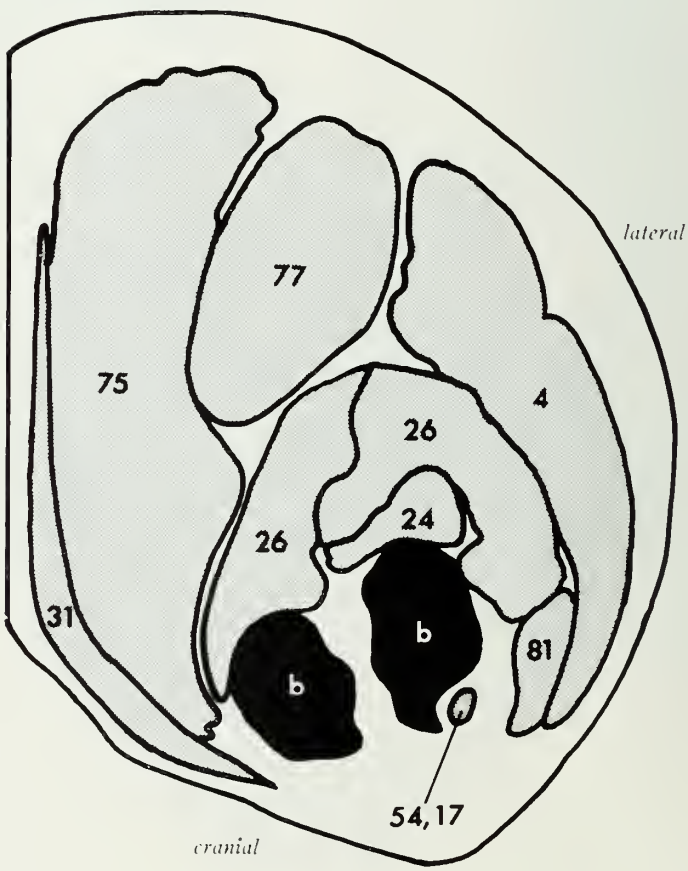

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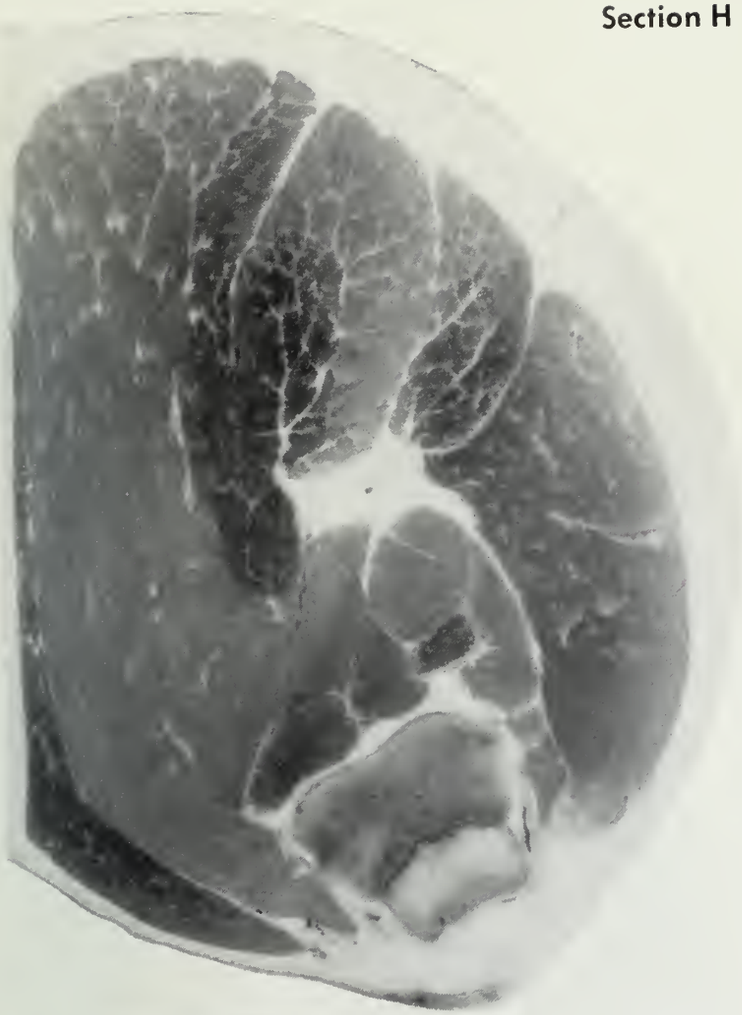

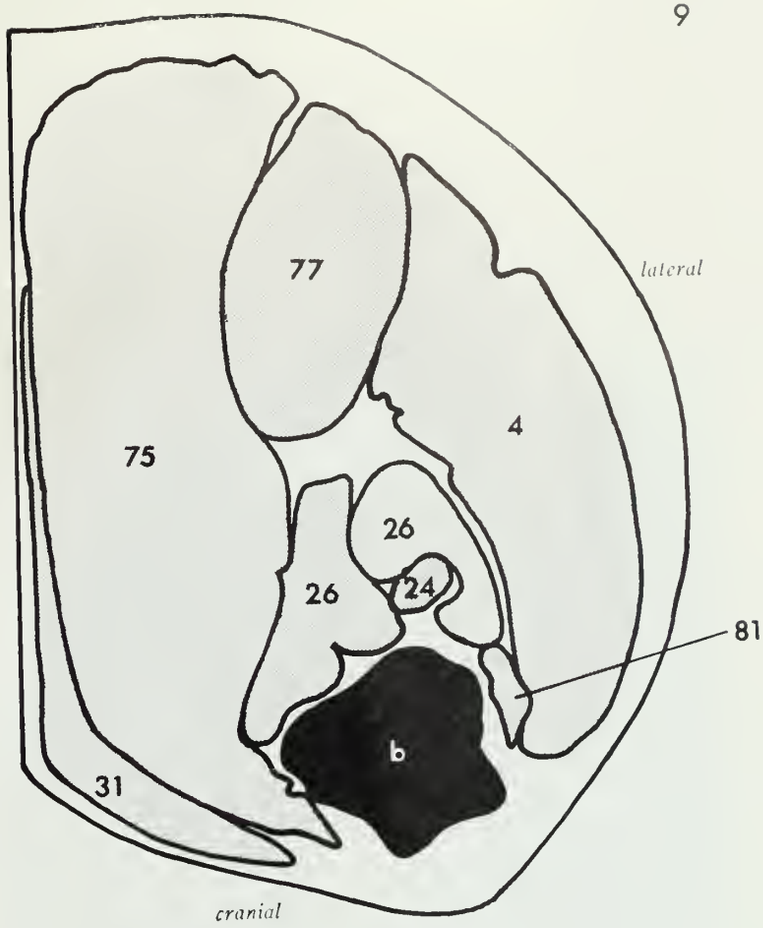

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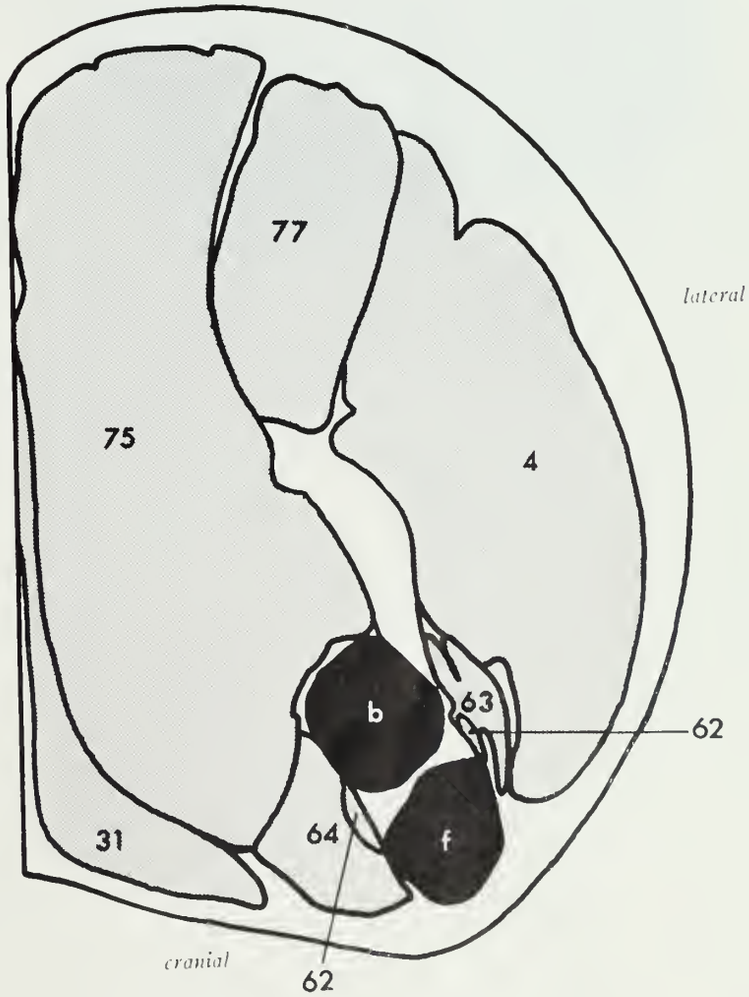

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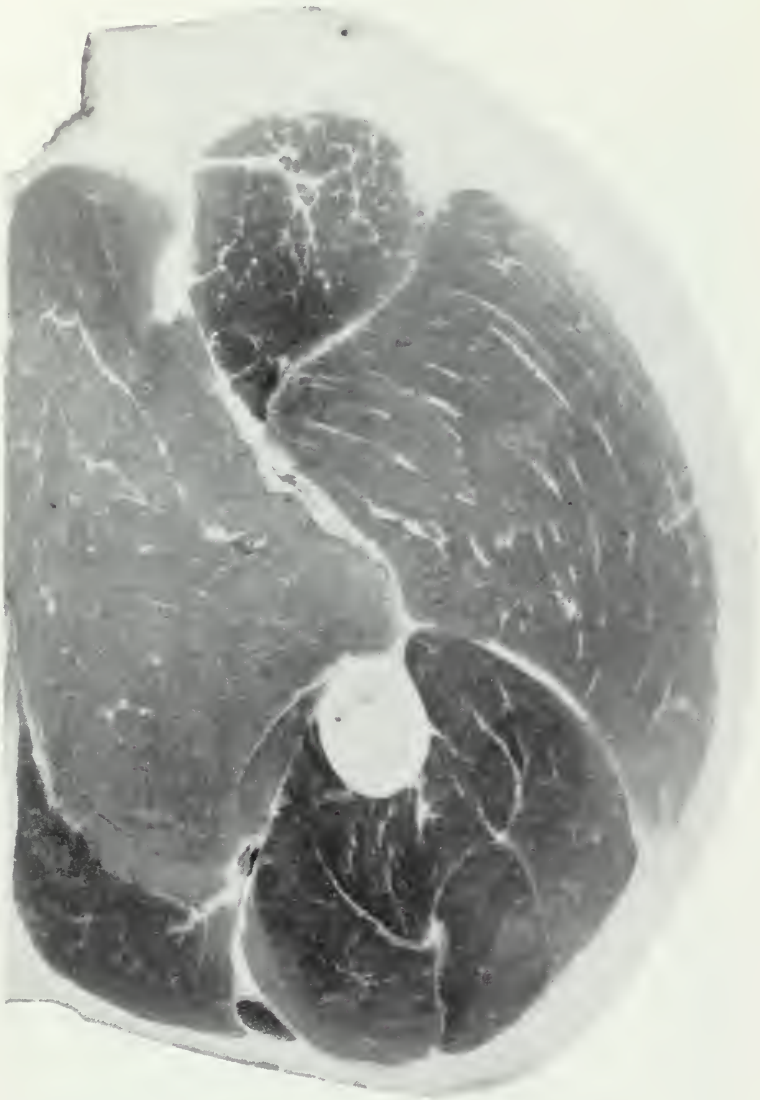

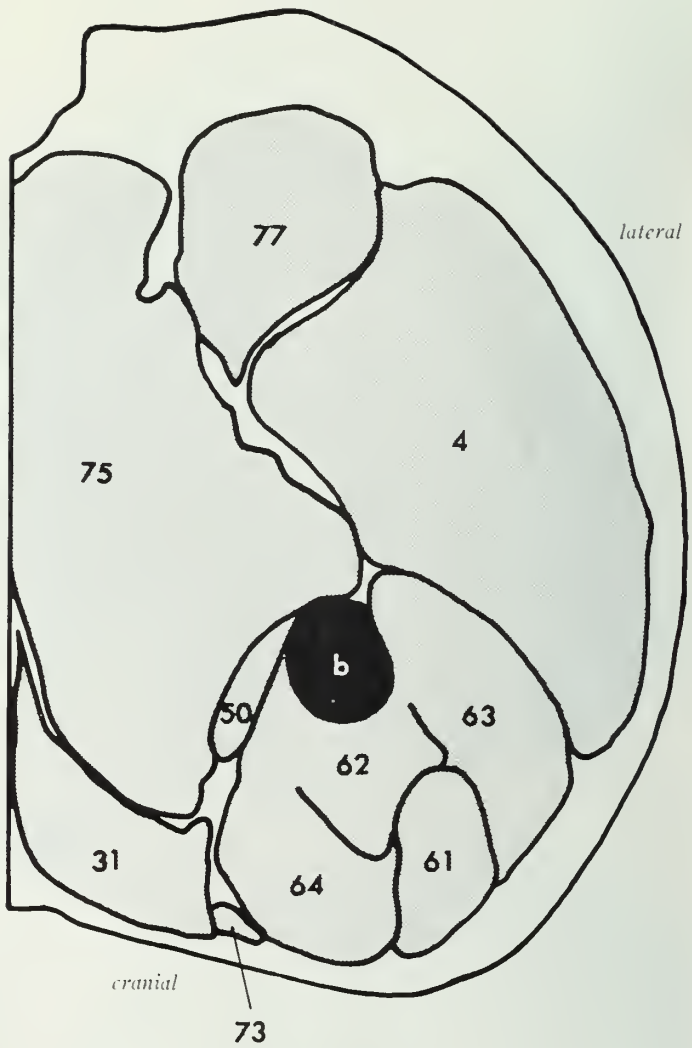

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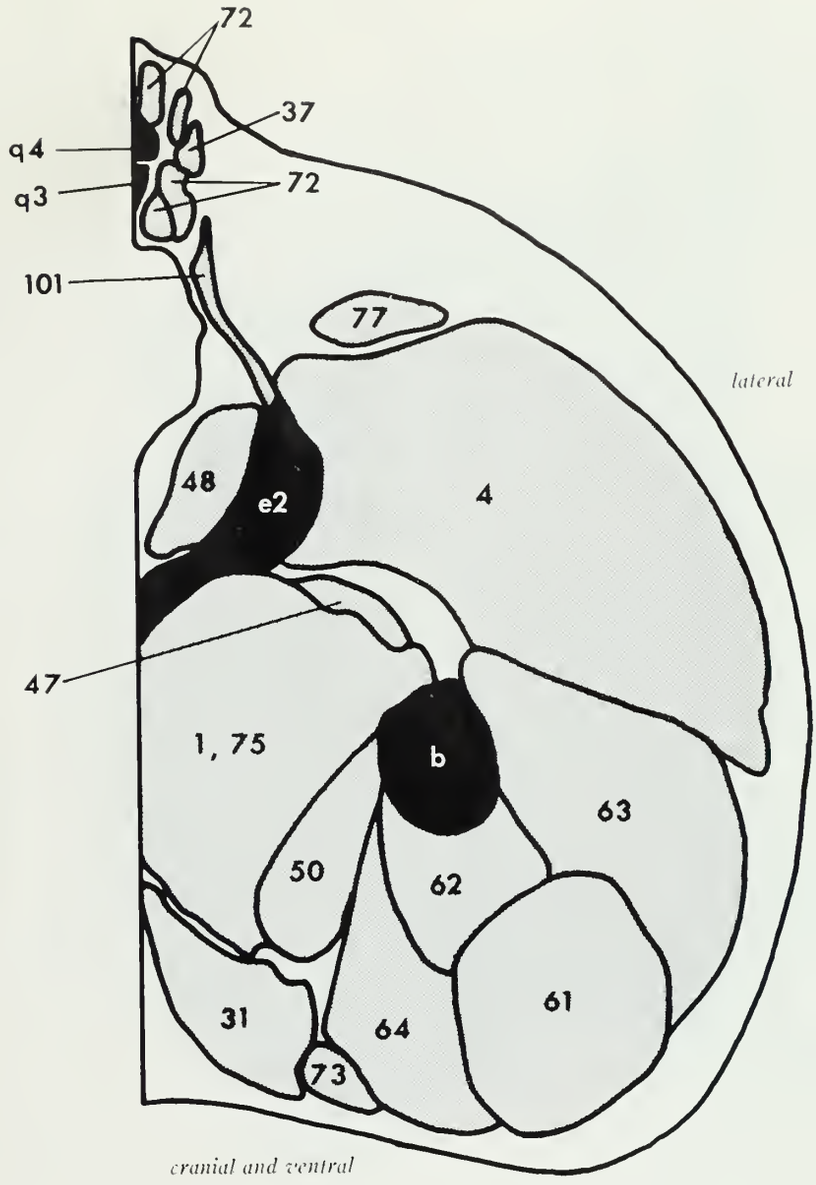
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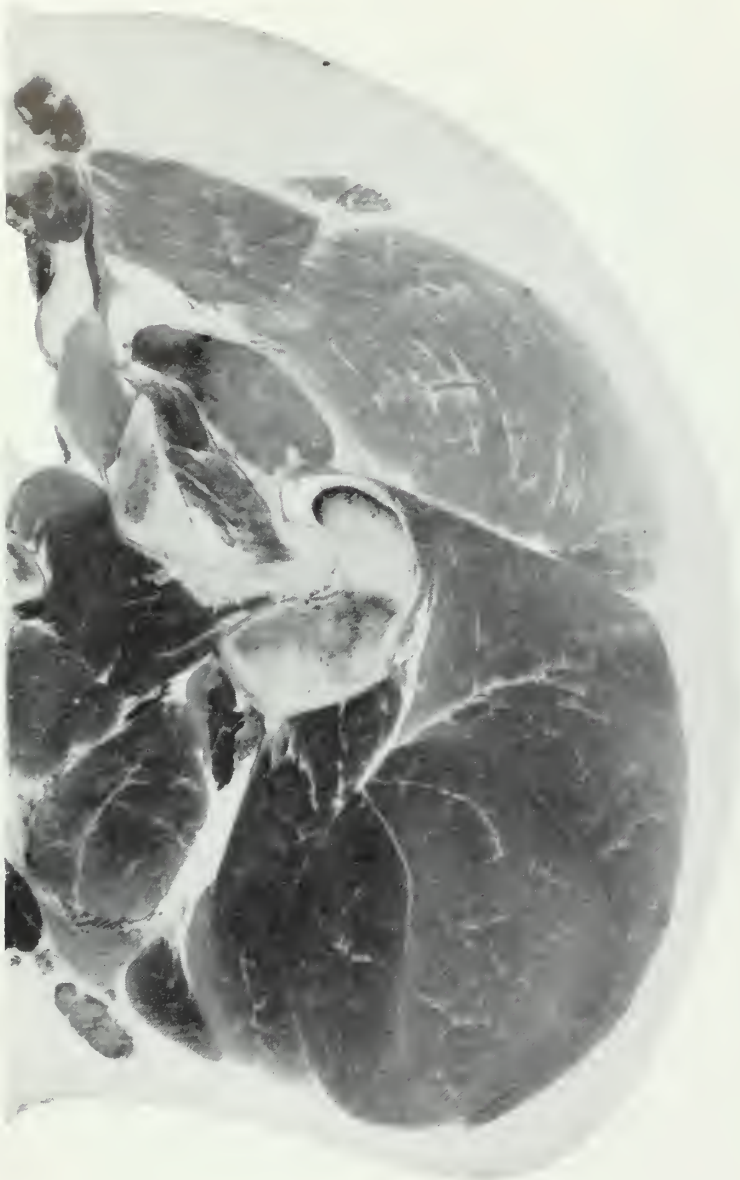

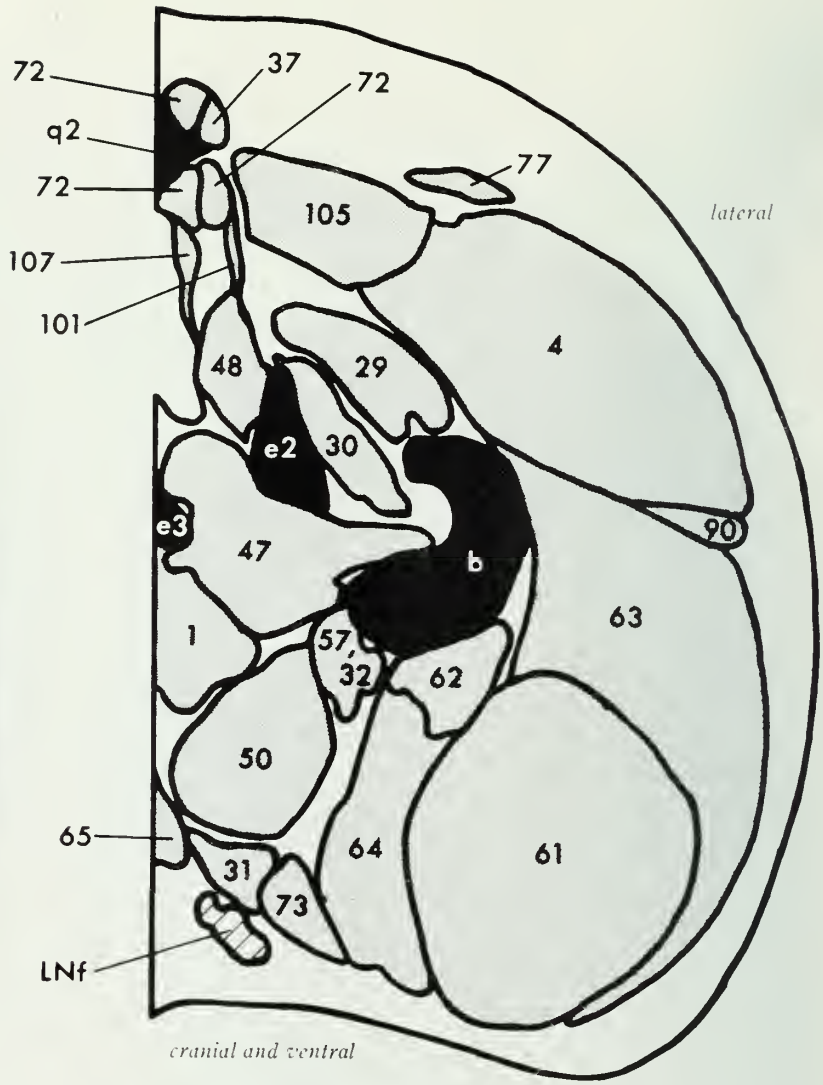
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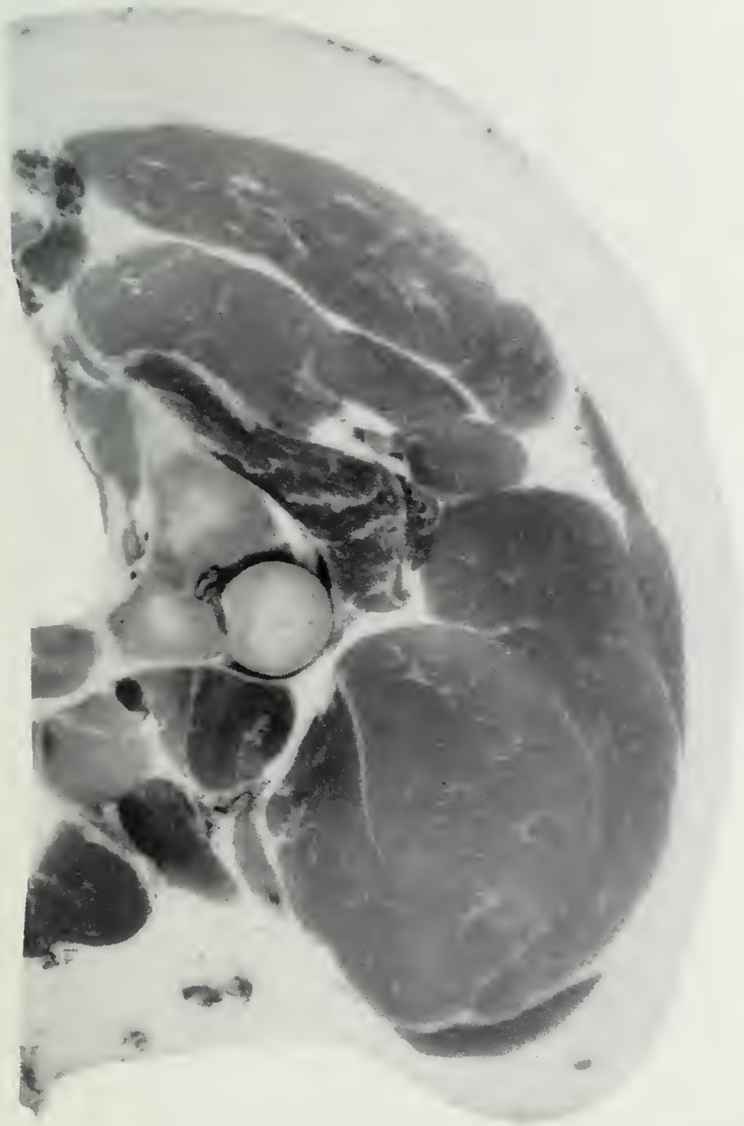

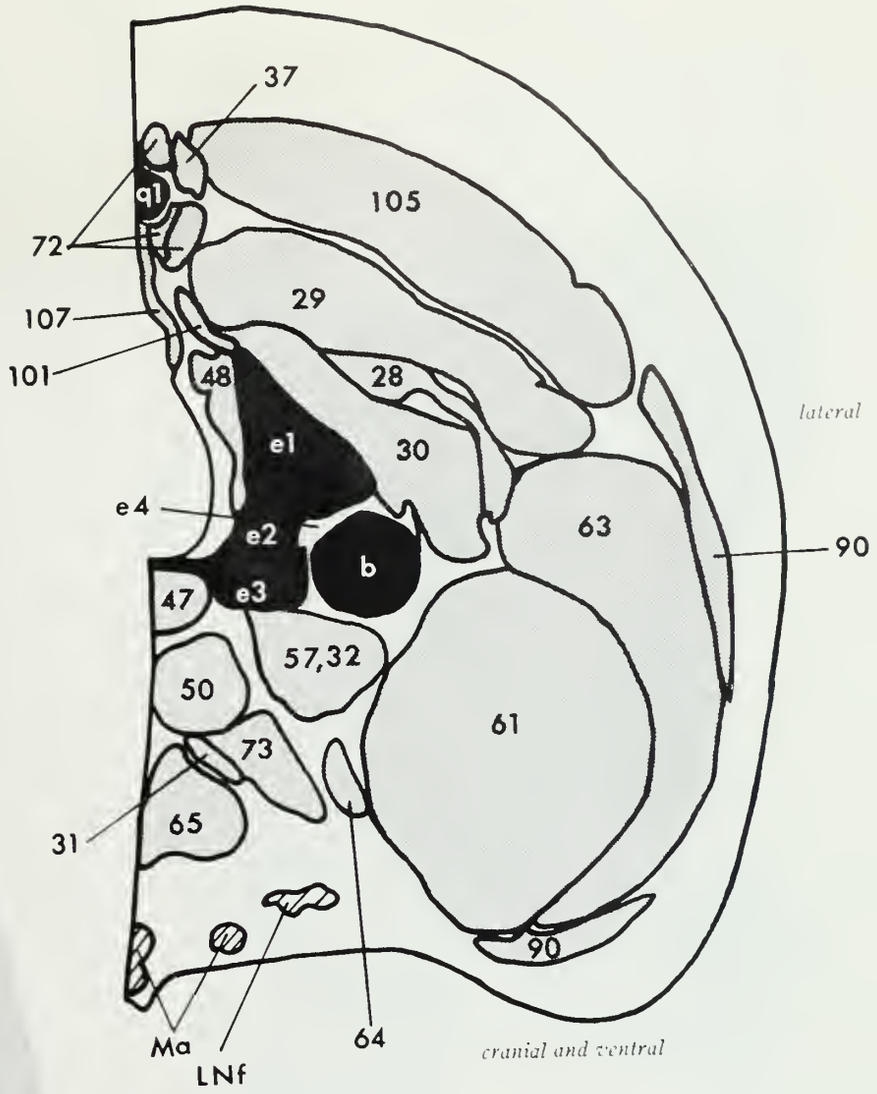
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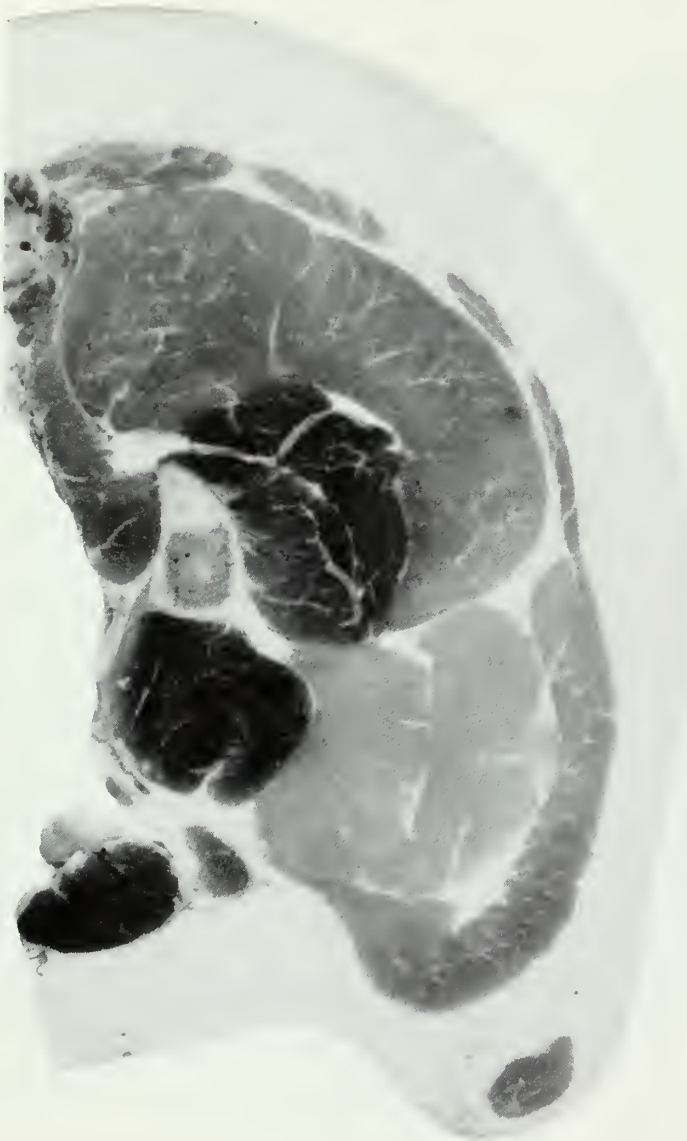

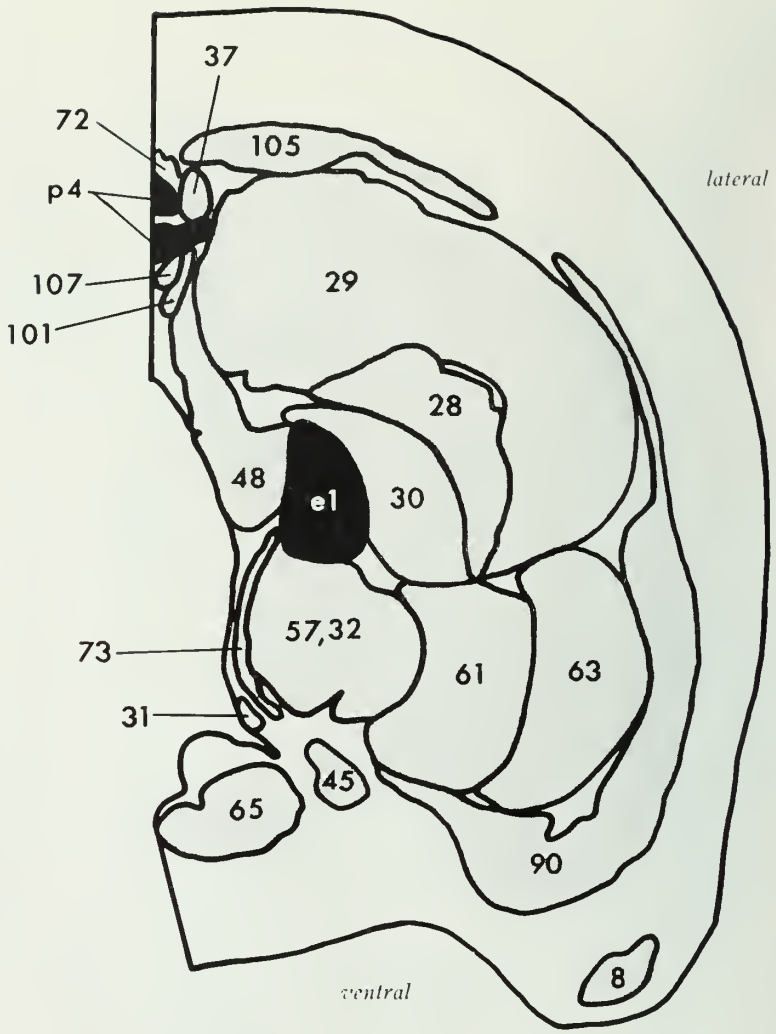
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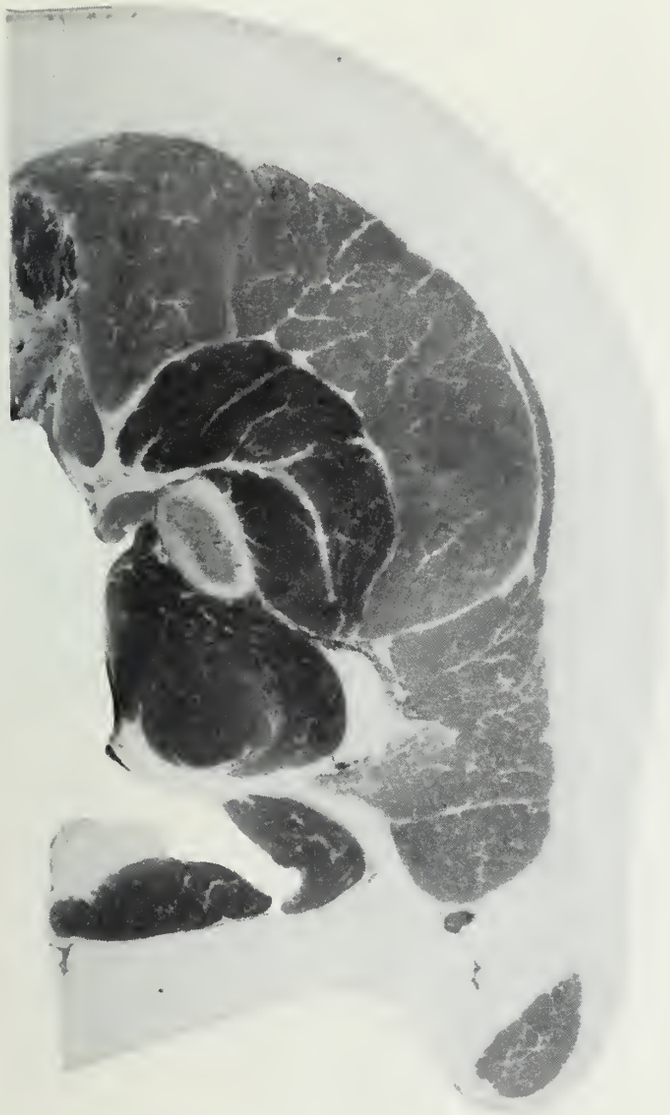

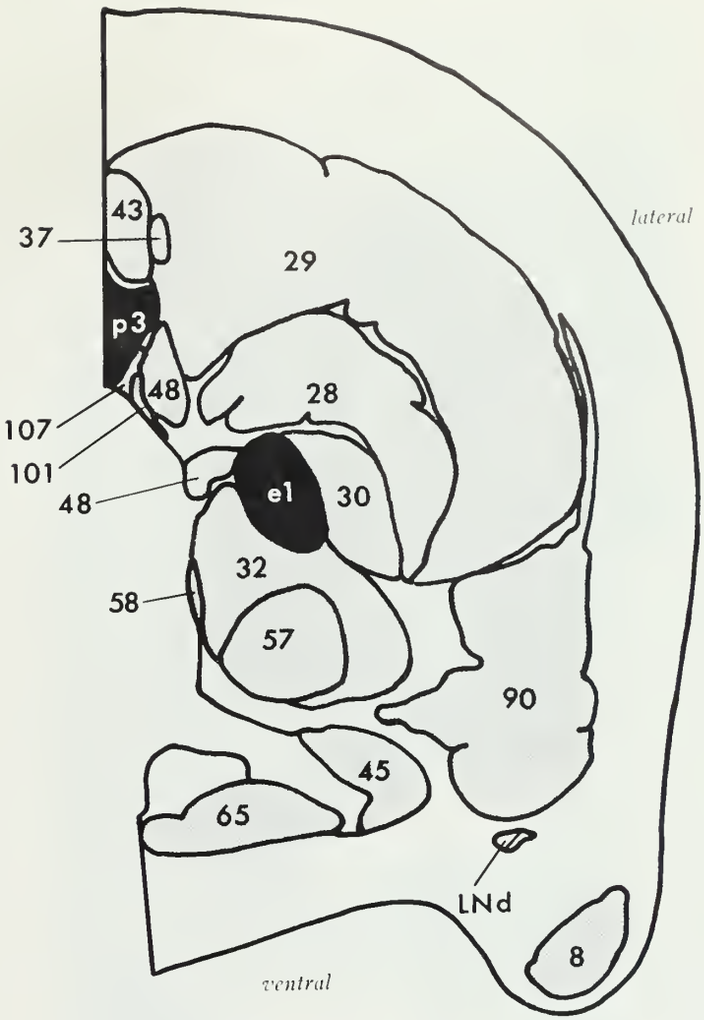
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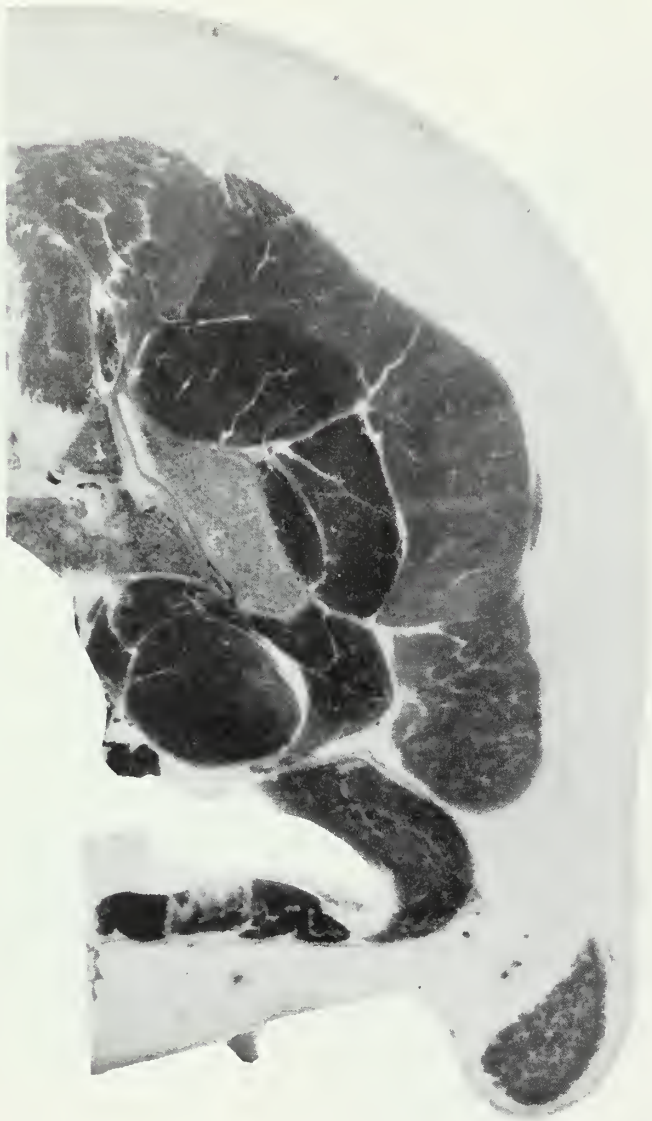

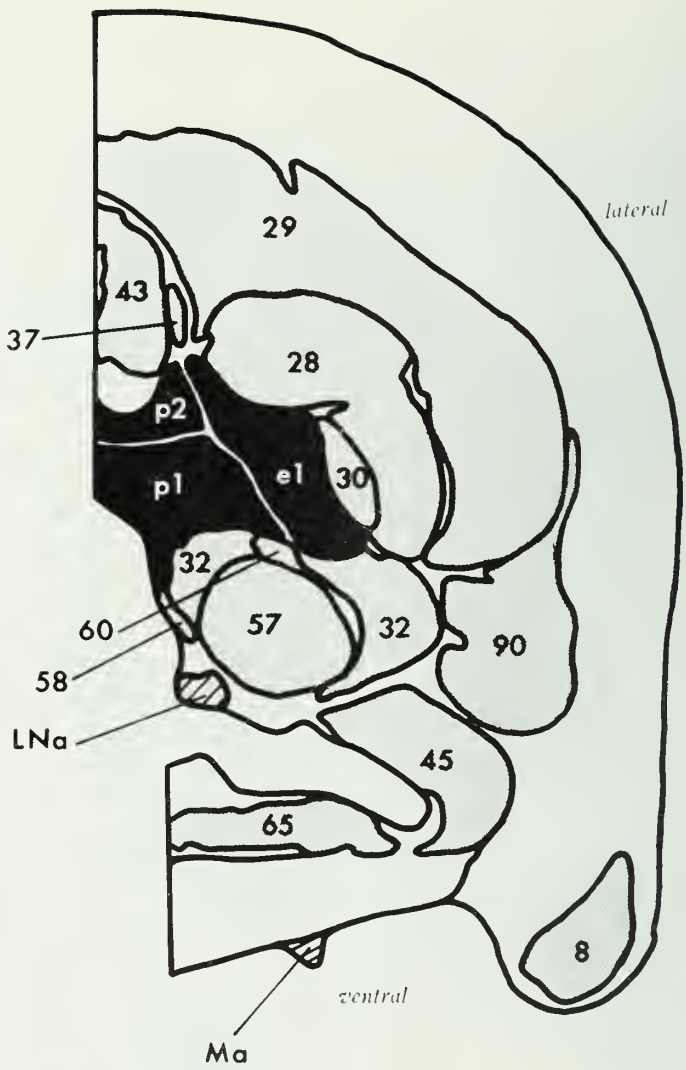
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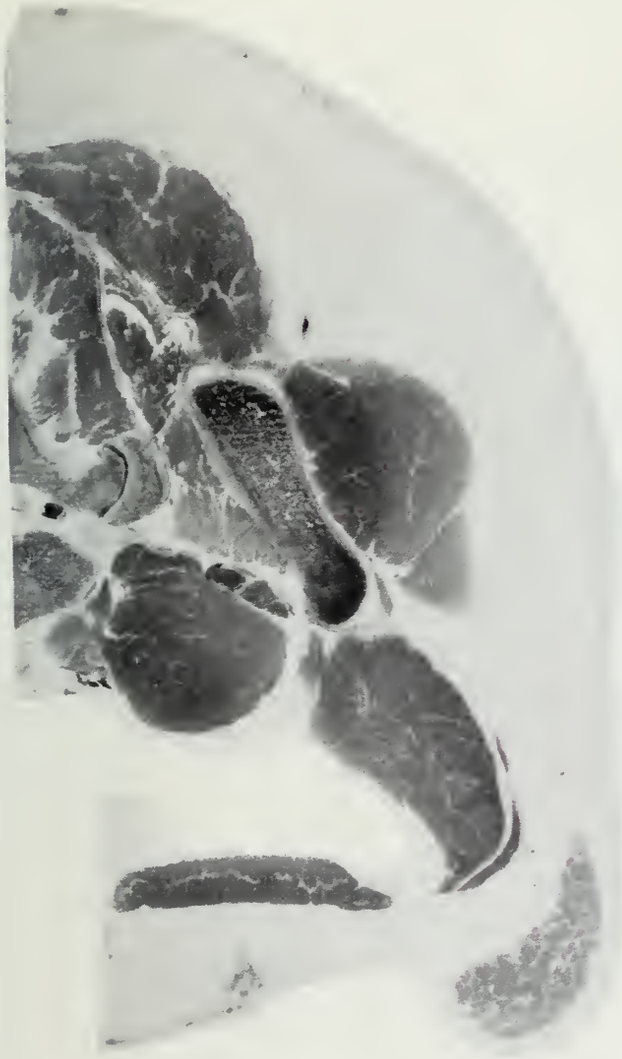

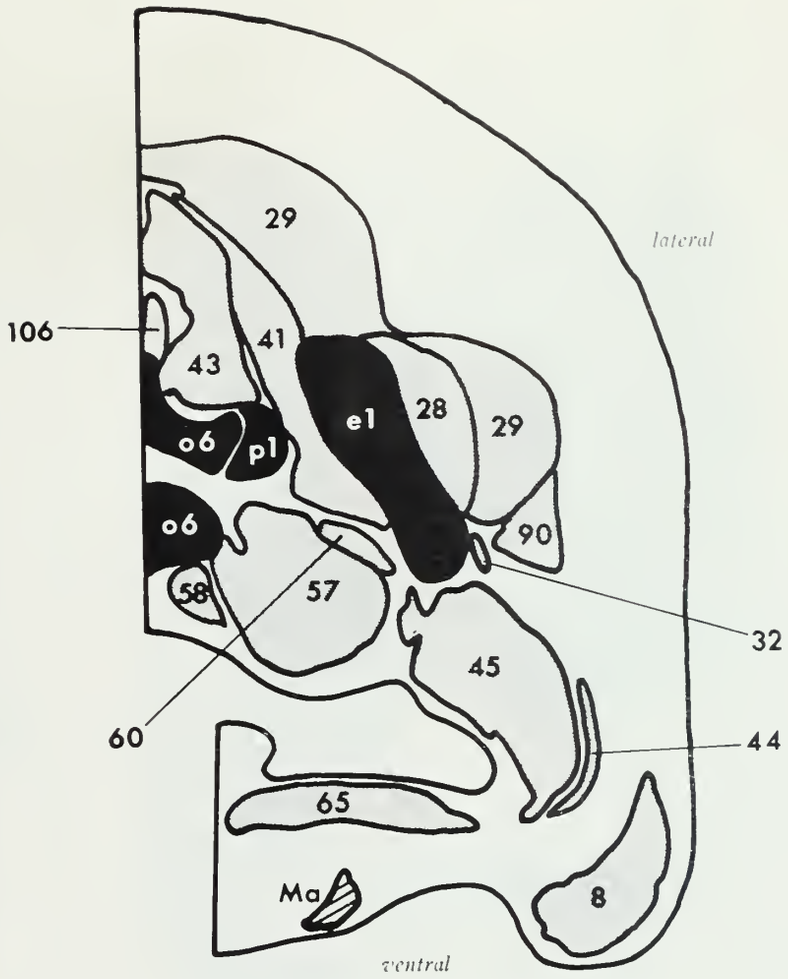
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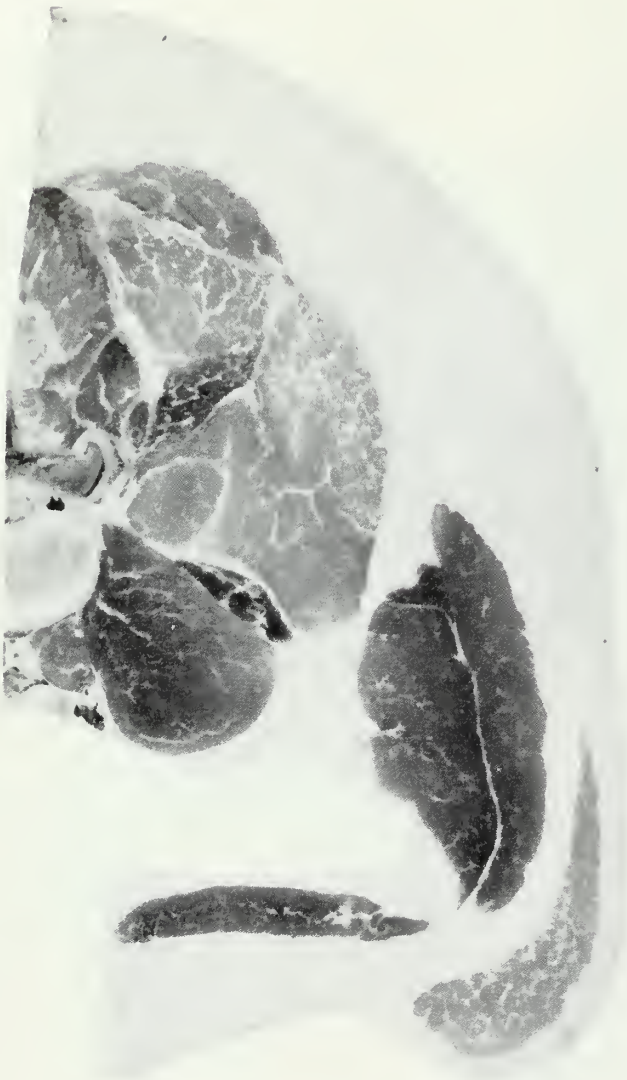

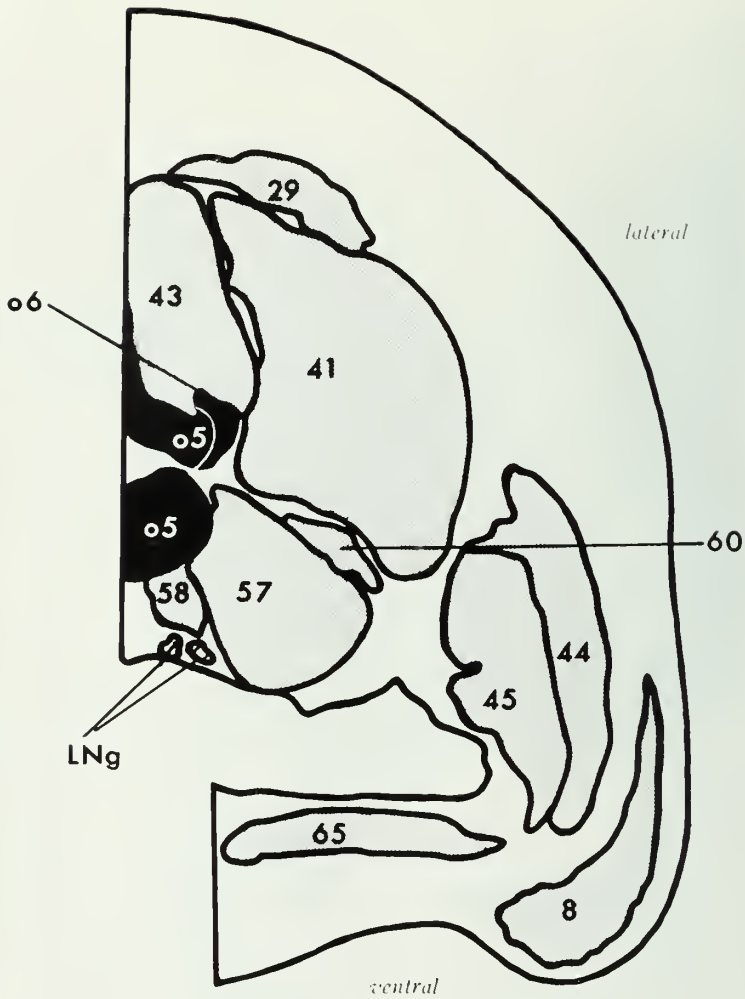

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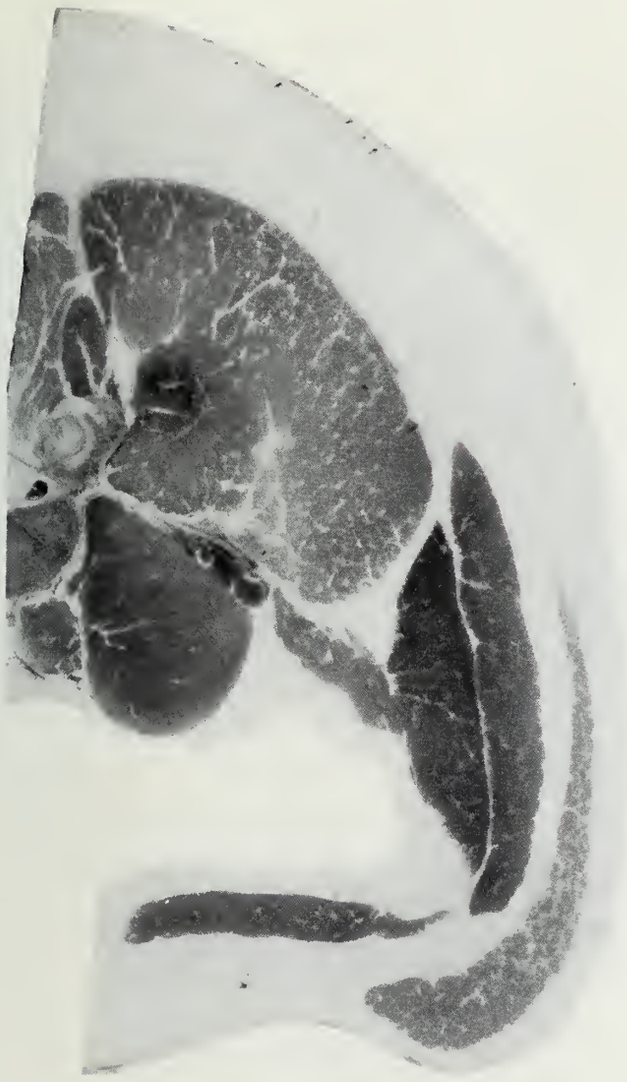

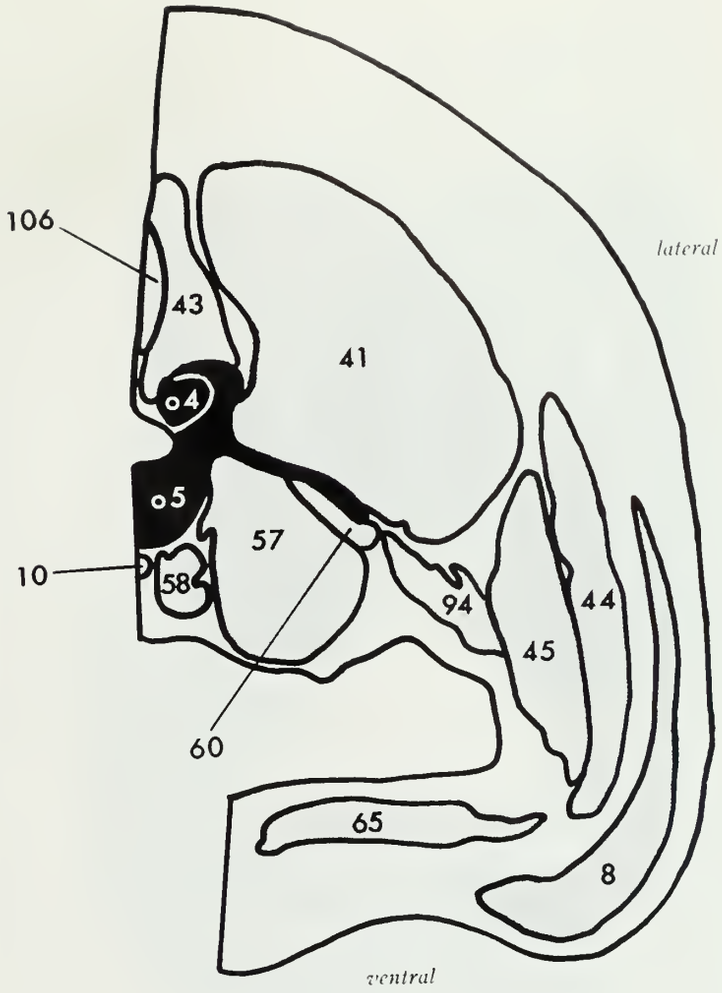

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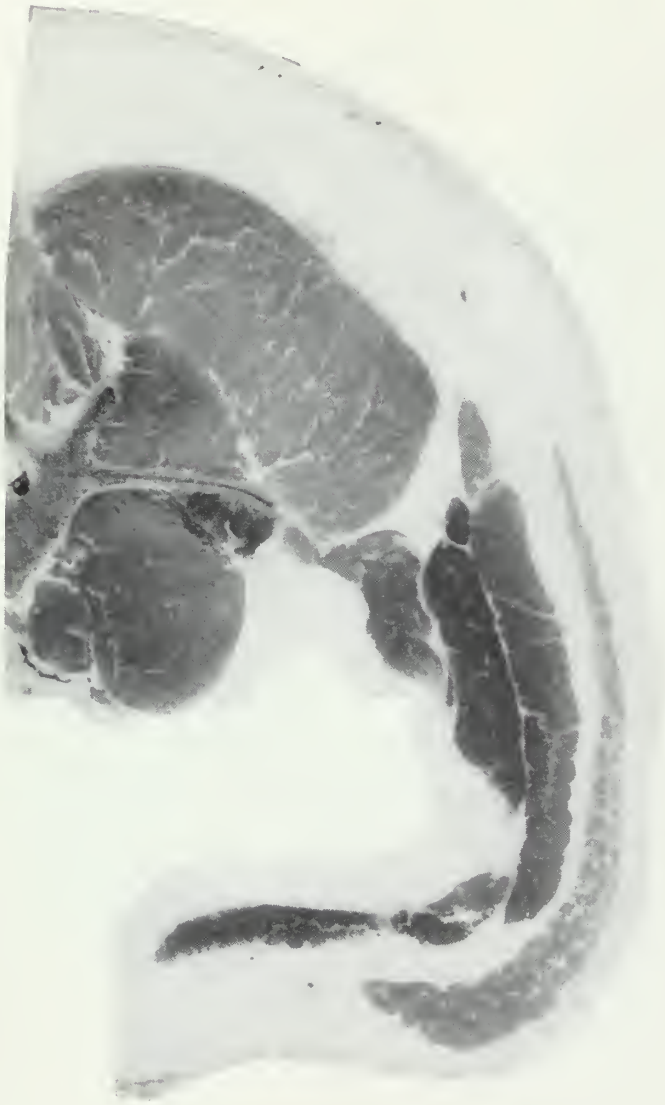

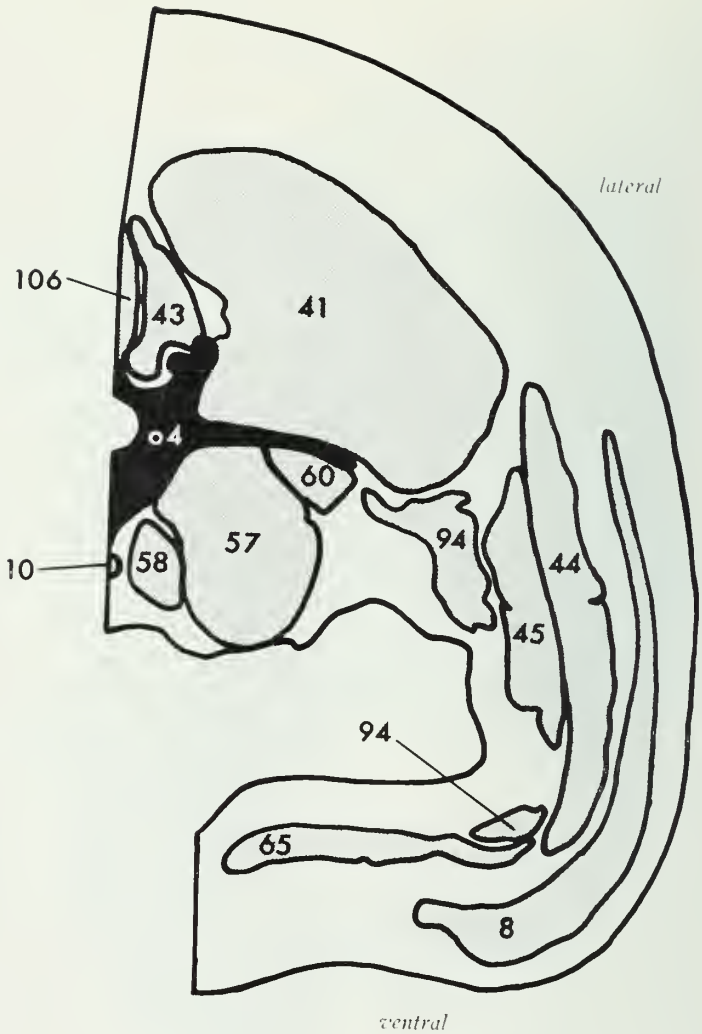

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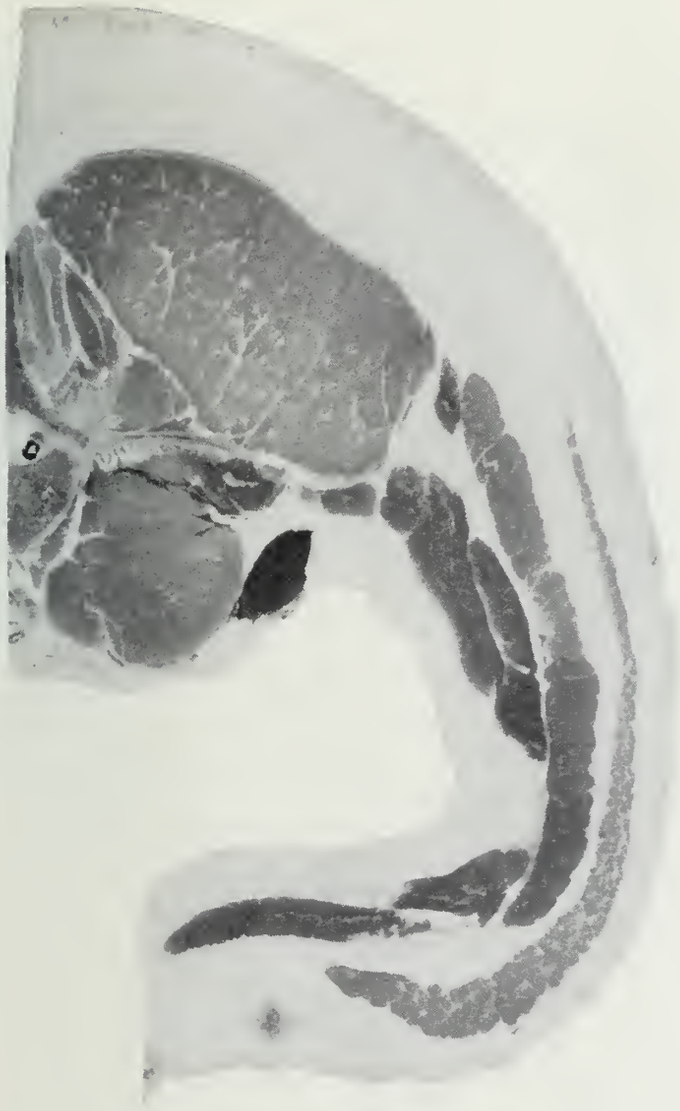

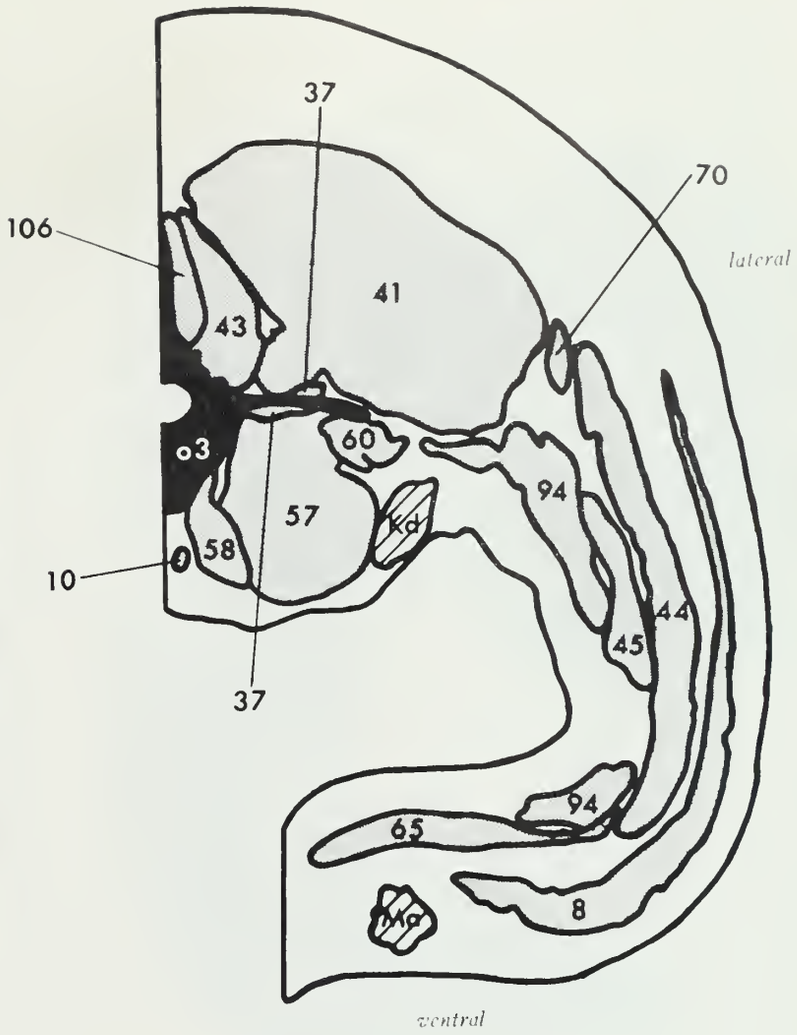
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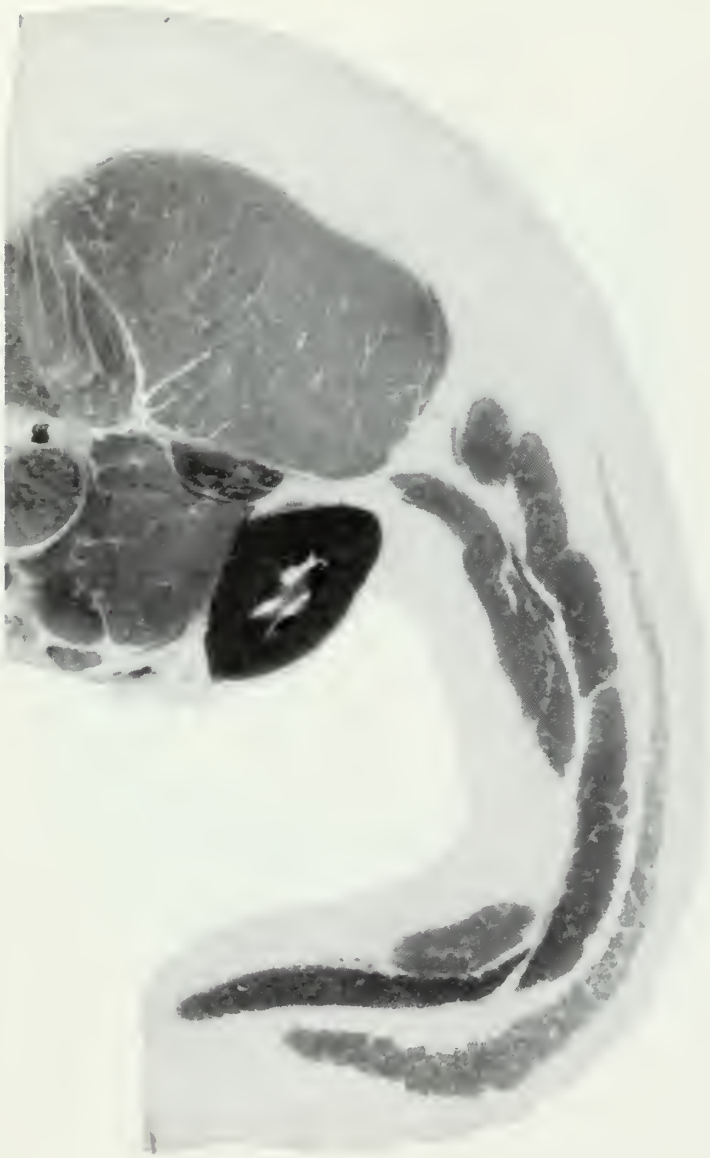

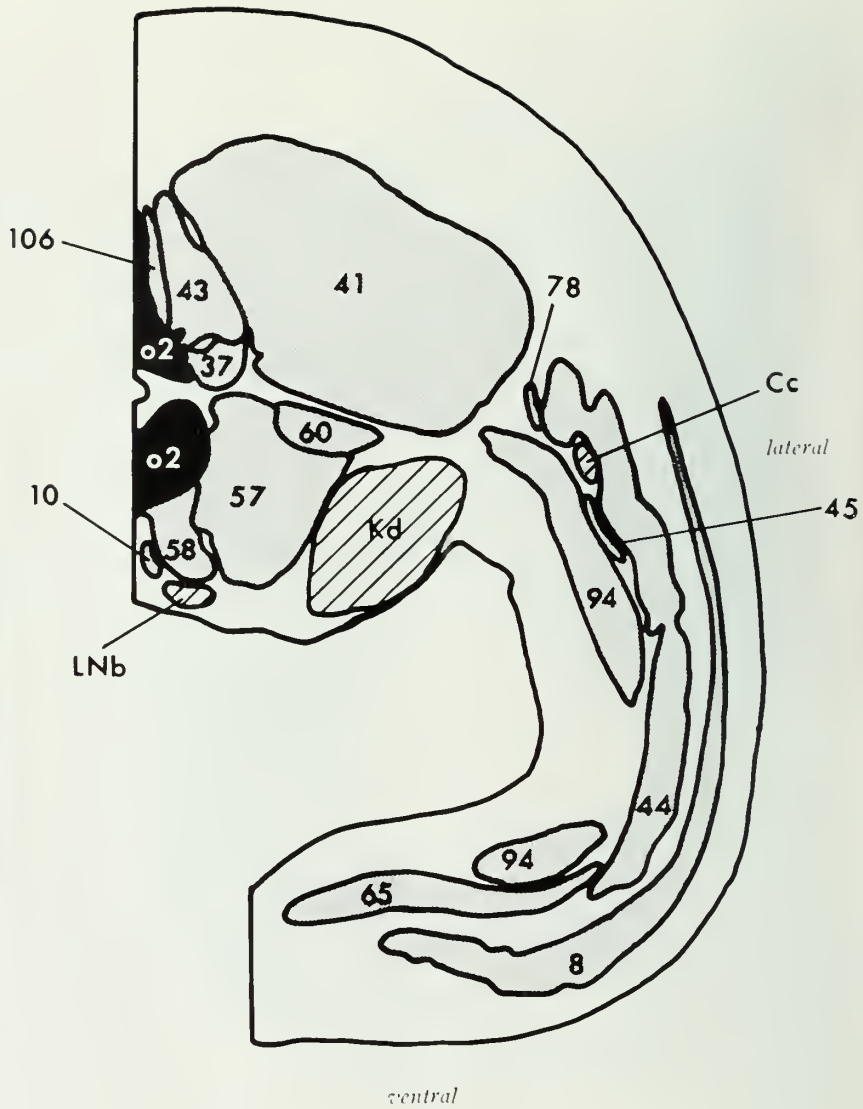
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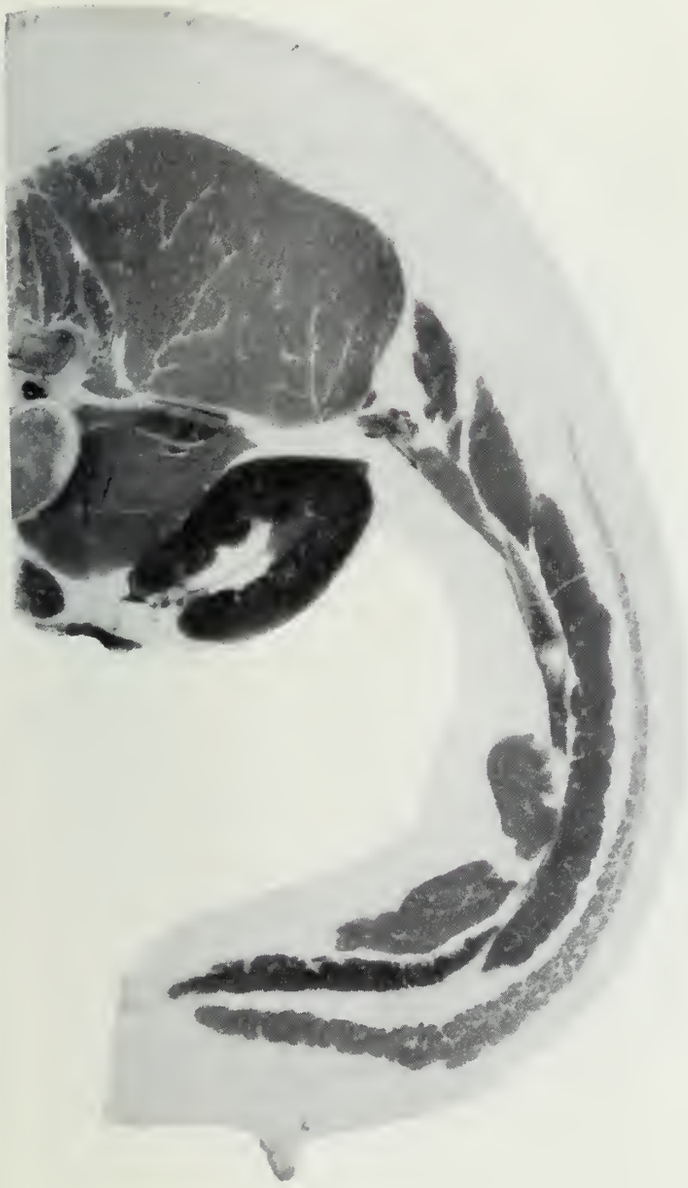

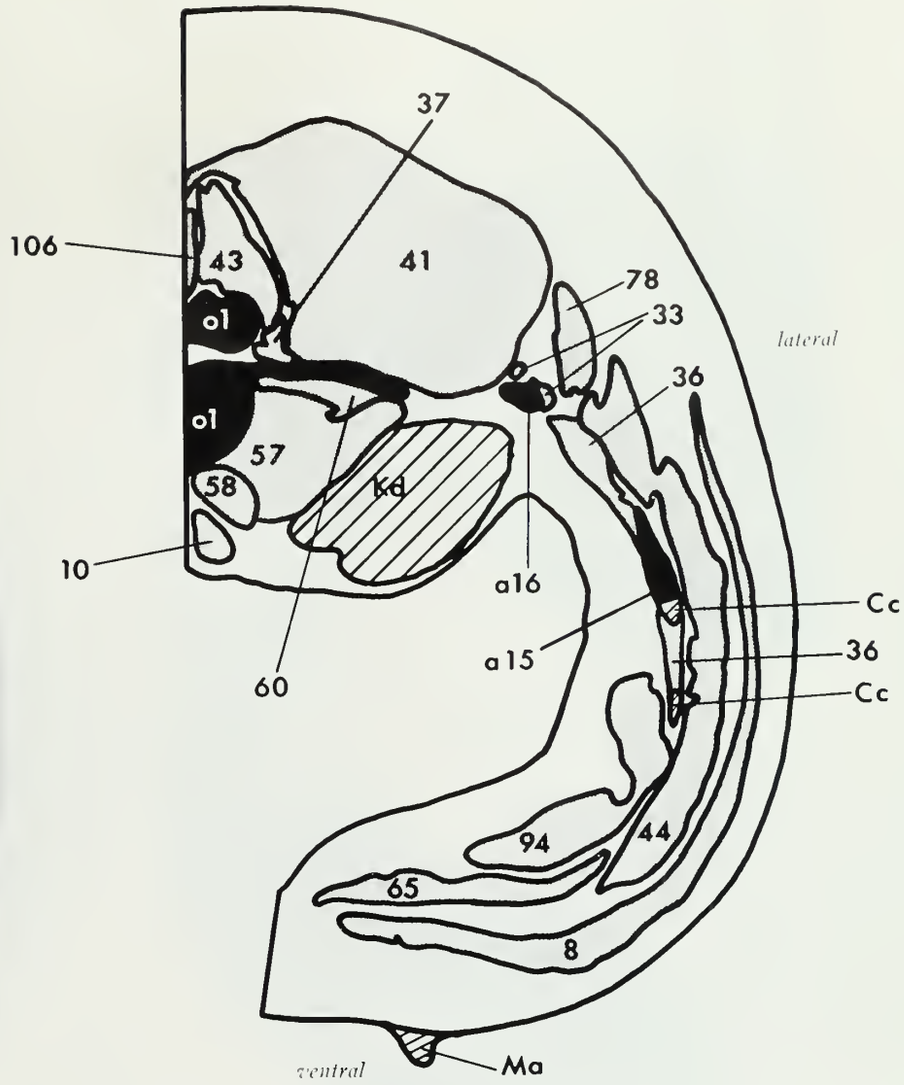
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ventral
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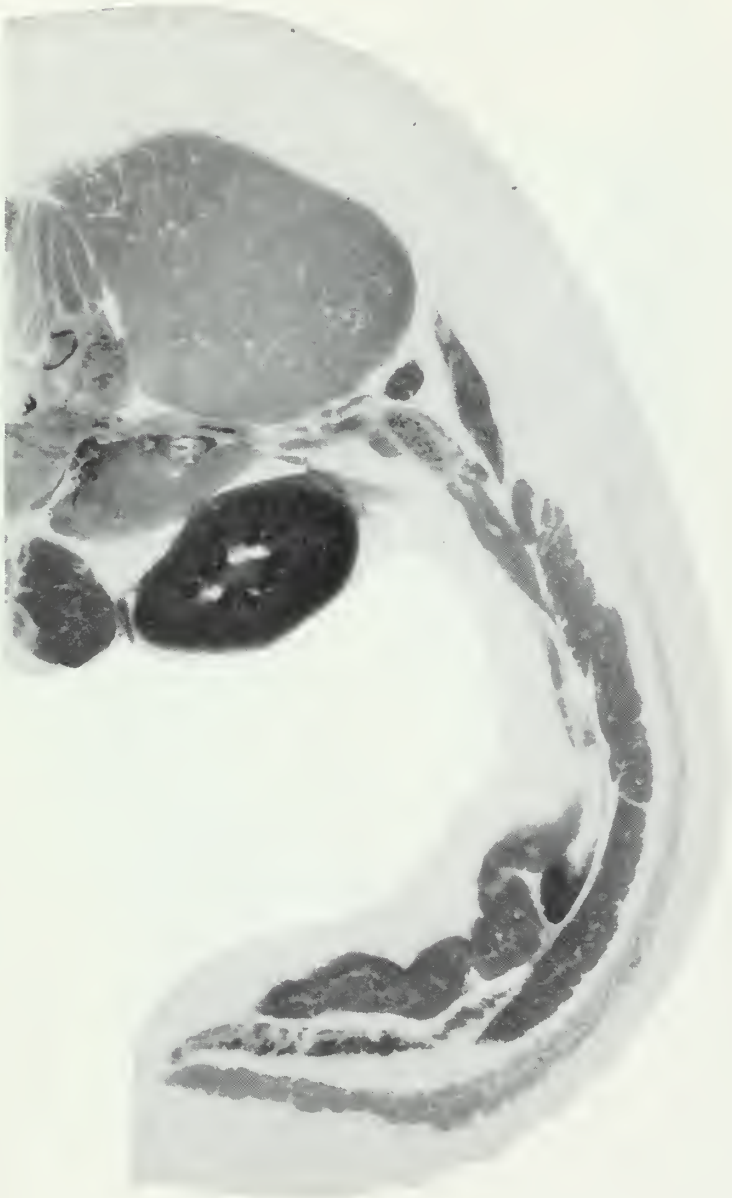

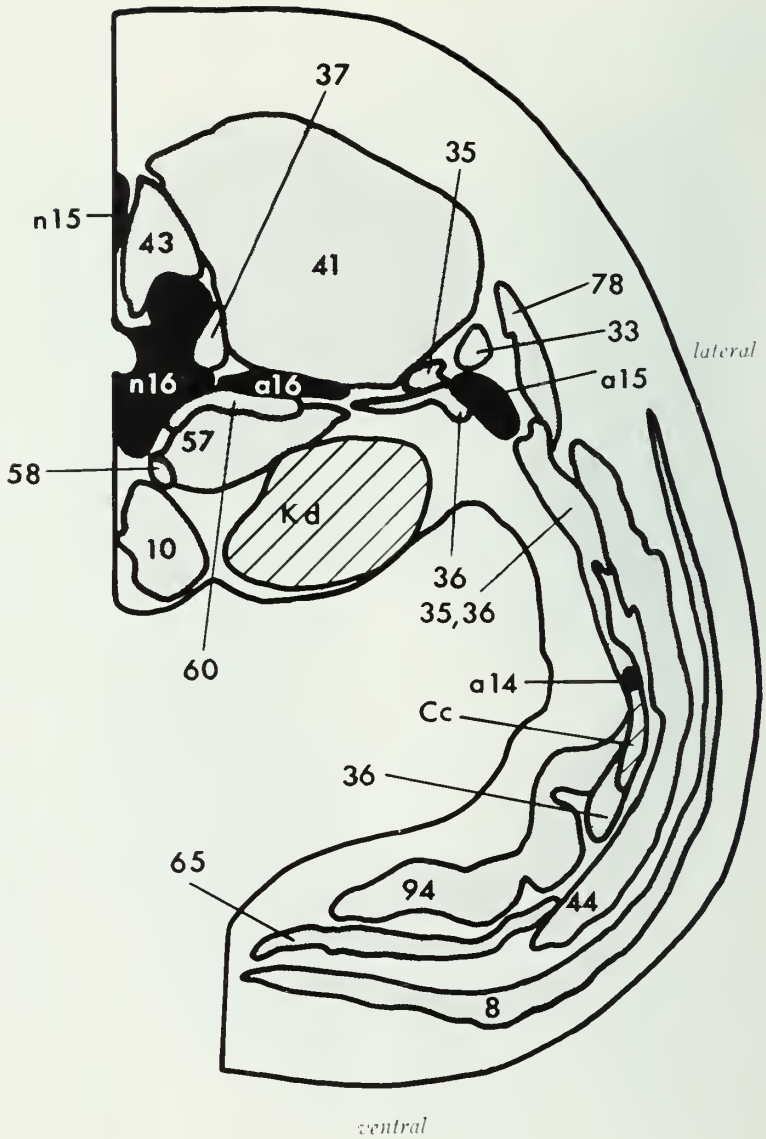
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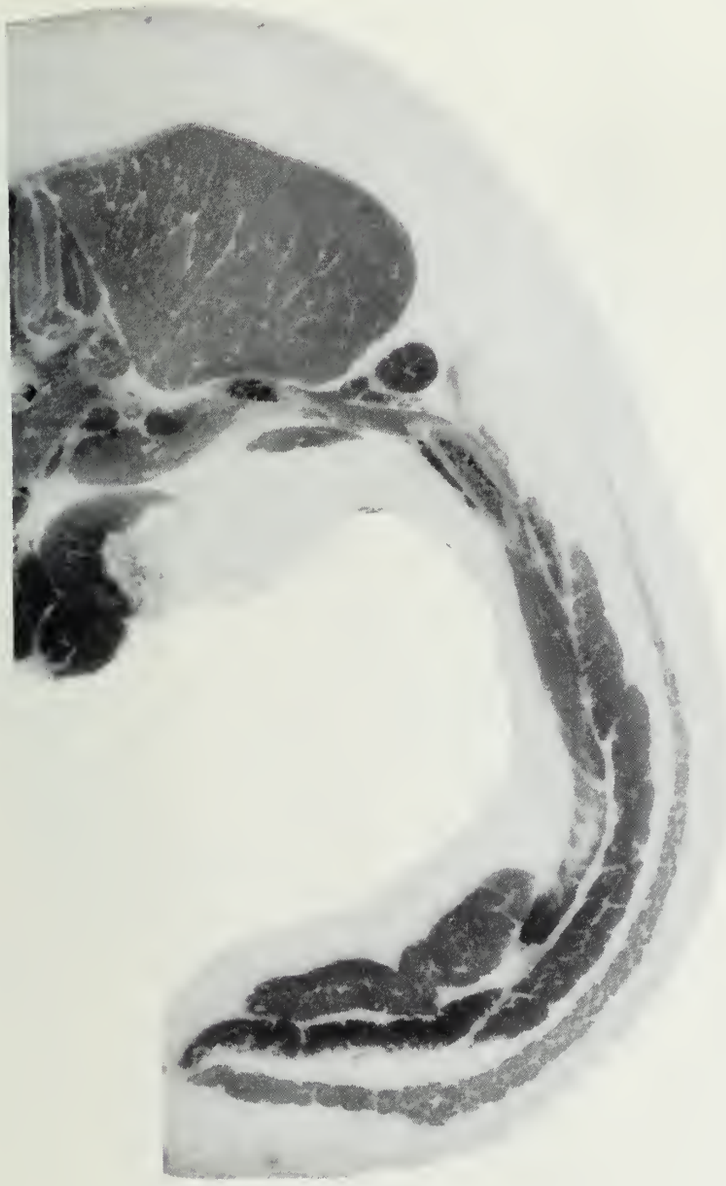

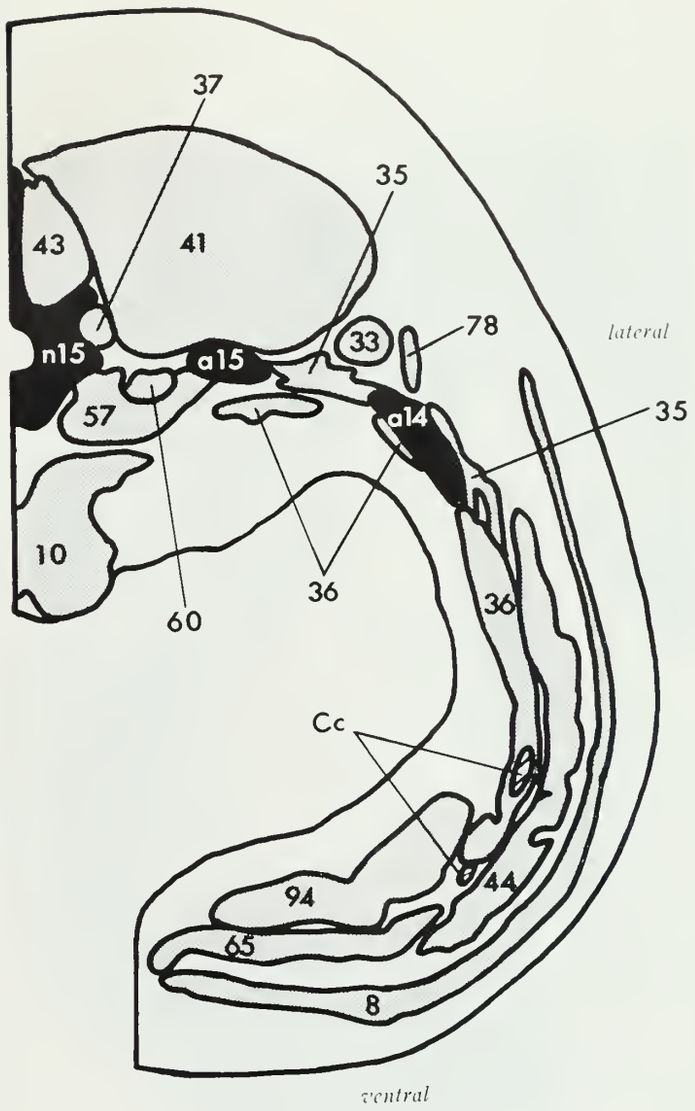
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ventral

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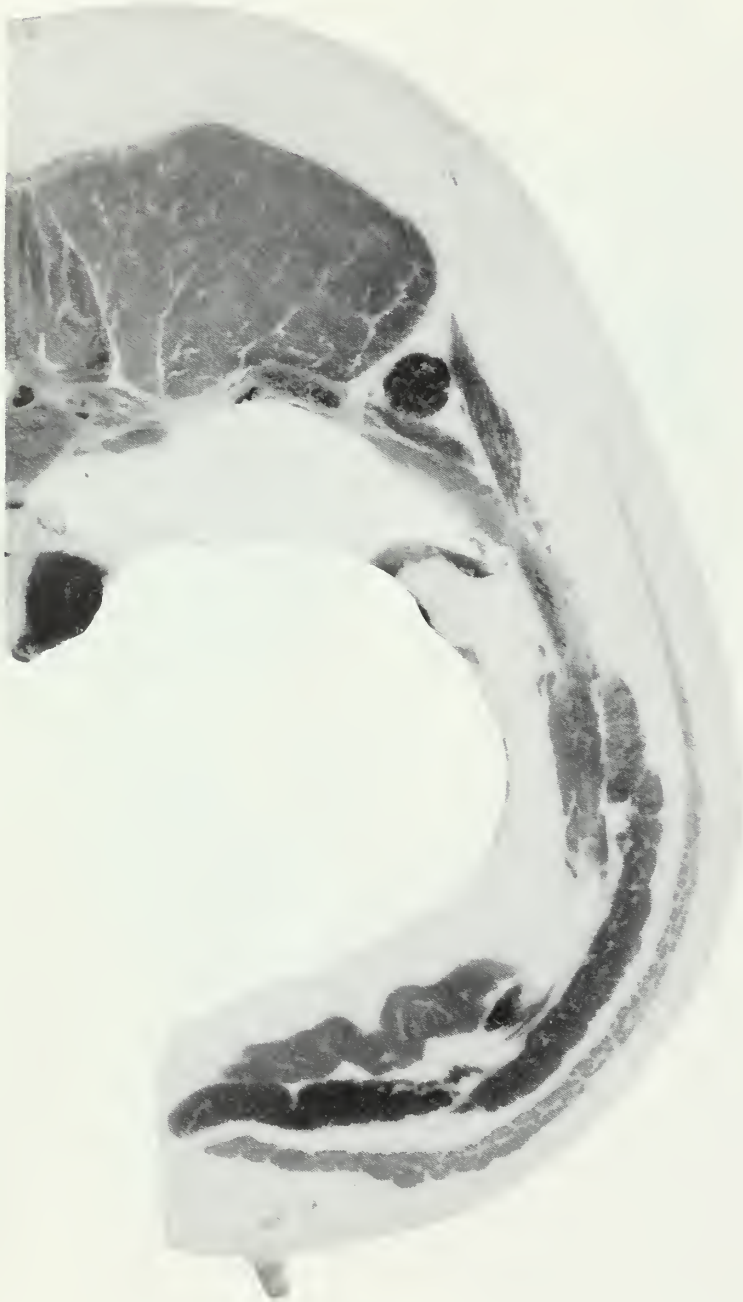

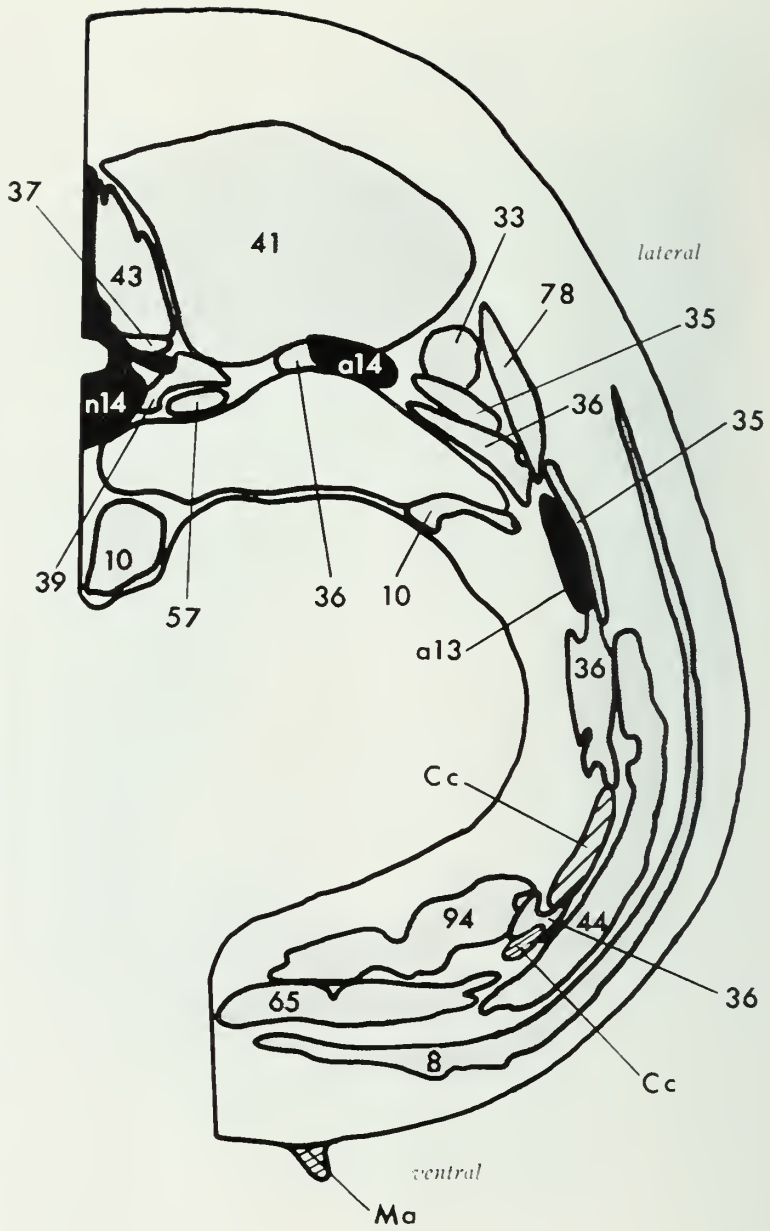
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ventral
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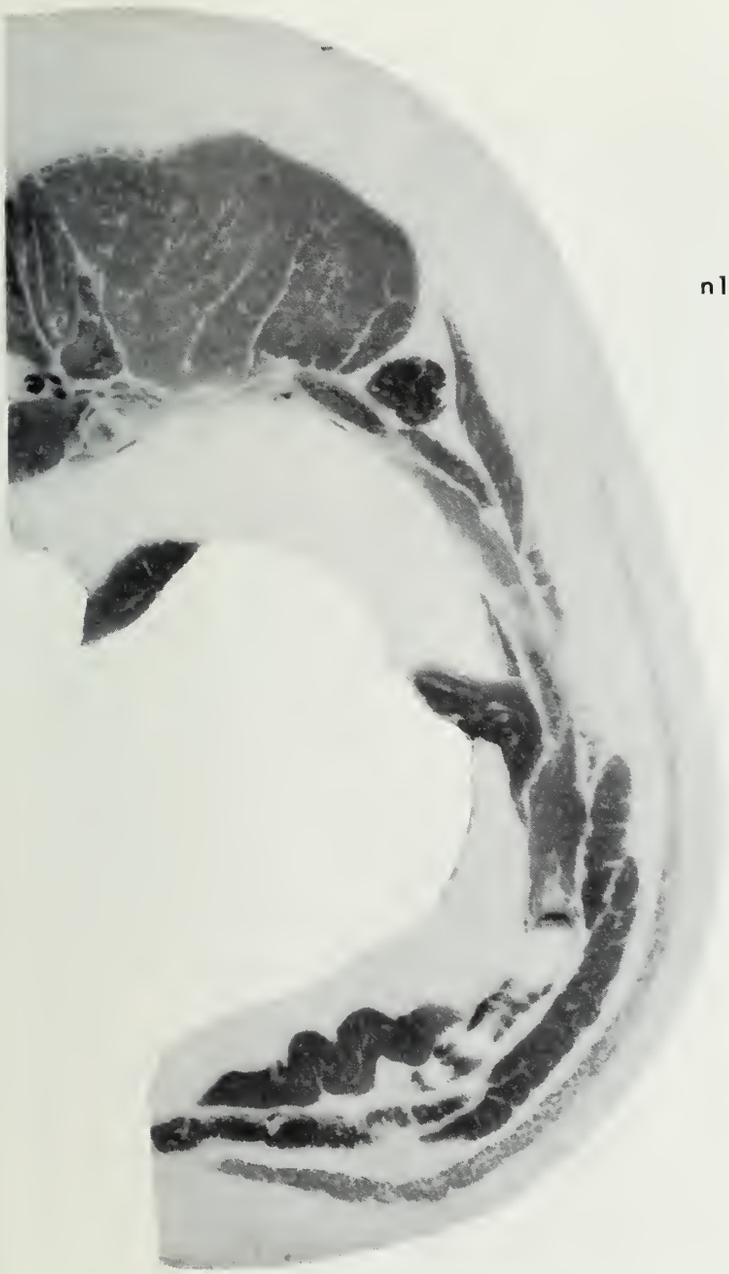

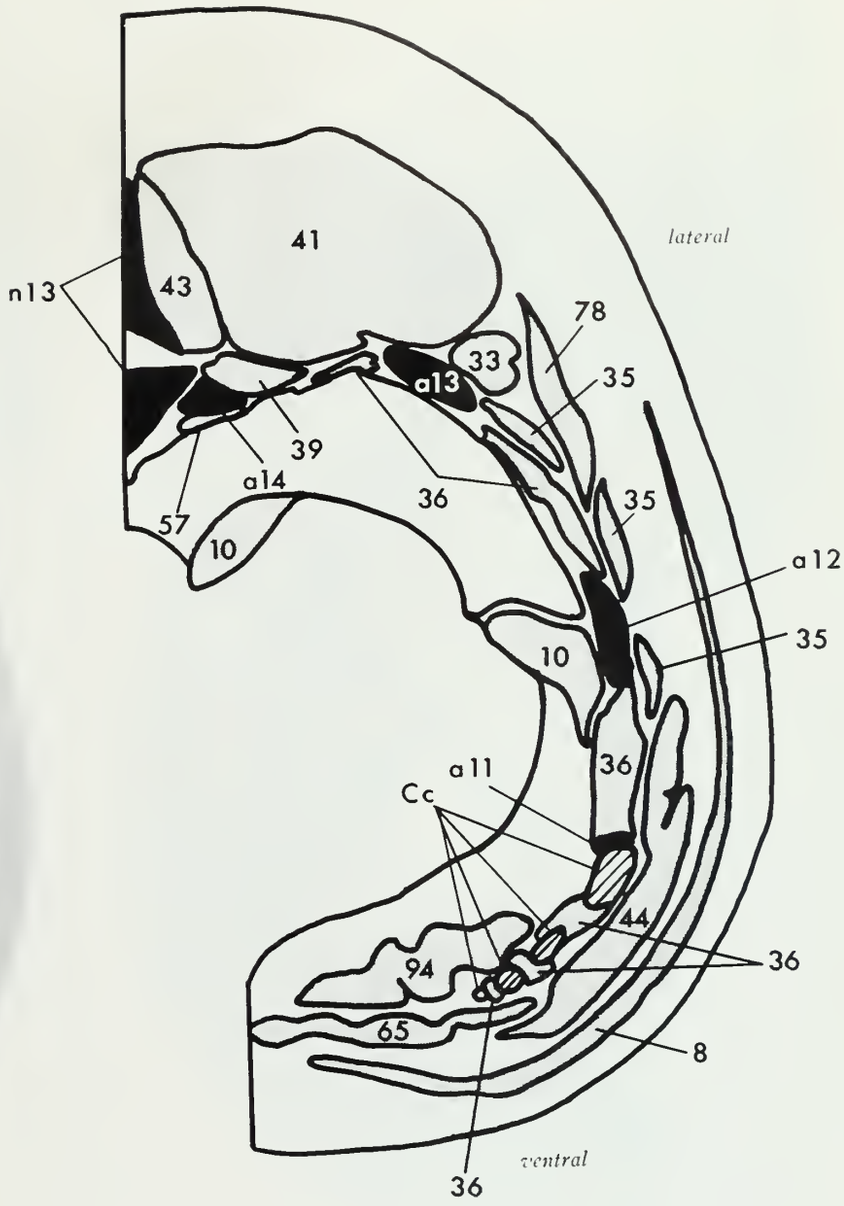
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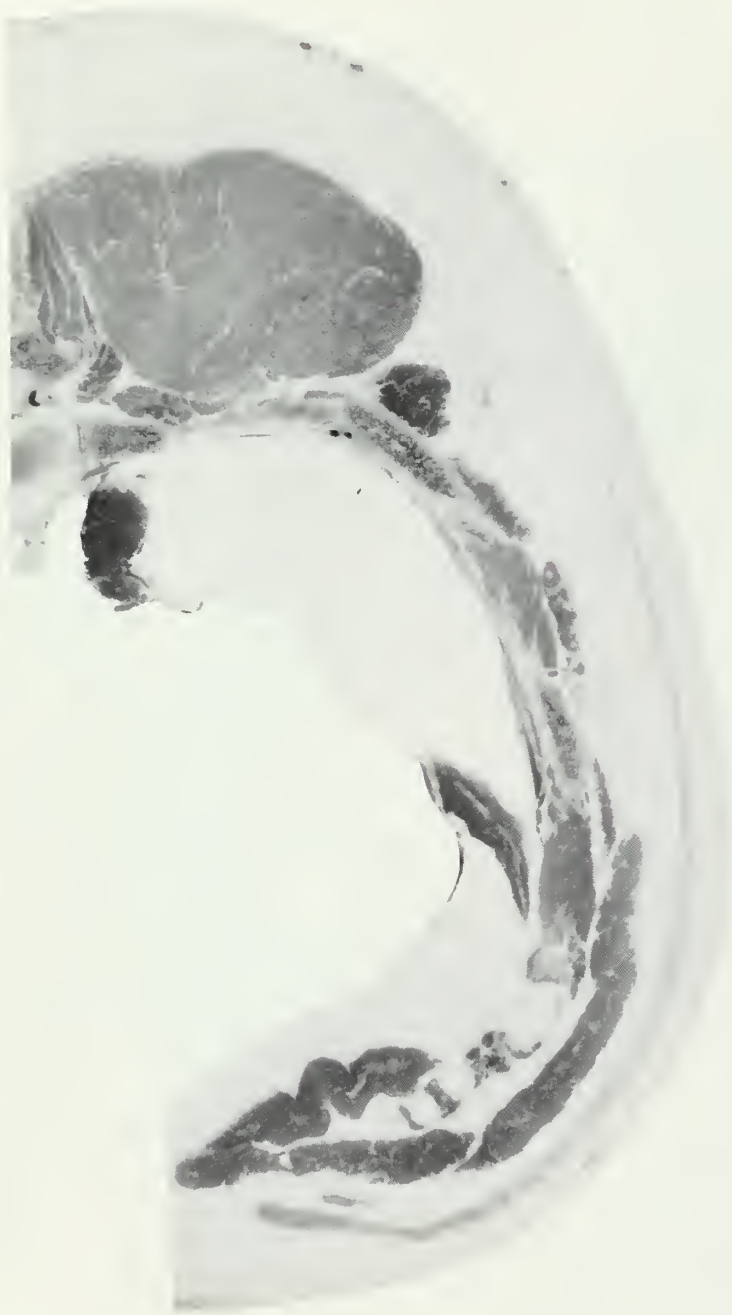

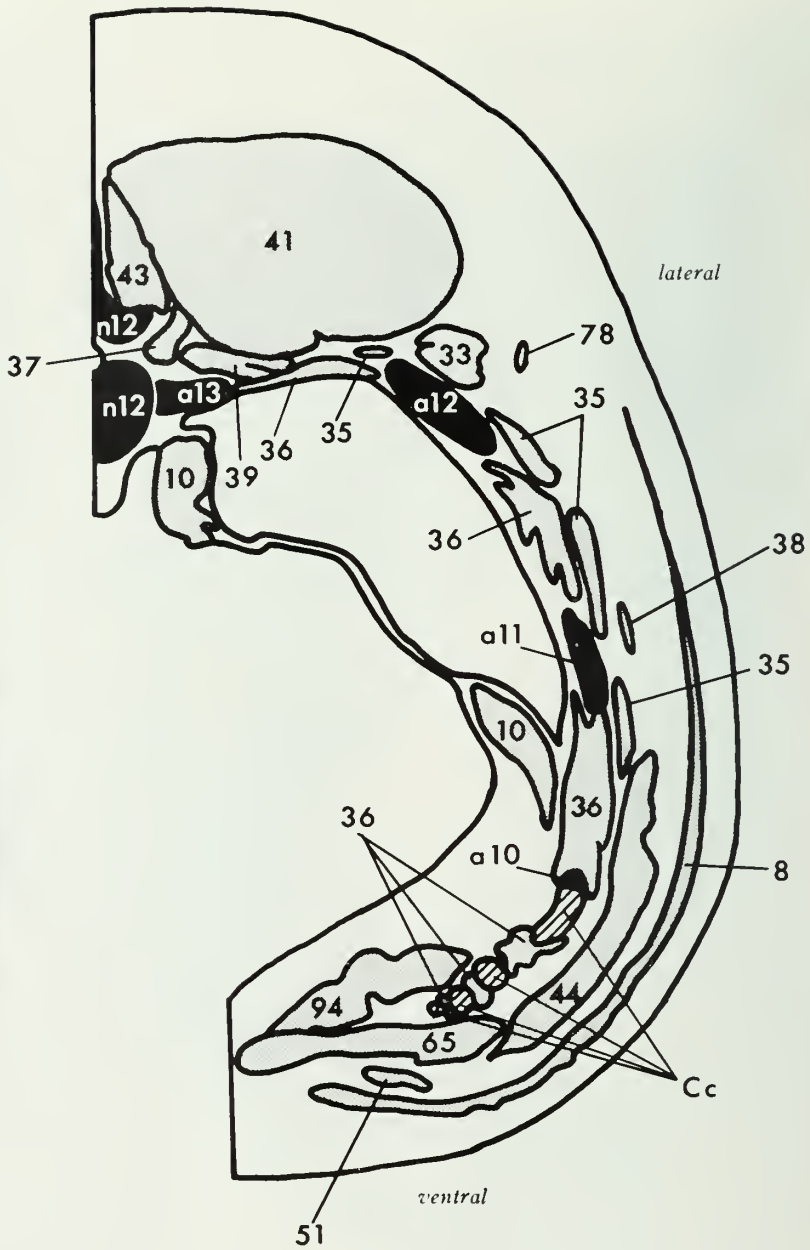
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ventral

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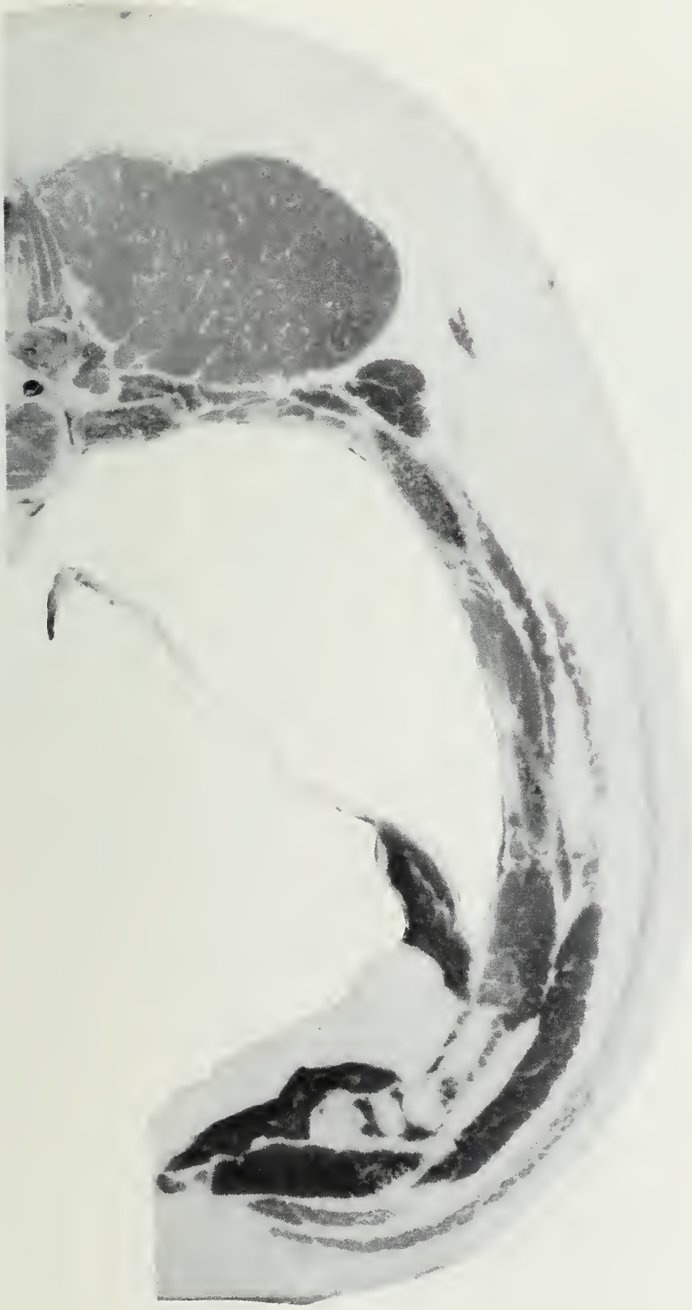

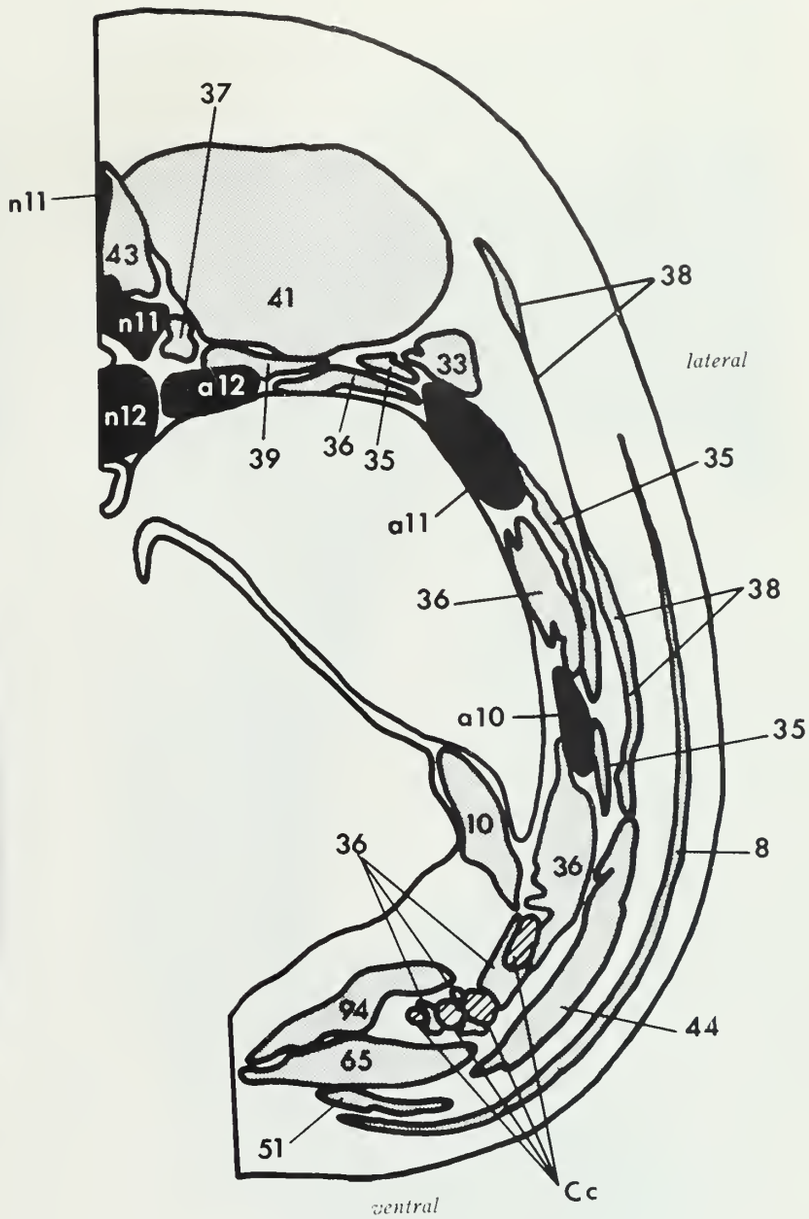
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Cc
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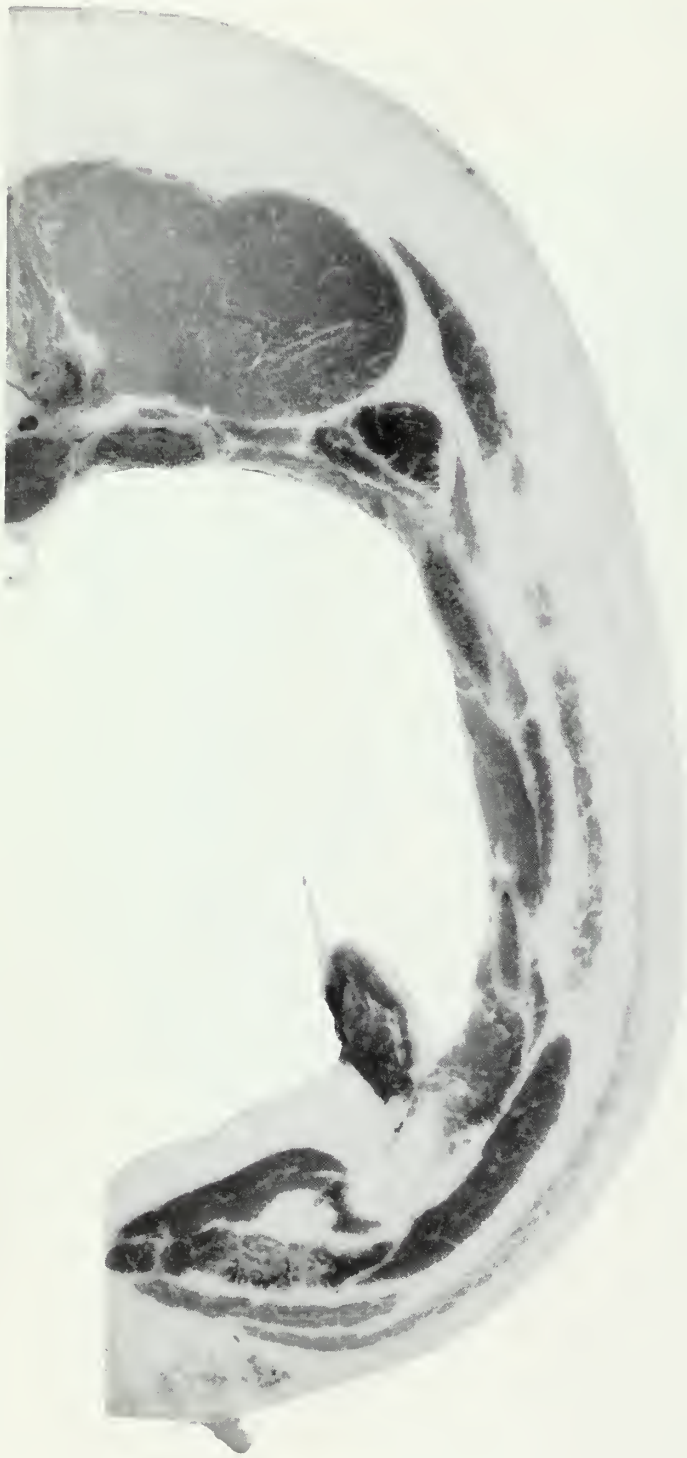

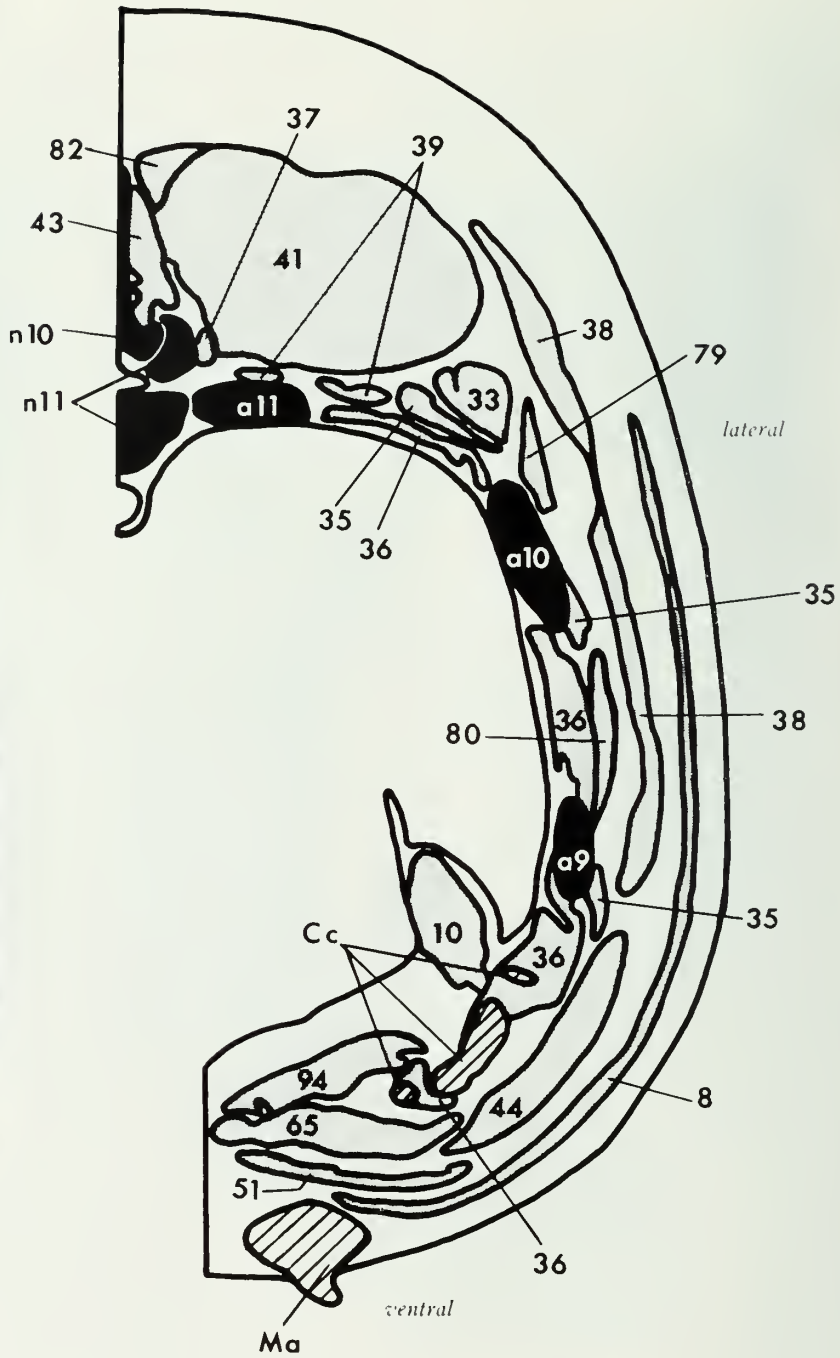
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ventral
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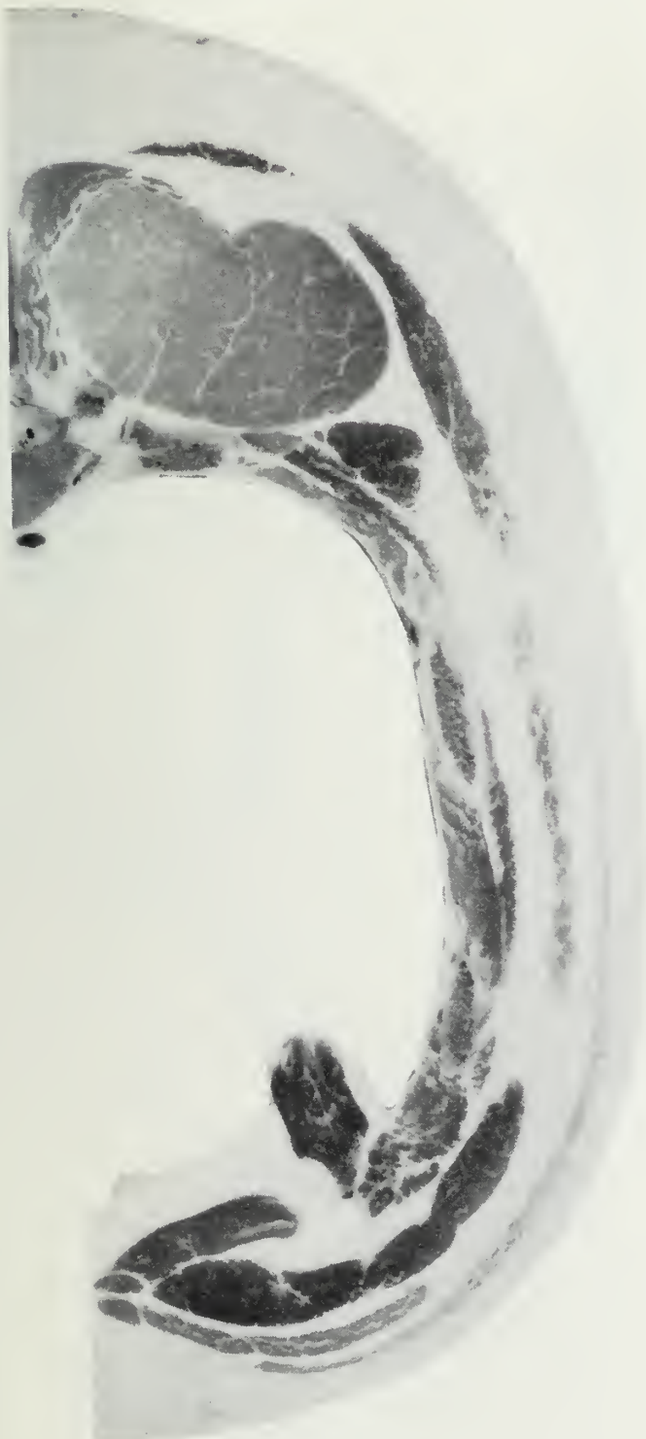
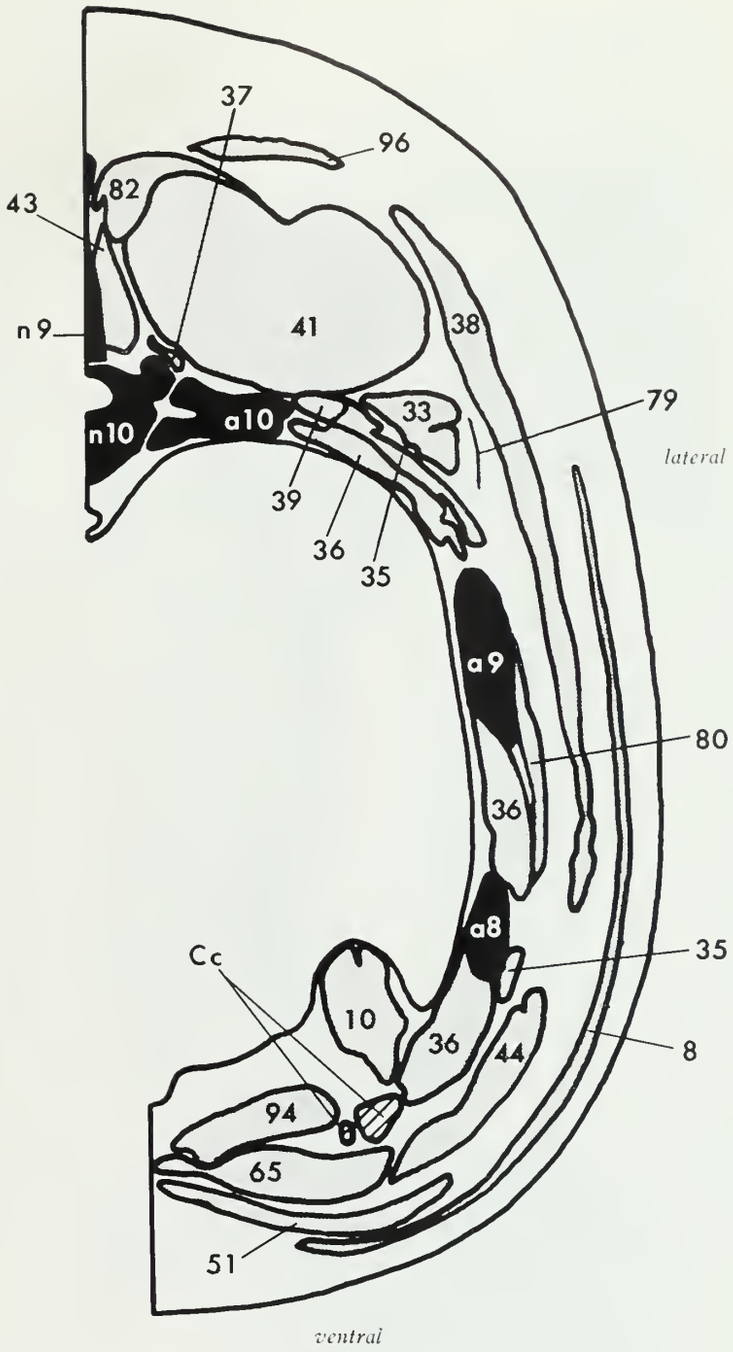
Section EE

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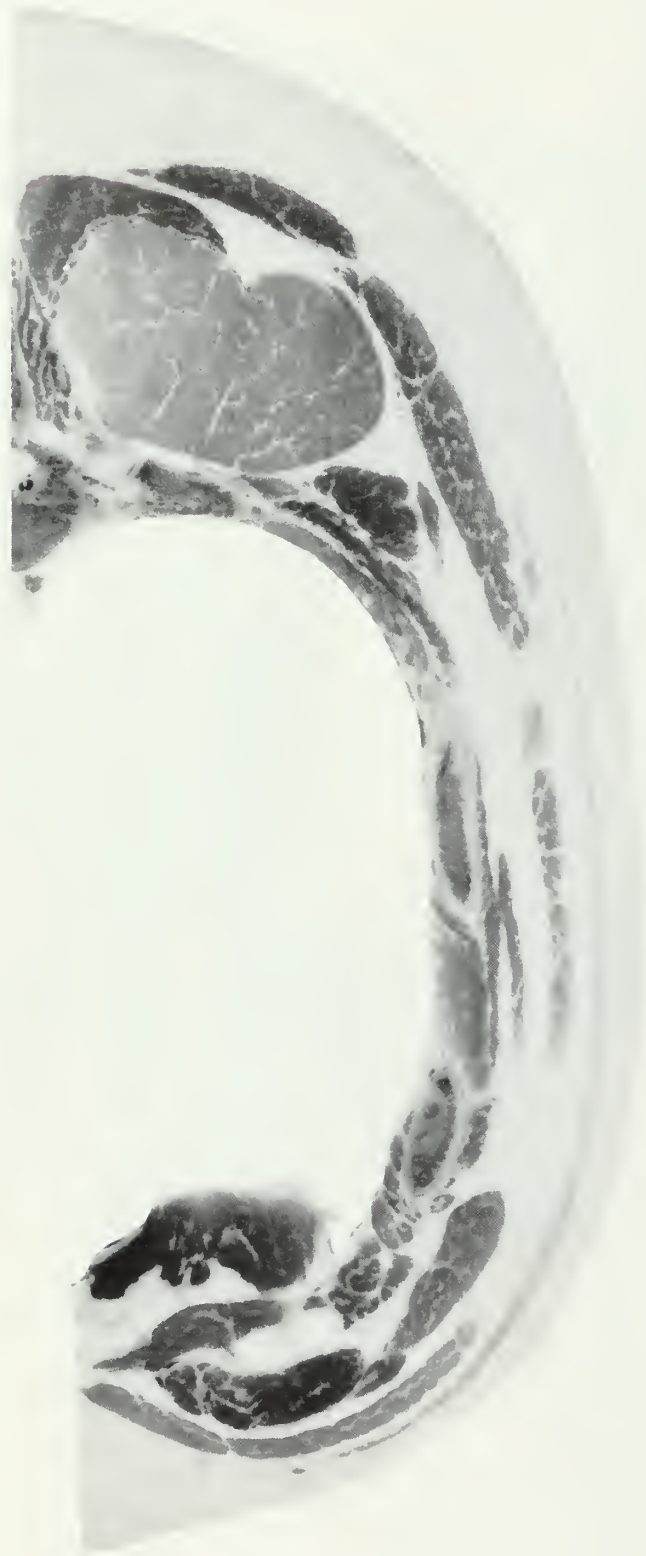

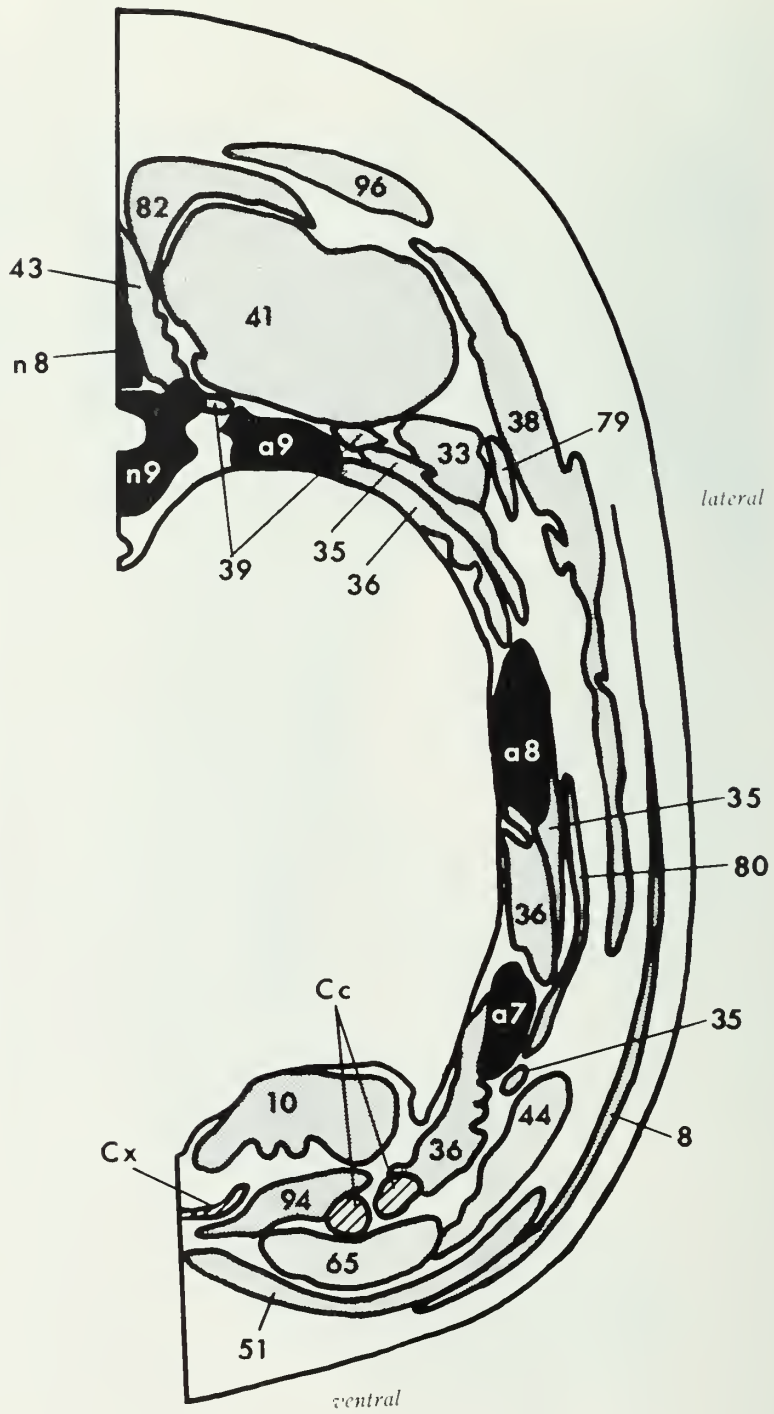
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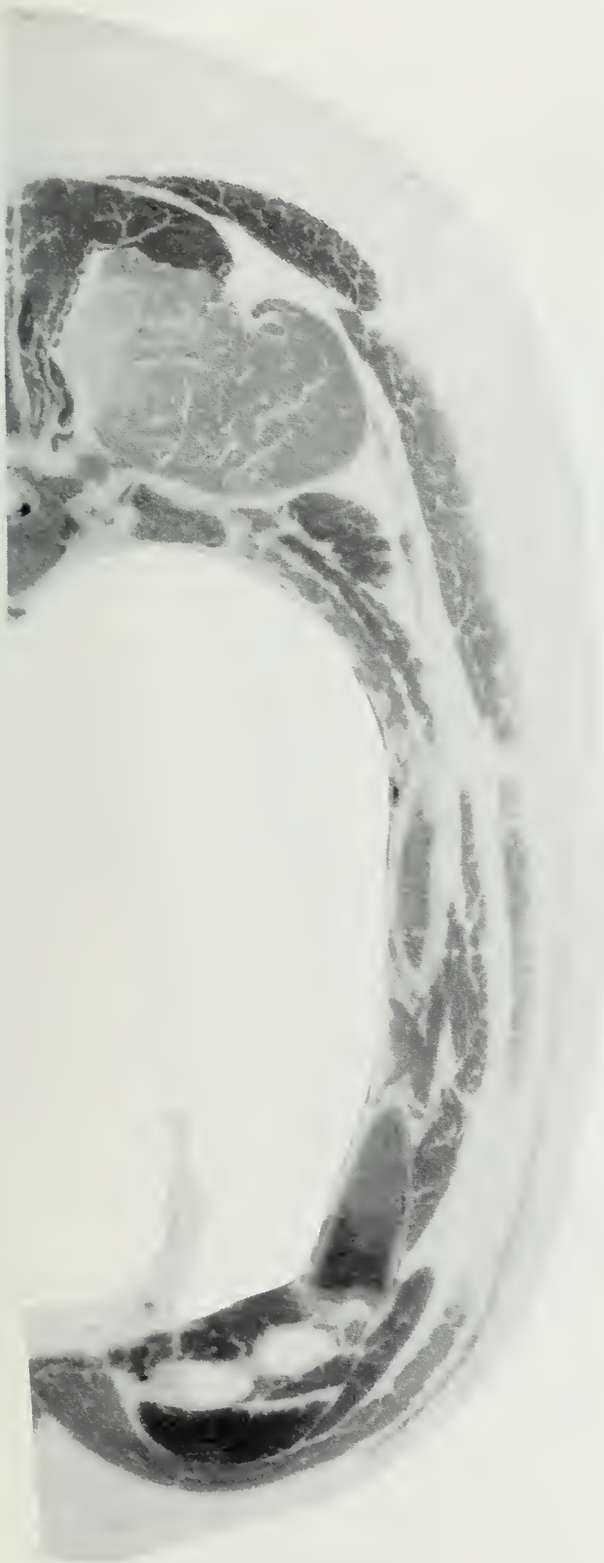

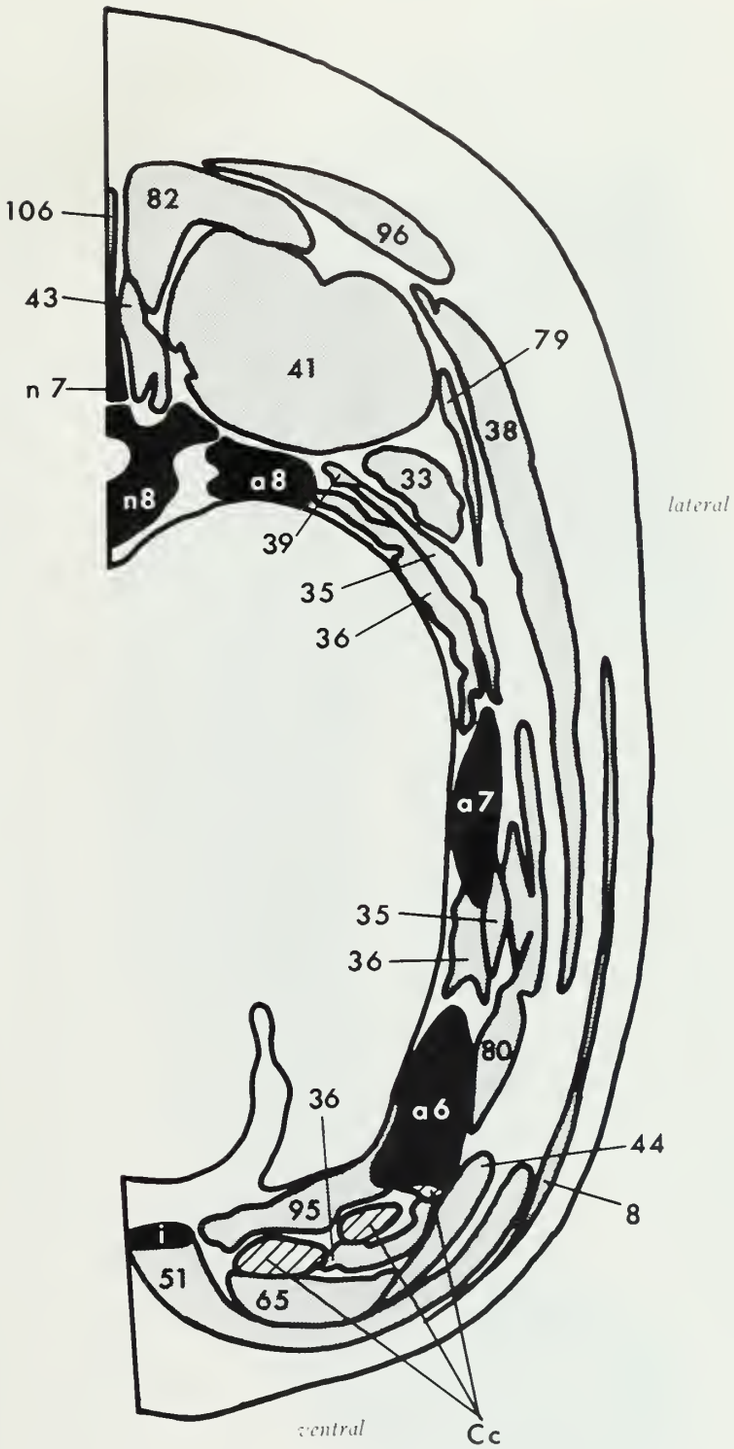
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ventral
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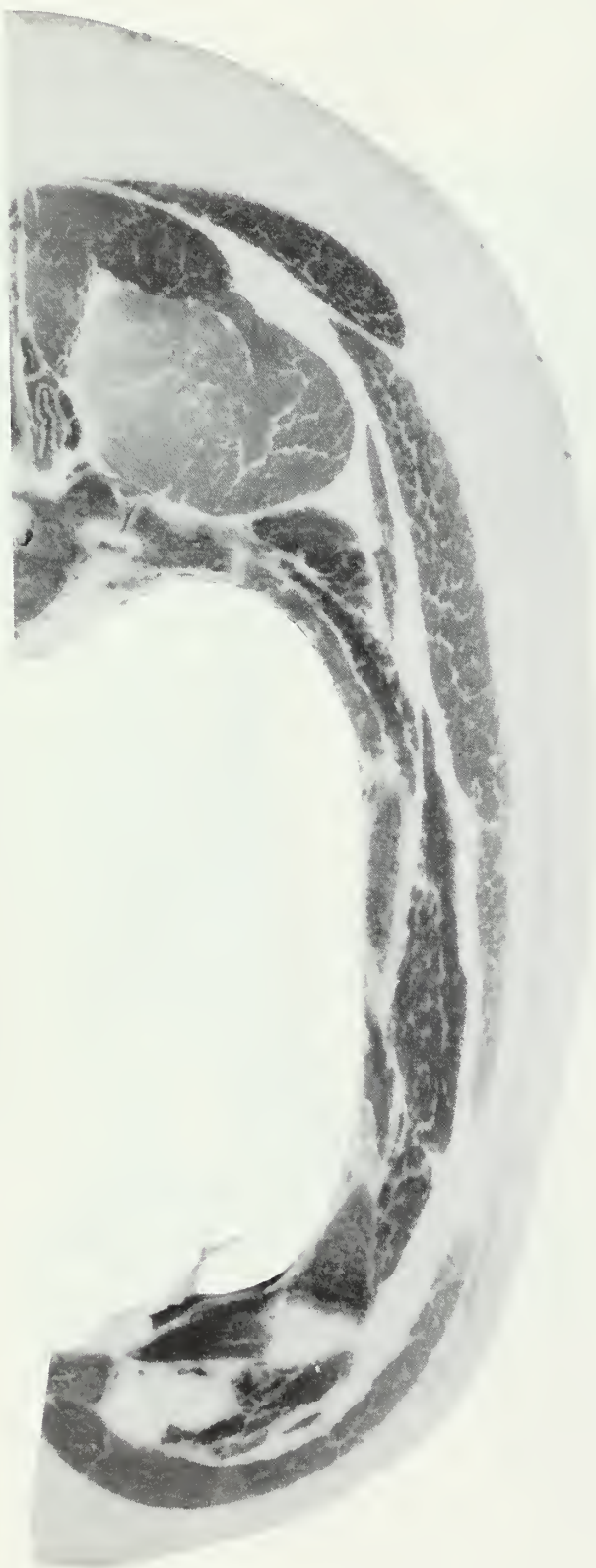
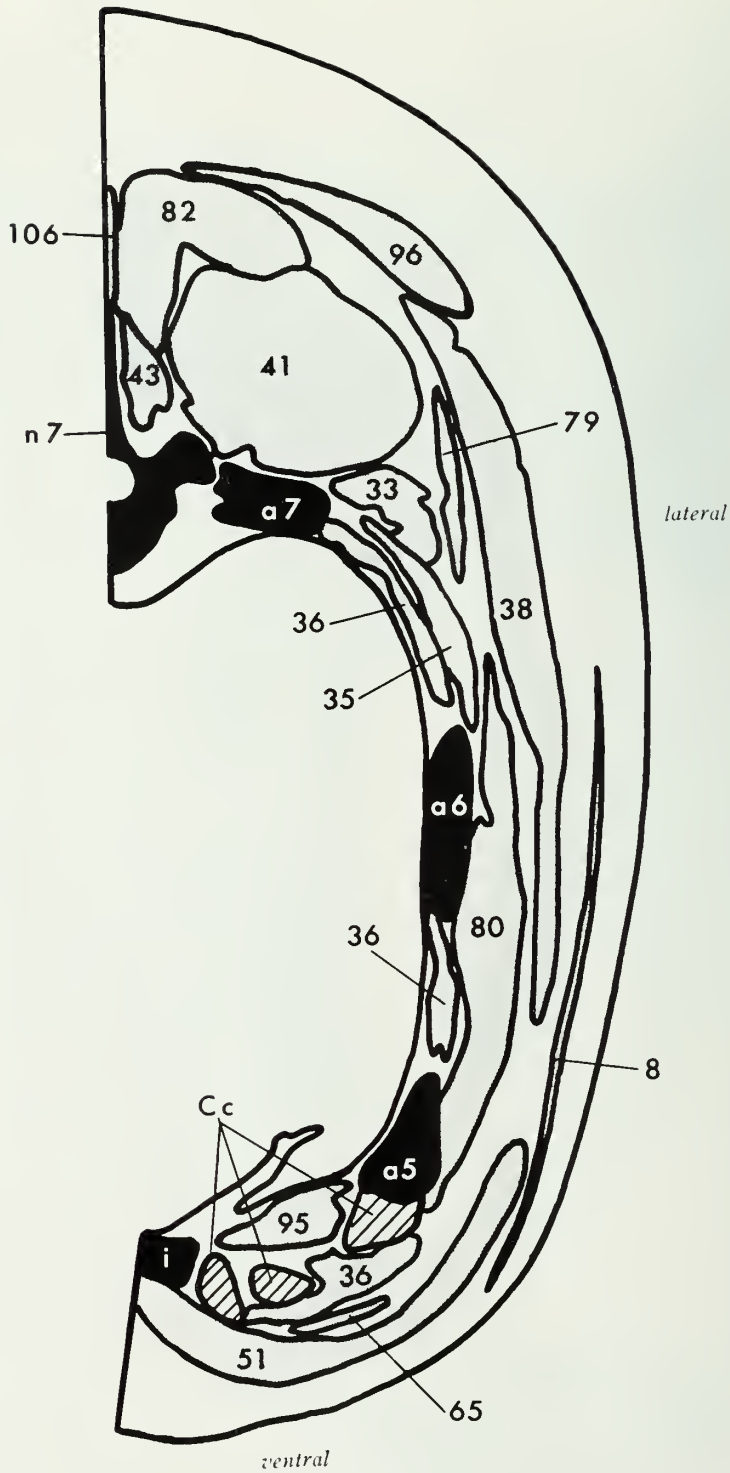
Section HH

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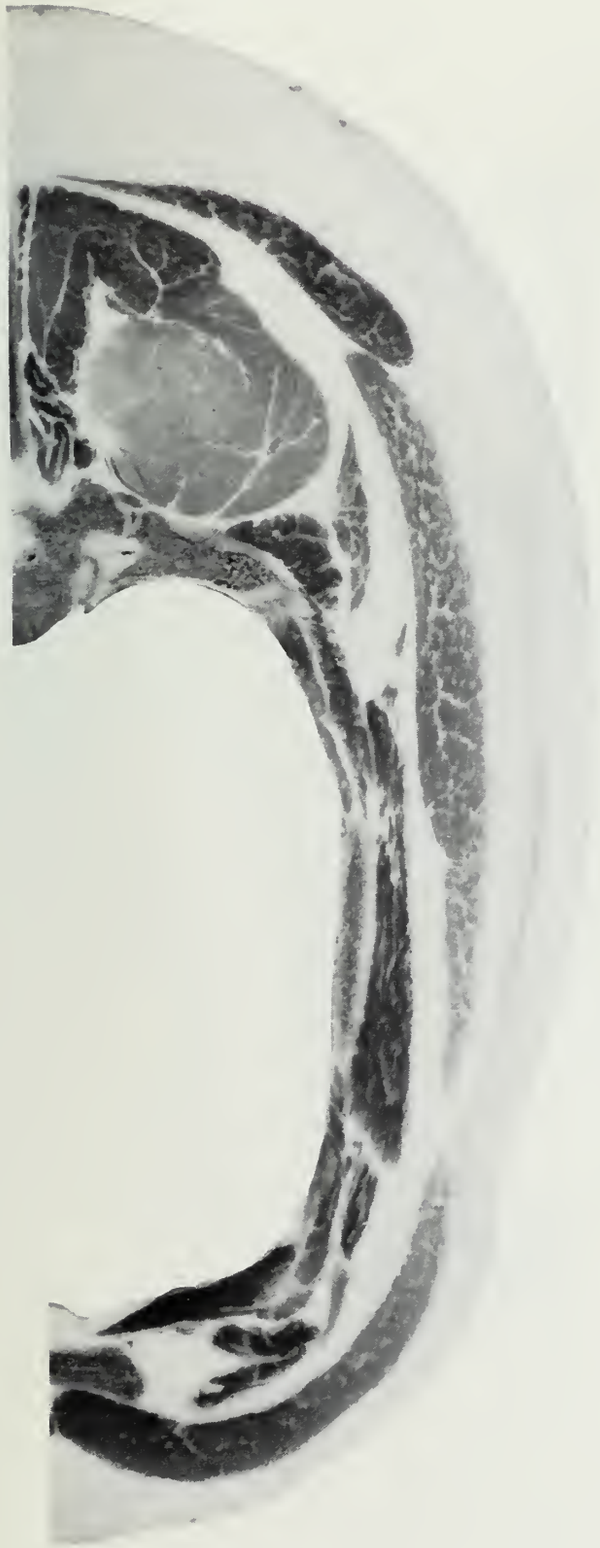
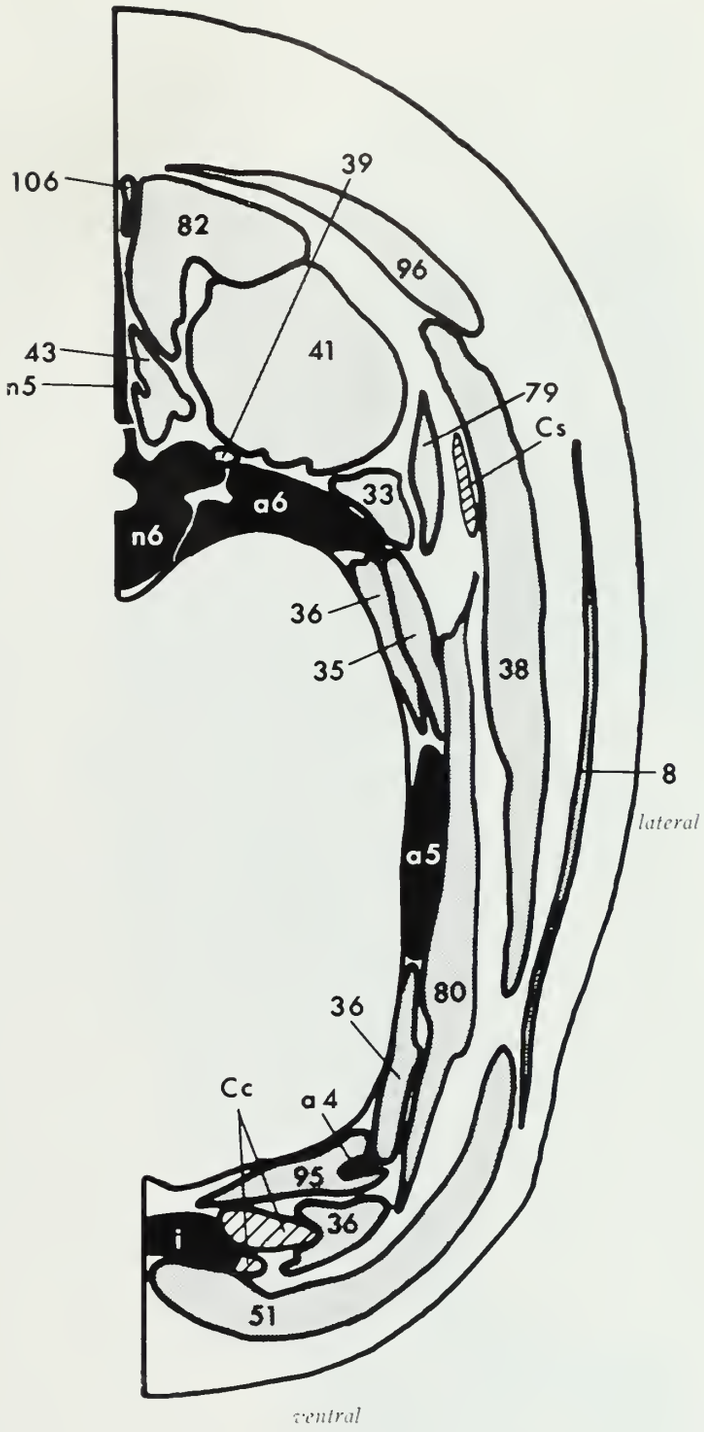
Section II

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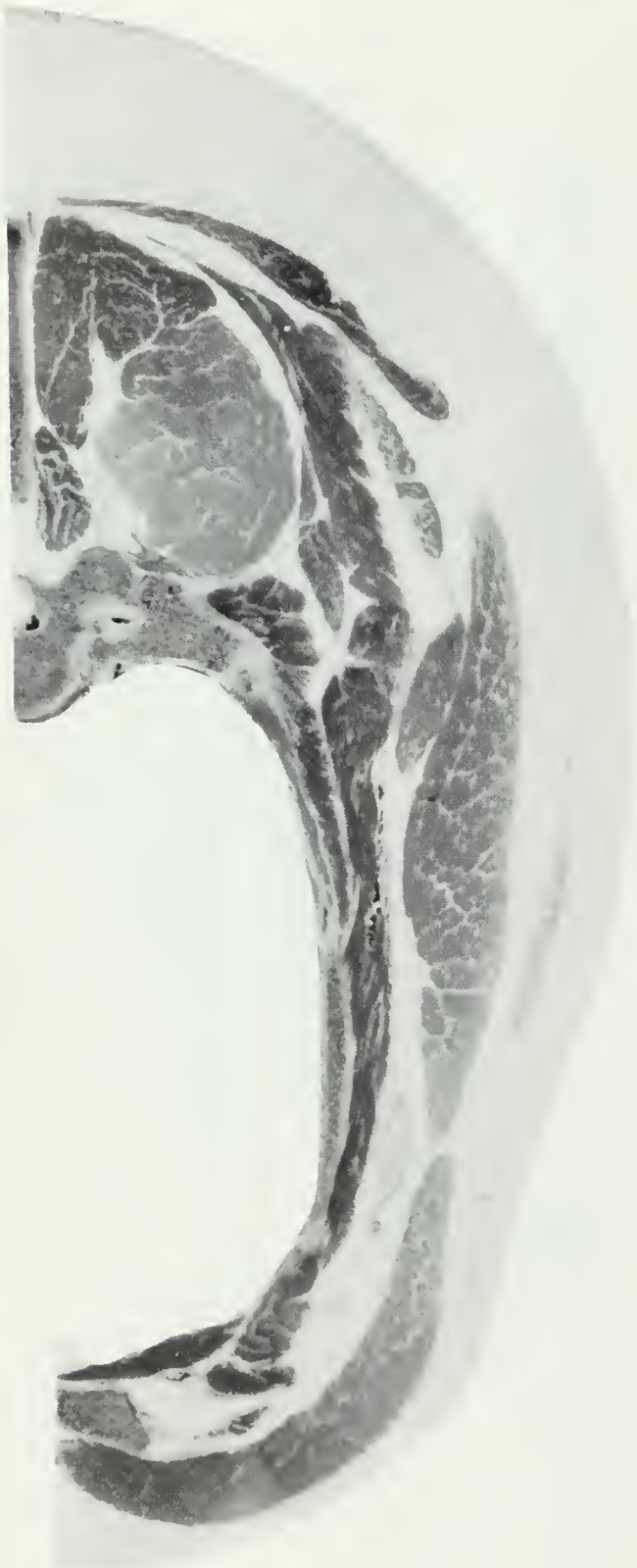

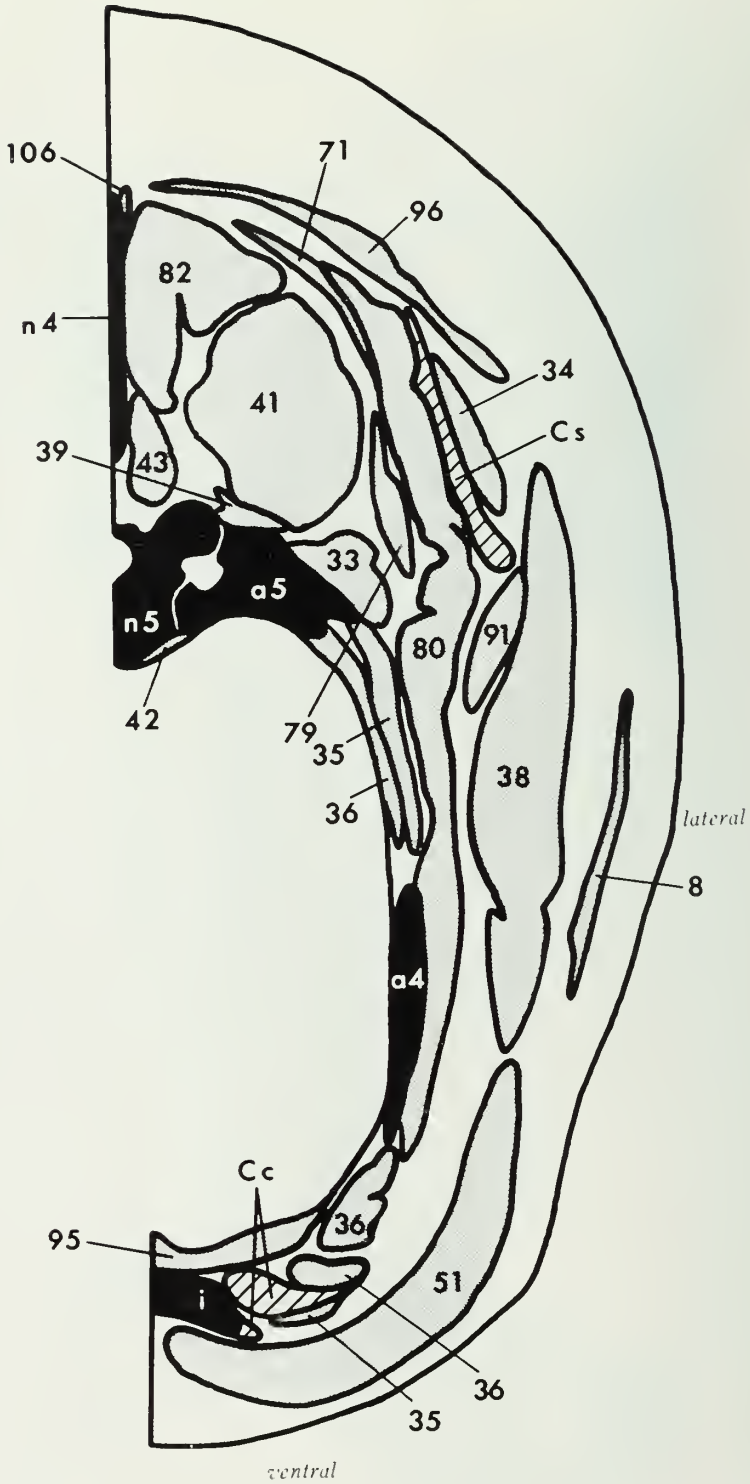
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ventral

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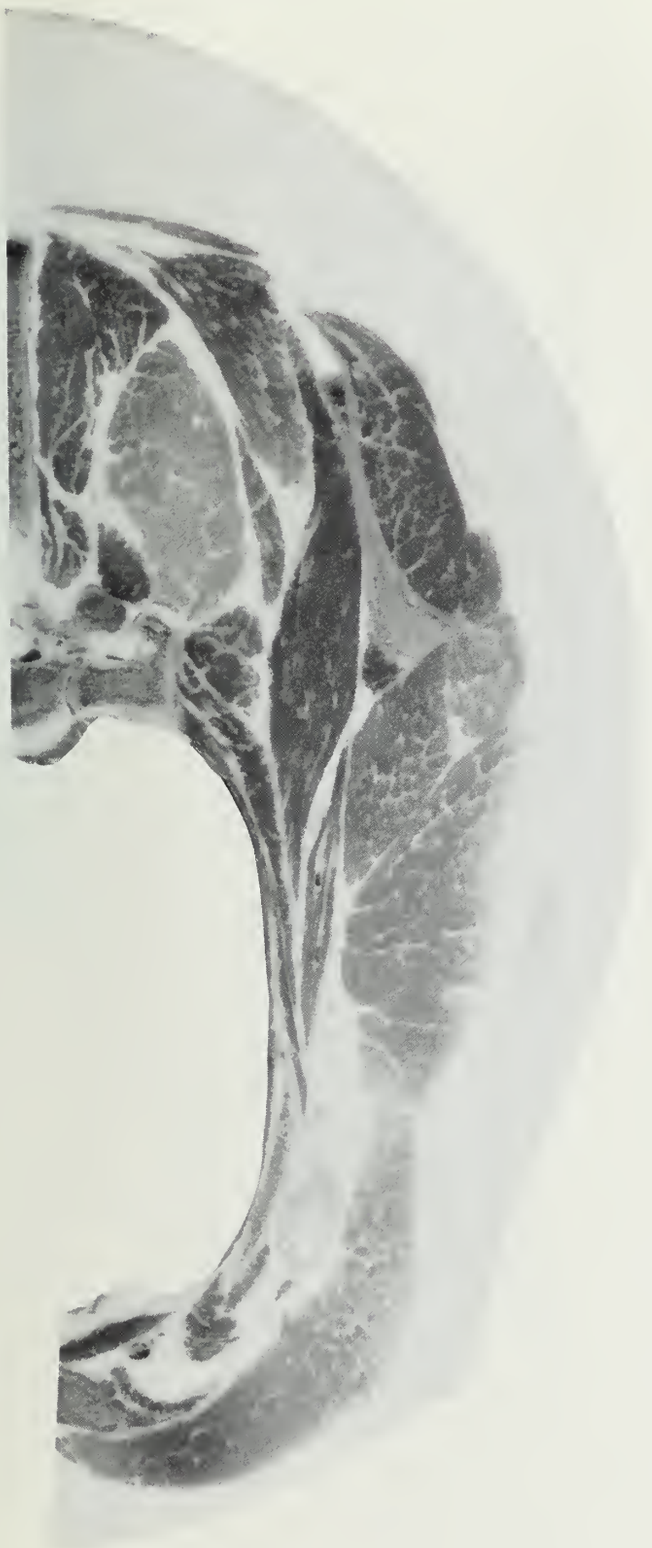

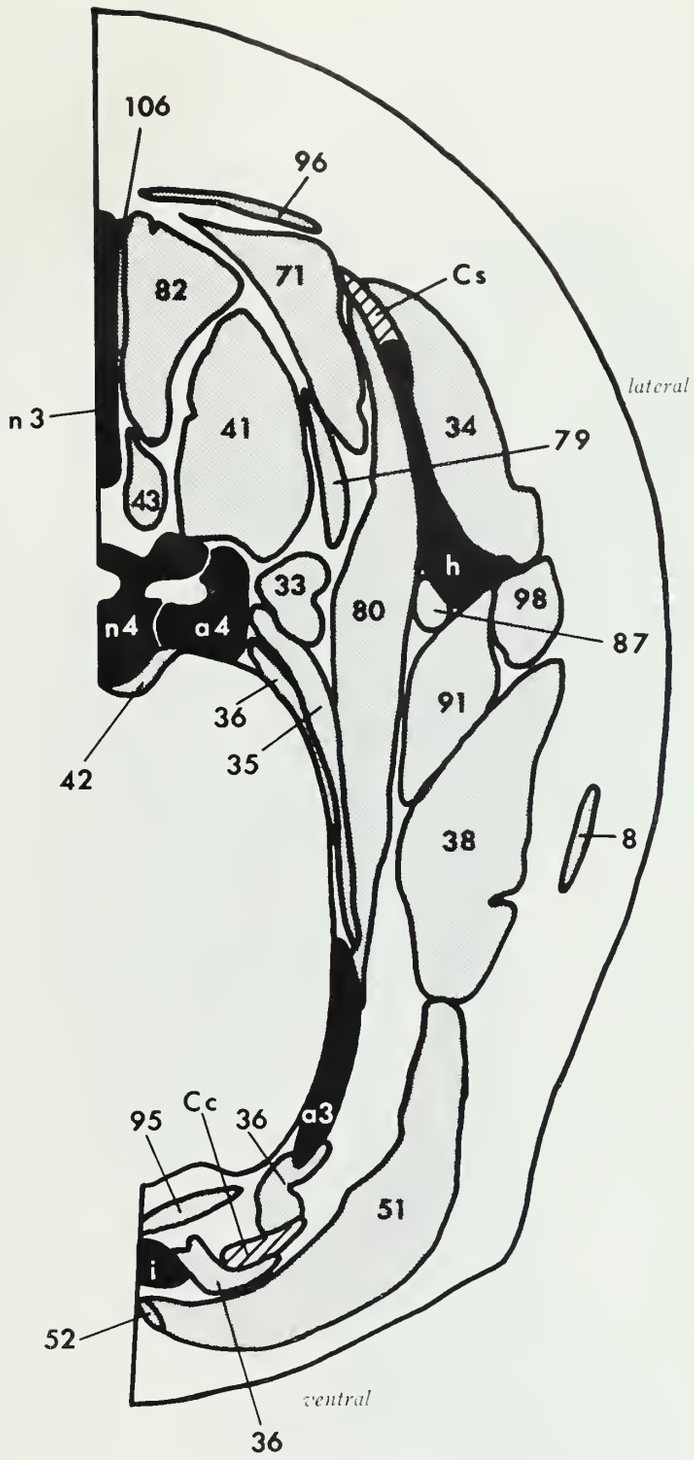
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ventral
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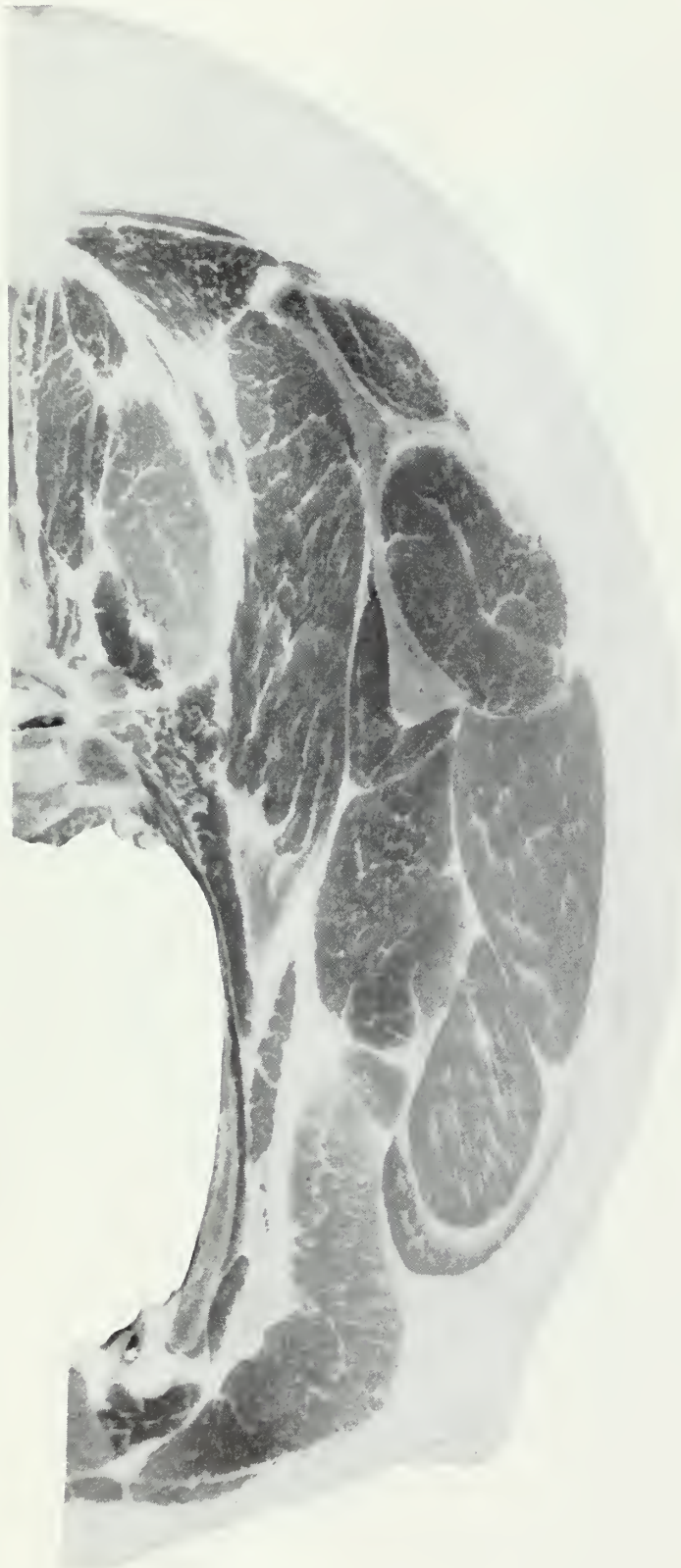
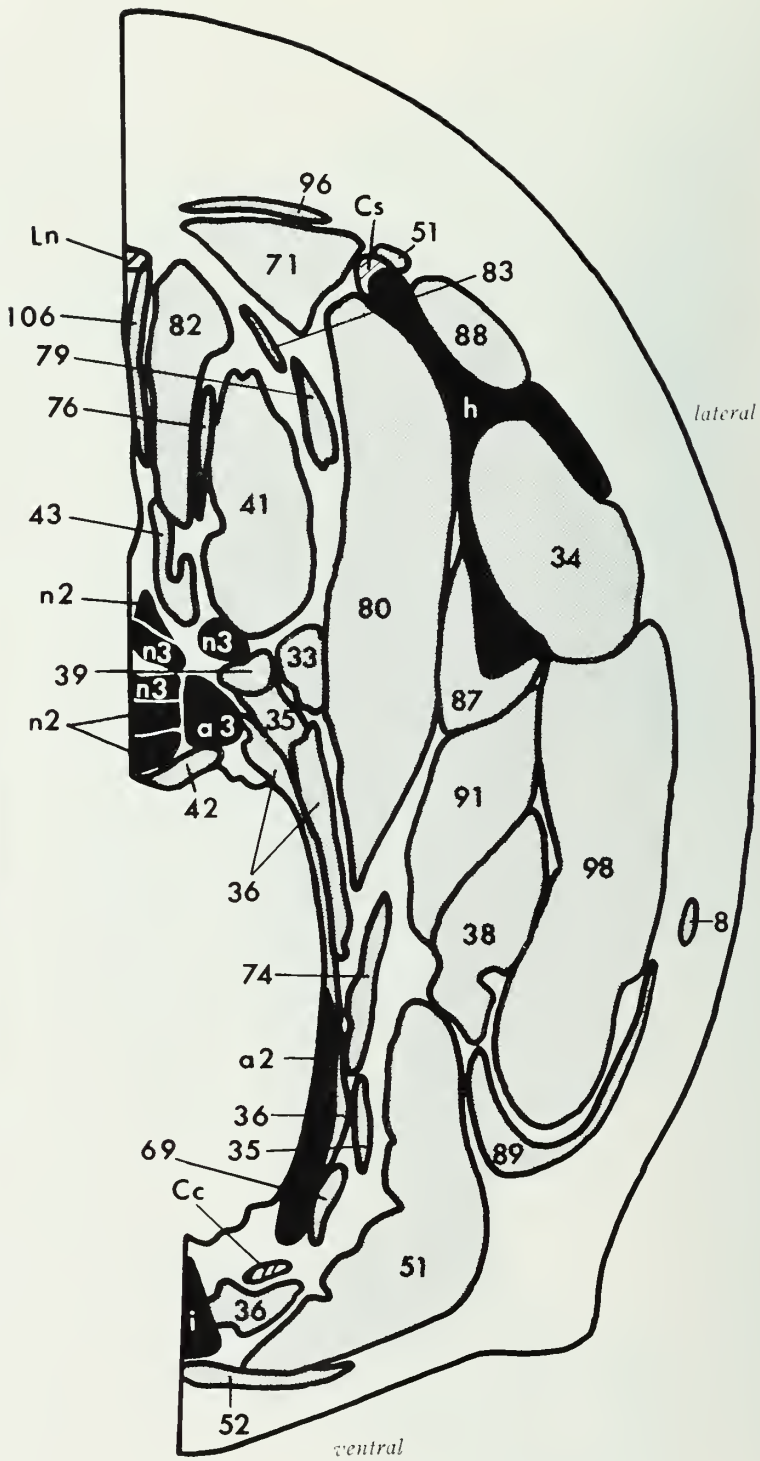
Section LL

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ventral

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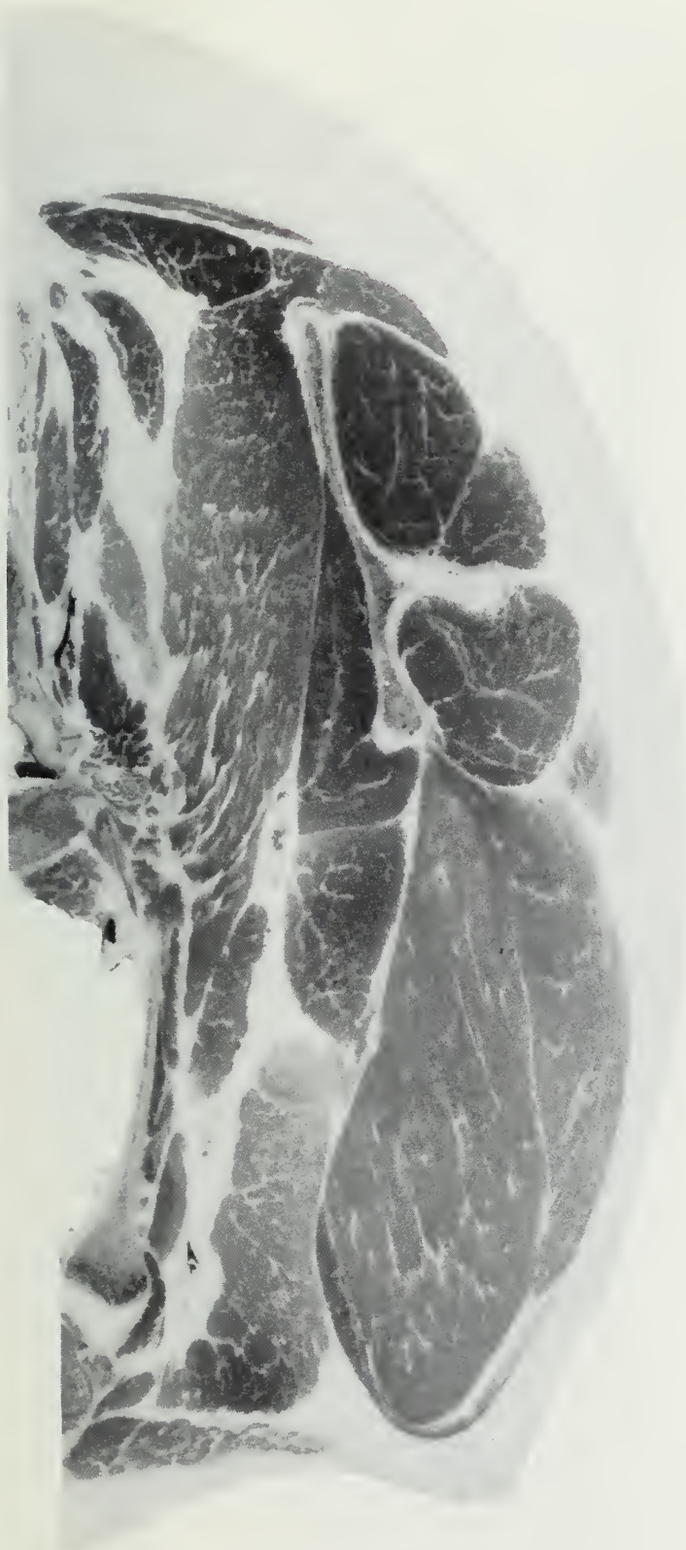

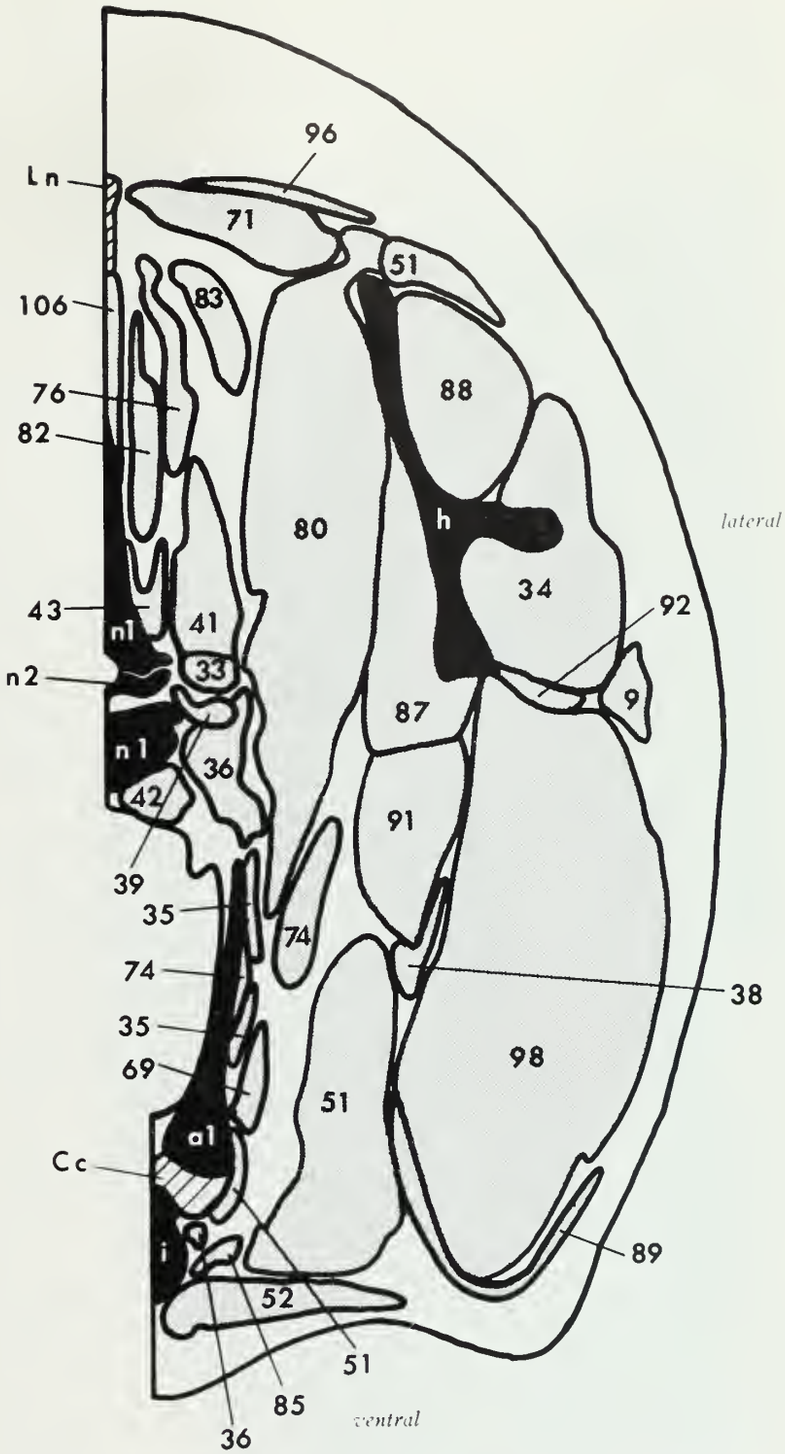
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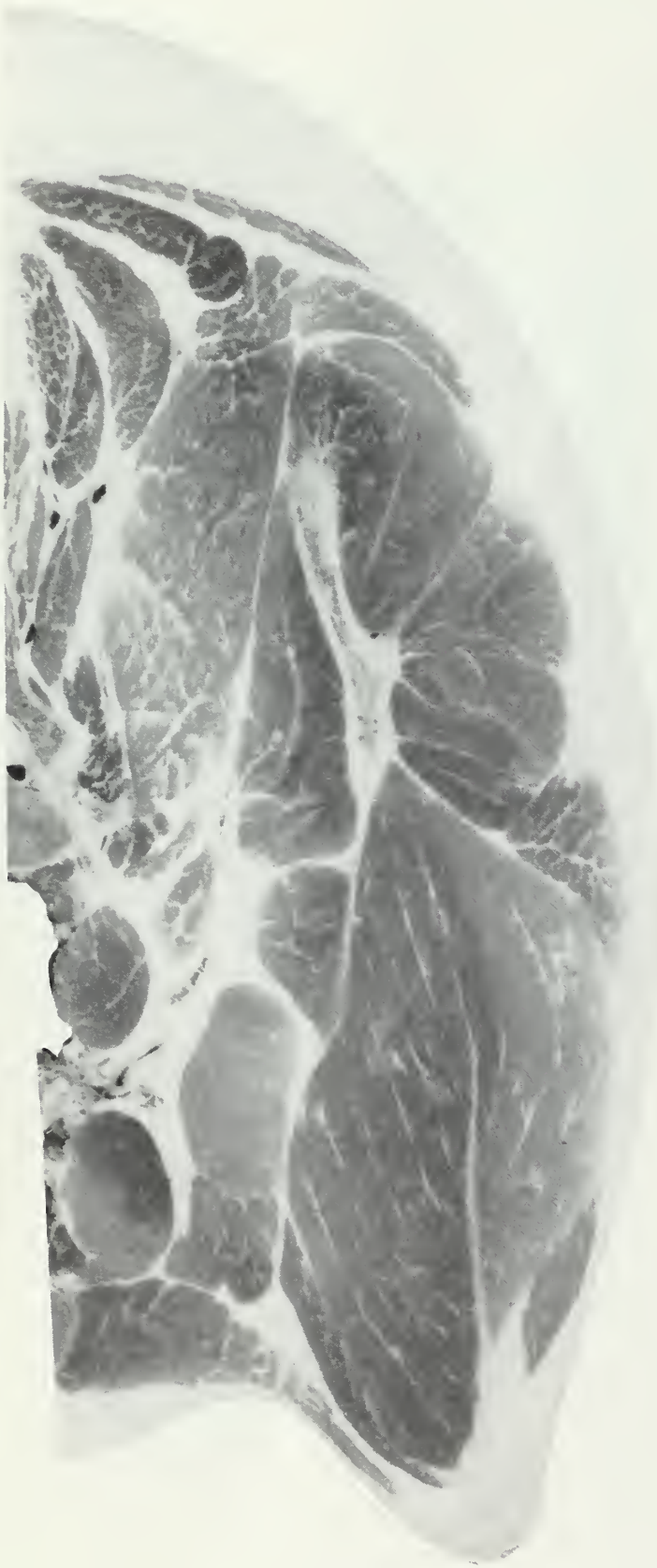

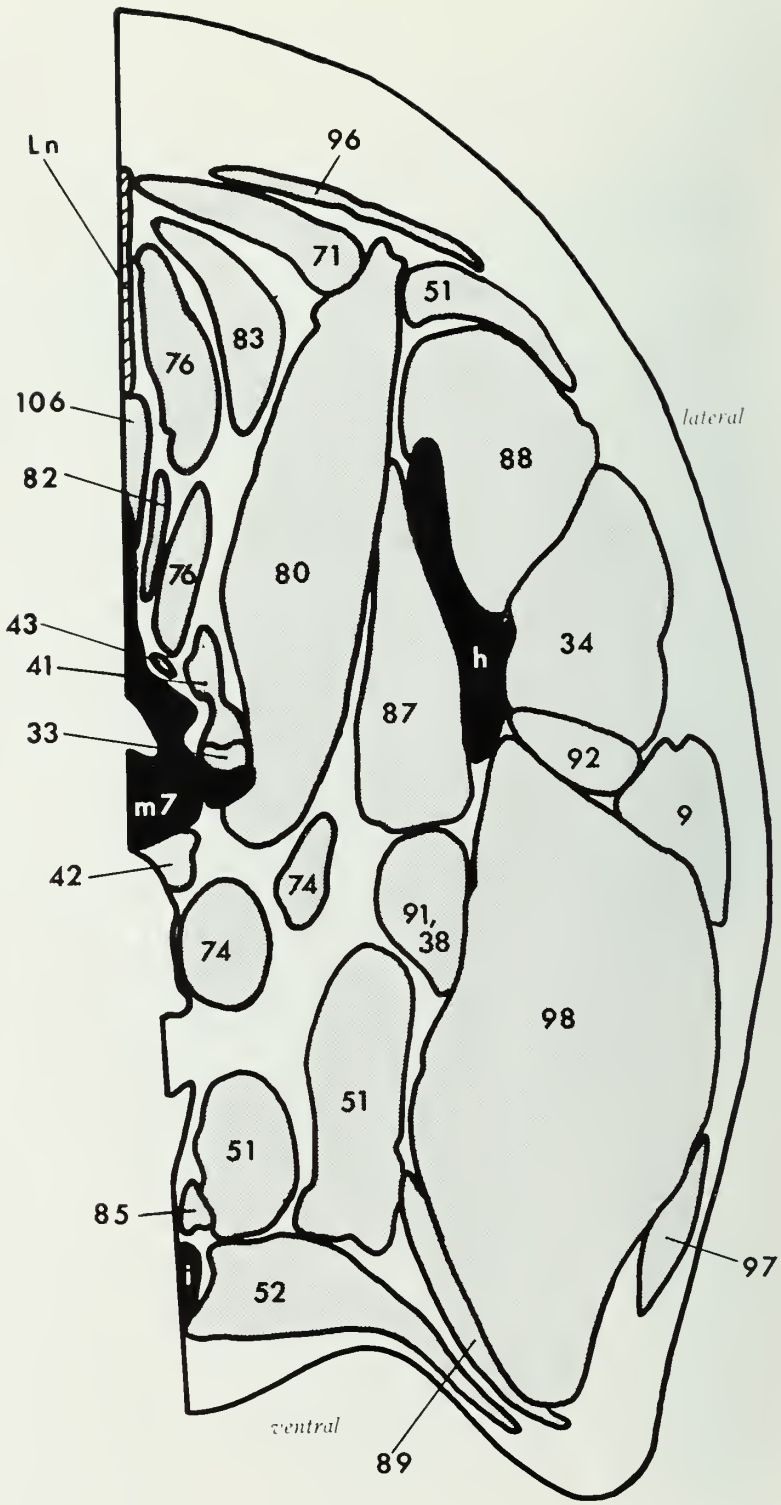
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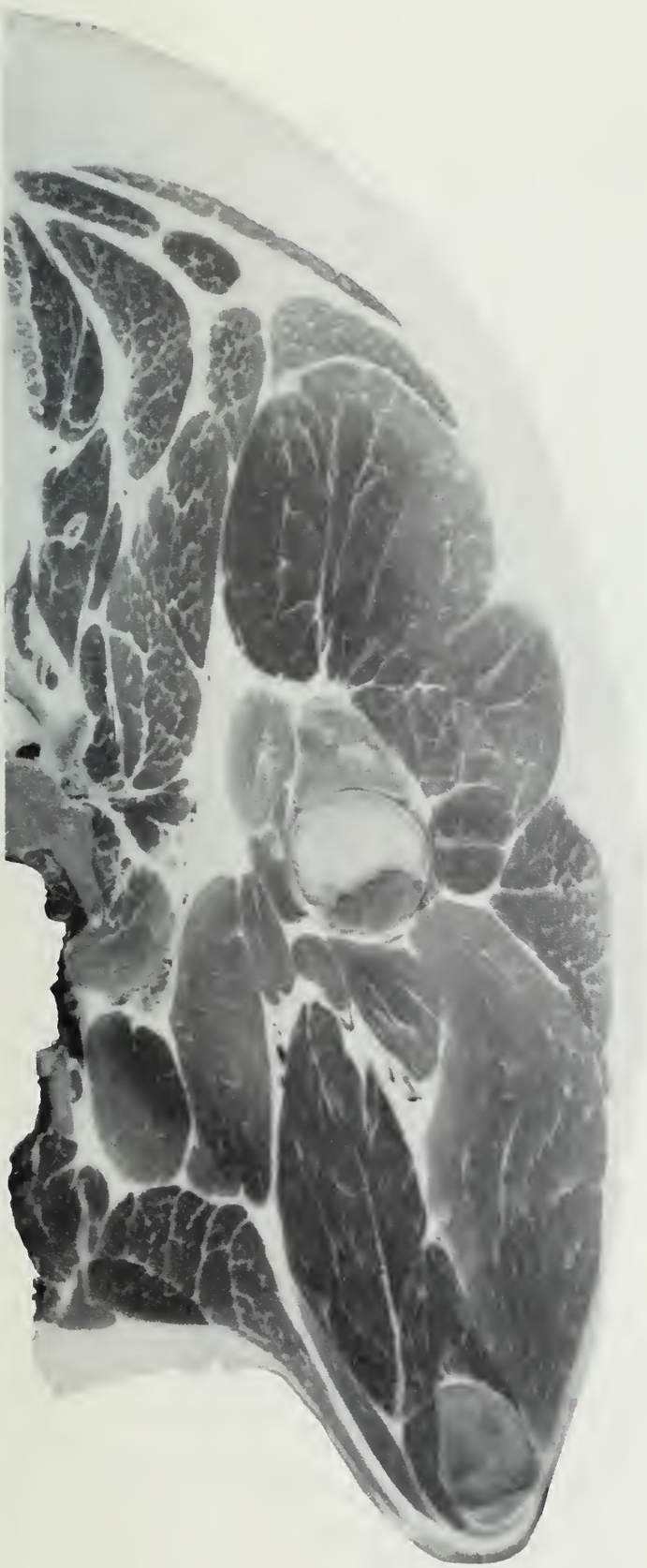
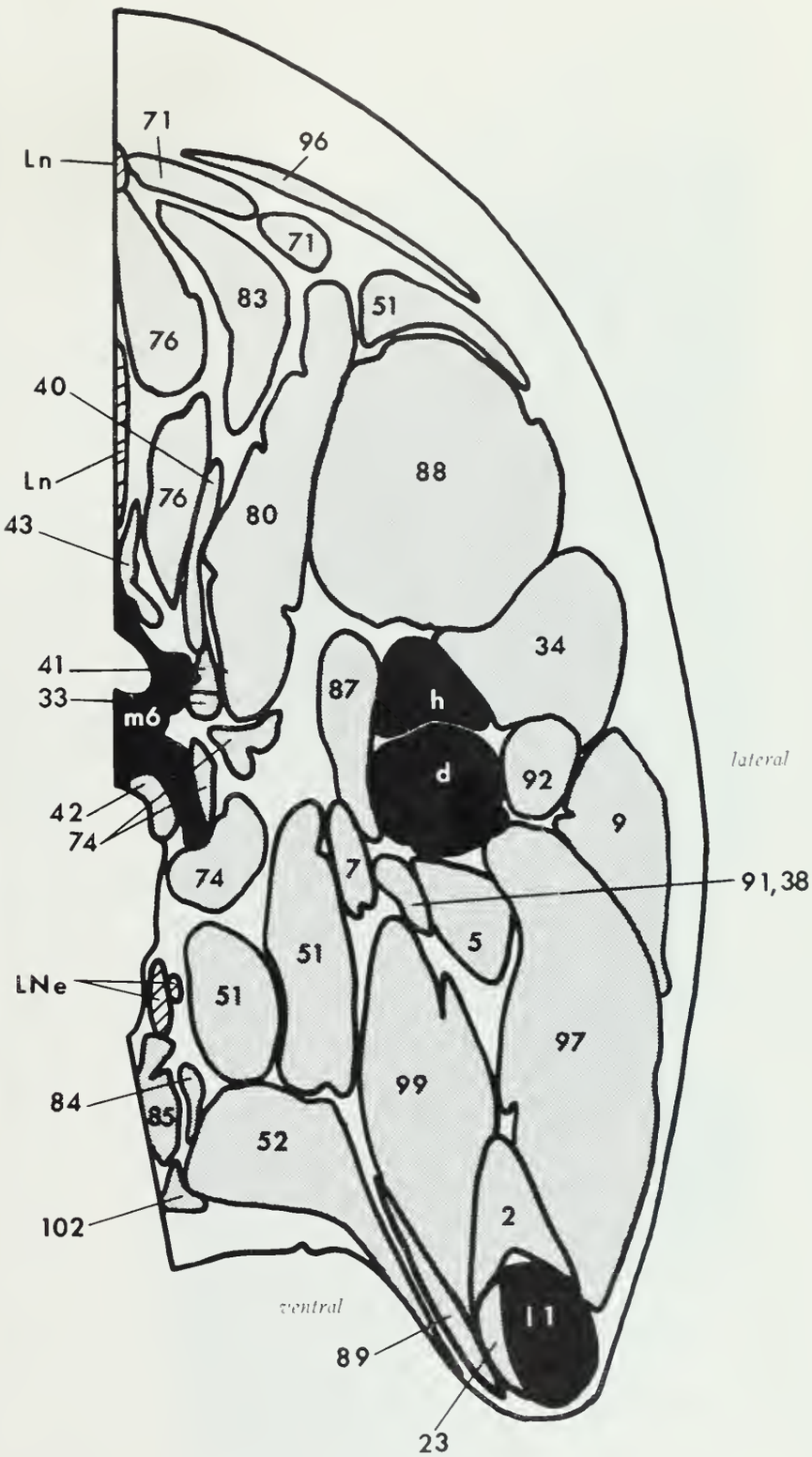
Section OO

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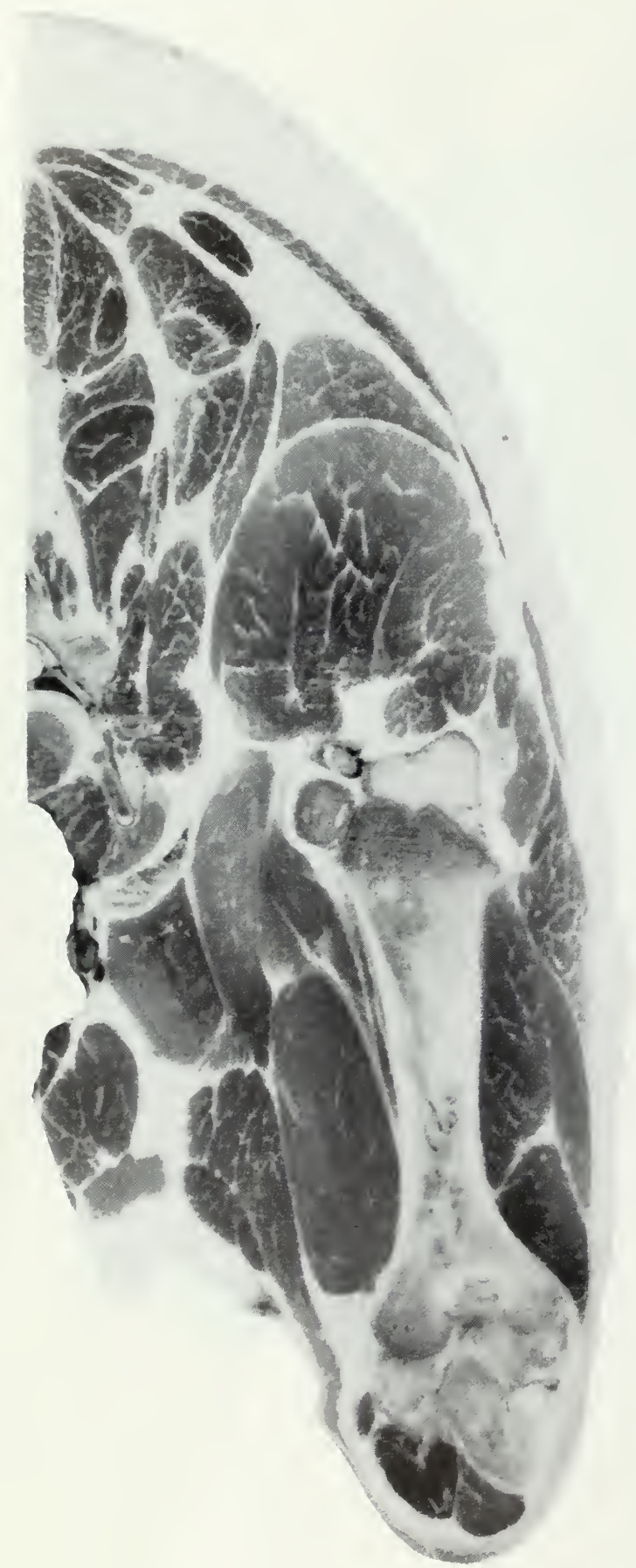
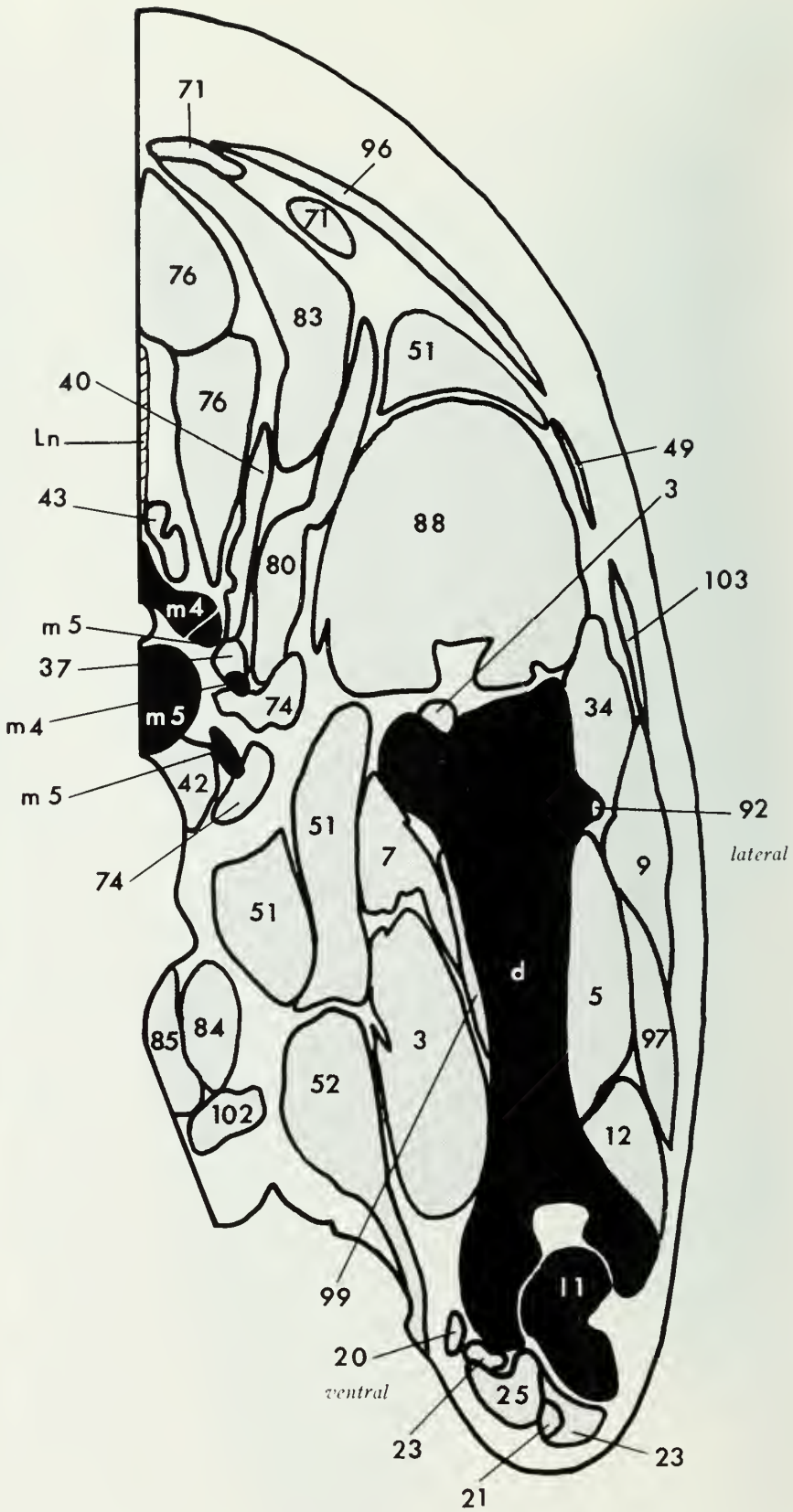
Section PP

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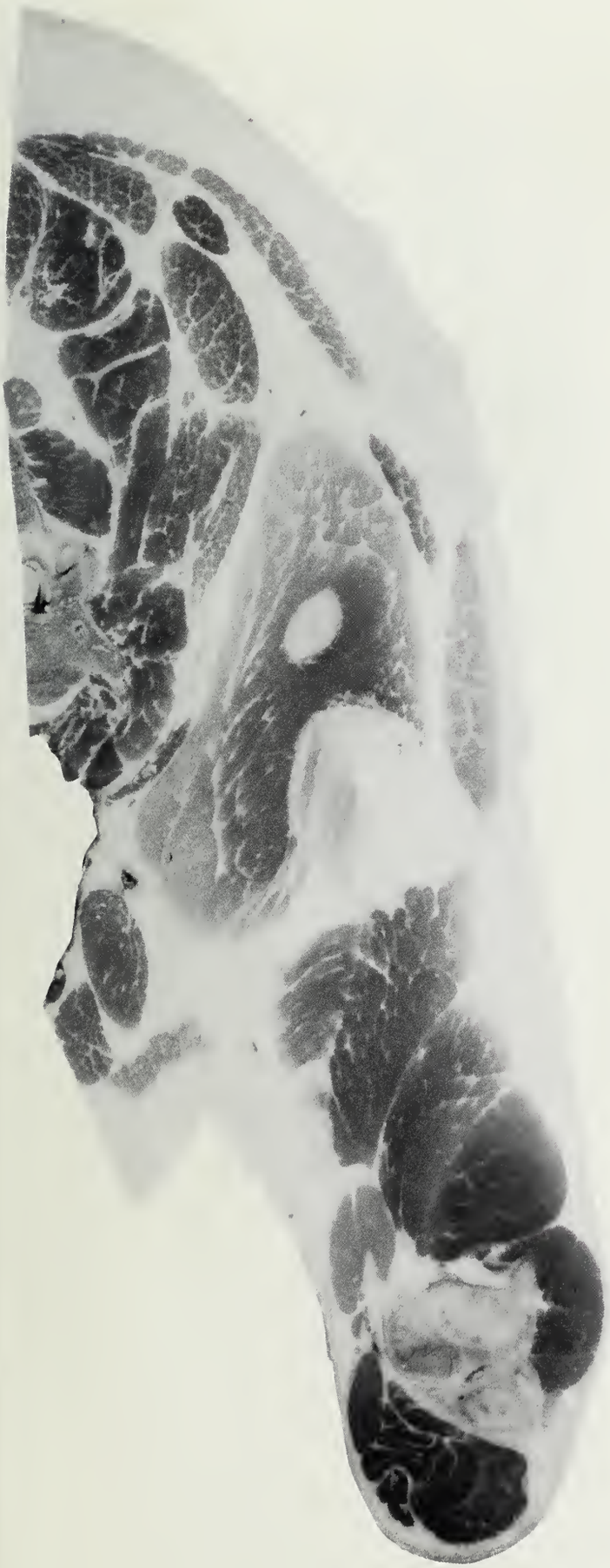
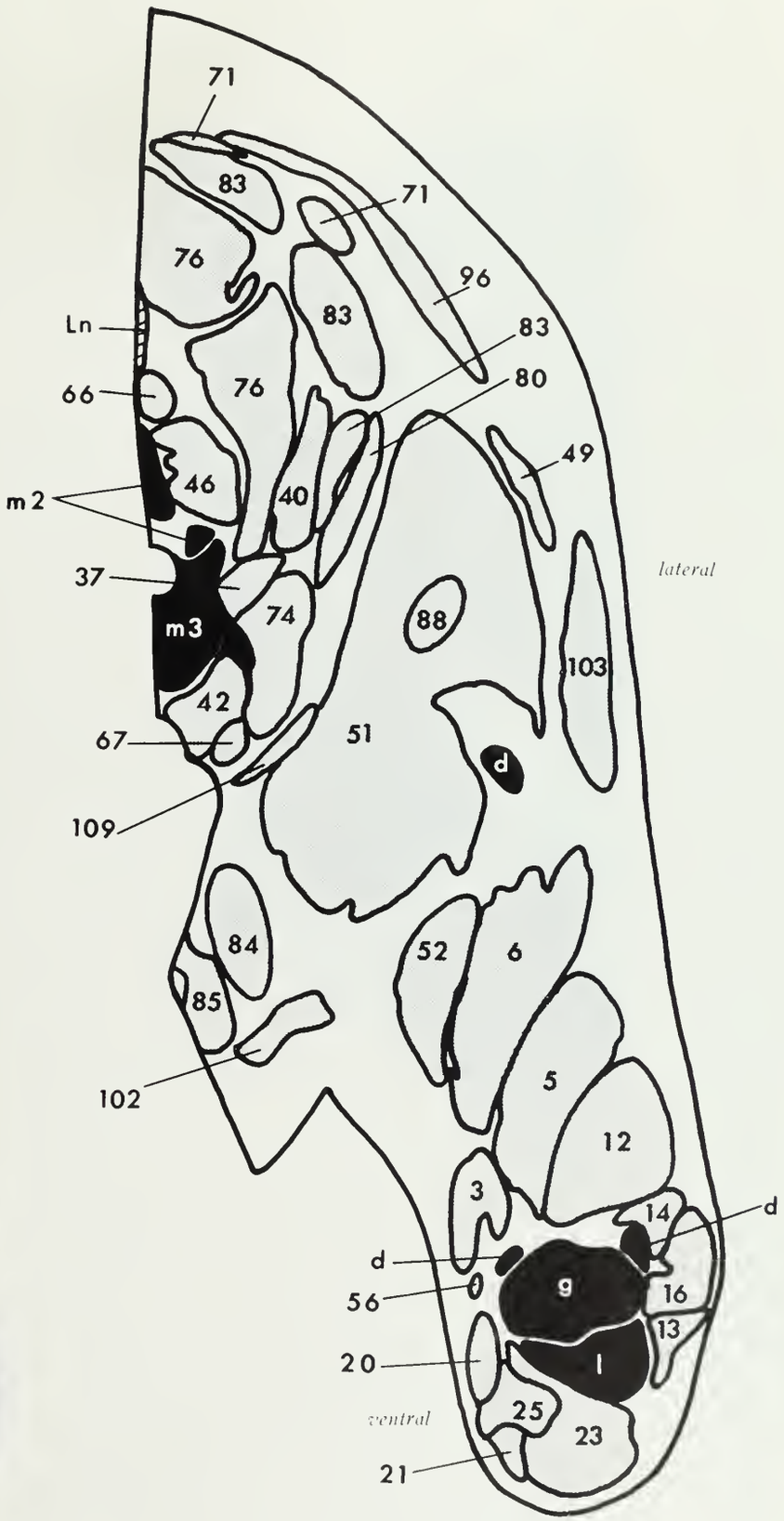
Section QQ

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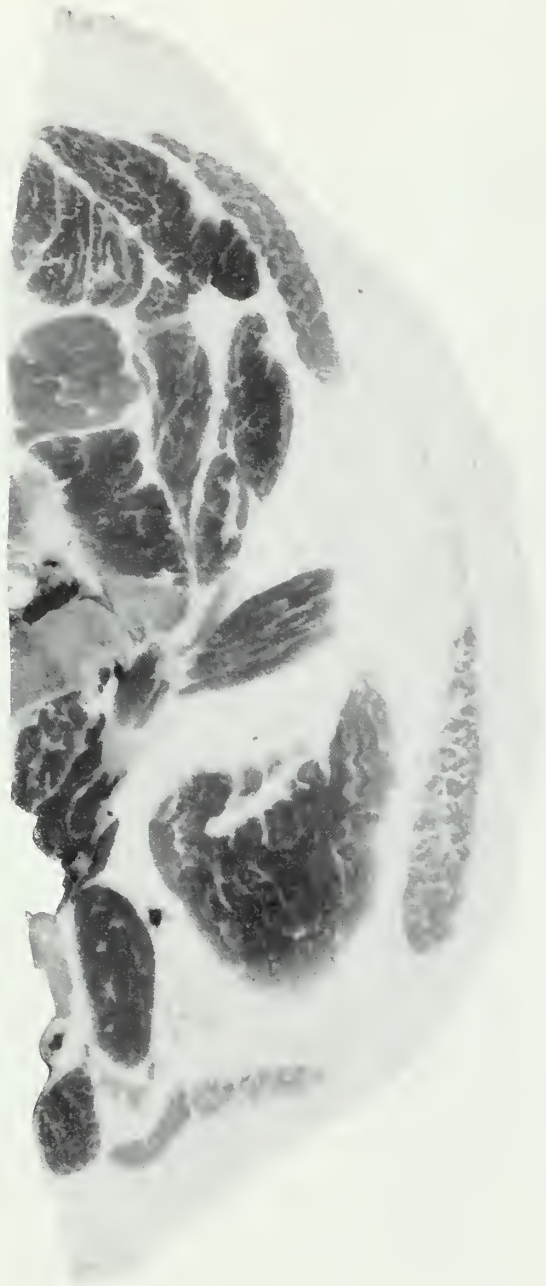
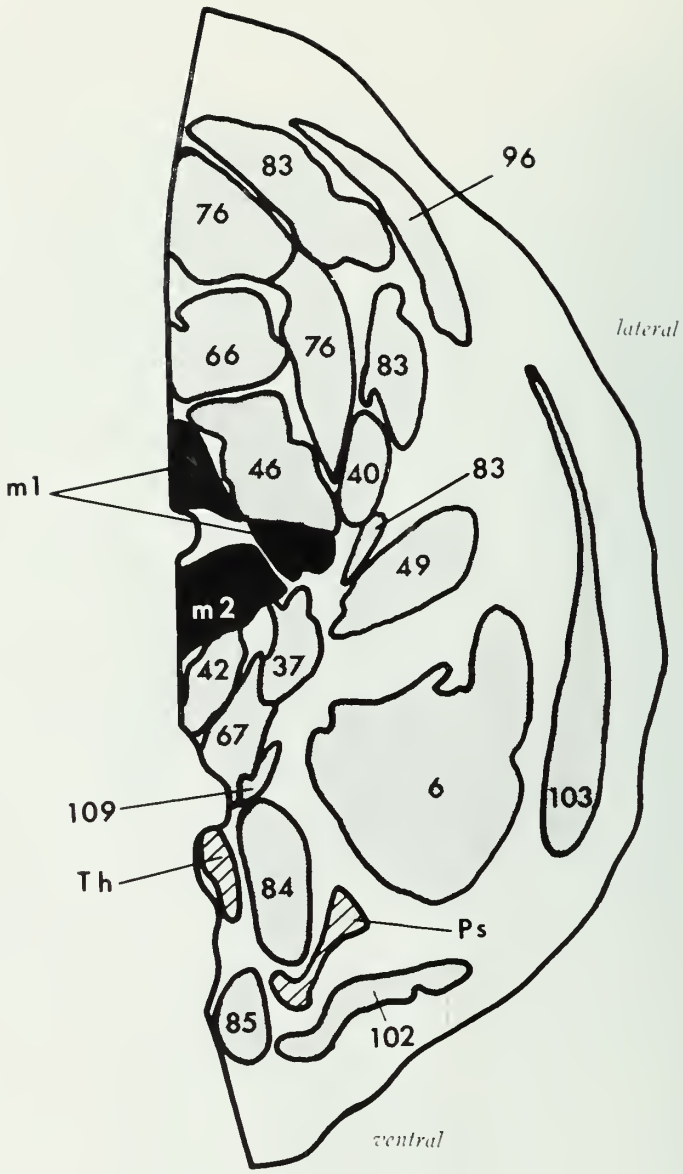
Section RR

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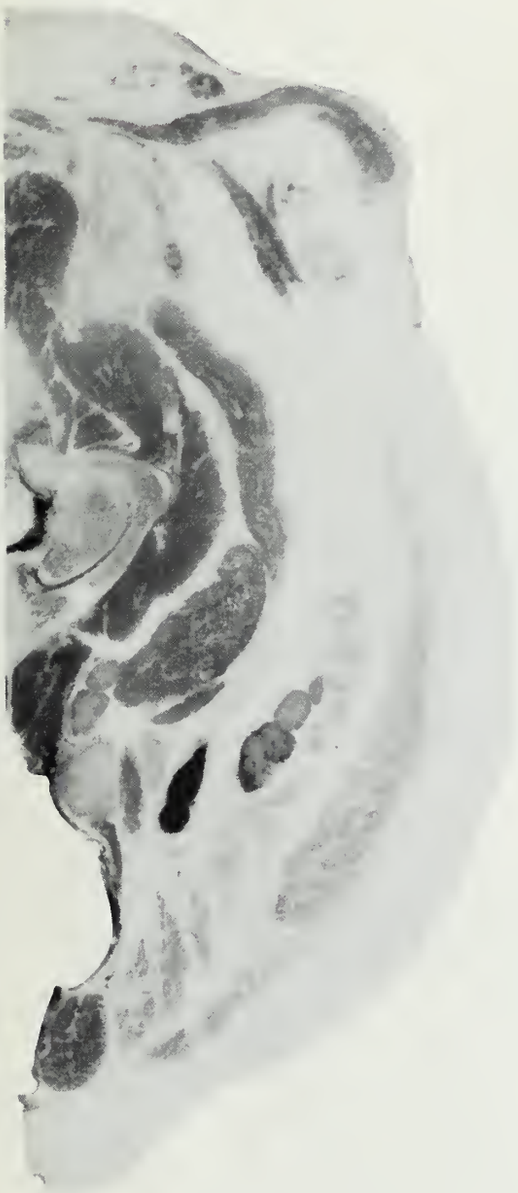
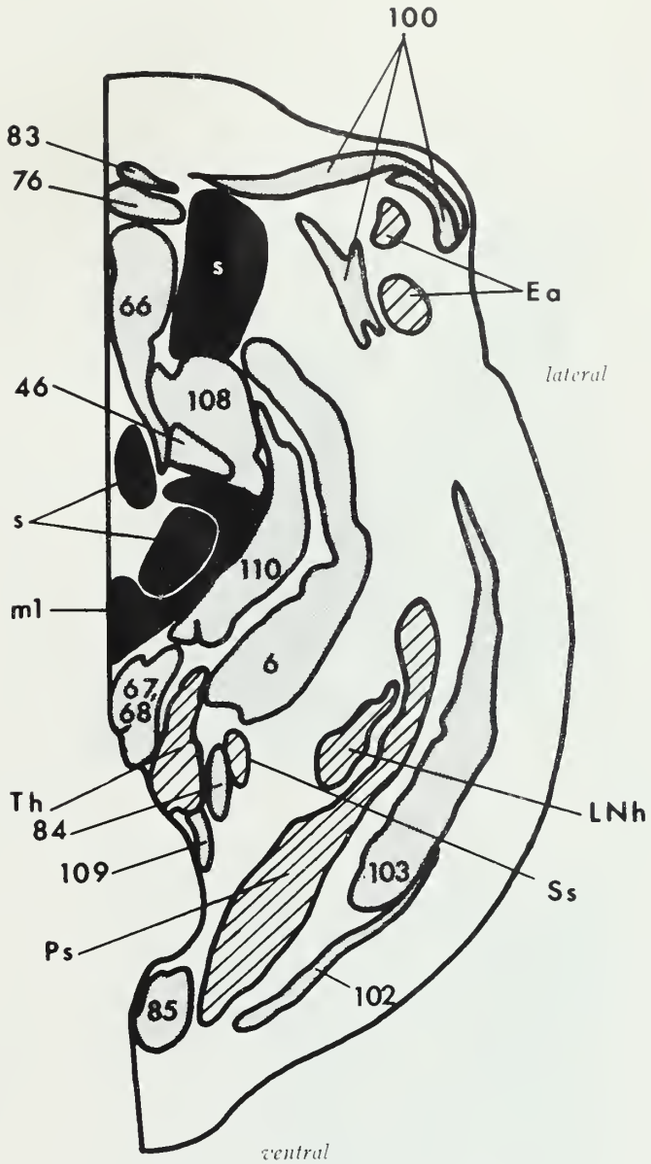
ventral

Section SS

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Ps
102
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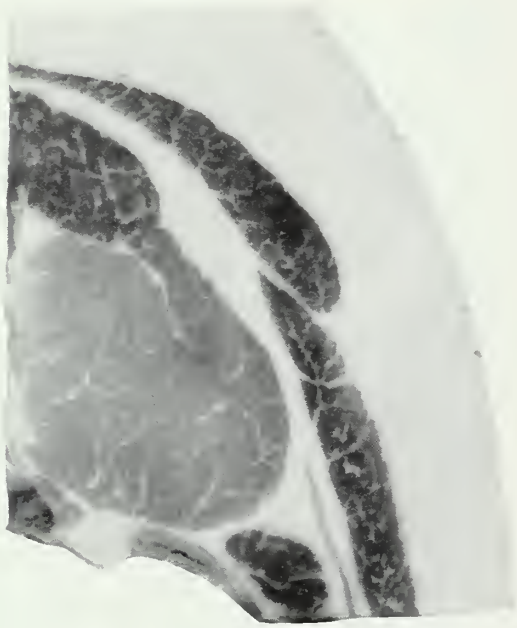
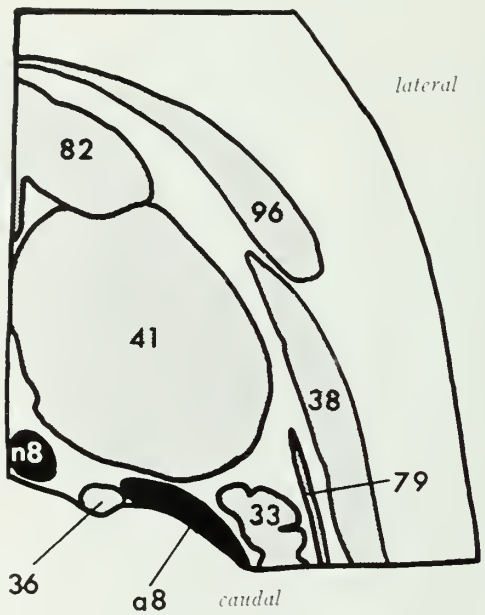
ventral

Sections TT to JJJ illustrate the muscles paralleling the longitudinal axis of the thoracic limb from a region dorsal to the scapular cartilage (Cs) to the distal extremities of the radius (g) and ulna (1). Only portions of some of the muscles that run from the body to the limb are included. The proximal view of each section is shown.

Section TT





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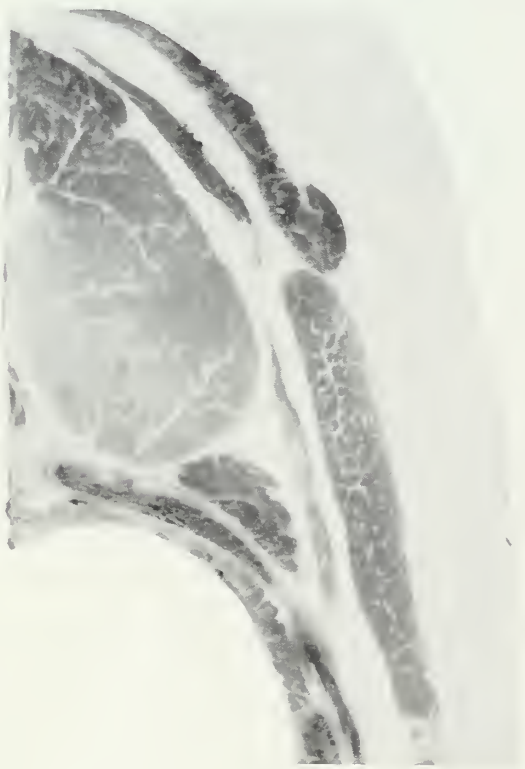

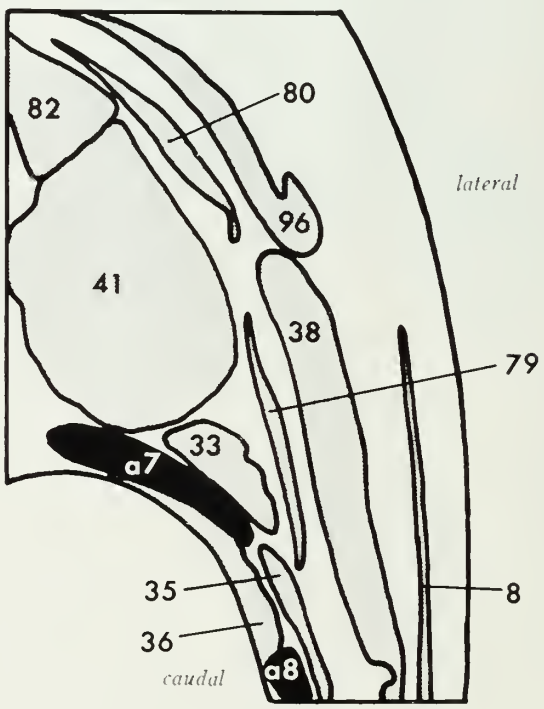

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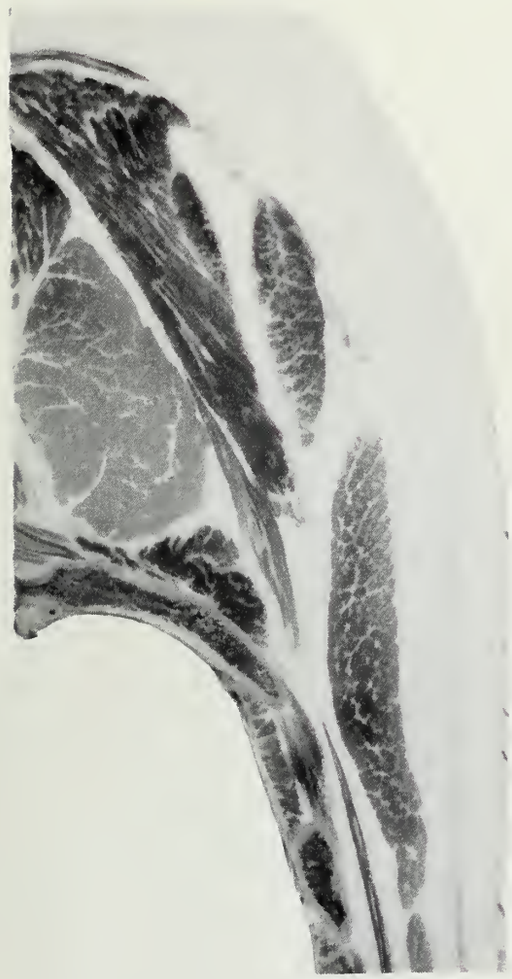

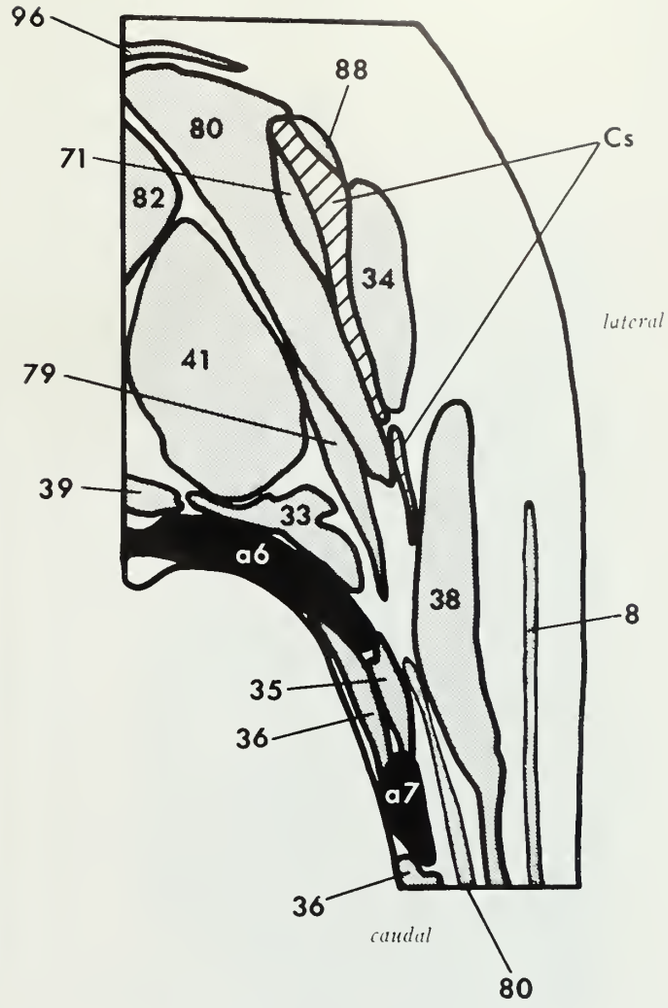

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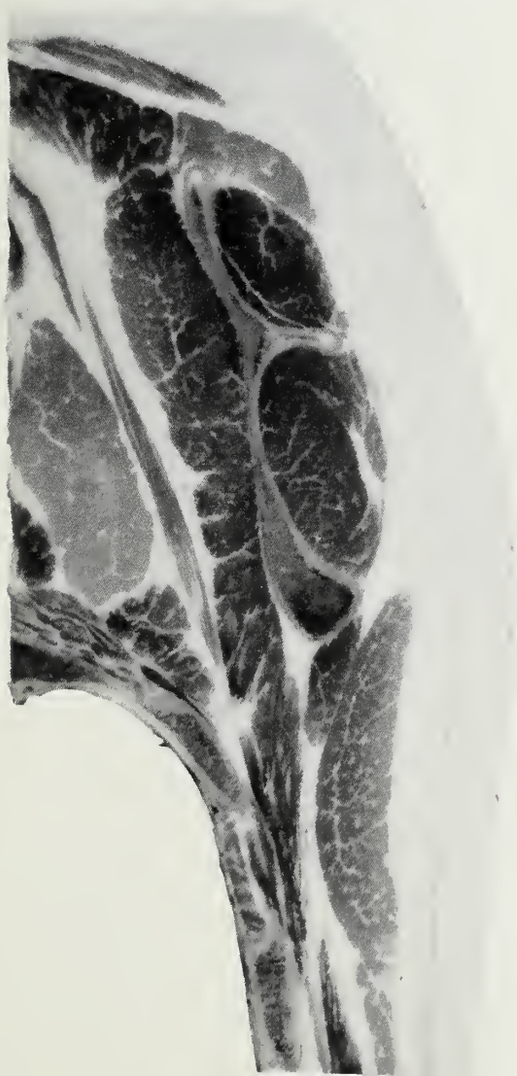

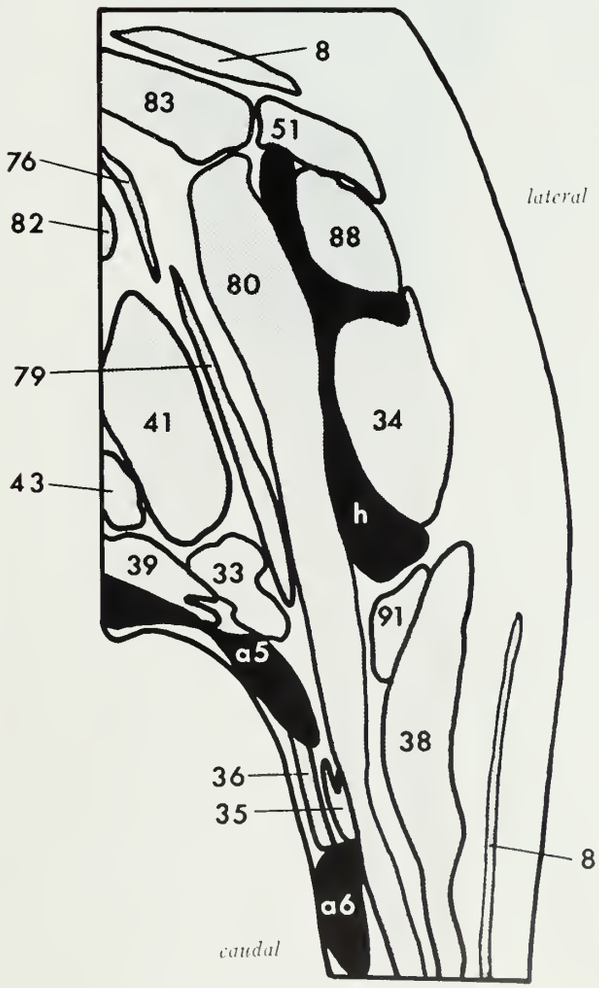

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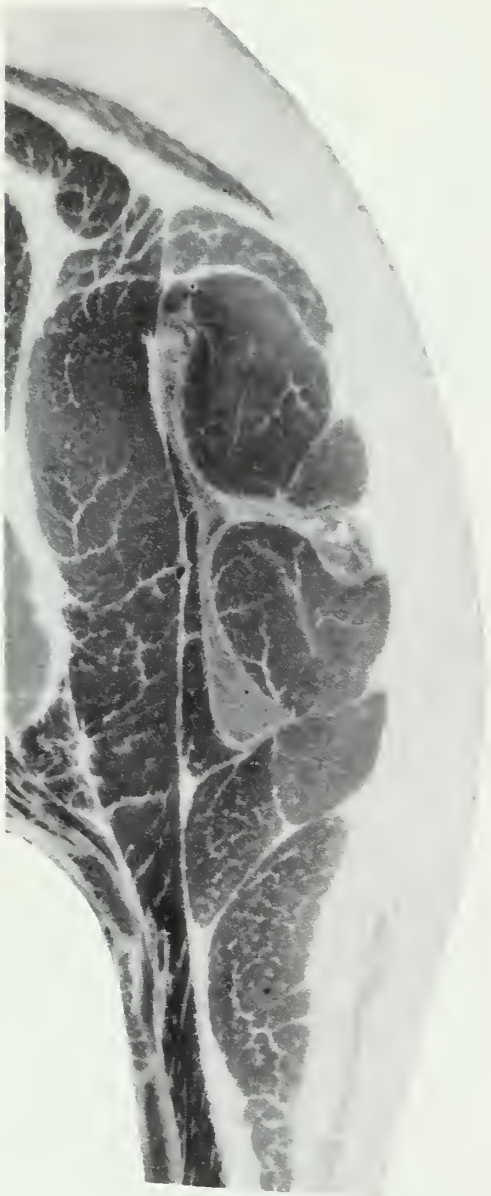

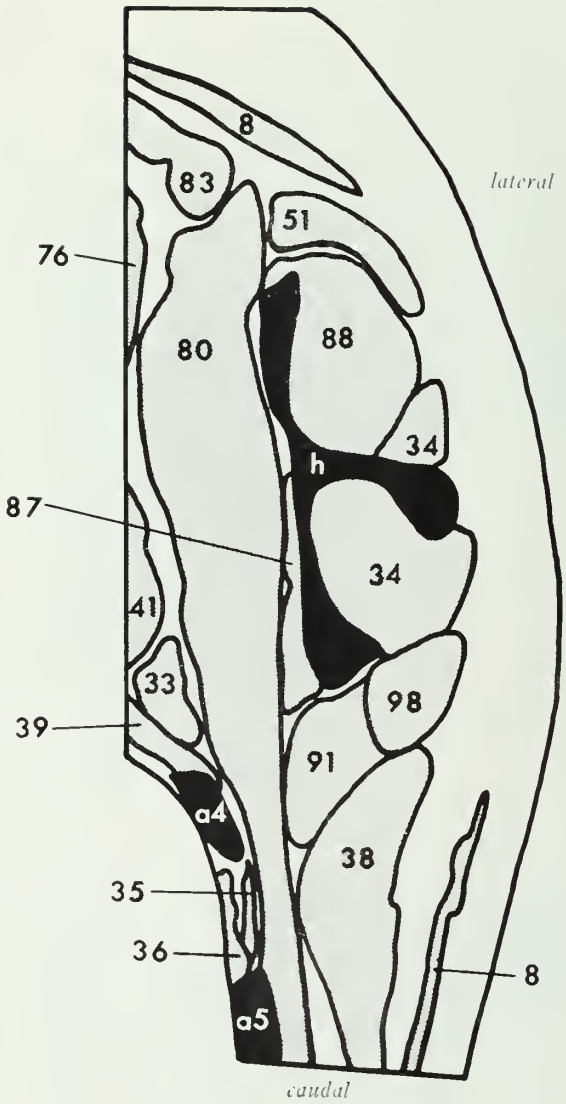
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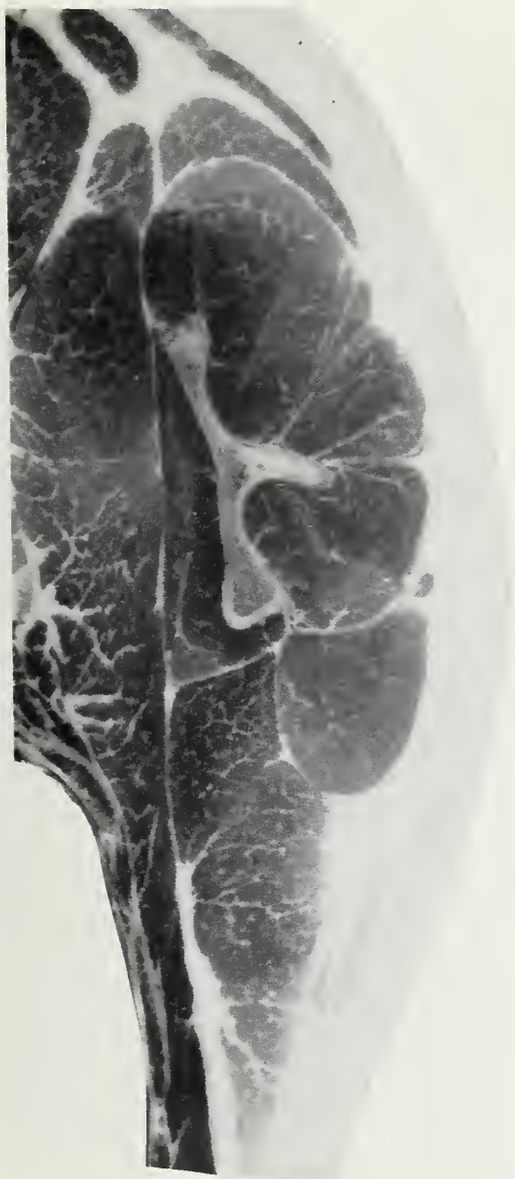

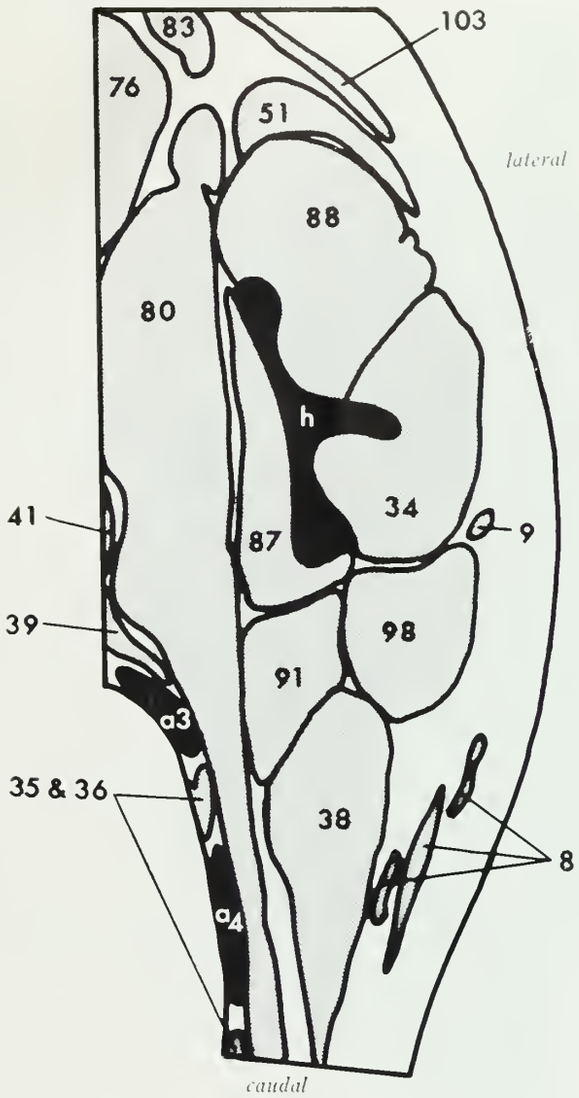
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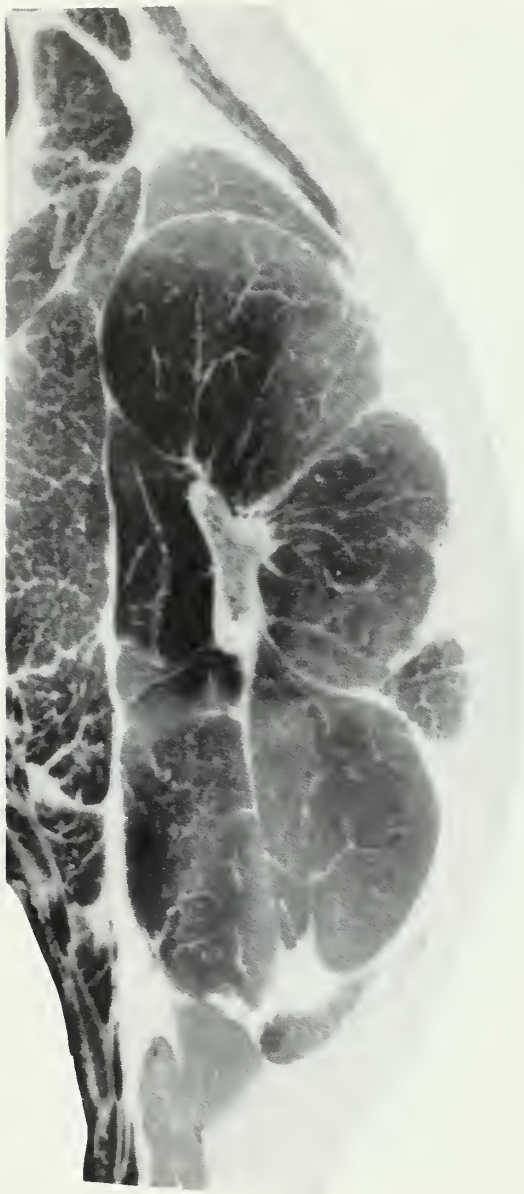

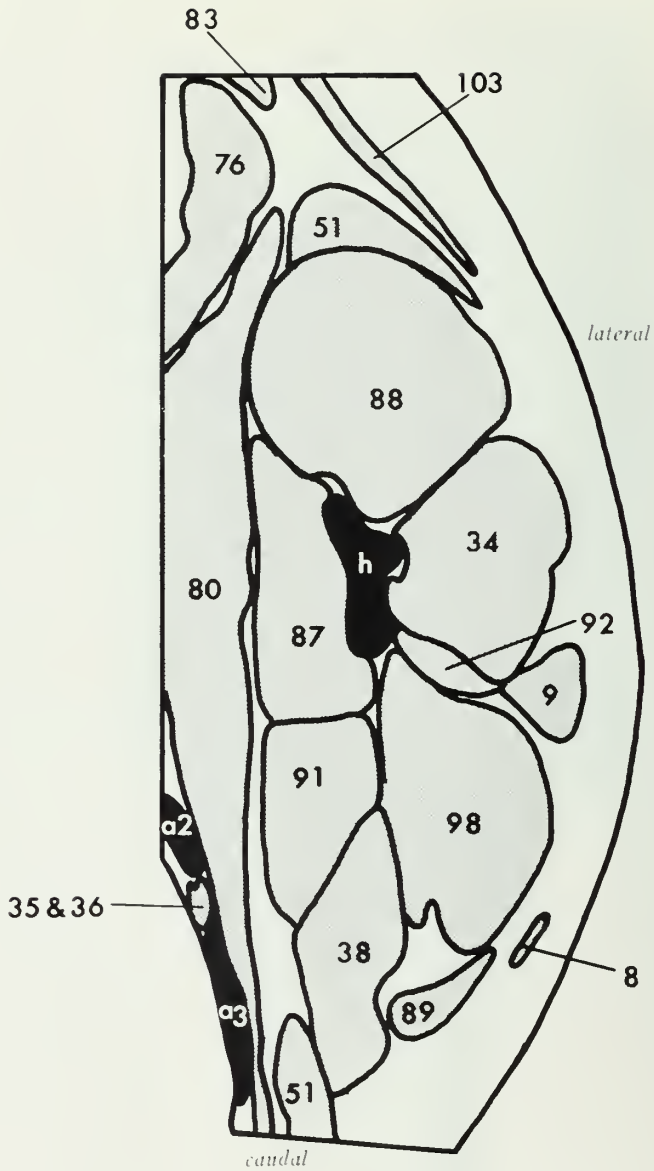
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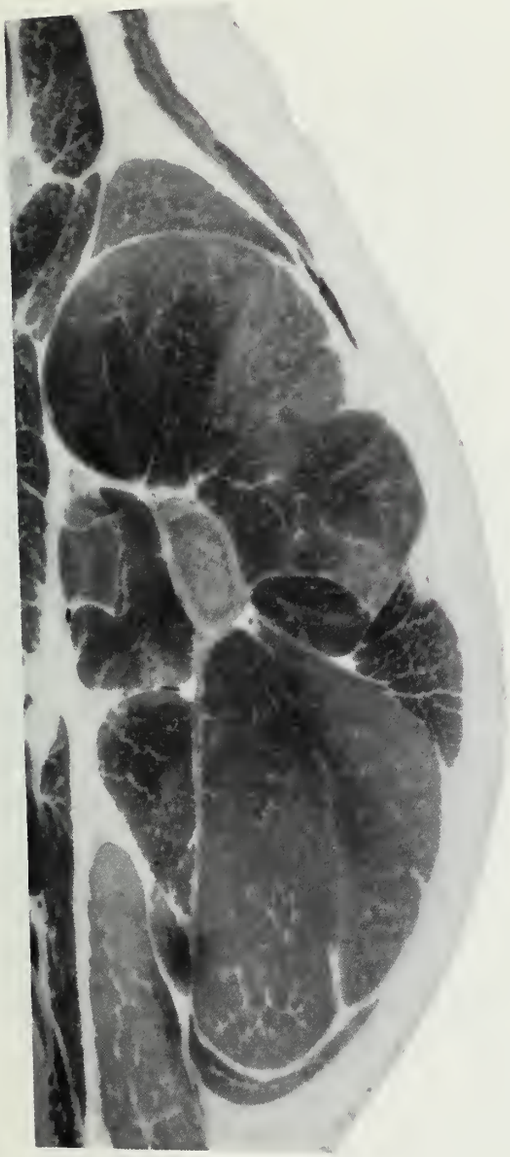

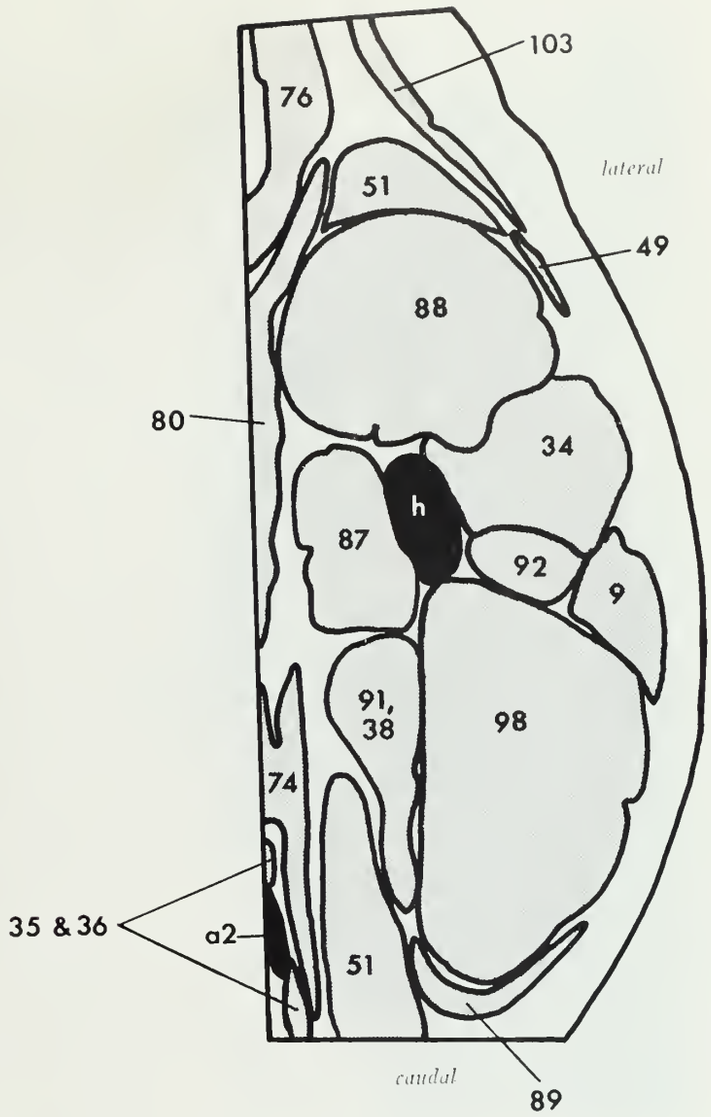
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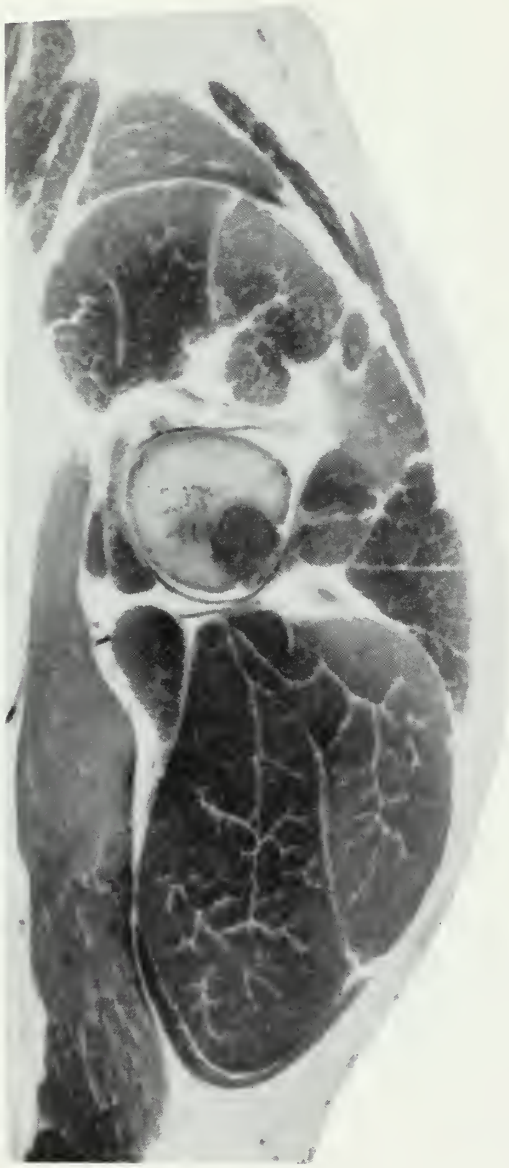

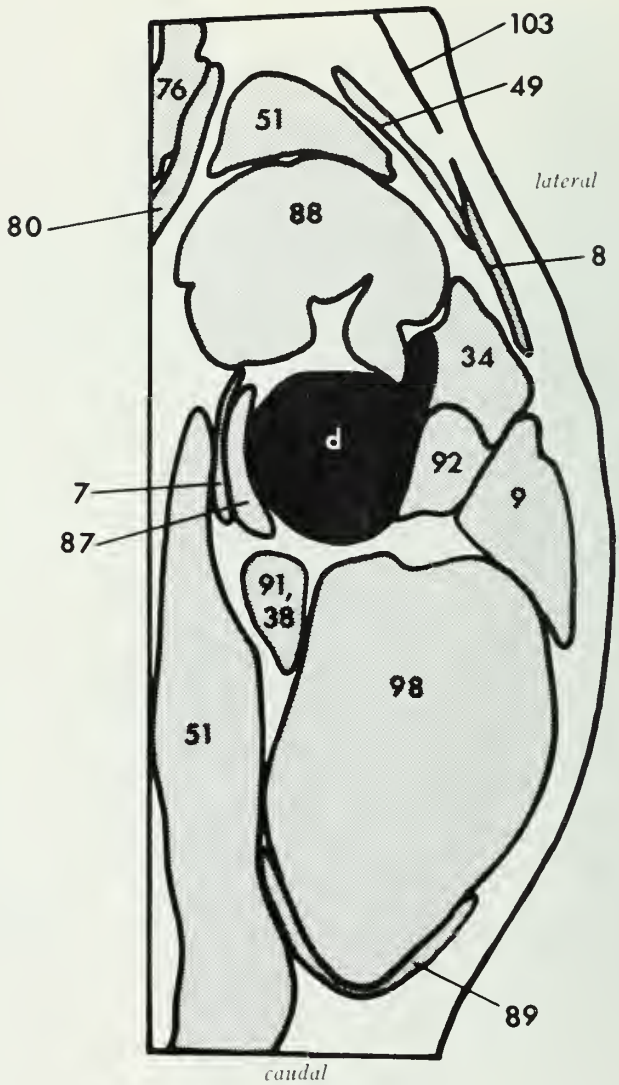

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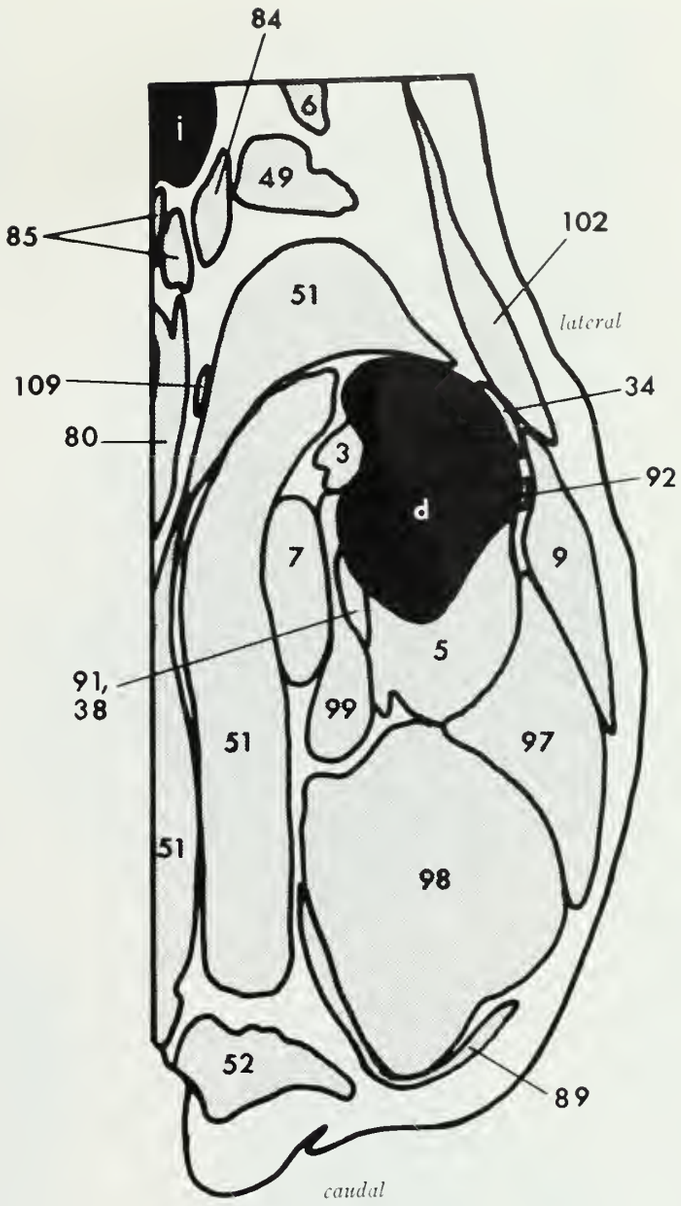
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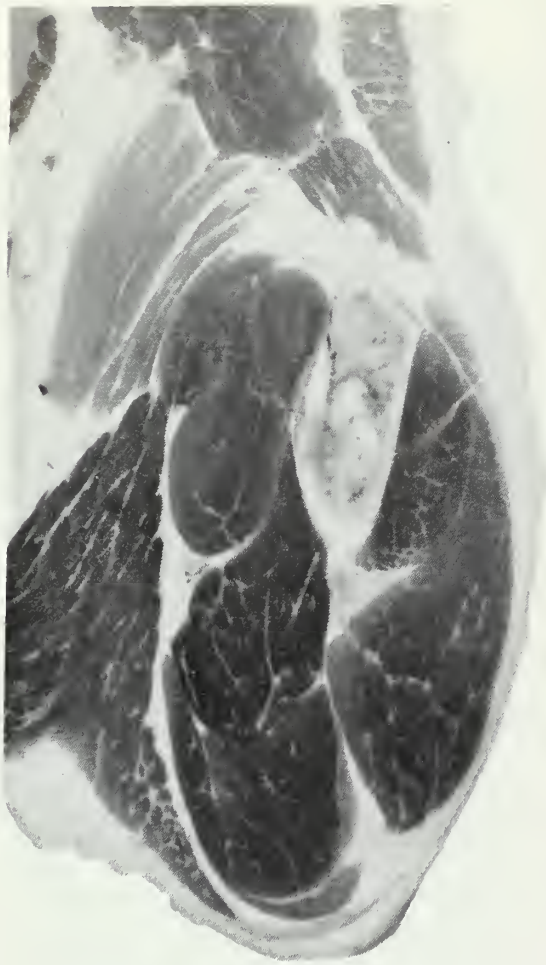

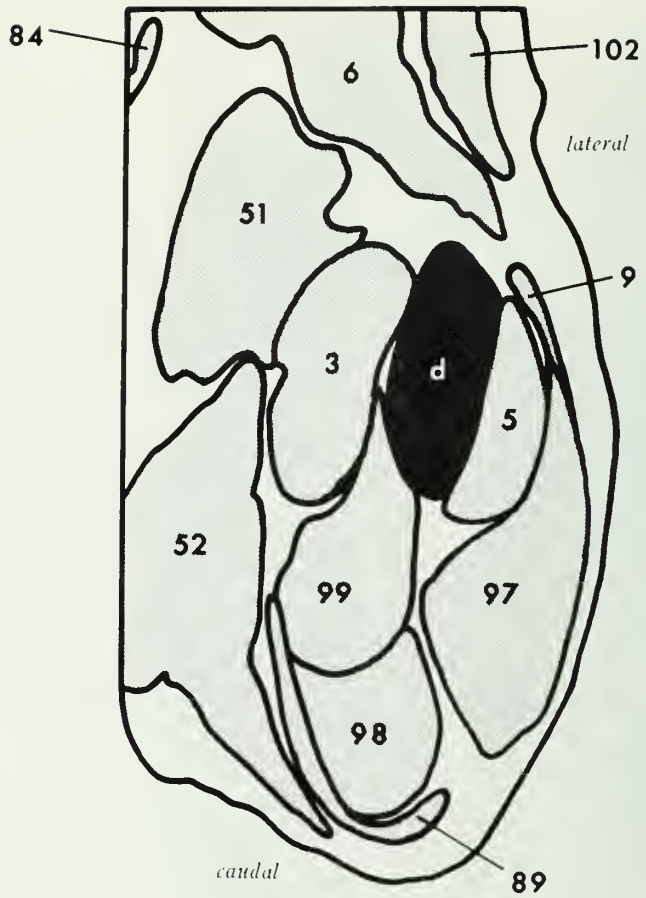

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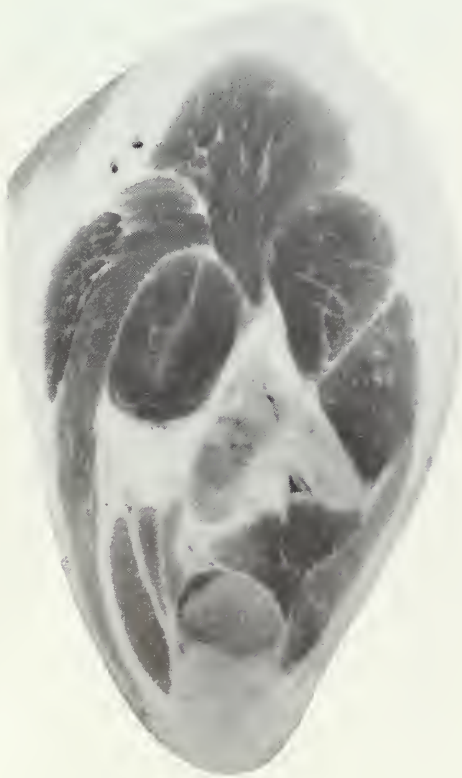

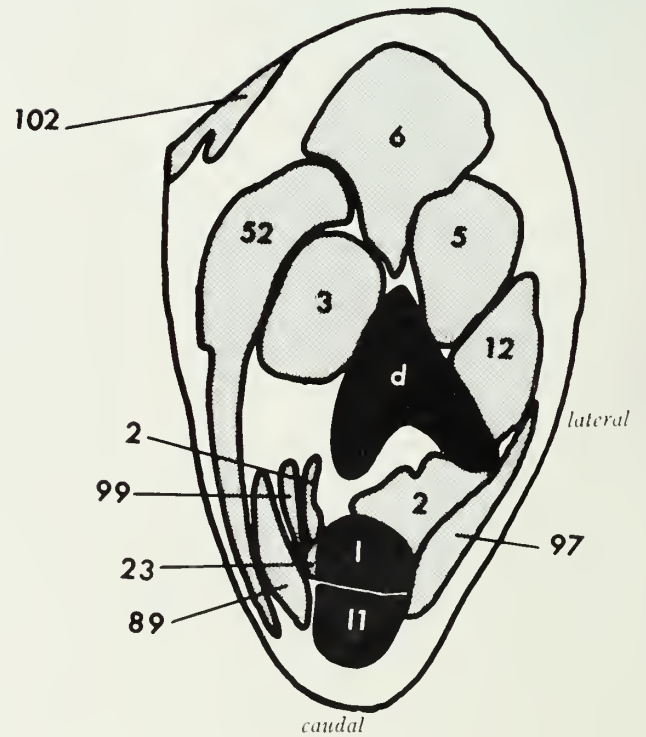

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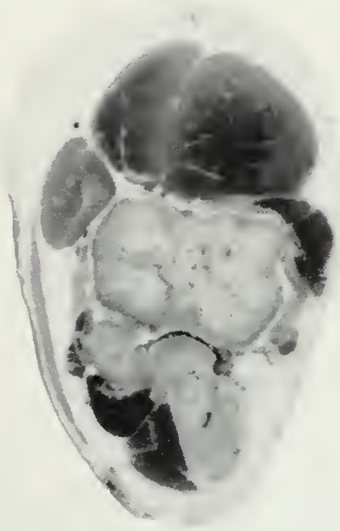

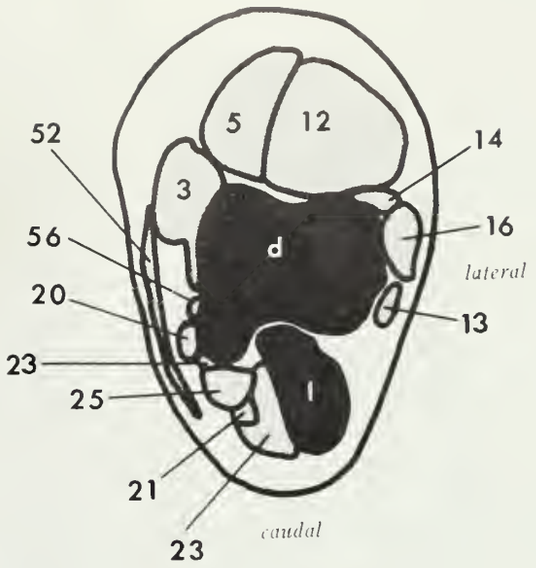

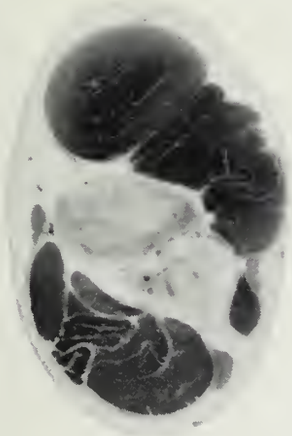

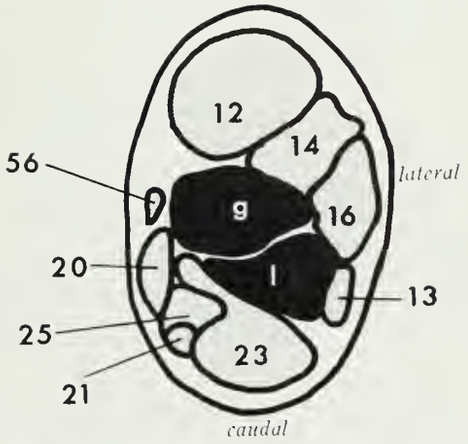

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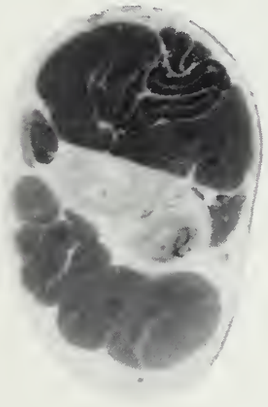

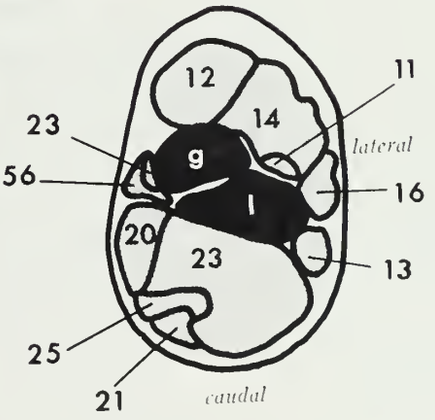

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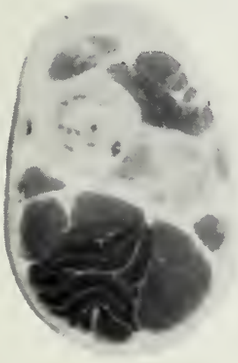

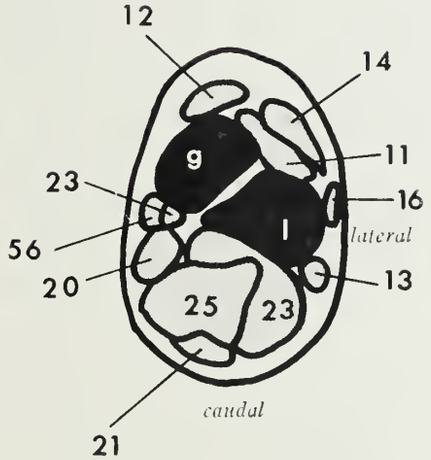

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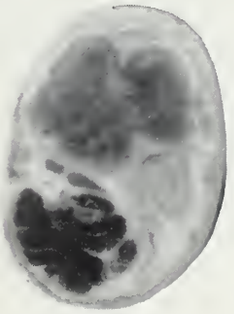
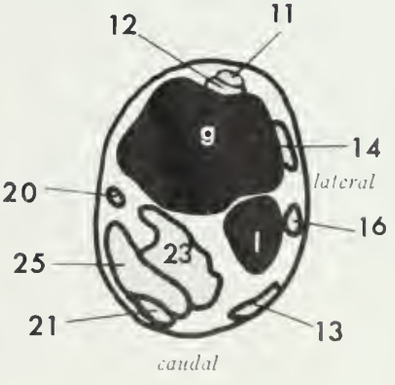




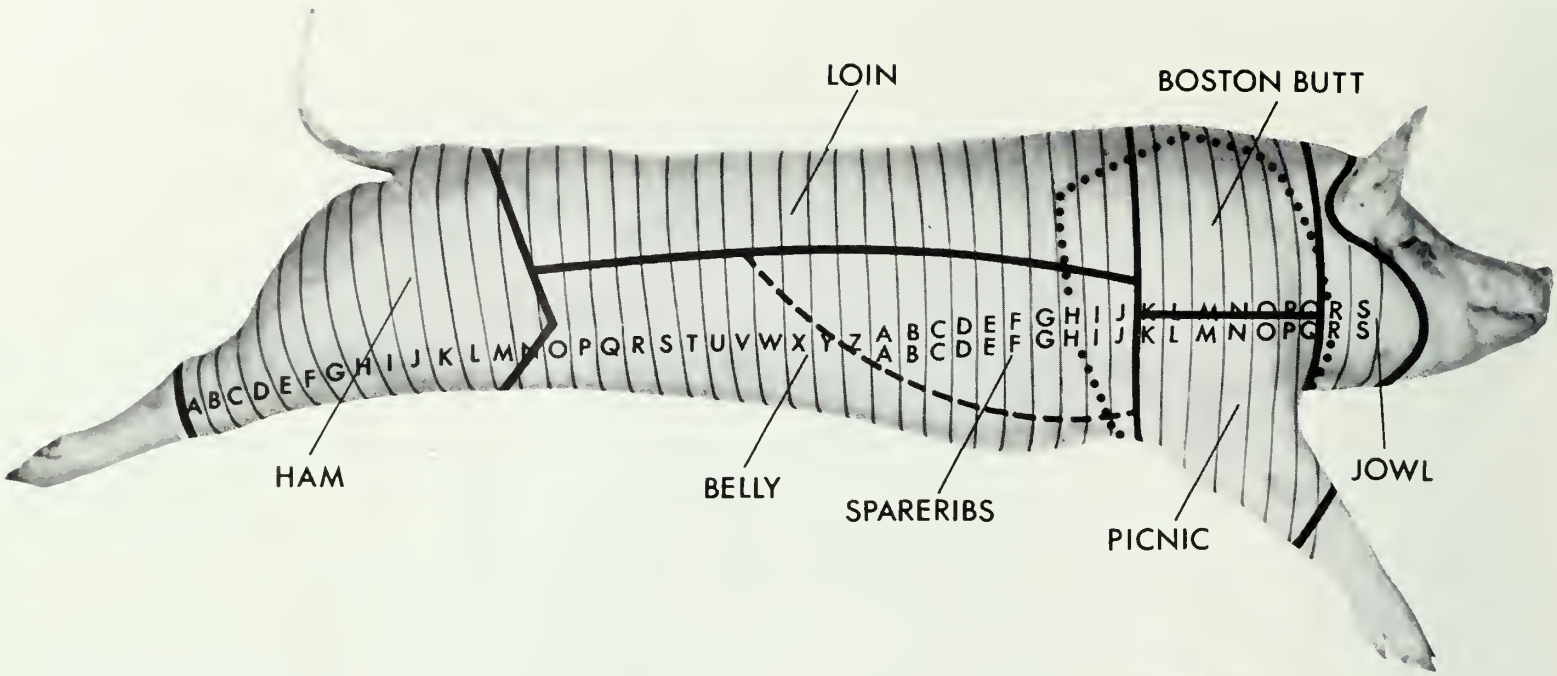
DESCRIPTION OF MUSCLE ATTACHMENTS AND ACTIONS

Number	Number and name of muscle	Location and attachments	Action
		Muscles of the Neck	
6	Brachiocephalicus	Attaches to the arm and passes in front of the shoulder and along the neck to the mastoid process and nuchal area.	Extends shoulder and extends and inclines head and neck.
86	Subclavius	Represented by the fibrous clavicular vestige in the brachiocephalicus.	
42	Longus colli	Lies ventral to the vertebral column in the neck and first part of the thorax.	Flexes the neck.
46	Obliquus capitis caudalis	Runs obliquely from the axis to the atlas.	Rotates the atlas.
108	Obliquus capitis cranialis	Lies between the atlas and the skull.	Extends the head; moves the head laterally when acting singly.
66	Rectus capitis dorsalis (major and minor)	Lies over the atlas.	Extends the head.
67	Rectus capitis ventralis major (Longus capitis)	Attach to the base of the skull ventrally. The major arises from the transverse processes of the first several cervical vertebrae, and the minor arises from the first cervical vertebra.	Flex the head.
68	Rectus capitis ventralis minor (Rectus capitis ventralis)		
110	Rectus capitis lateralis	Lies along the lateral border of the atlas.	Flexes the head and pulls it to one side.
74	Scalenus (dorsalis, ventralis)	Runs from the transverse processes of the vertebrae of the last part of the neck to the lateral surfaces of the first few ribs.	Flexes the neck; pulls the neck laterally; may aid inspiration.
84	Sternocephalicus	Long round muscle; arises from the cranial part of the sternum with the same muscle on the other side and inserts onto the mastoid process.	Flexes the head and neck and inclines them to one side.
85	Sternothyrohyoideus	Arises on the cranial portion of the sternum and runs to the larynx (sternothyroideus) and the hyoid bone (sternohyoideus). The portion to the larynx is double.	Flexes the neck and head.
109	Omohyoideus	Runs obliquely to the hyoid bone from the subscapular fascia.	Retracts hyoid bone; flexes the neck and head and inclines them to one side.
100	Auriculares posteriores	A cutaneous group caudal to the ear.	Direct the opening of ear outward.
		Muscles of the Thoracic Limb	
2	Anconeus	Small muscle consisting of two parts that lie partially under the lateral head of the triceps; attaches along the distal portion of shaft of the humerus and onto the olecranon.	Extends the elbow.
3	Biceps brachii	Runs from the tuberosity of the scapula through the intertuberal groove of the humerus to the tuberosity of the radius.	Extends the shoulder and flexes the elbow.
5	Brachialis	Occupies the musculospiral groove of the humerus and inserts on the cranial portion of the proximal extremity of the radius.	Flexes the elbow.
7	Coracobrachialis	Small muscle running from the coracoid process on the medial side of the scapular tuberosity to the middle third of the medial surface of the humerus.	Adducts the arm and reinforces the joint.
9	Deltoideus	Arises from the connective tissue covering the infraspinatus and inserts on the deltoid tuberosity of the humerus.	Flexes the shoulder.
11	Extensor carpi obliquus (abductor digiti primi longus)	Lies in the extensor group near the distal end of the forearm; runs from the lateral border of the radius and ulna to the medial side of the carpus and adjacent area of the metacarpus.	Extends the carpus.
12	Extensor carpi radialis	Occupy the area cranial and lateral in the forearm; arise from the region of the lateral epicondyle of the humerus. They are listed in order from front to back. The tendons of the common digital extensor attach to the digits; the lateral digital extensor inserts on the fourth and fifth digits. There is also a small extensor to the second digit. The extensor carpi radialis inserts on the front of the proximal part of the third metacarpal bone, the extensor carpi ulnaris on the accessory carpal bone and the fifth metacarpal bone.	Actions correspond to the names. The digital extensors also extend the carpus; the more cranial of the group arising from the humerus also flex the elbow.
14	Extensor digitorum communis		
16	Extensor digitorum lateralis		
13	Extensor carpi ulnaris (Ulnaris lateralis)		
20	Flexor carpi radialis	Lie medial and caudal in the forearm and arise from the medial epicondyle of the humerus. The superficial digital flexor attaches to the two principle digits; the deep one inserts onto all four digits. The flexor carpi radialis inserts on the third metacarpal bone; the flexor carpi ulnaris attaches to the accessory carpal bone.	The carpal flexors flex the carpus; the digital flexors flex the carpus and digits.
21	Flexor carpi ulnaris		
23	Flexor digitorum profundus		
25	Flexor digitorum superficialis		
34	Infraspinatus	Fills the infraspinous fossa and inserts just below the lateral tuberosity of the humerus. A portion of the muscle encroaches upon the supraspinous fossa partially covering the supraspinatus.	Holds the scapula and humerus together laterally.

Number and name of muscle		Location and attachments	Action
		Muscles of the Thoracic Limb (continued)	
56	Pronator teres	Lies in front of the flexor carpi radialis, attaching to the medial epicondyle of the humerus and the medial surface of the radius.	Tends to pronate the lower portion of the limb.
87	Subscapularis	Lies along the medial surface of the scapula (subscapular fossa) and inserts on the medial portion of the proximal extremity of the humerus.	Holds the scapula and humerus together medially.
88	Supraspinatus	Fills the area of the supraspinous fossa and inserts in front of the shoulder joint on the medial and lateral tuberosities of the humerus.	Extends the shoulder.
89	Tensor fasciae antebrachii	Lies somewhat around the caudal part of the long head of the triceps and inserts on the olecranon.	Extends the elbow and flexes the shoulder.
91	Teres major	Runs from the caudal border of the scapula behind the subscapularis and inserts on a small area on the medial surface of the shaft of the humerus with the latissimus dorsi.	Flexes the shoulder.
92	Teres minor	Runs from the caudal border of the scapula behind the infraspinatus to an area near the deltoid tuberosity.	Flexes the shoulder.
97-99	Triceps brachii (caput laterale, caput longum, caput mediale)	Inserts by a coming together of the three heads on the olecranon of the ulna. The components lie behind the humerus, the lateral head attaching to the shaft more laterally and the medial head more medially. The long head lies directly behind the shoulder joint and arises from the caudal border of the scapula.	Extends the elbow. The long head also flexes the shoulder.
		Muscles of the Thorax	
10	Diaphragma	Forms a musculotendinous partition between the thoracic and abdominal cavities. It is convex toward the thorax and has sternal, costal, and lumbar attachments.	Inspiration.
35	Intercostales externi	Fill the intercostal spaces from the levatores costarum to the costochondral junction. The fibers travel for short distances downward and backward between adjacent ribs.	Pull each rib forward; inspiration.
36	Intercostales interni	Lie deep to the externi but extend throughout the intercostal and interchrondral spaces. The fibers travel for short distances downward and forward between adjacent ribs.	Pull each rib backward; expiration. Working together the external and internal intercostals are inspiratory.
39	Levatores costarum	Series of small muscles, attaching to a transverse process of the more cranial thoracic vertebra and running downward and backward to the adjacent rib near its vertebral end.	Advances ribs; inspiration.
51	Pectorales profundi	Lie deep to the superficiales as two parts. They attach to the sternum except at its cranial end and course laterally and cranially to attach to the humerus and adjacent fascia. The separate cranial muscle inserts in front of the shoulder.	Adduct and retract the limb.
52	Pectorales superficiales	Appear as thin cranial and larger caudal muscles. They run from the more cranial portion of the sternum to turn down on the medial surface of the elbow to attach to the humerus and adjacent fascia.	Adduct the limb.
69	Rectus thoracis	Runs from the middle of the first rib downward and backward across several ribs.	Expiration.
70	Retractor costae	Lies in the angle between the vertebral column and the last rib.	Retracts the last rib.
80	Serratus ventralis (cervicis and thoracis)	The two parts are in the form of a fan attaching to the transverse processes of the vertebrae in caudal portion of the neck and the sides of the more cranial ribs, in a serrated arrangement, to converge on the medial surface of the vertebral portion of the scapula.	Slings the body between the forelimbs.
95	Transversus thoracis	The fibers run transversely across the dorsal surface of the sternum and the costal cartilages.	Depresses the distal ends of the ribs; expiration.
		Muscles of the Abdomen	
44	Obliquus externus abdominis	A flat muscle arising from the ribs, except the first few. The fibers run downward and backward, inserting by means of an aponeurosis onto the linea alba and pelvis.	Compresses the abdomen.
45	Obliquus internus abdominis	Lies deep to the externus and arises from the tuber coxae and fascia of the loin. The fibers run downward and forward to insert by means of an aponeurosis onto the costal arch and linea alba.	Compresses the abdomen.
60	Quadratus lumborum	Lies ventral to the last few ribs, the lumbar transverse processes, and the wing of the sacrum.	Flexes the loin and bends it to one side when acting singly.
65	Rectus abdominis	The long flat muscle lies next to the one of the other side invested in a fascial sheath. It runs from the lateral part of the sternum and costal cartilages to insert on the pubis. There are tendinous inscriptions crossing the fibers.	Compresses the abdomen; flexes the vertebral column.

Number	Name of muscle	Location and attachments	Action
		Muscles of the Abdomen (continued)	
94	Transversus abdominis	Arises from the costal arch and fascia of the loin and runs transversely as a deep muscle to insert by means of an aponeurosis onto the linea alba. It does not reach the pubis. At its caudal border it is deeply indented, dividing the muscle into upper and lower portions.	Compresses the abdomen.
		Dorsal Muscles	
33	Iliocostalis (cervicis, thoracis, lumborum)	Are included under the general heading *Erector spinae*. They lie along the dorsal and lateral portions of the vertebral column. The fibers of the longissimus and iliocostalis do not run the full length of the muscles, but arise and insert throughout the distance. The iliocostalis ends at the beginning of the lumbar area, but extends into the cervical region. The semispinalis capitis has two parts.	Erect or extend the vertebral column.
37	Intertransversarii (cervicis, thoracis, lumborum, caudae)		
40	Longissimus (capitis, atlantis)		
41	Longissimus (cervicis, thoracis, lumborum)		
43	Multifidus		
76	Semispinalis capitis		
82	Spinalis (cervicis, thoracis)		
106	Interspinalis		
38	Latissimus dorsi	A fan-shaped muscle arising from the fascia of the back and loin to insert on the medial surface of the shaft of the humerus with the teres major.	Flexes the elbow.
49	Omotransversarius	A flat band attaching to the ventral portion of the scapular spine and the atlas or axis.	Pulls the neck laterally.
71	Rhomboideus (capitis, cervicis, thoracis)	Lies deep to the trapezius with fibers arising on the dorsal midline and running downward and backward to the medial side of the scapular cartilage. It consists of three parts.	Moves the scapula forward and upward.
78	Serratus dorsalis caudalis	Arises from the fascia of the loin. The fibers run downward and forward to attach to the last few ribs.	Pulls ribs backward; expiration.
79	Serratus dorsalis cranialis	Arises from the fascia of the back. The fibers run downward and backward to attach to the ribs medial to the scapula.	Pulls ribs forward; inspiration.
83	Splenius	Comes from the cranial edge of the fascia of the back deep to the scapula and runs forward to attach in three parts to the atlas and occipital and temporal areas.	Extends the neck and head and inclines them to one side.
96	Trapezius (cervicis, thoracis)	A fan-shaped muscle arising from the dorsal midline and converging on the scapular spine. There is no separation between parts.	Raises the scapula, advancing and retracting it, depending on the location of the fibers.
		Muscles of the Tail	
72	Sacrococcygei (ventralis medialis, ventralis lateralis, dorsalis medialis, dorsalis lateralis)	They are arranged about the tail as indicated by their names. The intertransversarii (ventral and dorsal) lie between the dorsal and ventral groups laterally.	The movements of the tail correspond to the positions of the muscles.
101	Coccygeus	Arises from the area above the acetabulum and runs to the lateral portion of the first few coccygeal vertebrae.	Depresses the tail and turns it to one side.
107	Levator ani (retractor ani, coccygeus medialis)	Lies medial to the coccygeus and inserts on the anus but has an attachment on the tail.	Complements the action of the coccygeus and with it forms the pelvic diaphragm.
		Muscles of the Pelvic Limb	
1	Adductor (longus, brevis, magnus)	Deep to the gracilis. It runs from the pubis and ischium to the medial part of the stifle and femur. The divisions cannot be detected and it is inseparable from the semimembranosus.	Adducts the limb.
4	Biceps femoris	Arising from the sacrosciatic ligament and tuber ischii and descending behind the hip joint to spread out lateral to the tibia and fibula to attach to the fascia in that area. Its upper portion is continuous with the gluteus superficialis.	Extends the hip, flexes the stifle, and extends the hock. When the foot is placed firmly it extends the stifle.
15	Extensor digitorum lateralis	Form a group on the lateral and cranial portions of the tibia and fibula. The long digital extensor and the peroneus tertius arise from the extensor fossa of the femur. The others arise from the lateral epicondyle of the femur and the fibula. They descend in front of the hock. The long digitial extensor tendons insert on the digits; the lateral digital extensor has two parts which attach to the fourth and fifth digits. The long extensor of the first digit attaches, in this case, to the second digit. The peroneus tertius and tibialis cranialis insert medially and the peroneus longus laterally on the tarsus and metatarsus.	Extend the stifle and flex the hock. The digital extensors also extend the digits.
17	Extensor digitorum longus		
53	Peroneus longus		
54	Peroneus tertius		
93	Tibialis cranialis		
104	Extensor digiti primi longus		
22	Flexor digitorum profundus	Lies behind the tibia and has several parts that run behind the hock to go on down to the digits.	Extends the hock and flexes the digits.

Number	Number and name of muscle	Location and attachments	Action
		Muscles of the Pelvic Limb (continued)	
24	Flexor digitorum superficialis	Arises with, but is deep to the gastrocnemius. It is part of the tendo calcaneus, but goes on down behind the limb to the third and fourth digits.	Flexes the stifle and digits and extends the hock.
26, 81	Gastrocnemius, Soleus } Triceps surae	Arises by two heads from the femur caudally toward the distal extremity. It inserts as a common tendon (tendo calcaneus) onto the tuber calcis of the hock. The soleus lies in front of the lateral portion of the gastrocnemius, which it joins.	Flexes the stifle and extends the hock.
27	Gemelli	Extend from the lateral border of the ischium to the trochanteric fossa of the femur.	Rotate the limb outward.
28	Gluteus accessorius	A separate deep portion of the gluteus medius.	Extends the hip.
29	Gluteus medius	Occupies the area on the dorsal surface of the ilium extending for a short distance into the lumbar area; inserts onto the trochanter major of the femur.	Extends the hip and abducts the limb.
30	Gluteus profundus	Deep to the gluteus medius from the area above and in front of the acetabulum to the trochanter major.	Extends the hip.
31	Gracilis	Arises in common with the one of the other side from the pelvic symphysis. It inserts on the medial surface of the stifle.	Adducts the limb.
32, 57	Iliacus, Psoas major } Iliopsoas	The psoas major occupies the area ventral to the lumbar transverse processes and the quadratus lumborum. Medial to it is the psoas minor. It attaches to the trochanter minor of the femur. As it passes beneath the ilium, it is joined by the iliacus forming the iliopsoas.	Flex the hip and rotate the limb outward.
47	Obturatorius externus	Lies ventral to the pelvic floor. It passes laterally to insert into the trochanteric fossa of the femur.	Adducts the limb; rotates the limb outward.
48	Obturatorius internus	Lies on the pelvic floor and along the ilium. A tendon combining the two parts passes through the obturator foramen to insert into the trochanteric fossa of the femur.	Rotates the limb outward.
50	Pectineus	Runs from the pubis to the medial surface of the shaft of the femur.	Adducts the limb and flexes the hip.
55	Popliteus	Lies just proximal to the origin of the flexor digitorum profundus; courses from the lateral epicondyle of the femur to spread out over the caudal surface of the tibia.	Flexes the stifle; rotates the limb inward.
58	Psoas minor	Lies medial to the psoas major and inserts on the shaft of the ilium.	Flexes the pelvis on the vertebral column.
59	Quadratus femoris	Runs from the tuber ischii to the femur below the attachment of the other lateral rotators.	Rotates the limb outward.
61-64	Quadriceps femoris (rectus femoris, vastus intermedius, vastus lateralis, vastus medialis)	Four-headed muscle lying in the cranial part of the thigh to insert on the patella and patellar ligaments. The rectus femoris arises from the ilium near the acetabulum while the other three parts arise from the femur.	Extends the stifle; the rectus femoris also flexes the hip.
73	Sartorius	Arises in two parts on the surface of the psoas minor and shaft of the ilium to insert as one part on the medial surface of the proximal extremity of the tibia.	Flexes the hip; adducts the limb.
75	Semimembranosus	Courses from the tuber ischii downward and forward behind the adductor, from which it is inseparable, to the medial condyle of the femur.	Adducts the limb; extends the hip.
77	Semitendinosus	Runs from the tuber ischii to the tibia and the fascia medial to it. It courses medially toward its insertion to lie behind the semimembranosus.	Extends the hip; flexes the stifle.
90	Tensor fasciae latae	Arises from the tuber coxae to spread out as it inserts on the fascia on the lateral surface of the thigh.	Flexes the hip.
105	Gluteus superficialis (includes piriformis)	Lies dorsal to the biceps femoris. It arises from the sacrum and blends with the biceps as it inserts.	Extends the hip.
		Cutaneous Muscles	
8	Cutaneus trunci	Extends over the trunk in the superficial fascia. The fibers are thin in the paralumbar area, but increase in thickness behind the shoulder and arm. Ventrally the fibers approach the midline near the umbilicus.	Moves skin.
102, 103	Cutaneus colli, Cutaneus faciei } Platysma	Together they are called platysma. The medial and ventral portion is the cutaneus colli, the fibers of which run somewhat transversely. Those of the cutaneus faciei are more longitudinal.	Move the skin of the neck and face.

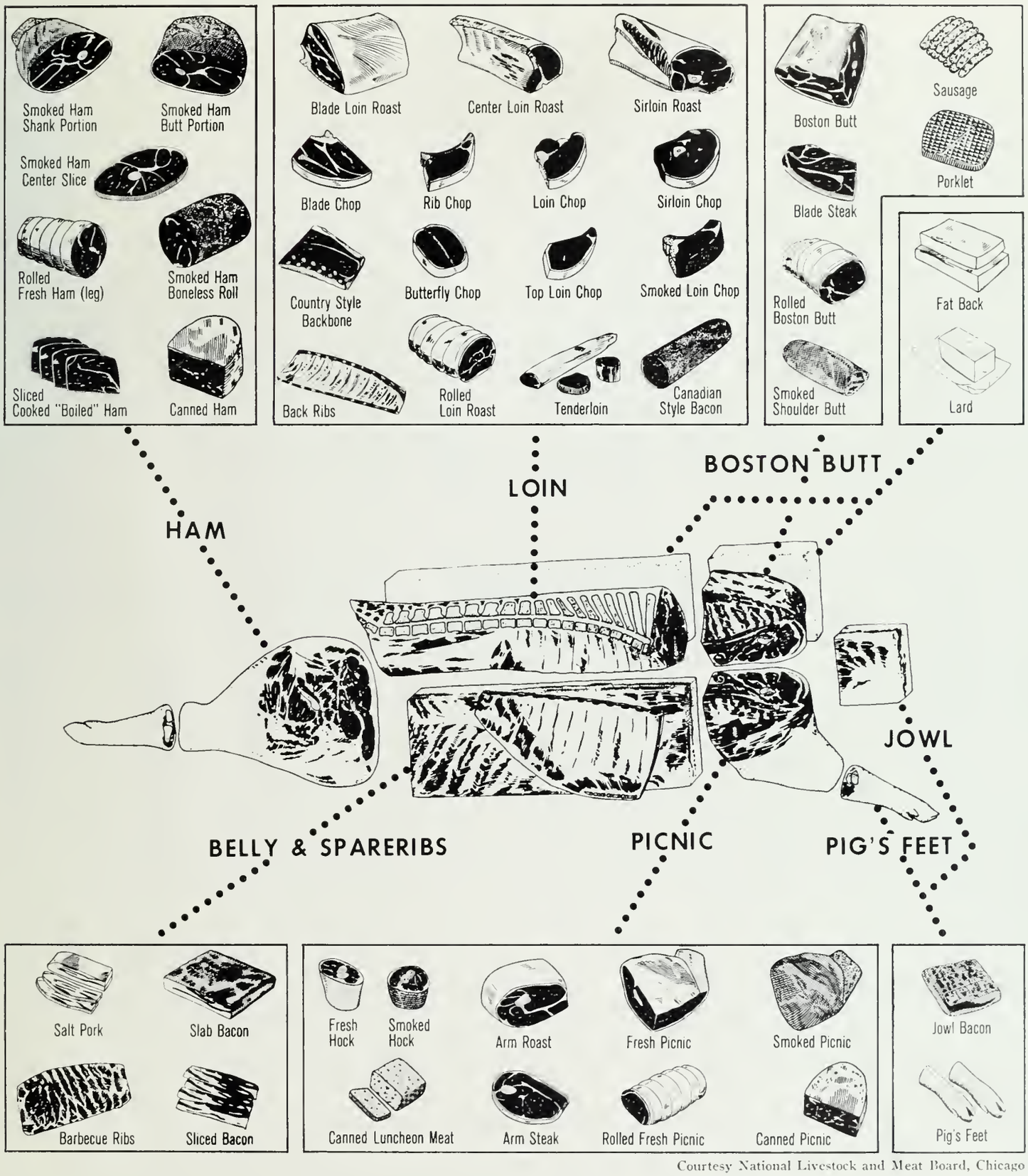


MAJOR MUSCLES IN WHOLESALE AND RETAIL CUTS OF PORK

Wholesale Cuts and Locations	Retail Cuts and Locations	Major Muscles Id. No.	Major Muscles Name
Ham (A–O)	Shank portion (A–H)	4	Biceps femoris
		26	Gastrocnemius
		75	Semimembranosus
		77	Semitendinosus
	Center roast or slices (H–K)	4	Biceps femoris
		61–64	Quadriceps femoris
		75	Semimembranosus
		77	Semitendinosus
	Butt portion (K–O)	4	Biceps femoris
		29	Gluteus medius
		61–64	Quadriceps femoris
		90	Tensor fasciae latae
		105	Gluteus superficialis
Loin (O–KK)	Sirloin roast or chops (O–Q)	28	Gluteus accessorius
		29	Gluteus medius
		57	Psoas major
	Center loin roast or chops (Q–Y)	41	Longissimus
		57	Psoas major
	Center rib roast or chops (Y–HH)	41	Longissimus
	Blade roast or chops (HH–KK)	38	Latissimus dorsi
		41	Longissimus
		82	Spinalis
	Tenderloin (O–AA)	57	Psoas major
Belly (O–KK)	Bacon (O–KK)	8	Cutaneus trunci
		44	Obliquus externus abdominis
		45	Obliquus internus abdominis
		65	Rectus abdominis
		94	Transversus abdominis
Spareribs (W–KK)	Spareribs (W–KK)	10	Diaphragma
		35	Intercostales externi
		36	Intercostales interni

Boston butt (KK–RR and TT–ZZ)	Boston butt roast (KK–RR and TT–ZZ)	34	Infraspinatus
		76	Semispinalis capitis
		80	Serratus ventralis
		87	Subscapularis
		88	Supraspinatus
	Blade steaks (KK–NN)	34	Infraspinatus
		41	Longissimus
		80	Serratus ventralis
		88	Supraspinatus
Picnic (KK–RR and ZZ–III)	Picnic roast (KK–RR and ZZ–III)	51	Pectorales profundi
		52	Pectorales superficiales
		97–99	Triceps brachii
	Arm steaks (ZZ–CCC)	34	Infraspinatus
		51	Pectorales profundi
		88	Supraspinatus
		98	Triceps brachii, caput longum
	Hocks (FFF–JJJ)	12	Extensor carpi radialis
		23	Flexor digitorum profundus
Jowl (RR–SS)	Jowl bacon (RR–SS)	6	Brachiocephalicus
		103	Cutaneus faciei

WHOLESALE CUTS AND THE RETAIL CUTS MADE FROM EACH



Courtesy National Livestock and Meat Board, Chicago

LIPID COMPOSITION AND RELATIVE NITROGEN MASS OF INDIVIDUAL MUSCLES

Four crossbred (Yorkshire × Duroc) littermate female pigs subjected to similar environmental conditions were fed a 20 percent creep diet until weaned, a 16 percent protein diet until they reached 45 kg. live weight, and then a 12 percent protein diet thereafter. The pigs were exsanguinated at four different chronological ages (79, 119, 165, and 238 days). A fifth littermate was bred and permitted to farrow and wean a litter of pigs. After the mammary glands had receded to normal, it was exsanguinated at 415 days of age. During exsanguination, special precautions were taken to keep intact all carcass fat and muscles. The mesenteric fat was removed and weighed. Each carcass was chilled to an internal temperature of 3° C. and then separated into right and left sides. Forty-three individual muscles and closely related groups of muscles were dissected from the right side. Each muscle or muscle group was freed of all visible external fat and tendons and weighed to the nearest 0.1 g. Weights were also recorded for subcutaneous, intermuscular, and perinephric fat, bones, and other miscellaneous components. Each type of depot fat was subjected to solvent extraction (A.O.A.C., 1960) and then expressed on an extractable basis. The residue (primarily connective tissue and water) was included with the miscellaneous components of the carcass composition values. An arbitrary designation was established to separate subcutaneous from intermuscular fat: fat on the superficial side of the surface muscles (except the cutaneous trunci, 8) was designated subcutaneous fat, and fat between and below the level of the surface muscles, was designated as intermuscular fat.

Each individual muscle or muscle group was analyzed according to the following procedures. Each sample was frozen (−20° C.) and cut into 100-gram segments. Each segment was emersed in liquid nitrogen, after which the tissue was powdered in a metal Waring blendor and transferred to a plastic mixing container. After all segments had been powdered, the composite was thoroughly mixed, and a 100-gram aliquot used for analysis. Percentages of moisture, lipid, and nitrogen by Kjeldahl analysis were determined in duplicate as described by the A.O.A.C. (1960). Lipid analyses were expressed on a moisture-free basis (MFB). A maximum relative error of 7.5 percent was considered appropriate for duplicate analyses.

Relative nitrogen mass of each individual muscle or group of closely related muscles was defined as the percent of nitrogen contributed by each muscle or muscle group to total carcass muscle nitrogen.

	Pig I		Pig II		Pig III		Pig IV		Pig V
CARCASS DESCRIPTION									
Age at slaughter, days	79		119		165		238		415
Live shrunk weight, kg	25.4		51.8		92.2		156.6		188.0
Carcass length, cm.	53.1		70.1		78.7		87.6		98.6
Fatback thickness, cm.	1.5		3.1		4.4		6.2		5.1
Loin eye area, cm.²	10.6		22.1		27.1		33.2		43.2
CARCASS COMPOSITION (All figures are percentages, except protein: water ratio)									
Muscle (lipid free)	**44.2**		**42.8**		**40.0**		**30.4**		**36.0**
Protein	9.0	9.4	9.1	7.0	8.2				
Water, Ash	35.2	33.4	30.9	23.4	27.8				
Protein:water ratio	(.257)	(.281)	(.294)	(.299)	(.295)				
Extractable lipids	**23.8**		**33.6**		**34.0**		**51.4**		**40.0**
Subcutaneous	16.8	23.9	23.4	35.2	28.4				
Intermuscular	3.4	3.5	5.2	8.6	4.4				
Intramuscular	2.0	3.2	3.3	2.7	4.2				
Perinephric	.8	2.1	1.7	3.4	2.4				
Mesenteric	.8	.9	.4	1.5	.6				
Bone	**14.7**		**10.7**		**11.1**		**6.8**		**9.6**
Vertebrae, Costae, Sternum	6.9	5.0	5.2	2.8	4.5				
Tibia, Fibula	.9	.6	.7	.5	.6				
Femur	1.2	.9	.9	.6	1.0				
Os coxae	.8	.6	.6	.5	.6				
Radius, Ulna	.8	.7	.6	.4	.5				
Humerus	1.0	.9	.8	.6	.6				
Scapula	.6	.4	.5	.3	.5				
Feet	2.5	1.6	1.8	1.1	1.3				
Miscellaneous	**17.3**		**12.9**		**14.9**		**11.4**		**14.4**
Skin	6.3	4.9	7.0	5.0	7.1				
Other (tendons, organs, etc.)	11.0	8.0	7.9	6.4	7.3				
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

LIPID COMPOSITION AND RELATIVE NITROGEN MASS OF INDIVIDUAL MUSCLES (Percentages)

Muscles Id. No.	Pig I		Pig II		Pig III		Pig IV		Pig V	
	Lipid (MFB)	Nitrogen mass	Lipid (MFB)	Nitrogen mass	Lipid (MFB)	Nitrogen mass	Lipid (MFB)	Nitrogen mass	Lipid (MFB)	Nitrogen mass
Muscles of the Neck										
6, 49,* 86	10.5	1.3	28.8	1.1	26.2	1.3	25.7	1.0	28.7	1.4
42, 67, 68, 74	19.9	.9	20.4	.7	33.0	1.0	29.3	.8	34.9	.9
46, 66, 108, 110	21.9	.4	23.2	.4	30.4	.5	27.9	.7	37.4	1.1
84, 85, 109	23.8	1.0	17.5	.7	34.1	.6	33.0	.7	26.2	.6
Muscles of the Thoracic Limb										
2, 89, 97, 98, 99	13.3	4.5	16.2	4.4	14.5	4.5	15.5	4.5	23.5	4.7
3, 5, 7	13.2	1.0	15.8	.9	16.1	1.1	15.0	1.0	21.7	1.0
9, 91, 92	17.4	1.3	21.2	1.1	25.4	1.3	26.1	1.2	27.6	1.6
11, 12, 13, 14, 16	9.3	1.2	13.5	1.0	12.8	1.0	13.6	.9	21.8	1.0
20, 21, 23, 25, 56	9.2	1.1	14.1	.9	17.1	1.3	18.5	.9	22.3	1.1
34	19.5	1.2	21.0	1.1	24.5	1.5	21.7	1.6	31.0	1.4
87	11.8	.7	17.8	.6	13.4	.8	13.2	.7	28.8	.8
88	16.4	2.5	23.2	2.5	22.9	2.3	18.8	2.2	27.3	2.3
Muscles of the Thorax										
10	23.7	.8	26.2	1.3	31.0	.9	37.8	.8	35.9	.8
35, 36, 37,* 39	33.9	2.7	52.6	3.7	47.3	2.8	54.4	3.5	51.0	3.2
51	15.8	3.6	21.2	2.9	25.6	4.2	19.3	4.5	34.0	4.3
52	31.0	1.5	25.9	2.0	27.9	1.3	28.8	1.2	33.4	.8
80	20.0	3.3	26.7	3.5	26.2	3.6	25.4	3.7	39.1	4.5
Muscles of the Abdomen										
44	24.5	2.5	25.2	2.5	30.3	2.3	30.7	2.4	48.0	1.6
45, 70,* 78*	23.5	1.4	21.0	1.3	19.2	1.4	20.6	1.3	32.4	1.2
65, 69*	21.0	1.9	32.5	1.6	35.6	1.6	37.4	1.6	43.0	1.8
94, 95*	13.6	2.0	17.6	1.8	22.1	1.8	23.8	1.6	31.5	1.7
Dorsal Muscles including those of the Tail										
33, 79	21.2	.9	24.2	1.1	35.9	.9	33.4	.5	37.9	.9
38	9.2	2.4	27.8	2.0	35.5	2.1	33.9	2.2	50.6	2.4
40, 41	13.4	10.2	17.8	12.0	21.3	10.9	21.5	12.6	22.8	9.8
43, 72, 101, 106, 107	29.8	1.7	38.3	2.1	42.4	1.6	40.4	1.7	43.4	2.0
71, 76, 83	22.5	2.6	33.2	3.2	33.2	3.0	36.0	2.5	42.8	2.8
82	24.8	1.0	31.8	1.8	37.2	1.7	36.5	1.3	38.9	1.5
96	27.8	1.3	40.7	.8	51.7	1.0	48.8	.8	58.0	1.2
Muscles of the Pelvic Limb										
1, 75	9.7	7.0	11.2	7.1	14.0	6.7	12.8	6.1	18.4	6.5
4	12.2	6.7	20.8	6.4	22.1	6.2	23.2	6.2	27.4	6.4
15, 17, 53, 54, 93, 104	13.4	.9	16.2	.9	17.4	.9	21.2	.9	26.9	.9
22, 55	16.7	1.0	13.9	1.0	16.0	1.1	18.1	.8	18.3	.9
24, 26, 81	12.1	2.5	16.0	2.7	16.0	2.5	18.1	2.3	21.2	2.4
27, 28, 30, 47, 48, 59	15.7	2.0	17.4	1.9	18.9	2.0	18.8	1.8	22.3	1.9
29	9.4	3.9	10.8	3.3	14.3	3.9	12.1	3.8	21.1	3.2
31, 50, 73	11.5	1.6	21.2	1.6	21.1	1.7	21.9	2.0	22.0	1.7
32, 57, 58, 60*	15.2	2.8	18.5	2.5	16.5	2.8	15.1	3.1	20.7	2.9
61, 62, 63, 64	7.7	5.5	12.3	5.2	11.8	5.1	11.4	5.5	12.9	5.6
77	18.7	2.2	24.6	2.0	23.0	2.3	25.8	2.2	34.5	2.3
90	15.6	.8	21.9	.7	32.4	.9	27.7	1.0	32.3	1.1
105	15.4	2.1	22.7	1.0	23.4	1.1	24.6	1.3	37.6	1.1
Cutaneous Muscles										
8, 102, 103	38.4	3.7	55.7	4.4	60.0	4.2	56.5	4.4	62.9	4.5
Miscellaneous Muscles										
111	38.0	.4	32.6	.3	35.7	.3	36.8	.2	34.9	.2
Total		100.0		100.0		100.0		100.0		100.0

* Muscles were collected in groups and therefore do not necessarily correspond to anatomical groupings as shown on pages 56 to 59.

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GUIDE TO MUSCLES, BONES,
AND MISCELLANEOUS COMPONENTS
ON REVERSE SIDE

MUSCLES: Id. No., Name, and Section Location

1. Adductor (longus, brevis, magnus): K–L
2. Anconeus: OO, EEE
   Auriculares posteriores (see 100): SS
3. Biceps brachii: PP–QQ, CCC–FFF
4. Biceps femoris (includes Gluteobiceps): D–L, Figs. 1-2
5. Brachialis: OO–QQ, CCC–FFF
6. Brachiacephalicus: QQ–SS, CCC–EEE, Figs. 2-4
   Coccygeus (see 101): K–O, Figs. 3-5
7. Coracabrachialis: OO–PP, BBB–CCC
   Cutaneus calli (see 102): OO–SS, CCC–EEE, Figs. 1-5
   Cutaneus faciei (see 103): PP–SS, YY–BBB, Fig. 1
8. Cutaneus trunci: N–LL, UU–ZZ, BBB, Fig. 1
9. Deltaideus: MM–PP, YY–DDD, Figs. 2-3
10. Diaphragma: S–FF
11. Extensor carpi obliquus (aaductor digiti primi longus): HHH–JJJ
12. Extensar carpi radialis: PP–QQ, EEE–JJJ, Figs. 2-3
13. Extensor carpi ulnaris (ulnaris lateralis): QQ, FFF–JJJ, Figs. 2-3
    Extensor digiti primi longus (see 104): A–D
14. Extensor digitorum communis. Includes Extensor digitarum medialis: QQ, FFF–JJJ, Figs. 2-3
15. Extensor digitorum lateralis (pelvic limb): A–E, Figs. 2-5
16. Extensor digitorum lateralis (thoracic limb): QQ, FFF–JJJ, Figs. 2-3
17. Extensor digitorum longus. Includes Extensar digitorum medialis: A–G
18. See 17
19. See 14
20. Flexor carpi radialis: PP–QQ, FFF–JJJ
21. Flexar carpi ulnaris: PP–QQ, FFF–JJJ, Figs. 2-3
22. Flexar digitarum profundus (pelvic limb): A–E
23. Flexar digitarum profundus (thoracic limb): OO–QQ, EEE–JJJ, Figs. 2-3
24. Flexor digitorum superficialis (pelvic limb): A–H
25. Flexor digitarum superficialis (thoracic limb): PP–QQ, FFF–JJJ
26. Gastrocnemius (part of Triceps surae): B–H, Figs. 3-5
27. Gemelli: Nat shown (see page 58)
28. Gluteus accessarius: M–Q, Figs. 4-5
29. Gluteus medius: L–R, Figs. 2-3
30. Gluteus profundus: L–P, Figs. 4-5
    Gluteus superficialis (see 105): L–N, Figs. 1-2
31. Gracilis: E–N
32. Iliacus: L–Q, Figs. 4-5
33. Iliacostalis (cervicis, thoracis, lumborum): W–OO, TT–XX, Figs. 2-5
34. Infraspinatus: JJ–PP, VV–CCC, Fig. 3
35. Intercostales externi: X–MM, UU–AAA, Figs. 3-5
36. Intercostales interni: W–MM, TT–AAA, Figs. 4-5
    Interspinales (see 106): Q, S–W, GG–NN, Fig. 5
37. Intertransversarii (cervicis, thoracis, lumborum, caudae): K–P, U–Z, BB–EE, PP–RR, Fig. 5
38. Latissimus dorsi: BB–OO, TT–CCC, Figs. 1-2
    Levatar ani (see 107): L–O
39. Levatores costarum: Z–GG, II–JJ, LL–MM, VV–YY, Fig. 5
40. Langissimus (capitis, atlantis): OO–RR, Fig. 5
41. Longissimus (cervicis, thoracis, lumborum): Q–OO, TT–YY, Figs. 2-5
42. Langus calli: JJ–RR
43. Multifidus: O–PP, WW, Fig. 5
    Obliquus capitis cranialis (see 108): SS
44. Obliquus externus abdominis: Q–GG, Fig. 2
45. Obliquus internus abdominis: N–V, Figs. 3-5
46. Obliquus capitis caudalis: QQ–SS
47. Obturatarius externus: K–M
48. Obturatorius internus: K–O
    Omohyoideus (see 109): QQ–SS, CCC
49. Omotransversarius: PP–RR, AAA–CCC, Fig. 2
50. Pectineus: J–M
51. Pectorales profundi: BB–QQ, WW–DDD, Figs. 1-4
52. Pectorales superficiales: KK–QQ, CCC–FFF, Fig. 4
53. Peraneus langus: A–F, Figs. 2-5
54. Peroneus tertius: A–G, Figs, 2-5
55. Popliteus: D–F
56. Pronator teres: QQ, FFF–III
57. Psoas major: L–AA
58. Psoas minor: O–X
59. Quadratus femaris: Not shown (see page 59)
60. Quadratus lumbarum: P–Y
61. Quadriceps femaris, rectus femoris: J–N
62. Quadriceps femaris, vastus intermedius: I–L
63. Quadriceps femaris, vastus lateralis: I–N, Figs. 2-5
64. Quadriceps femaris, vastus medialis: I–M
65. Rectus abdaminis: L–HH, Figs. 4-5
66. Rectus capitis dorsalis (major et minor): QQ–SS
    Rectus capitis lateralis (see 110): SS
67. Rectus capitis ventralis major (Longus capitis): QQ–SS, Fig. 5
68. Rectus capitis ventralis minar (Rectus capitis ventralis): SS
69. Rectus thoracis: LL–MM, Figs. 4-5
70. Retractor castae: U, Figs. 3-4
71. Rhomboideus (capitis, cervicis, thoracis): JJ–QQ, VV, Figs. 2-3
72. Sacracaccgeus (ventralis medialis, ventralis lateralis, dorsalis medialis, dorsalis lateralis): K–N, Figs. 3-5
73. Sartorius: J–N
74. Scalenus (dorsalis, ventralis): LL–QQ, AAA, Figs. 4-5
75. Semimembranosus: F–K, Figs. 1-5
76. Semispinalis capitis: LL–SS, WW–BBB, Fig. 5
77. Semitendinosus: C–L, Figs. 1-3
78. Serratus dorsalis caudalis: V–BB, Figs. 2-3
79. Serratus dorsalis cranialis: DD–LL, TT–WW, Fig. 3
80. Serratus ventralis (cervicis, thoracis): DD–QQ, UU–CCC, Fig. 4
81. Saleus (part of Triceps surae): C–H, Figs. 2-5
82. Spinalis (cervicis, thoracis): DD–NN, TT–WW, Figs. 2-5
83. Splenius: LL–SS, WW–ZZ, Figs. 3-4
84. Sternocephalicus: OO–SS, CCC–DDD, Fig. 5
85. Sternothyrohyoideus (sternothyraideus, sternohyoideus): MM–SS, CCC
86. Subclavius: Not shown (see page 56)
87. Subscapularis: KK–OO, XX–BBB
88. Supraspinatus: LL–QQ, VV–BBB
89. Tensar fasciae antebrachii: LL–OO, ZZ–EEE, Figs. 2-3
90. Tensor fasciae latae: L–Q, Fig. 1
91. Teres major: JJ–OO, WW–CCC, Fig. 3
92. Teres minor: MM–PP, ZZ–CCC
93. Tibialis cranialis: A–F
94. Transversus abdaminis: S–FF, Fig. 5
95. Transversus thoracis: GG–KK
96. Trapezius (Pars cervicalis, Pars thoracica): EE–RR, TT–VV, Fig. 1
97. Triceps brachii, caput laterale: NN–PP, CCC–EEE, Figs. 2-3
98. Triceps brachii, caput longum: KK–NN, XX–DDD, Figs. 2-3
99. Triceps brachii, caput mediale: OO–PP, CCC–EEE
100. Auriculares posteriares: SS
101. Coccygeus: K–O, Figs. 3-5
102. Cutaneus calli (part of Platysma): OO–SS, CCC–EEE, Figs. 1-5
103. Cutaneus faciei (part of Platysma): PP–SS, YY–BBB, Fig. 1
104. Extensor digiti primi longus: A–D
105. Gluteus superficialis (includes piriformis): L–N, Figs. 1-2
106. Interspinales: Q, S–W, GG–NN, Fig. 5
107. Levatar ani (Retractor ani, Caccygeus medialis): L–O
108. Obliquus capitis cranialis: SS
109. Omohyoideus: QQ–SS, CCC
110. Rectus capitis lateralis: SS
111. Metacarpal and metatarsal muscles: Not shown

BONES: Ident., Name, and Section Location

a Costae (1-16): W–MM, TT–AAA, Fig. 6
b Femur: G–M, Fig. 6
c Fibula: A–E, Fig. 6
d Humerus: OO–QQ, BBB–FFF, Fig. 6
e Os coxae: K–Q, Fig. 6
e1 ilium: M–Q, Fig. 6
e2 ischium: K–M, Fig. 6
e3 pubis: L–M
e4 acetabulum: M
f Patella: I, Fig. 6
g Radius: QQ, GGG–JJJ, Fig. 6
h Scapula: KK–OO, WW–AAA, Fig. 6
i Sternum: GG–NN, CCC, Fig. 6
k Tibia: A–F, Fig. 6
l Ulna: OO–QQ, EEE–JJJ, Fig. 6
ll olecranon: OO–PP, EEE, Fig. 6
m Vertebrae, cervical (1-7): NN–SS, Fig. 6
n Vertebrae, thoracic (8-23): X–MM, TT, Fig. 6
o Vertebrae, lumbar (24-29): Q–W, Fig. 6
p Vertebrae, sacral (sacrum) (30-33): N–Q, Fig. 6
q Vertebrae, coccygeal (34— —): K–M, Fig. 6
r Tuber calcis: A, Fig. 6
s Skull: SS

MISC. COMPONENTS: Ident., Name, and Section Location

Cc Cartilage, costal: V–MM
Cs Cartilage, scapular: II–LL, VV
Cx Cartilage, xiphaid: FF
Ea Ear: SS
Kd Kidney (Ren): U–X
Ln Ligamentum nuchae: LL–QQ
LNa Lymph nade, deep inguinal: P
LNb Lymph nade, lumbar: V
LNc Lymph node, papliteal: E
LNd Lymph node, prefemaral: O
LNe Lymph node, prescapular: OO
LNf Lymph nade, superficial inguinal: L–M
LNg Lymph node, internal iliac: R
LNh Lymph node, paratid: SS
Ma Mammary gland: M, P, Q, U, W, Z, DD
Ps Parotid salivary gland: RR–SS
Ss Submaxillary salivary gland: SS
Ta Tendo calcaneus (Achillis): B
Th Thymus: RR–SS