

**A STEREOTAXIC ATLAS OF THE
BRAIN OF THE PIGEON
(*COLUMBA LIVIA*)**

BY

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FOREWORD

The problems of evolution rank among mankind's most enduring interests, and it is therefore not surprising that virtually every branch of biology and medicine has ramified in the direction of comparative studies. Although in neurology this search traditionally has been an intensive one, a lack of adequately refined techniques has long held comparative neurology confined largely within the limits of normal anatomical description.

The technological scene has changed rapidly over the last few decades, and the contemporary neurologist finds an instrumentarium of unprecedented refinement available: microelectrode recording techniques, sensitive quantitative chemical methods, greatly improved techniques for both normal descriptive and experimental anatomical studies, histochemical and embryological techniques hardly dreamed of by earlier generations of neurobiologists. In the monumental writings of Edinger, the Herricks, Cajal, Ariens Kappers, Huber, Crosby and their colleagues he will find a rich store of anatomical information on the vertebrate brain, but it will not take him long to identify the great problems of interphyletic homology, both in structure and function, that have remained unresolved. Almost certainly, new insights in these problems are in store for all who venture a fresh approach by the aid of modern methods.

Brain research over the years has drawn huge profits not only from a progressive refinement of physiological, chemical, and histological techniques. It owes an important part of its success to the development of accurate stereotaxic methods, spatial guides without which only few deep-lying brain structures could have been explored adequately. The appearance of this stereotaxic atlas of the pigeon brain by Drs. Karten and Hodós is therefore a source of promise and expectation. The authors, as the user will find, have succeeded in achieving standards of accuracy that match those of the best atlases used in research on the mammalian brain. Their thorough search of the available literature has extended the value of this work well beyond its primary purpose of being a practical guide in experimental research. It has also become a most useful source of general orientation in the organization of the avian brain. But no matter what its present virtues, one cannot wish this work a better fate than that of future revisions in which the currently widely accepted but unavoidably neutral labels that identify so many structures, especially in the forebrain, can be replaced or augmented by ever more meaningful indications of structure and function.

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Cambridge, Massachusetts
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Carl Moss performed the necessary modifications of the stereotaxic ear bars, constructed the two types of head adapters, and gave valuable advice on numerous aspects of instrument design. Susan Harris and Victor Greene produced the original outline drawings of the brain from the enlarged photographs. Joan Ruback employed her considerable artistic talents in the preparation of the final brain drawings and other illustrations. Jacqueline Weinberg catalogued the various brain structures. Irmgard Dinger carried out the difficult task of arranging the alphabetical index and the keys to abbreviations. George Sangeleer and K. Ihara prepared the photographs of the gross brains and adaptors. The skill and patience of John McClain are evident in the photomicrographs of the brain sections.

We particularly wish to acknowledge the excellent assistance of Eddie Penland in all phases of the development of the atlas. Mr. Penland gave most generously of his time, energy, and abilities in the surgical and post-mortem preparation of the birds, in all of the various photographic procedures, and in the histological processing of the brain tissues.

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I. INTRODUCTION

The stereotaxic method was first applied to the study of the nervous system by Horsley and Clarke (1908). Since then it has provided one of the most important techniques of investigation of the structure and function of specific regions of the brain. The availability of accurate and reliable stereotaxic coordinates has permitted experimenters to explore previously inaccessible structures deep within the brain. Stereotaxic methods have been employed in the accurate placement of experimental lesions, in electrical and chemical stimulation of the brain, and in electrical and thermal recording studies. These techniques have found application in the laboratories of anatomists, physiologists, biochemists, psychologists, and ethologists, as well as in various human clinical procedures. Atlases of stereotaxic brain coordinates are presently available for a wide variety of mammals such as rodents (de Groot, 1959), carnivores (Snider and Lee, 1961), and primates (Snider and Niemer, 1961; Olszewski, 1952) including man (Schaltenbrand and Bailey, 1959). There are, in addition, specialized atlases of several of these animals, which contain detailed cytological descriptions of the nuclear organization of such specific areas as the brain stem (Meessen and Olszewski, 1949), the hypothalamus (Bleier, 1961), and the thalamus (Olszewski and Baxter, 1954).

Ralph and Fraps (1959) were the first to demonstrate the feasibility of adapting mammalian stereotaxic methods to avian forms. However, this atlas was restricted to the hypothalamus and preoptic area and was therefore rather limited in scope. A more comprehensive atlas of the chicken brain was recently published by van Tienhoven and Juhasz (1962). Their atlas provided stereotaxic coordinates of the diencephalon and telencephalon. Thus, while stereotaxic atlases of avian brains are available, they do not provide sections through the entire brain. Moreover, neither of these atlases included detailed photographs of stained sections of the brain. Such photographs are invaluable when attempting to reconstruct lesions or identify the locus of an electrode tip.

The pigeon was selected for the present atlas since it has been widely used in earlier anatomical studies of the avian nervous system and has also been the subject of extensive behavioral investigations (Ferster and Skinner, 1957). Furthermore, its brain may be regarded as a *Grundtypus* of the avian form (Stingelin, 1958). In addition, standardized breeds are available, the use of which can greatly reduce intersubject variability with a resultant increase in the reliability of the stereotaxic coordinates. The atlas which follows provides a complete series of transverse stereotaxic plates from the olfactory bulb to the bulbo-spinal junction, usually at 0.25 mm intervals. The series of plates through the telencephalon, diencephalon, and mesencephalon show one half of the brain. In the series through the caudal brain stem and cerebellum, both halves of the brain are shown. In addition, ten selected sagittal plates have been included. In both the transverse and sagittal series, a number of the more readily recognizable fiber tracts have been indicated by means of crosshatching. Accompanying each plate in the atlas is a photomicrograph of a Nissl-stained section of the opposite half of the brain. Several photographs of the intact brain are presented as well.

The identification of cell groups and fiber pathways has been as detailed as our present knowledge permits. However, a number of discrete structures have been left unlabeled because we felt that this was preferable to a premature naming based on little or no experimental evidence. Indeed, it is our hope that this atlas may serve as a tool which will enable investigators to provide the necessary data for a detailed morphological and functional analysis of the avian nervous system.

In addition to the atlas, detailed directions are given for the fabrication of two types of head holders and for fixation of the skull in the stereotaxic instrument. We have also suggested a number of anesthetic agents which we have found useful in pigeon surgery. For the convenience of the reader, a key to the abbreviations appears with each stereotaxic plate. An alphabetical index of structures indicates the abbreviation used for each structure and the atlas plates on which it may be found.

II. METHODS

1. Selection of the Breed

White Carneaux pigeons (*Columba livia*), both cocks and hens, two to six years of age, and ranging in weight from 400 to 600 grams were used. These standard breed pigeons are widely used in psychology laboratories and are readily available commercially¹. The birds used in the preparation of this atlas were obtained from the Palmetto Pigeon Plant, Sumter, South Carolina. All birds were placed in quarantine for thirty days following delivery and treated with tetracycline during this period as prophylaxis against ornithoses (Cohen, *et al.*, 1965).

2. Selection of the Atlas Plane

Stereotaxic technique requires a means of fixation of the head such that the brain is maintained in a standard position with respect to the stereotaxic instrument. In mammals, the external auditory canals are most frequently used as the posterior points of fixation; the anterior points of fixation are often the infra-orbital ridges. Similarly, in the pigeon, the external auditory canals provide an adequate means of posterior fixation. However, in the bird, due to the absence of a complete infra-orbital ridge, the ventral surfaces of palatine ridges were chosen as the anterior points of fixation. The palatine ridges were supported by a thin, rigid, metal bar parallel to the ear bars and located 20.0 mm from the interaural line. In the traditional mammalian stereotaxic method, the anterior and posterior fixation points are maintained approximately parallel to the horizontal axis of the instrument. However, in the pigeon, this

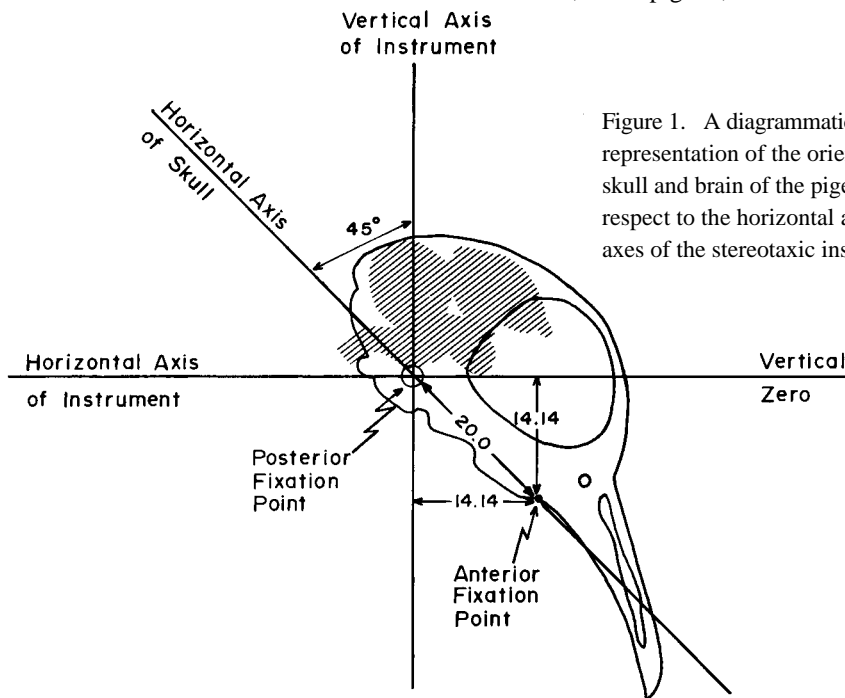


Figure 1. A diagrammatic representation of the orientation of the skull and brain of the pigeon with respect to the horizontal and vertical axes of the stereotaxic instrument.

¹Silver King, another commercially available standard breed, may be a satisfactory substitute for the White Carneaux in some cases since a number of sites in the brains of these two breeds appear to have roughly comparable stereotaxic coordinates.

orientation results in a severe distortion of familiar anatomical relationships; e.g., the posterior commissure and the eighth cranial nerve would both appear in the same section. In order to avoid such distortion, the mouth bar was placed 45° below the horizontal axis of the stereotaxic instrument. A plane was thus obtained in which such structures as the posterior commissure and the exit of the third nerve appear in the same section. Figure 1 illustrates the orientation of the skull and brain with respect to the stereotaxic instrument.

3. Design of the Head Holder

The stereotaxic instrument used in the preparation of the atlas—and in subsequent studies upon which the atlas coordinates were validated—was the Kopf cat-monkey stereotaxic instrument. Several modifications were necessary in order to adapt this instrument for use with pigeons. One such modification was to turn down a pair of the standard cat-monkey ear bars in a lathe to a diameter of 3.0 mm for a distance of 18.0 mm from the tips (See Fig. 2). This permitted smooth insertion of the ear bars into the external auditory meatus. The ear bars provided the posterior axis of fixation.

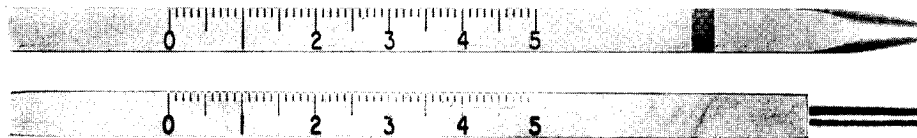


Figure 2. Top: A Kopf cat-monkey ear bar. Bottom: A Kopf cat-monkey ear bar which has been modified for use with the pigeon.

Two types of adaptors have been designed to support the anterior point of fixation. In one design, the Kopf standard rat adaptor was modified (See Fig. 3) to provide a thin, rigid bar to support the palatine ridges and to allow additional clearance for the beak to rotate as the head is brought into the 45° plane. The diameter of the mouth bar should not exceed 1 mm. The head will be correctly positioned in the stereotaxic instrument when the upper surface of the mouth bar is located 14.14 mm anterior and 14.14 mm below the interaural line (See Fig. 1). This adaptor is particularly advantageous when offset ear bars are used. Its weakness is that if the mouth bar is inserted too far into the bird's mouth, serious damage to the mandible may result.

The second type of adaptor was suggested by Dr. Alvin Revzin, to whom we wish to express our gratitude for the design. The adaptor is based on the fact that the long surfaces of the ear bars, when locked in position in the stereotaxic instrument, are at an angle of 45° to the horizontal and vertical axes of the instrument. This adaptor can be fabricated from a rectangular block of brass or steel stock into which a slot has been milled to receive the ear bar. The face of the milled slot must be exactly perpendicular to the long axis of the block. A steel rod of 1.0 mm diameter is mounted in the block 20.0 mm from the central axis of the ear bar and tangent to a line passing at a 45° angle through the interaural line. A diagram of this adaptor is shown in Figure 4. For additional stability a second block should be prepared in which a hole, slightly larger than 1.0 mm, has been drilled to freely receive and serve as a support for the 1.0 mm diameter rod of the first block. This second block is

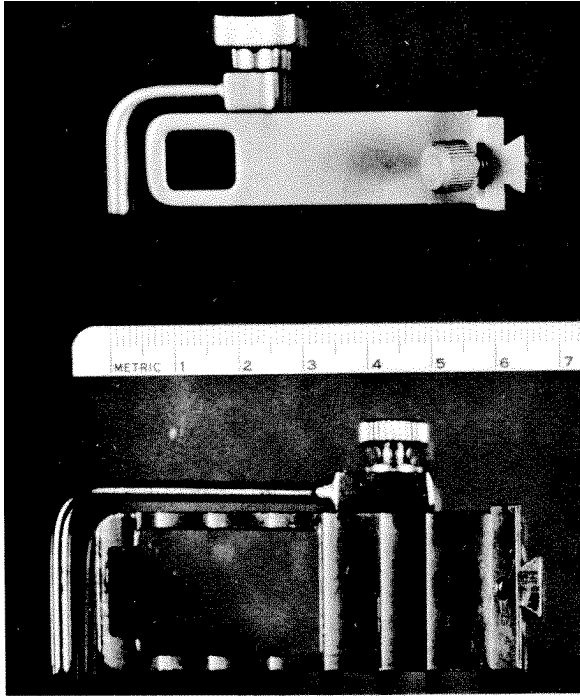


Figure 3. Top: The rat adaptor of the Kopf stereotaxic instrument. Bottom: A pigeon adaptor that can be substituted for the rat adaptor.

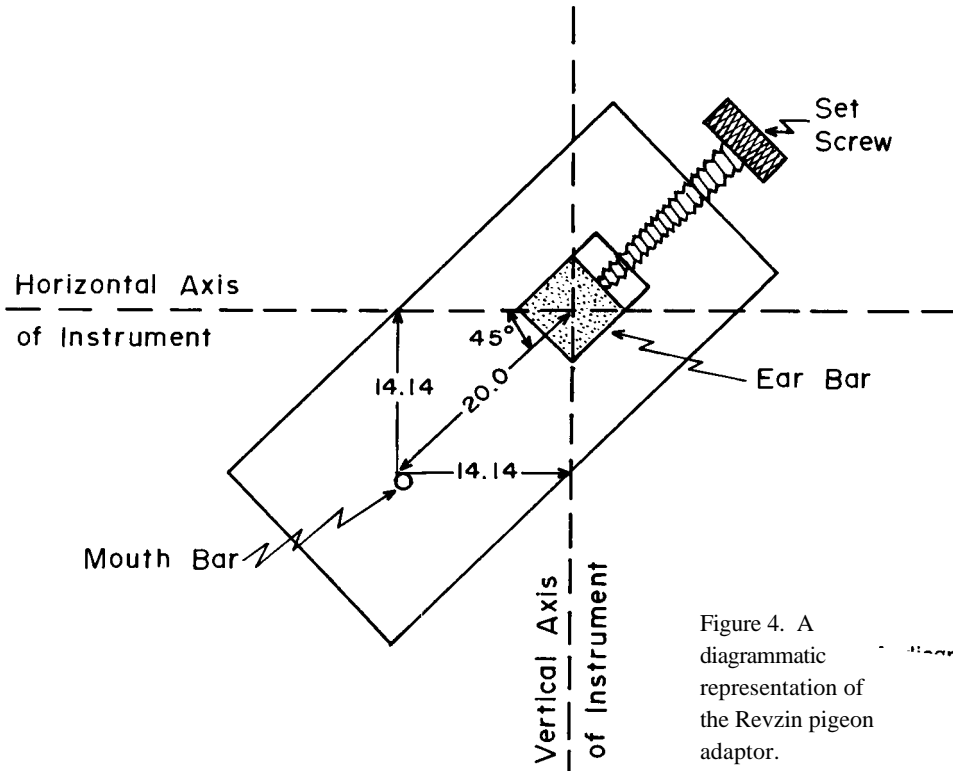


Figure 4. A diagrammatic representation of the Revzin pigeon adaptor.

mounted on the contralateral ear bar. The blocks can be easily secured to the ear bars by means of set screws. The adaptor is shown positioned on the stereotaxic instrument in Figure 5.

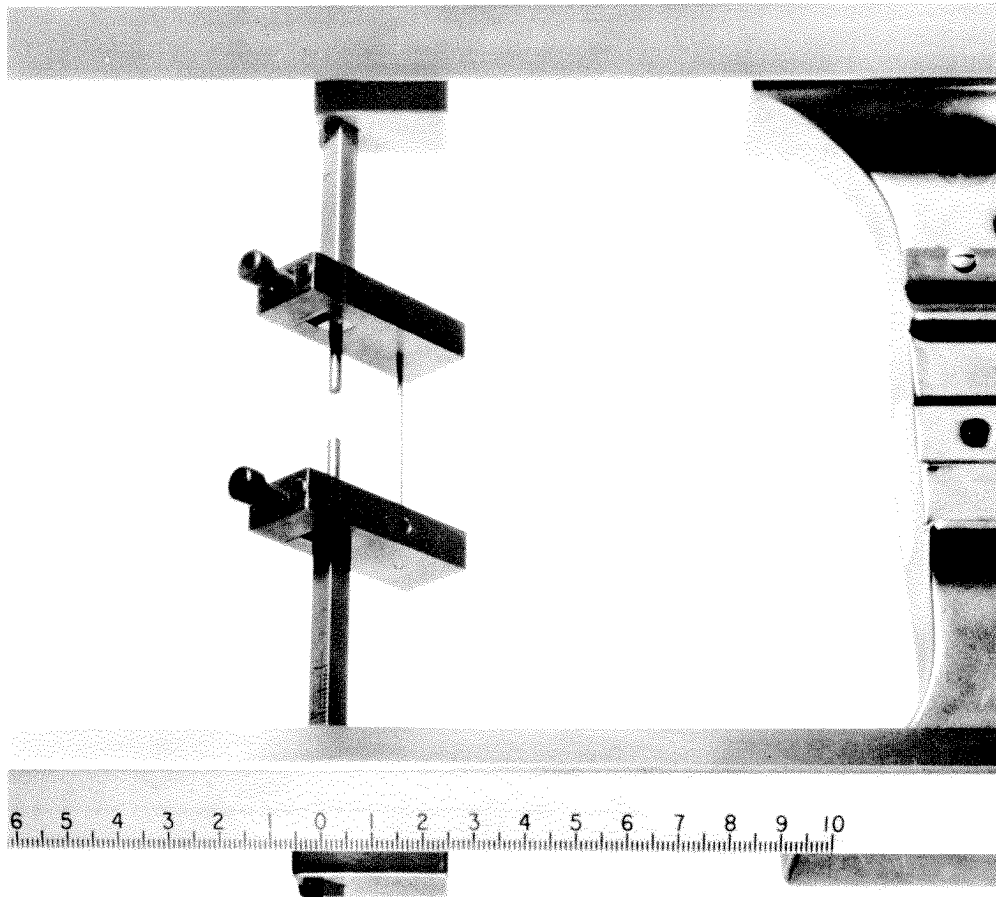


FIGURE 5. The Revzin adaptor positioned on the stereotaxic instrument.

We have come to prefer the Revzin adaptor because it affords a greater reproducibility of head position than can be achieved with the modified Kopf adaptor. Moreover, since the mouth bar is inserted from the side, the possibility of damage to the mandible is greatly minimized. The limitations of the Revzin adaptor are derived from its greatest virtue, namely its inflexible construction. As a result it does not lend itself readily to other head orientations. Fortunately, this is a restriction which will be incompatible with few experimental designs. An additional limitation, however, is that the position of the blocks in the instrument does not permit an approach to the brain from the lateral aspect. The modified Kopf adaptor is more suitable to such an approach. In spite of these limitations, the greater simplicity and reliability of the Revzin adaptor are a strong recommendation for its use. However, since the design of the Revzin adaptor does not permit any adjustment, great care must be exercised in its construction. A photograph of a pigeon's head mounted in the Revzin adaptor is shown in Figure 6.

4. Preparation of the Animal for Surgery

Several types of anesthetics have been successfully used with pigeons. For intramuscular administration (into the pectoral muscles) we have used Equithesin, which is a commercially available mixture of sodium pentobarbital, chloral hydrate, magnesium sulfate, and a preservative.



FIGURE 6. The head of a pigeon mounted on the Revzin adaptor. The calvarium has been removed and the brain exposed to show its position with respect to the adaptor.

The dosage employed was 0.25 cc/100 grams of body weight². Sodium pentobarbital, injected into the brachial vein, was also found effective. A reasonably safe dosage range was found to be 24 to 28 mg/kg of body weight. Metofane (methoxyflurane), an inhalation anesthetic, however, was found to provide the widest margin of safety, particularly with animals maintained on food deprivation schedules prior to surgery. With all of the above-mentioned anesthetics the usual pre-operative precautions should be observed, especially that of fasting the animal for 24 hours prior to surgery. When properly administered, Equithesin and Metofane have the lowest mortality rates. Both Equithesin and pentobarbital, however, have the disadvantage that it is difficult to estimate the quantity of required supplementary doses. Of these two anesthetics, however, Equithesin has proven to result in a lower mortality rate. Metofane is fast-acting, permits a high level of oxygenation, and is non-explosive. The animals often regain consciousness within several minutes after termination of the anesthetic. This feature is particularly valuable in that the birds require minimal post-operative attention. A disadvantage to the use of Metofane is that precautions should be taken to prevent excessive inhalation of the anesthetic by the experimenters.

Intradermal infusion of Xylocaine or other local anesthetic agent along the intended line of incision will often permit surgery to be performed under general anesthesia of considerably reduced depth.

5. Method of Fixation of the Head

After the bird has been anesthetized and prepared for surgery, the ear bars should be gently

² In the case of pigeons maintained on food deprivation schedules, we have found that mortality is lower if the dosage is decreased by 10% for each 10% deviation from the free feeding weight.

inserted into the external auditory meatus to the point of maximum travel. Excessive pressure should be avoided. When fully inserted, the distance between the tips of the ear bars should be 10.5 mm, +0.5 mm. The mouth should then be opened only as wide as necessary to allow passage of the mouth bar. **Forcing the mouth open further at this time may result in fracture of the posterior ramus of the mandible.** The mouth bar should be slowly maneuvered into position and secured. This procedure usually provides adequate stability for the head. However, if additional stability is required, the dorsum of the beak may be **gently** clamped or taped to the adaptor.

In view of the fragility of the pigeon's skull, any excessive pressure on the skull should be avoided when the head is positioned in the instrument. Experimenters who have worked with cats and monkeys may find that the rigidity of the pigeon's head is less than that usually found in mammals. Nevertheless, we have found that although the position of the head can be changed somewhat by moderate pressure, when the pressure is removed, the head will return to its original position.

6. Preparation of the Stereotaxic Plates

In order to provide the necessary reference marks in the histological sections, four steel pins were stereotaxically placed in the pigeon's brain³. The first pair was placed vertically at AP 0.0 and A 10.0 respectively. The other two pins were placed horizontally, at 5.0 mm and 10.0 mm respectively above the horizontal zero plane of the instrument. The bird was then perfused via the left ventricle with 200 ml of saline, followed by 200 ml of 10% formol-saline. The head was severed from the body, the calvarium removed, and the brain allowed to fix *in situ* in 10% formol-saline. Four birds were prepared in this manner, using fixation periods varying from 3-90 days. Following fixation, the pins were extracted, and the head was placed in the stereotaxic instrument. The brain was blocked in the vertical plane of the instrument with a scalpel blade held in an electrode carrier. This blocking technique provided an accurate correspondence of the plane of histological sectioning to the vertical plane of the stereotaxic instrument. Figure 7 shows the method of blocking. The brain was then removed from the skull and permitted to fix for an additional 1-3 days.

The blocked brain was placed on the freezing stage of an AO Spencer sliding microtome. The freezing stage consisted of a square brass plate with a trough on two sides. A mixture of dry ice and ethyl alcohol was placed in the trough. Prior to placing the block of brain tissue on the freezing stage, a platform of ice of approximately 2-3 mm thickness was fashioned by dropping water onto the stage. This ice layer was then leveled by the microtome blade to produce a surface perfectly parallel to the plane of movement of the blade. The

³ The principles of laboratory animal care as promulgated by the National Society for Medical Research were observed.



FIGURE 7. The head of a pigeon mounted in the stereotaxic instrument with the Kopf type of pigeon adaptor. The calvarium has been removed and the brain exposed. A scalpel blade, mounted in an electrode carrier, is shown being used to block the brain in the vertical plane of the stereotaxic instrument.

brain was next placed on this platform, frozen to it, surrounded by dry ice to accelerate freezing, and cut in 50μ thick sections which were collected serially for subsequent staining.

In order to minimize the distortion and shrinkage which often result from sectioning and staining (Olszewski, 1952), the cut surface of the brain in the ice block was photographed every 250μ with a Polaroid MP-3 camera positioned above the microtome. Each photograph included a metric ruler placed in the plane of the cut surface of the brain. The photographs were made on Polaroid Type 55 P/N film which yields both a positive print and a negative. The negatives were enlarged to give a linear magnification of 15X (225X areal magnification). Although these enlargements were of low contrast, the border of the brain, ventricles, and many internal features were nevertheless easily distinguished.

Clear sheets of acetate were placed on the enlarged photographs and the outline of the brain traced on the acetate with India ink. A scale of stereotaxic coordinates was then plotted on each sheet based on the position of the

electrode tracks and *in vivo* measurement of various external features of the brain.

The cut sections of the brain were stained with cresyl-echt violet and mounted. These Nissl-stained sections were then projected onto the drawings, and the boundaries of cell groups and fiber tracts were drawn on the acetate. This method results in an outline of the brain which is free from the distortion produced by the passage of the microtome blade through the brain (Olszewski, 1952). The outline is also free from errors which result from the separation of the cerebral hemispheres and tectum from the brain stem after

sectioning. Moreover, it corrects for differential shrinkage of various brain regions consequent to staining. This shrinkage varied from 10% to 40% depending on the ratio of cells to myelinated fibers in the various areas of the brain. Thus, in order to arrive at a more accurate delineation of nuclear boundaries, it was frequently necessary to compensate for the differential shrinkage by adjusting the projection magnification of the stained sections in different areas of the brain.

7. Preparation of the Photographs

The Nissl-stained photographs which accompany the transverse stereotaxic plates were prepared from brain 58-3596. This brain was fixed and blocked *in situ* in the skull as described in the previous section and then embedded in celloidin and cut at 25 μ . Every fourth section was stained with cresyl-echt violet and mounted. Sections were selected to match the stereotaxic plates as closely as possible. Since some sections were damaged during processing, it was necessary to photograph appropriate sections from brain PF-21, which was prepared in an identical manner and B-27, which had been cut at 50 μ on a freezing stage microtome. The sagittal plates were prepared from brain B-25, which had been fixed *in situ* and blocked sagittally in a stereotaxic instrument as previously described. This brain was also embedded in celloidin, cut at 25 μ , and stained with cresyl-echt violet. Sections were then chosen to match the sagittal stereotaxic plates. The section which best matched plate L 3.50 was unfortunately damaged during processing. It was therefore necessary to photograph a comparable section from the contralateral portion of the brain. This resulted in some discrepancies between the plate and the photograph which are most apparent in the size of the cerebellum.

All photographs were taken on a Bausch and Lomb 8 x 10 inch GBVP horizontal optical bench. For the frontal sections a 42 mm Leitz Summar lens with a Kodak No. 15 yellow filter was used, whereas the sagittal sections were photographed with a 72 mm Microtessar lens and yellow filter. Kodak Ortho-Contrast film was used for all photographs and was processed in Kodak D-11 developer. The backgrounds of the negatives were "opaqued" but no further retouching was applied⁴. Prints from these negatives were made on Kodabromide No. 4 and No. 5 papers using a LogEtronics contact printer and were developed in Kodak Dektol developer.

The magnification of the celloidin-embedded frontal sections was adjusted to 23X and that of the celloidin-embedded sagittal sections to approximately 15X. These magnifications were chosen to approximate the 15X and 12.5X magnifications of the stereotaxic plates of the transverse and sagittal sections respectively. These magnifications closely compensated for the estimated shrinkage of approximately 25 to 35% caused by the celloidin embedding.

8. Accuracy of the Atlas

In order to verify the accuracy of the stereotaxic coordinates, four lesions were made in each of four pigeons. The lesions were aimed at discrete targets and thus permitted a straightforward decision as to precision of placement. Fifteen of these sixteen lesions were judged to be acceptably accurate. The accuracy of the atlas was tested further in more than 200 lesion experiments performed in the course of several research projects. The observations thus collected indicate that satisfactory placement of lesions can be expected in approximately 85% of the cases. A probable source of error, in addition to that inherent in measuring and calibrating, lies in the degree of individual variability of the birds.

In general, coordinates for any given structure should be obtained from the transverse plates since these are based on direct measurement whereas the sagittal coordinates are based to a large extent upon reconstructions from the transverse plates.

⁴ Occasionally, the contrast between a superficial white layer of the brain and the white background of the photograph was so poor as to render the true surface of the brain indistinguishable. In such cases, the external boundaries of the brain were drawn on the negative. These lines appear black in the final photographs.

III. NOMENCLATURE

1. Choice of Nomenclature

Since this atlas is primarily intended to serve as a research tool, no detailed justification of the nomenclature is offered. In most cases, divisions between cell groups were drawn in accordance with those previously described in the literature. Although over the years a number of suggestions have been put forth for a nomenclature of the avian central nervous system, anatomists have been unable to agree on a uniform terminology. Moreover, many of the structures in the avian brain stem that have well-recognized mammalian homologies often have been given names drawn from obsolete mammalian nomenclatures rather than from contemporary terminology. In the course of our own research (Karten, 1963, 1964, 1965) we have found that the terminology used for the mammalian reticular formation by Olszewski and others (Olszewski and Baxter, 1954; Meessen and Olszewski, 1949) is applicable as well to the avian reticular formation. In several instances in which homologies appeared uncertain, the older avian terminology was retained. The nomenclature of the pretectal area is based on that of Kuhlenbeck (1939) and that of the thalamus on Huber and Crosby (1929), Craigie (1931), and Kuhlenbeck (1937).

The choice of terminology to be adopted in the telencephalon posed special problems. Whereas the nuclei of the thalamus have customarily been given purely descriptive names (e.g., rotundus, ovoidalis, etc.), the subdivisions of the telencephalon have often been named on the basis of inferred homologies with mammalian structures. Although this is undoubtedly justifiable in the case of certain structures such as the olfactory bulb and septal nuclei, the use of such terms as archistriatum, neostriatum, ectostriatum, etc. (Ariëns Kappers, Huber, and Crosby, 1936) could easily lead to the quite possibly erroneous notion that the avian telencephalon is composed almost entirely of a massive and highly developed corpus striatum comparable to that of mammals. Developmental studies such as those of Källén (1953) and Haefelfinger (1957) suggest strongly that only that region of the telencephalon which is ventral to the dorsal medullary lamina should be properly regarded as homologous to the mammalian corpus striatum. Other investigators have recognized the pitfalls of a nomenclature based on apparent homologies and have suggested telencephalic terminologies which are simply descriptive (Kuhlenbeck, 1938), or have designated the various subdivisions of the telencephalon by letters of the alphabet (Rose, 1914).

Despite the aforementioned objections, we decided to employ the telencephalic nomenclature of Ariëns Kappers, Huber, and Crosby (1936) with some modification. The fact that this terminology is the most widely used and the most familiar to researchers was considered to outweigh the risks inherent in its potentially misleading connotations. Table 1 presents a summary of the major divisions of the telencephalon as indicated in this atlas and the terms which different investigators have employed to designate these divisions.

Other sources of nomenclature were found in the works of Edinger, Wallenberg, and Holmes (1903), Schroeder (1911), Rendahl (1924), Cajal (1911), and Craigie (1928, 1932).

Table 1. A Comparison of the Nomenclature of the Telencephalon
Used by Various Authors.

Terminology used in this atlas	Edinger, Wallenberg, and Holmes (1903)	Rose (1914)	Ariens Kappers, Huber, and Crosby (1936)	Kuhlenbeck (1938)
Hyperstriatum accessorium (HA)	Cortex frontalis	B	Hyperstriatum accessorium	Nucleus diffusus dorsalis
Hyperstriatum intercalatus (HIS)	Frontalmark	A	Nucleus intercalatus hyperstriati suprema	Nucleus diffusus dorsolateralis
Hyperstriatum dorsale (HD)	Hyperstriatum	C	Hyperstriatum dorsale	Nucleus epibasalis dorsalis, pars superior
Lamina frontalis superior (LFS)			Nucleus intercalatus hyperstriati superioris	Nucleus epibasalis dorsalis, pars inferior
Hyperstriatum ventrale (HV) (dorso-ventrale) (HVdv) (ventro-ventrale) (HVvv)		D, D1	Hyperstriatum ventrale (dorso-ventrale) (ventro-ventrale)	
Neostriatum frontale (NF)		G1	Neostriatum frontale	Nucleus epibasalis centralis, pars medialis
Neostriatum intermedium (NI)		G, G2	Neostriatum intermediale	
Neostriatum caudale (NC)		L, G3	Neostriatum caudale	Nucleus epibasalis centralis, pars posterior
Lobus parolfactorius (LPO)		Parolfactory lobe		
Nucleus basalis (Bas)	Mesostriatum laterale	R	Nucleus basalis	Nucleus epibasalis ventrolateralis
Ectostriatum (E)	Ectostriatum	S	Ectostriatum	Nucleus epibasalis centralis accessorium
Archistriatum (A)	Epistriatum	K	Archistriatum	Nucleus epibasalis caudalis
Paleostriatum augmentatum (PA)	Mesostriatum	H	Paleostriatum augmentatum	Nucleus basalis
Paleostriatum primitivum (Pp)	Nucleus entopeduncularis	J	Paleostriatum primitivum	Nucleus entopeduncularis

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3. Index of Structures

The following is an alphabetical listing of all structures named in this atlas. Whenever possible, the names of structures have been taken from *Nomina Anatomica* (1961). Following each name is the abbreviation used in the atlas and a listing of those transverse plates in which the structure appears. Occasionally small structures or zones fall in the interval between plates. In such cases, the location is given in the sagittal series. An alphabetical key to the abbreviations accompanies each pair of plates and photographs.

Alphabetical Index of Structures

<u>Structures</u>	<u>Abbreviation</u>	<u>Location</u>
Ansa lenticularis	AL	A 7.75-A 3.50
Aqueductus cerebri	AQ	A 3.75-A 3.25
Archistriatum	A	A 5.00
Archistriatum, pars dorsalis	Ad	A 7.50-A 5.25
Archistriatum, pars ventralis	Av	A 7.50-A 5.25
Area corticoideae dorsolateralis	CDL	A 7.50-A 3.25
Area hypothalami posterioris	AHP	A 5.75-A 5.50
Area parahippocampalis	APH	A 7.25-A 3.25
Area pretecalis	AP	A 4.75-A4.25
Area temporo-parieto-occipitalis (Edinger, Wallenberg, and Holmes)	TPO	A 8.25-A 7.50
Area ventralis (Tsai)	AVT	A 4.50-A 4.00
Brachium colliculi superioris	BCS	A 3.50-A 1.75
Brachium conjunctivum	BC	A 2.00-AP 0.00
Brachium conjunctivum ascendens	BCA	A 3.25-A 2.50
Brachium conjunctivum descendens	BCD	A 3.25-A 2.00
Brachium conjunctivum descendens et tractus tectospinalis	BCTS	A 1.75-A 1.50
Bulbus olfactorius	BO	A 14.50-A 13.50
Campi Foreli	CF	A 5.25-A 4.50
Canalis centralis	OC	P 3.50-P 4.50
Capsula interna occipitalis	CIO	A 7.00-A 6.00
Cerebellum	Cb	A 4.25-P 4.00
Chiasma opticum	CO	A 9.50-A 5.75
Commissura pallii	CPa	A 7.50-A 7.25
Commissura anterior	CA	A 8.00-A 7.75
Commissura posterior	CP	A 4.50-A 3.75
Commissura tectalis	CT	A 4.00-A 2.75
Commissura cerebellaris ventralis	CCV	A 0.25-P 0.50
Corpus pineale	P	L 0.50
Corpus trapezoideum (Papez)	CTz	A 1.75-P 0.75
Cortex prepiriformis	CPP	A 14.50-A 14.00
Cortex piriformis	CPi	A 7.50-A 5.00
Decussatio brachiorum conjunctivum	DBC	A 2.50-A 2.00
Decussatio nervi trochlearis	DIV	A 2.00-A 1.50
Decussatio supraoptica dorsalis	DSD	A 7.50-A 6.75
Decussatio supraoptica ventralis	DSV	A 7.50-A 6.75
Decussatio supraoptica	DS	A 7.75-A 6.50
Ectostriatum	E	A 11.25-A 8.00

<u>Structure</u>	<u>Abbreviation</u>	<u>Location</u>
Fasciculus diagonalis Broca	FDB	A 9.25-A 8.50
Fasciculus longitudinalis medialis	FLM	A 3.50-P 3.75
Fasciculus prosencephali lateralis	FPL	A 8.50-A 6.25
Fasciculus prosencephali medialis	FPM	A 10.25
Fasciculus uncinatus (Russell)	FU	A 1.25-A 0.75
Fasciculus uncinatus, pars medialis	FUm	A 0.50
Formatio reticularis lateralis mesencephali	FRL	A 4.75-A 2.00
Formatio reticularis medialis mesencephali	FRM	A 4.25-A 3.00
Funiculus dorsalis	FD	P 4.00-P 4.50
Funiculus lateralis	FL	P 4.00-P 4.50
Funiculus ventralis	FV	P 4.00-P 4.50
Hippocampus	Hp	A 8.00-A 3.25
Hyperstriatum accessorium	HA	A 14.50-A 7.50
Hyperstriatum dorsale	HD	A 14.25-A 8.25
Hyperstriatum intercalatus superior	HIS	A 14.50-A 9.25
Hyperstriatum ventrale	HV	A 14.50-A 5.50
Hyperstriatum ventrale dorso-ventrale	HVdv	A 14.00-A 10.50
Hyperstriatum ventrale ventro-ventrale	HVvv	A 14.00-A 10.50
Infundibulum	Inf	A 4.50
Lamina frontalis superior	LFS	A 14.50-A 7.50
Lamina frontalis suprema	LFM	A 14.25-A 8.25
Lamina hyperstriatica	LH	A 14.25-A 5.50
Lamina medullaris dorsalis	LMD	A 13.00-A 6.25
Lemniscus lateralis	LL	A 2.25-A 1.75
Lemniscus medialis	LM	P 1.25-P 3.25
Lemniscus spinalis	LS	A 1.25-P 3.50
Lingula	L	A 1.00-P 0.75
Lobus parolfactorius	LPO	A 13.00-A 9.00
Locus ceruleus	LoC	A 2.75-A 1.00
Neostriatum	N	A 14.25-A 5.75
Neostriatum caudale	NC	A 5.50-A 3.50
Neostriatum frontale	NF	L 3.50-L 1.00
Neostriatum intermedium	NI	A 9.50-A 8.00
Nervi glossopharyngeus et vagus	NIX-X	P 2.00-P 2.50
Nervus abducens	NVI	A 0.50-AP 0.00
Nervus facialis	NVII	A 0.75
Nervus hypoglossus	NXII	P 3.25-P 4.00
Nervus octavus	NVIII	AP 0.00
Nervus octavus, pars cochlearis	NVIIIc	P 1.00-P 1.50
Nervus octavus, pars vestibularis	NVIIIv	P 0.25-P 0.75
Nervus oculomotorius	NIII	A 4.50-A 3.00
Nervus trigeminus	NV	A 1.25-A 0.75
Nervus trochlearis	NIV	A 1.50-A 1.25
Nuclei gracilis et cuneatus	GC	P 3.25-P 4.00
Nucleus accumbens	Ac	A 10.00-A 8.25
Nucleus angularis	An	P 0.75-P 1.25
Nucleus annularis	Anl	A 2.25
Nucleus ansae lenticularis	nAL	L 2.00
Nucleus anterior medialis hypothalami	AM	A 8.00-A 7.75
Nucleus archistriatalis anterior	AA	A 8.00-A 7.75
Nucleus basalis	Bas	A 13.00-A 11.50

<u>Structure</u>	<u>Abbreviation</u>	<u>Location</u>
Nucleus centralis medullae oblongatae, pars dorsalis	Cnd	P 2.75-P 3.75
Nucleus centralis medullae oblongatae, pars ventralis	Cnv	P 2.25-P 4.00
Nucleus centralis superior (Bechterew)	CS	A 2.75-A 2.00
Nucleus cerebellaris internus	Cbl	A 0.50-P 0.25
Nucleus cerebellaris internus, pars ventromedialis	vm	AP 0.00-P 0.25
Nucleus cerebellaris intermedius	CbM	A 0.25-P 0.75
Nucleus cerebellaris lateralis	CbL	P 0.50-P 1.00
Nucleus cervicalis lateralis	CL	P 4.00-P 4.50
Nucleus commissuralis (Haller)	Co	P 4.00
Nucleus commissura septi	CoS	A 7.75-A 7.25
Nucleus cuneatus externus	CE	P 1.75-P 3.75
Nucleus geniculatis lateralis, pars dorsalis principalis	GLdp	A 5.75
Nucleus geniculatis lateralis, pars ventralis	GLv	A 7.50-A 5.50
Nucleus of Darkshewitsch	D	A 4.50-A 3.75
Nucleus decussationis brachiorum conjunctivorum	nDBC	A 2.50
Nucleus dorsointermedius posterior thalami	DIP	A 5.50-A 5.00
Nucleus dorsolateralis anterior thalami	DLA	A 6.00
Nucleus dorsolateralis anterior thalami, pars lateralis	DLL	A 6.75-A 6.25
Nucleus dorsolateralis anterior thalami, pars medialis	DLM	A 6.75-A 6.25
Nucleus dorsolateralis posterior thalami	DLP	A 5.75-A 4.75
Nucleus dorsomedialis anterior thalami	DMA	A 7.00-A 6.00
Nucleus dorsomedialis posterior thalami	DMP	A 5.75-A 4.75
Nucleus ectomamillaris	EM	A 5.00-A 3.75
Nucleus et tractus descendens nervi trigemini	TTD	A 1.25-P 4.50
Nucleus habenularis	Hb	L 0.50-L 1.00
Nucleus habenularis lateralis	HL	A 5.75-A 4.50
Nucleus habenularis medialis	HM	A 6.50-A 4.50
Nucleus intercollicularis	ICo	A 4.00-A 2.00
Nucleus intercalatus	IC	P 1.75-P 2.75
Nucleus intercalatus thalami	ICT	A 7.00-A 6.25
Nucleus intermedius	IM	P 2.50-P 4.00
Nucleus interpeduncularis	IP	A 3.75-A 2.75
Nucleus interstitialis (Cajal)	IS	A 4.50-A 3.75
Nucleus interstitio-pretecto- subpretectalis	IPS	A 5.00-A 4.50
Nucleus intrapeduncularis	INP	A 9.25-A 8.50
Nucleus isthmi, pars magnocellularis	Imc	A 4.25-A 1.25
Nucleus isthmi, pars parvocellularis	Ipc	A 3.50-A 1.75
Nucleus isthmo-opticus	IO	A 2.00-A 1.50
Nucleus laminaris	La	P 0.25-P 1.00
Nucleus lateralis anterior thalami	LA	A 7.75-A 7.25
Nucleus lateralis hypothalami	LHy	A 8.00-A 5.00
Nucleus lateralis hypothalami posterioris	PLH	A 6.50-A 5.50

<u>Structure</u>	<u>Abbreviation</u>	<u>Location</u>
Nucleus lemnisci lateralis, pars dorsalis (Groebbels)	LLd	A 2.25-A 1.75
Nucleus lemnisci lateralis, pars ventralis (Groebbels)	LLv	A 1.50
Nucleus lentiformis mesencephali, pars magnocellularis	LMmc	A 6.00-A 5.75
Nucleus lentiformis mesencephali, pars parvocellularis	LMpc	A 5.75-A 5.50
Nucleus linearis caudalis	LC	A 2.25-A 1.50
Nucleus magnocellularis	MC	P 1.00-P 1.50
Nucleus mamillaris lateralis	ML	A 5.25-A 5.00
Nucleus medialis hypothalami, posterioris	PMH	A 7.00-A 5.25
Nucleus mesencephalicus lateralis, pars dorsalis	MLd	A 3.25-A 2.50
Nucleus mesencephalicus lateralis, pars ventralis	MLv	A 4.25-A 2.50
Nucleus mesencephalicus, nervi trigemini	MNV	A 3.50-A 3.00
Nucleus mesencephalicus profundus, pars ventralis (Jungherr)	MPv	A 3.75-A 3.25
Nucleus motorius dorsalis nervi vagi	nX	P 2.75-P 3.75
Nucleus motorius nervi trigemini	MV	A 1.25-A 0.75
Nucleus nervi abducentis	nVI	A 0.50-P 0.50
Nucleus nervi facialis	nVII	A 1.00-A 0.25
Nucleus nervi glossopharyngei et nucleus motorius dorsalis nervi vagi	nIX-X	P 1.75-P 2.50
Nucleus nervi hypoglossi	nXII	P 2.25-P 4.00
Nucleus nervi oculomotorii, pars dorsalis	OMd	A 3.25-A 2.75
Nucleus nervi oculomotorii, pars ventralis	OMv	A 3.50-A 2.50
Nucleus nervi oculomotorii, pars dorsolateralis	ODL	A 2.50
Nucleus nervi trochlearis	nIV	A 2.25-A 1.50
Nucleus olfactorius anterior	OA	A 13.75
Nucleus olivaris inferior	OI	P 2.25-P 4.00
Nucleus olivaris superior	OS	A 0.25-P 0.25
Nucleus ovoidalis	Ov	A 6.00-A 5.50
Nucleus papillioformis	Pap	A 3.25-A 2.00
Nucleus paragigantocellularis lateralis	PGL	P 1.00-P 2.25
Nucleus paramedianus	PaM	A 1.25-P 2.75
Nucleus paramedianus internus thalami	PMI	A 5.25
Nucleus periventricularis, magnocellularis	PVM	A 8.25-A 6.25
Nucleus pontis lateralis	PL	A 3.00-AP 0.00
Nucleus pontis medialis	PM	A 2.00-AP 0.00
Nucleus posteroventralis thalami (Kuhlenbeck)	PV	A 6.25-A 5.25
Nucleus preopticus anterior	POA	A 9.00-A 8.75
Nucleus preopticus medialis (van Tienhoven)	POM	A 8.50
Nucleus preopticus paraventricularis magnocellularis (van Tienhoven)	PPM	A 8.50

<u>Structure</u>	<u>Abbreviation</u>	<u>Location</u>
Nucleus pretectalis	PT	A 5.00-A 4.50
Nucleus pretectalis diffusus	PD	A 5.50-A 5.25
Nucleus pretectalis medialis	PTM	A 5.00-A 4.50
Nucleus principalis precommissuralis	PPC	A 6.25-A 4.50
Nucleus raphes	R	A 1.75-P 3.25
Nucleus reticularis gigantocellularis	Rgc	P 0.50-P 2.25
Nucleus reticularis lateralis	RL	P 2.50-P 4.00
Nucleus reticularis parvocellularis	Rpc	A 0.75-P 2.75
Nucleus reticularis pontis caudalis	RP	A 0.50-P 1.00
Nucleus reticularis pontis caudalis, pars gigantocellularis	RPgc	A 1.75-A 0.75
Nucleus reticularis pontis oralis	RPO	A 2.75-A 1.50
Nucleus reticularis superior, pars dorsalis	RSd	A 7.50-A 6.75
Nucleus reticularis superior, pars ventralis	RSv	A 7.50-A 7.00
Nucleus rotundus	Rt	A 7.00-A 5.25
Nucleus ruber	Ru	A 4.50-A 3.50
Nucleus semilunaris	SLu	A 2.50-A 1.75
Nucleus sensorius principalis nervi trigemini	PrV	A 1.00-A 0.75
Nucleus septalis lateralis	SL	A 10.25-A 7.25
Nucleus septalis medialis	SM	A 8.00-A 7.25
Nucleus solitarius	S	P 1.75-P 4.00
Nucleus spiriformis lateralis	SpL	A 5.25-A 4.50
Nucleus subceruleus dorsalis	SCd	A 1.50-A 0.75
Nucleus subceruleus ventralis	SCv	A 1.75-A 1.00
Nucleus subhabenularis lateralis	SHL	A 5.75-A 5.00
Nucleus subhabenularis medialis	SHM	A 5.50-A 4.75
Nucleus subpretectalis	SP	A 5.25-A 4.25
Nucleus subrotundus	SRt	A 6.00-A 5.50
Nucleus subtrigeminalis	ST	P 1.50-P 3.75
Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)	SPC	A 6.50-A 4.25
Nucleus supraopticus (Ralph)	SO	A 8.75-A 8.50
Nucleus taeniae	Tn	A 7.50-A 5.75
Nucleus tangentialis (Cajal)	Ta	P 0.25-P 0.75
Nucleus tegmenti dorsalis (Gudden)	TD	A 1.00-A 0.75
Nucleus tegmenti ventralis (Gudden)	TV	A 1.75-A 1.25
Nucleus tegmenti pedunculo-ponticus, pars compacta	TPc	A 3.50-A 3.00
Nucleus triangularis	T	A 6.50-A 5.50
Nucleus tuberis	TU	A 5.25-A 4.75
Nucleus ventralis lemnisci lateralis	VLV	A 2.25-A 1.50
Nucleus ventrolateralis thalami	VLT	A 8.25-A 7.00
Nucleus vestibularis descendens	VeD	P 0.75-P 2.00
Nucleus vestibularis dorsolateralis (Sanders)	VDL	P 0.25-P 0.50
Nucleus vestibularis lateralis	VeL	A 0.25-P 1.00
Nucleus vestibularis medialis	VeM	A 0.75-P 1.75
Nucleus vestibularis superior	VS	A 0.50-AP 0.00
Paleostriatum augmentatum	PA	A 12.00-A 6.25
Paleostriatum primitivum	PP	A 11.25-A 7.25
Plexus of Horsley	PH	A 0.50-P 3.25

<u>Structure</u>	<u>Abbreviation</u>	<u>Location</u>
Polus caudalis telencephali	PCT	A 3.00
Processus lateralis cerebello-vestibularis	PCV	AP 0.00-P 0.25
Radix mesencephalicus nervi trigemini	RxVM	A 2.75-A 1.25
Stratum album centrale	SAC	A 5.00-A 1.00
Stratum cellulare externum	SCE	A 6.00-A 4.50
Stratum cellulare internum	SCI	A 6.00-A 4.75
Stratum griseum centrale	SGC	A 5.50-A 0.75
Stratum griseum et fibrosum superficiale	SGF	A 5.50-A 0.50
Stratum opticum	SOp	A 5.75-A 0.50
Stria medullaris	SMe	A 7.00-A 6.00
Substantia gelatinosa Rolandi (trigemini)	SG	P 2.75-P 4.50
Substantia grisea centralis	GCt	A 4.50-A 2.00
Substantia grisea et fibrosa periventricularis	SGP	A 4.75-A 1.50
Tectum opticum	TeO	A 6.50-A 0.25
Torus semicircularis	ToS	A 3.50
Tractus cortico-habenularis et cortico-septalis	CHCS	A 7.00-A 6.00
Tractus archistriatalis dorsalis	DA	A 7.00-A 4.50
Tractus cortico-habenularis	CH	A 5.50
Tractus fronto-archistriatalis	FA	A 12.00-A 7.75
Tractus fronto-thalamicus et tractus thalamo-frontalis	FT	A 10.25
Tractus habenulo-interpenduncularis	HIP	A 5.00
Tractus infundibularis	IN	A 5.25-A 4.75
Tractus isthmocerebellaris	TIC	A 2.50-A 1.75
Tractus isthmo-opticus	TIO	A 6.25-A 2.00
Tractus lamino-olivaris	LO	AP 0.00-P 0.25
Tractus nuclei ectomamillaris (basal optic root)	TrEM	A 5.75-A 5.00
Tractus nuclei ovoidalis	TOv	A 5.50
Tractus occipitomesencephalicus	OM	A 8.00-A 0.25
Tractus opticus	TrO	A 7.00-A 5.25
Tractus pretecto-subpretectalis	PST	A 4.75-A 4.50
Tractus quintofrontalis	QF	A 11.50-A 3.25
Tractus septomesencephalicus	TSM	A 10.00-A 4.00
Tractus solitarius	TS	P 1.75-P 3.25
Tractus spinocerebellaris dorsalis	Cbd	P 1.00-P 4.00
Tractus spinocerebellaris ventralis	Cbv	A 1.00
Tractus tectothalamicus	TT	A 6.00-A 5.25
Tractus thalamostriaticus	TTS	A 10.75-A 10.50 A 6.00
Tractus vestibulo-mesencephalicus (Papez)	TVM	A 3.50-A 3.00
Tuberculum olfactorium	TO	A 12.50-A 9.75
Vallecula	Va	A 14.50-A 10.50
Ventriculus	V	A 13.25-P 1.00
Ventriculus olfactorius	VO	A 14.50-A 13.50

2002 Avian Brain Nomenclature

[Using the New Nomenclature in Publications](#). Important, please read!

Telencephalon			
<u>New Term</u>	(New Abbreviation)	<u>Old Term</u>	(Old Abbreviation)
<i>Pallial Regions</i>			
Hippocampus	(Hp)	Hippocampus	(Hp)
Area Parahippocampalis	(APH)	Area Parahippocampalis	(APH)
Hyperpallium	(H)	Wulst	(HA, HIS, and HD subdivisions)
Mesopallium	(M)	Hyperstriatum ventrale	(HV)
Nidopallium	(N)	Neostriatum	(N)
Arcopallium	(A)	Archistriatum [select subdivisions]	(A) (minus Archistriatum posterior-Ap and nucleus Teaniae-Tn)
Pyriiform Cortex	(CPi)	Pyriiform Cortex	(CPi)
<i>-Within Hyperpallium</i>			
Hyperpallium Accessorium	(HA)	Hyperstriatum Accessorium	(HA)
Hyperpallium Intercalatum	(HI)	Hyperstriatum Intercalatum Superior	(HIS)
Hyperpallium Densocellularum	(HD)	Hyperstriatum Dorsale	(HD)
<i>-Within Nidopallium</i>			
Field L	(L)	Field L	(a clarification still needs to be done with the use of L2)
Entopallial nucleus	(E)	Ectostriatum	(E)

Basorostral nucleus	(B)	Nucleus Basalis	(B)
<i>Subpallial Regions</i>			
Lateral Striatum	(LSt)	Paleostriatum Augmentatum	(PA)
Medial Striatum	(MSt)	Lobus Parolfactorius	(LPO) (minus subdivisions to be determined)
Intrapeduncular Nucleus	(INP)	Intrapeduncular Nucleus	(INP)
Olfactory Tubercle	(TO)	Olfactory Tubercle	(TO)
<i> </i>			
Globus Pallidus	(GP)	Paleostriatum Primitivum	(PP)
Ventral Pallidum	(VP)	(previously undefined cell group within FPM, below old PP/PA)	
<i> </i>			
Medial Septum	(SM)	Medial Septum	(SM)
Lateral Septum	(SL)	Lateral Septum	(SL)
<i> </i>			
Nucleus Basalis of Meynert		previously undefined	(cholinergic cells of the basal telencephalon -in the subpallium- inside the FPL and FPM, partially overlapping the pallidum)
Nucleus of the diagonal band of Broca			(group of cholinergic cells inside FDB)
<i> </i>			
Bed nucleus of the stria terminalis	(BST)	No previous unifying named structure	
Bed nucleus of the stria terminalis, medial part	(BSTm)	Nucleus accumbens	(Acc)

Bed nucleus of the stria terminalis, lateral part	(BSTl)	No previous name	(previously undefined cell dense group of vasotocin-immunoreactive cells located around the anterior commissure)
<i>Mixed Pallial-Subpallial Region</i>			
Amygdaloid Complex		Archistriatum [select subdivisions]	(A)(combined Ap, Tn, & adjacent subpallial territory)
<i>Lamina (only two are named now)</i>			
Pallial-Subpallial Lamina	(PSL)	Lamina Medullaris Dorsalis	(LMD)
Dorsal Arcopallial Lamina	(LAD)	Lamina Archistriatum Dorsalis	(LAD)
Some brainstem areas related to the subpallium and pallium			
Ventral tegmental area A10 dopaminergic cell group	(VTA) (A10)	Area Ventralis of Tsai	(AVT)
Substantia nigra pars compacta A9 dopaminergic cell group	(SNc) (A9)	Nucleus tegmenti pedunculo-pontinus	(TPc)
Substantia nigra pars reticulata	(SNr)	Substantia nigra pars lateralis	(SNL)(GABAergic cells lateral to SNc, receives input from GP and projects to tectum)
A8 dopaminergic cell group	(A8)	Locus coeruleus, rostral part	(LoC)

Pedunculopontine tegmental nucleus	(PPN)	Previously undefined region	(Cholinergic cell group of rhombomere 1, caudal and ventral to the SNc, extending from the MPv to the nucleus sub- coeruleus)
Subthalamic nucleus	(STN)	Anterior nucleus of the ansa lenticularis	(ALa)(glutamatergic cell group reciprocally connected with avian GP)

Songbird Vocal Nuclei

Pallium

Nucleus avalanche	(Av)	Nucleus avalanche	(Av)
Oval nucleus of the mesopallium	(Mo)	Oval nucleus of the ventral hyperstriatum	(HV _o)
Nucleus HVC of the nidopallium or nucleus HVc of the nidopallium or High Vocal Center [3 options being considered]	(HVC) (HVc) (HVC)	High Vocal Center or caudal nucleus of the ventral hyperstriatum or letter based name HVc	(HVC) (HVc) (HVc)
Interfacial nucleus of the nidopallium	(Nif)	Interfacial nucleus of the neostriatum	(Nif)
Lateral magnocellular nucleus of the anterior nidopallium	(IMAN)	Lateral magnocellular nucleus of the anterior neostriatum	(IMAN or LMAN or L-MAN)
Medial magnocellular nucleus of the anterior nidopallium	(mMAN)	Medial magnocellular nucleus of the anterior neostriatum	(mMAN or MMAN or M-MAN)
Robust nucleus of the arcopallium	(RA)	Robust nucleus of the archistriatum	(RA)

Subpallium

Area X	(X)	Area X	(X)
--------	-----	--------	-----

Brainstem

Nucleus nervi hypoglossi or Nucleus XII		Nucleus intermedius (in Karten and Hodos atlas)	
Nucleus supraspinalis		Nucleus XII (in Karten and Hodos atlas)	

Updated 10/14/2002

IV. The Atlas



Figure 8. Frontal aspect of the pigeon's brain.(Scale in millimeters.)



Figure 9. Lateral aspect of the pigeon's brain.(Scale in millimeters.)



Figure 10. Ventral aspect of the pigeon's brain.(Scale in millimeters.)

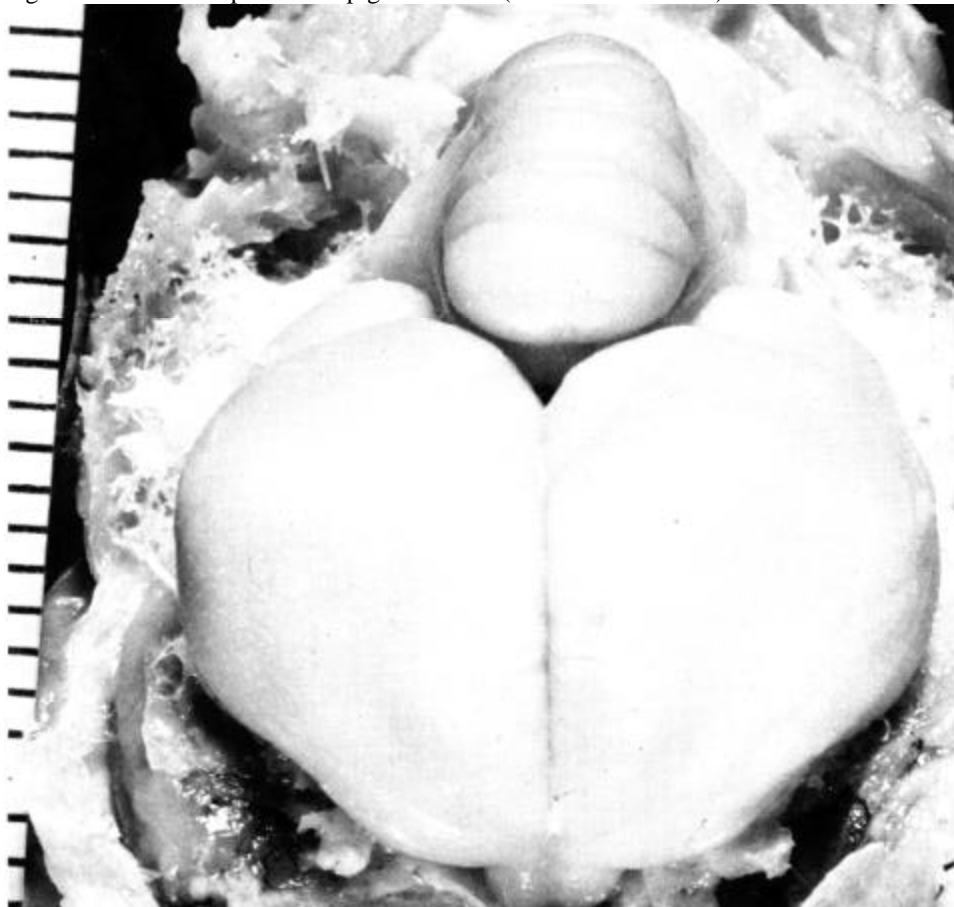
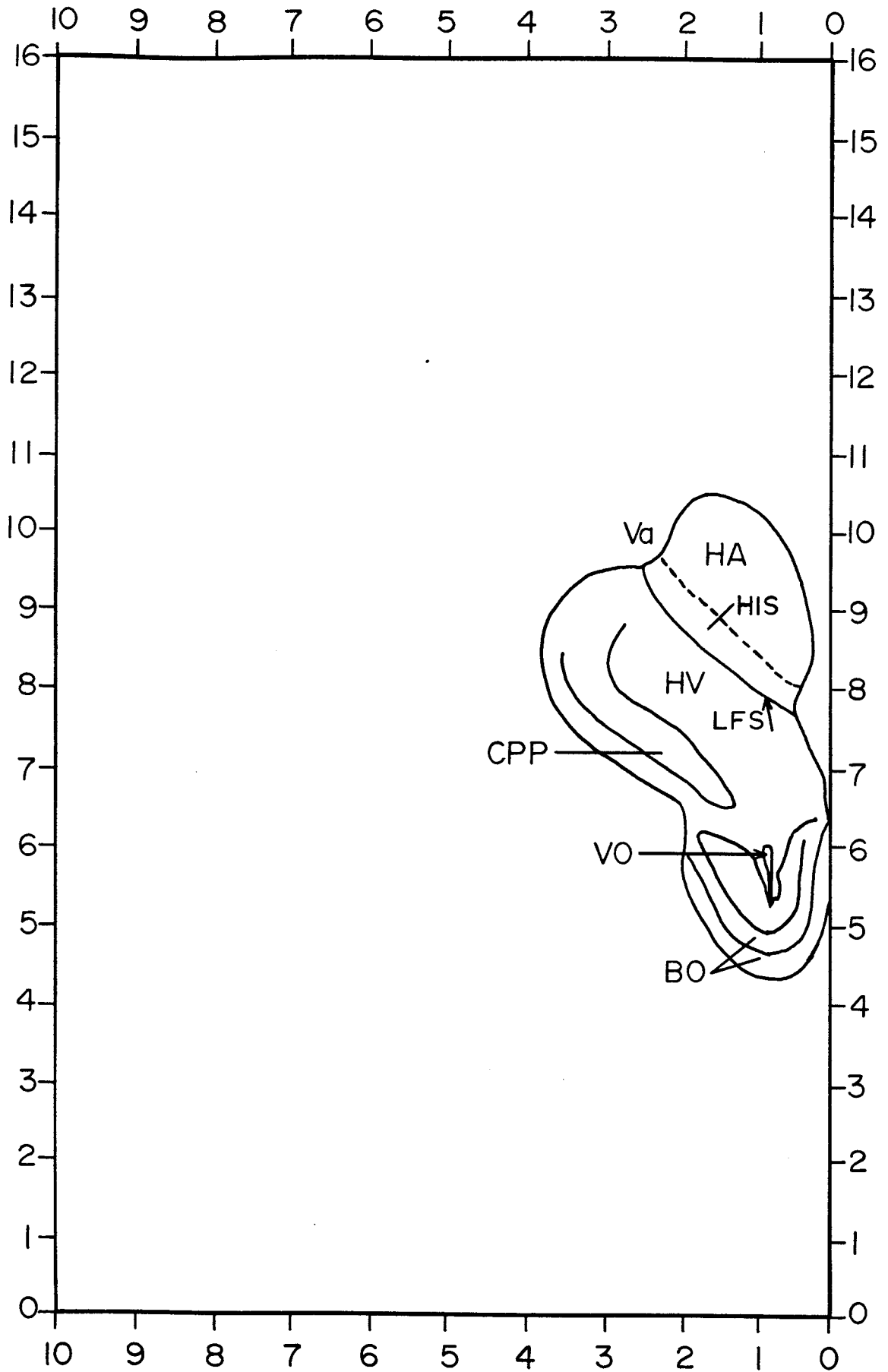


Figure 11. Dorsal aspect of the pigeon's brain.(Scale in millimeters.)

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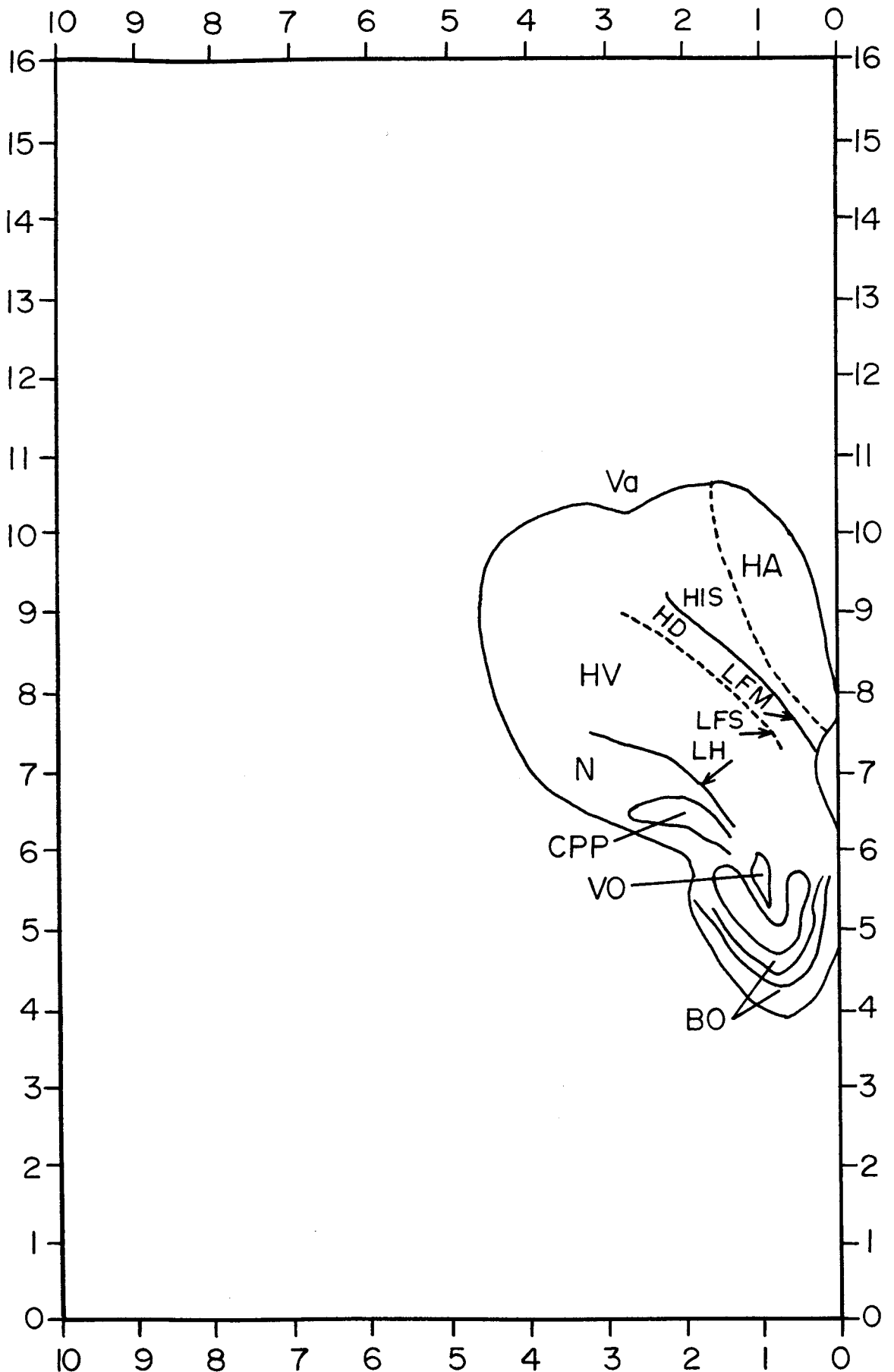


BO	Bulbus olfactorius	HV	Hyperstriatum ventrale
CPP	Cortex prepiriformis	LFS	Lamina frontalis superior
HA	Hyperstriatum accessorium	Va	Vallecula
HIS	Hyperstriatum intercalatus superior	VO	Ventriculus olfactorius

A 14.50



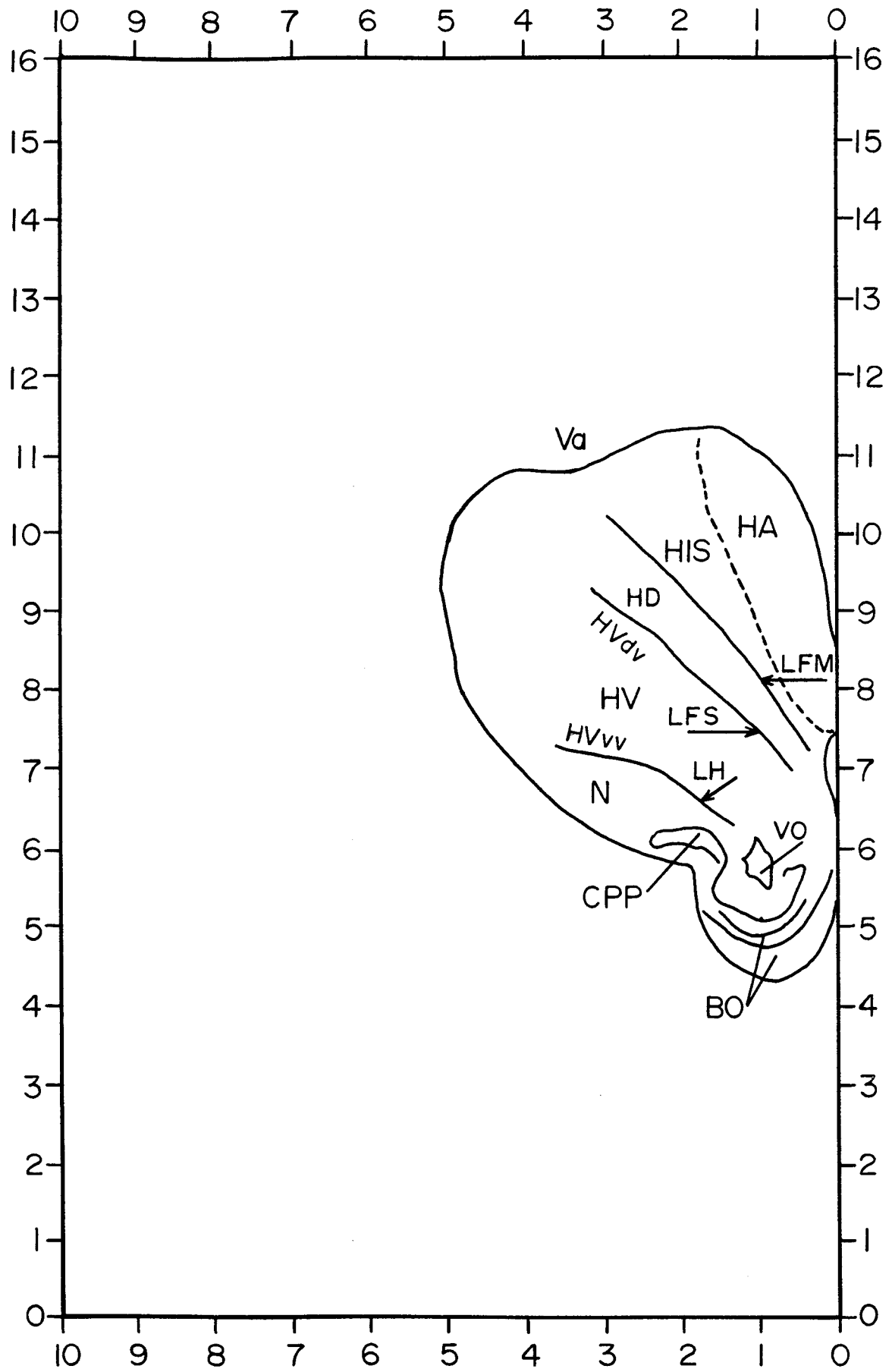
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BO Bulbus olfactorius
 CPP Cortex prepiriformis
 HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HIS Hyperstriatum intercalatus superior
 HV Hyperstriatum ventrale

LFM Lamina frontalis medialis
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 N Neostriatum
 Va Vallecula
 VO Ventriculus olfactorius

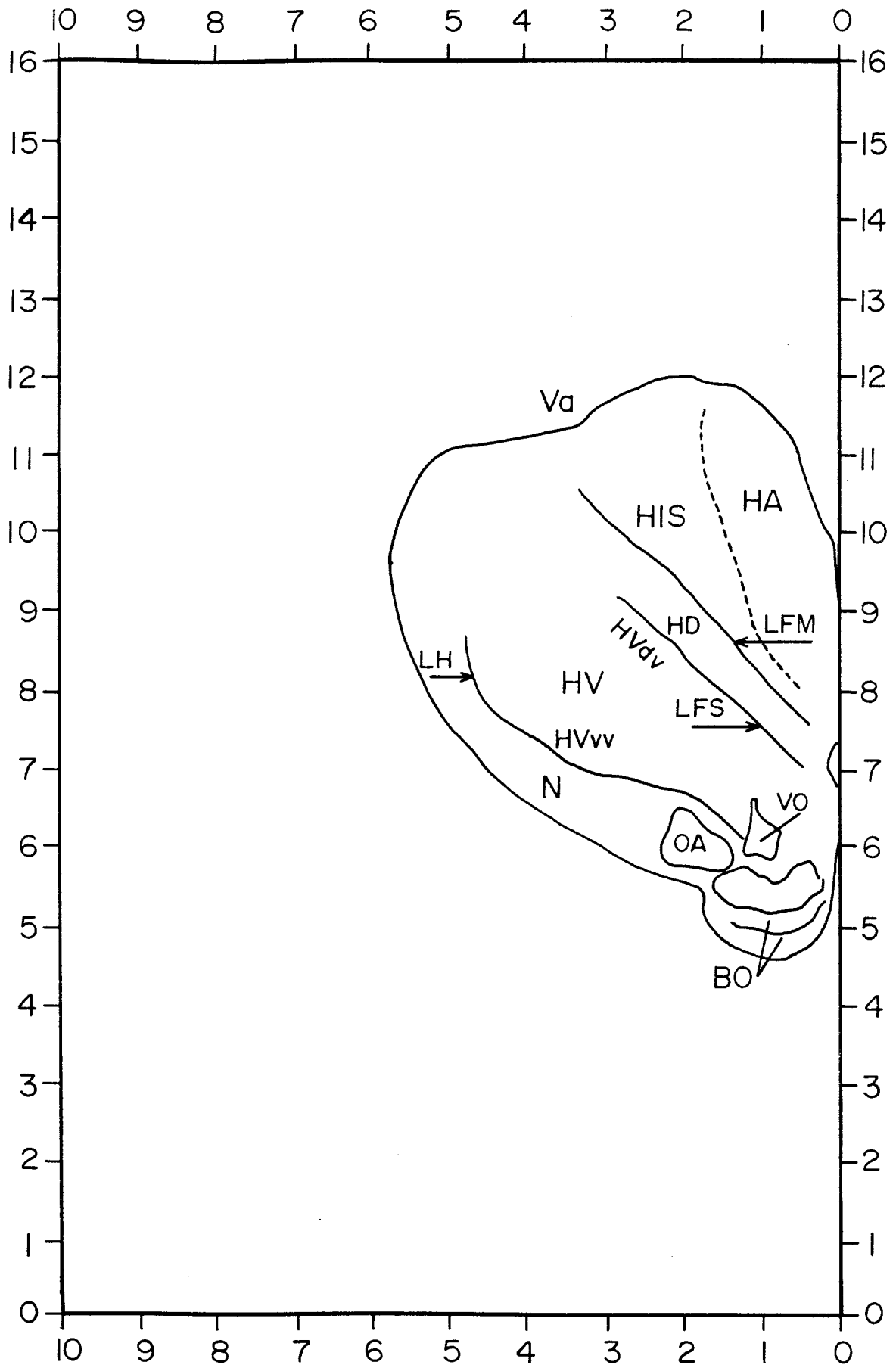




BO	Bulbus olfactorius	HVvv	Hyperstriatum ventrale ventro-ventrale
CPP	Cortex prepiriformis	LFM	Lamina frontalis supra
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior
HD	Hyperstriatum dorsale	LH	Lamina hyperstriatica
HIS	Hyperstriatum intercalatus superior	N	Neostriatum
HV	Hyperstriatum ventrale	Va	Vallecula
HVdv	Hyperstriatum ventrale dorso-ventrale	VO	Ventriculus olfactorius

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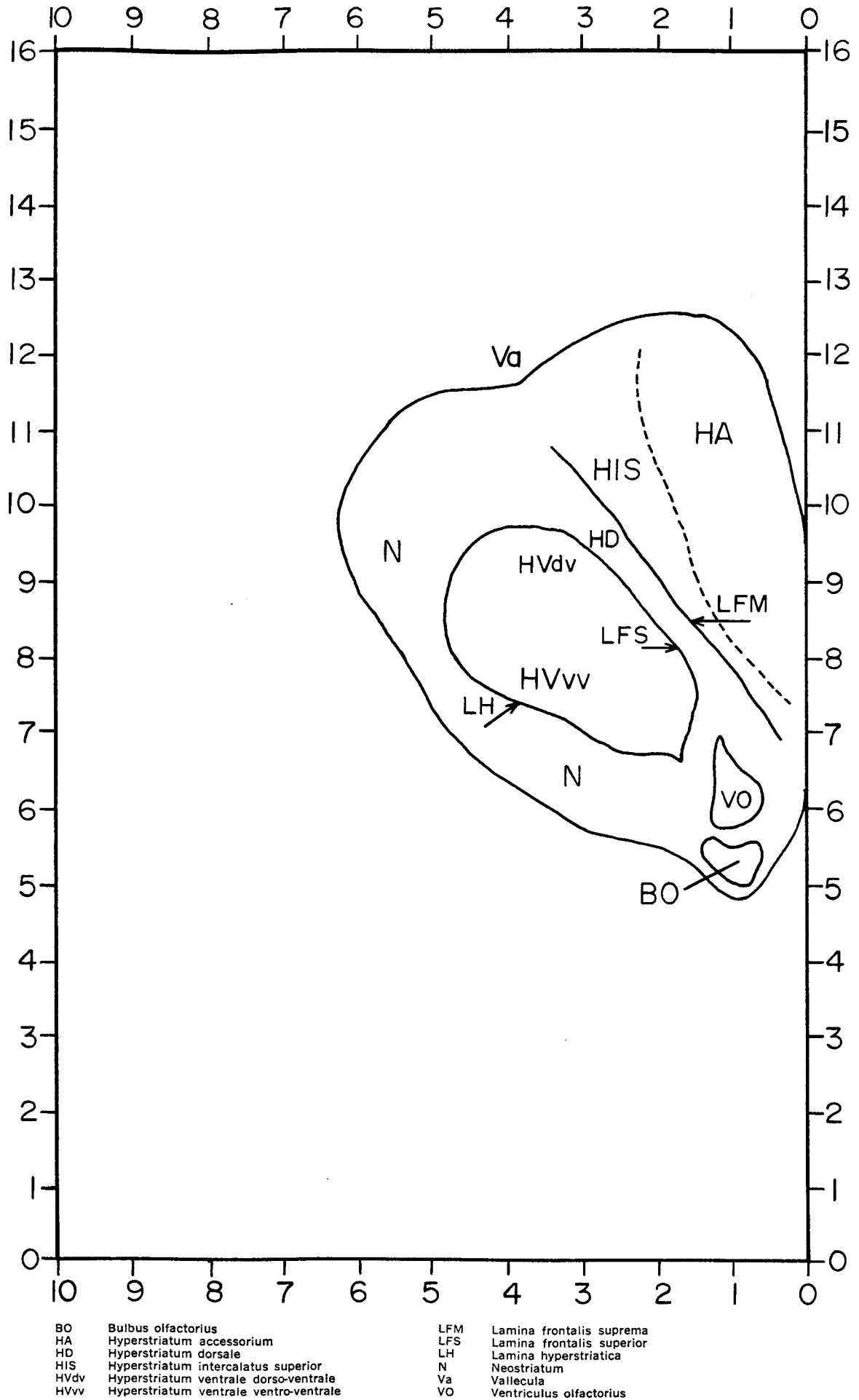




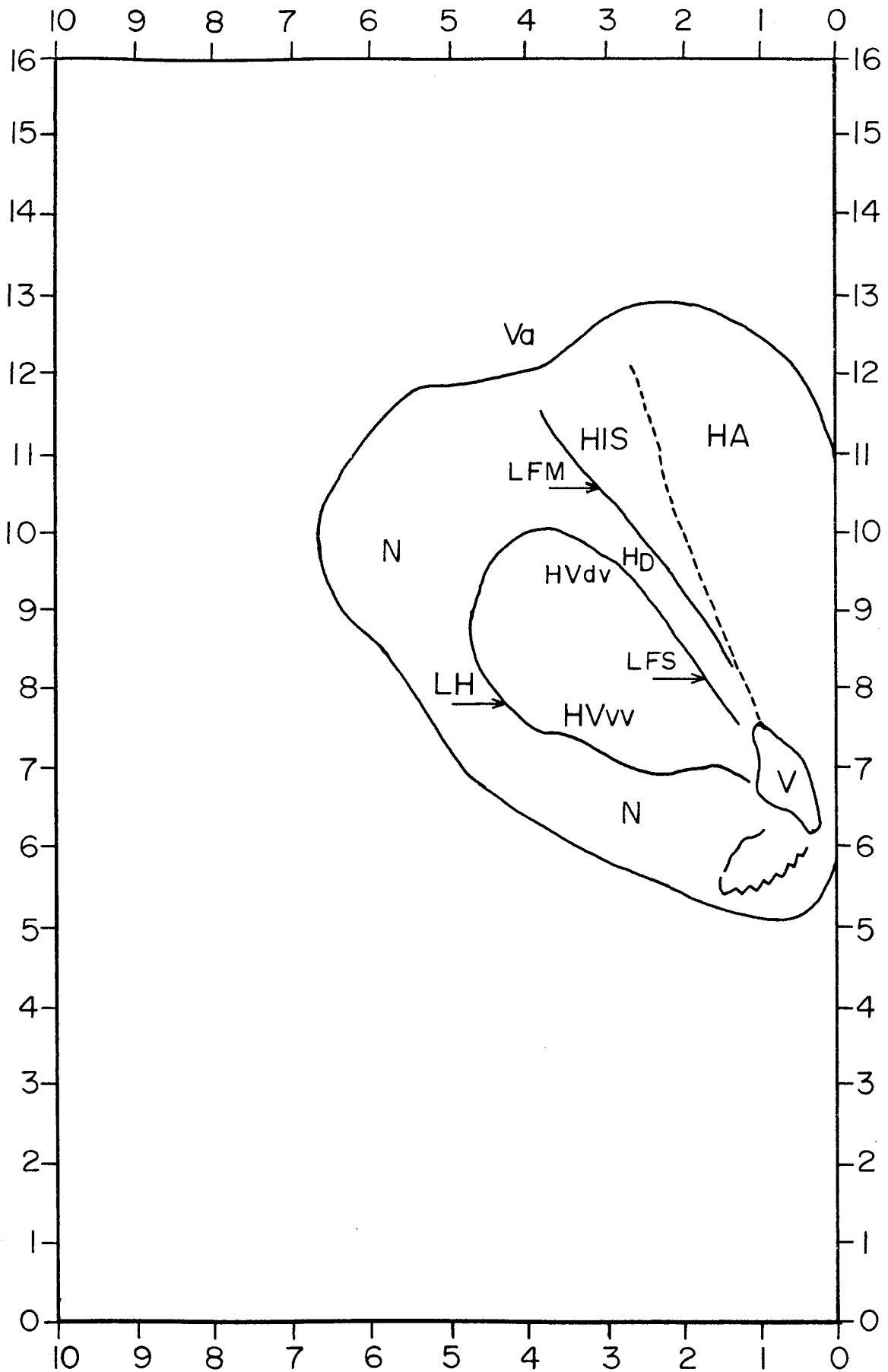
BO Bulbus olfactorius
 HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HIS Hyperstriatum intercalatus superior
 HV Hyperstriatum ventrale
 HVdv Hyperstriatum ventrale dorso-ventrale
 HVvv Hyperstriatum ventrale ventro-ventrale

LFM Lamina frontalis suprema
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 N Neostriatum
 OA Nucleus olfactorius anterior
 Va Vallicula
 VO Ventriculus olfactorius







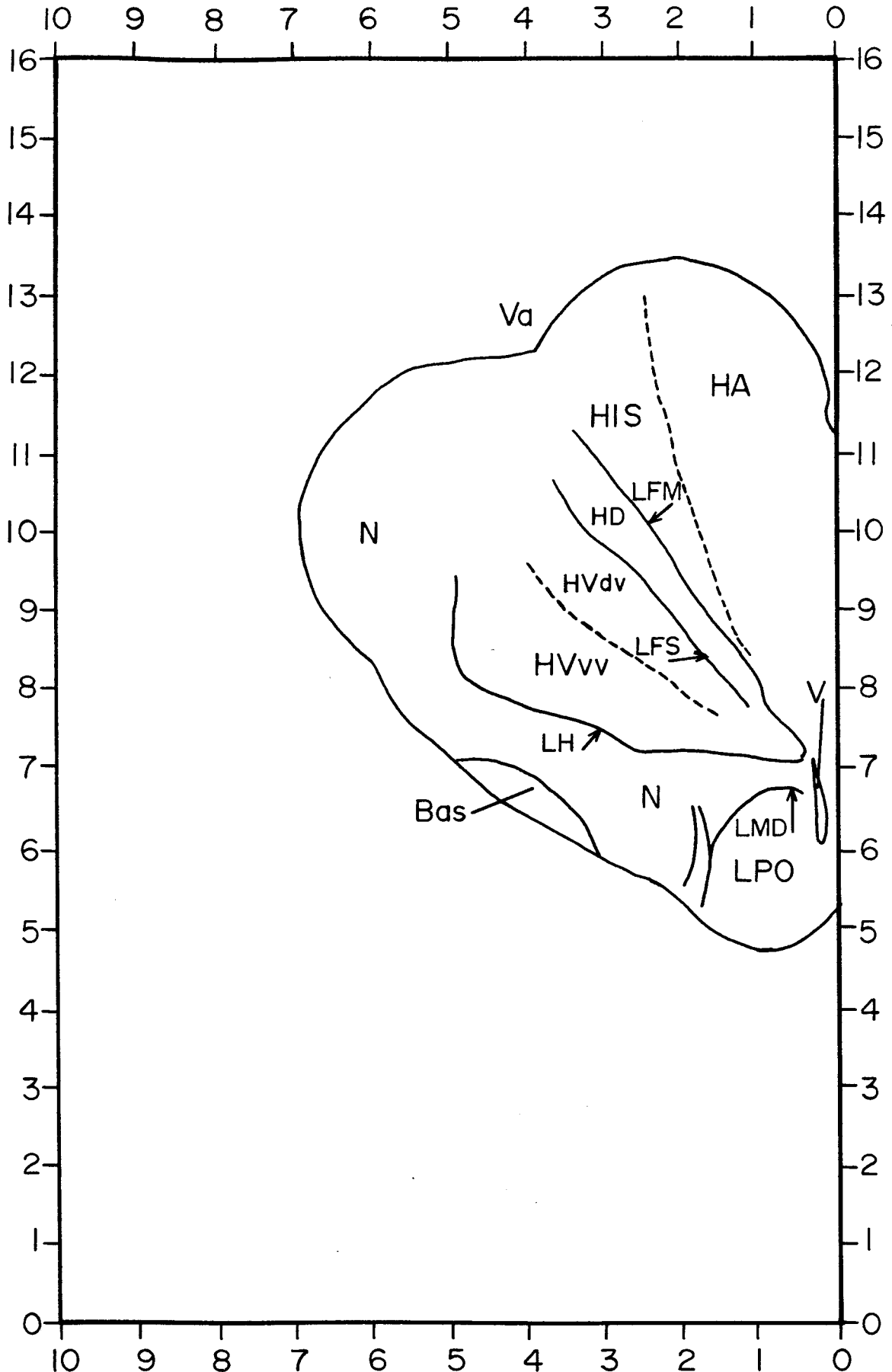


HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HIS Hyperstriatum intercalatus superior
 HVdv Hyperstriatum ventrale dorso-ventrale
 HVvv Hyperstriatum ventrale ventro-ventrale
 LFM Lamina frontalis suprema

LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 N Neostriatum
 V Ventriculus
 Va Vallicula

A 13.25



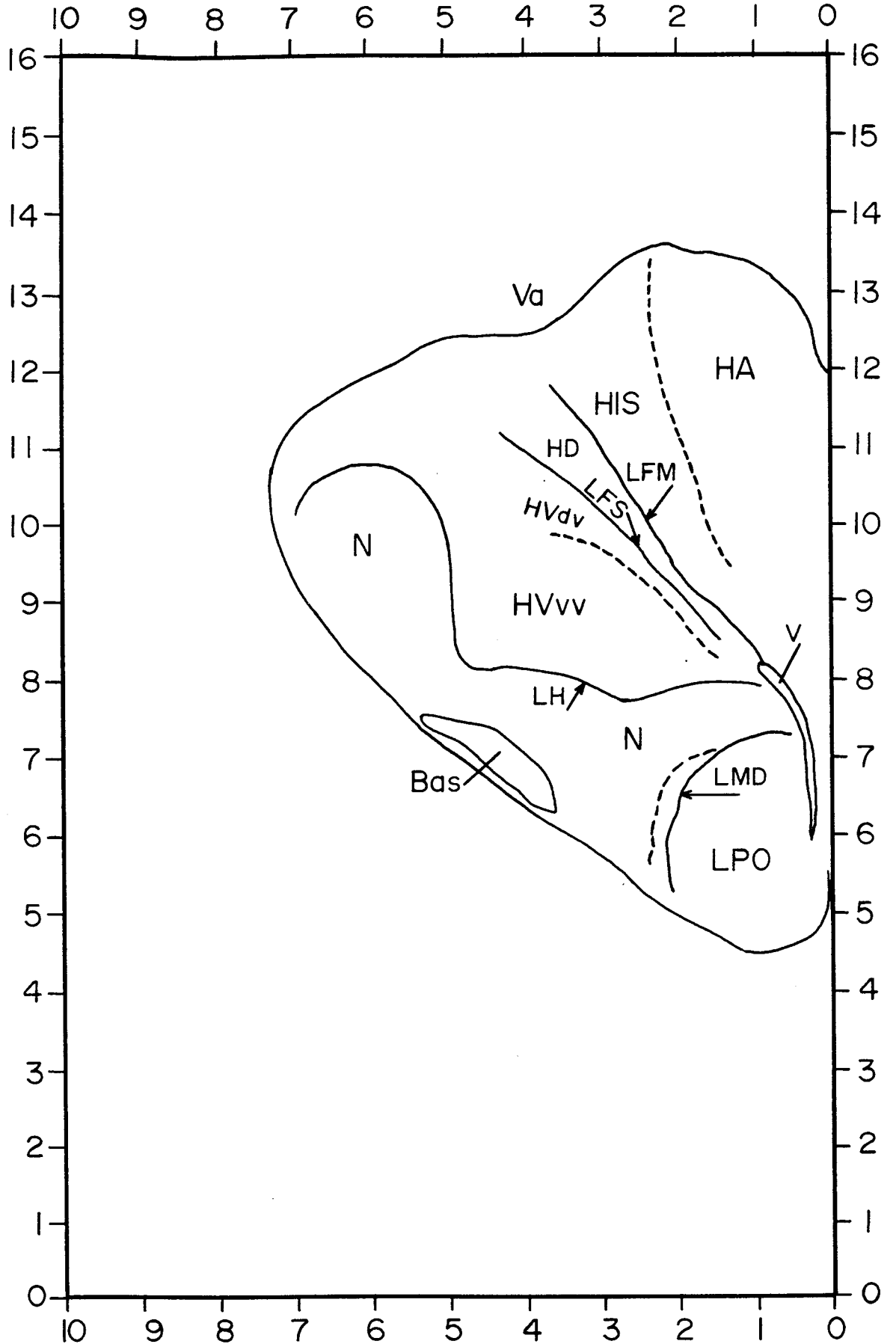


Bas Nucleus basalis
 HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HIS Hyperstriatum intercalatus superior
 HVdv Hyperstriatum ventrale dorso-ventrale
 HVvv Hyperstriatum ventrale ventro-ventrale
 LFM Lamina frontalis supra

LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LMD Lamina medullaris dorsalis
 LPO Lobus parolfactorius
 N Neostriatum
 V Ventriculus
 Va Vallecula

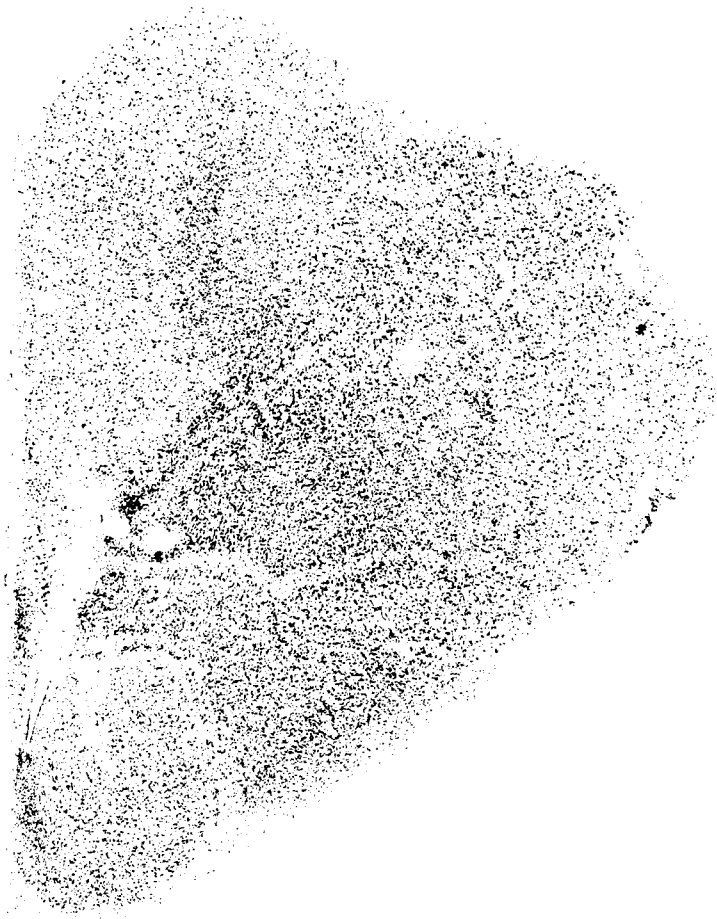
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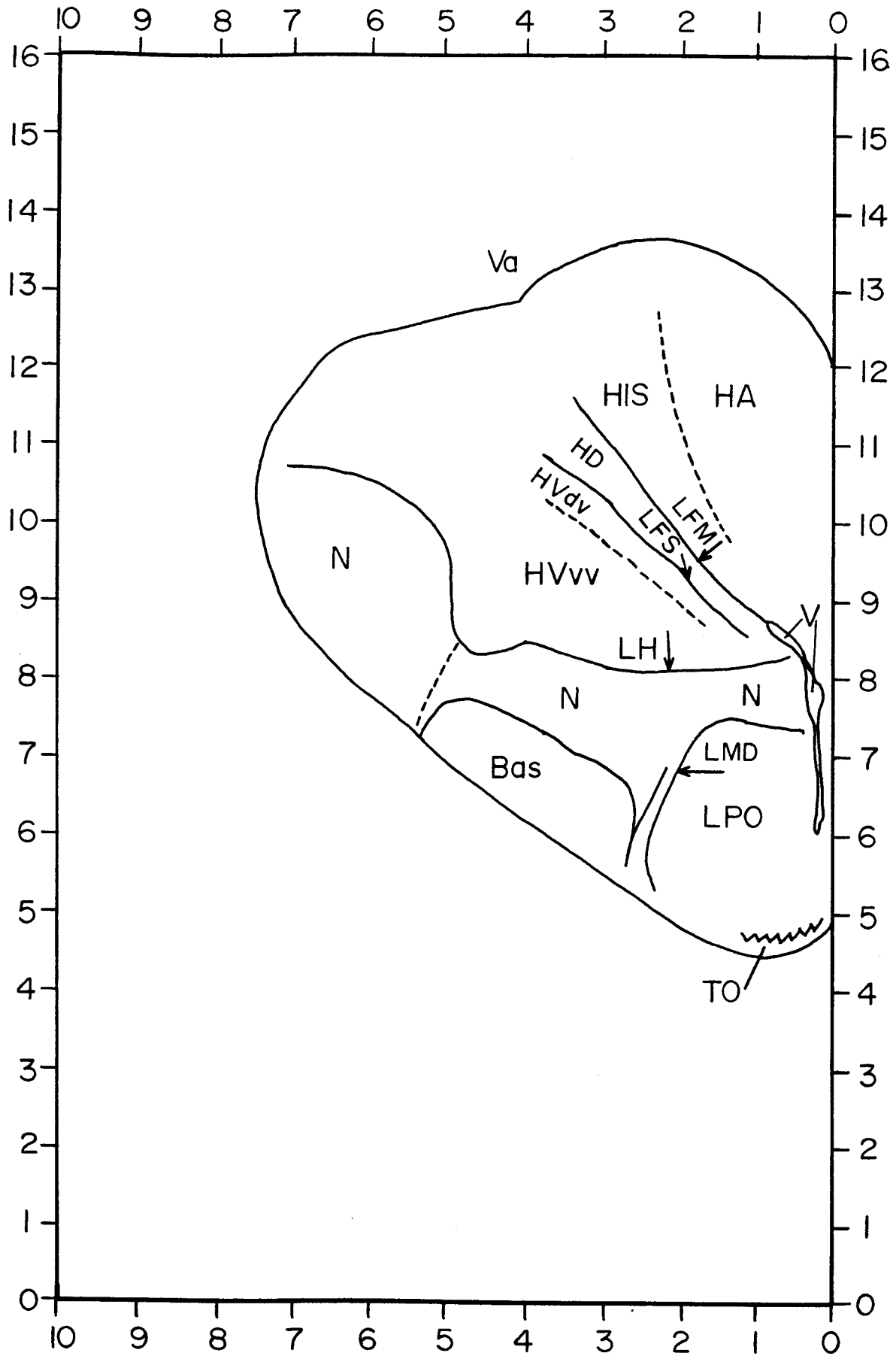




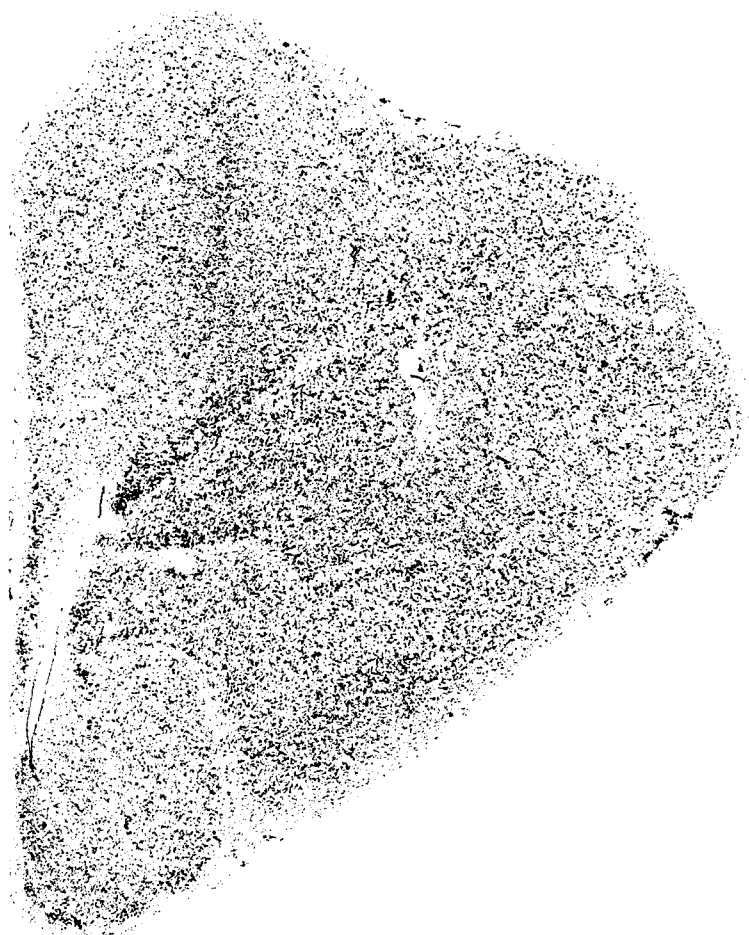
Bas Nucleus basalis
 HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HIS Hyperstriatum intercalatus superior
 HVdv Hyperstriatum ventrale dorso-ventrale
 HVvv Hyperstriatum ventrale ventro-ventrale
 LFM Lamina frontalis suprema

LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LMD Lamina medullaris dorsalis
 LPO Lobus parolfactorius
 N Neostriatum
 V Ventriculus
 Va Valleculla

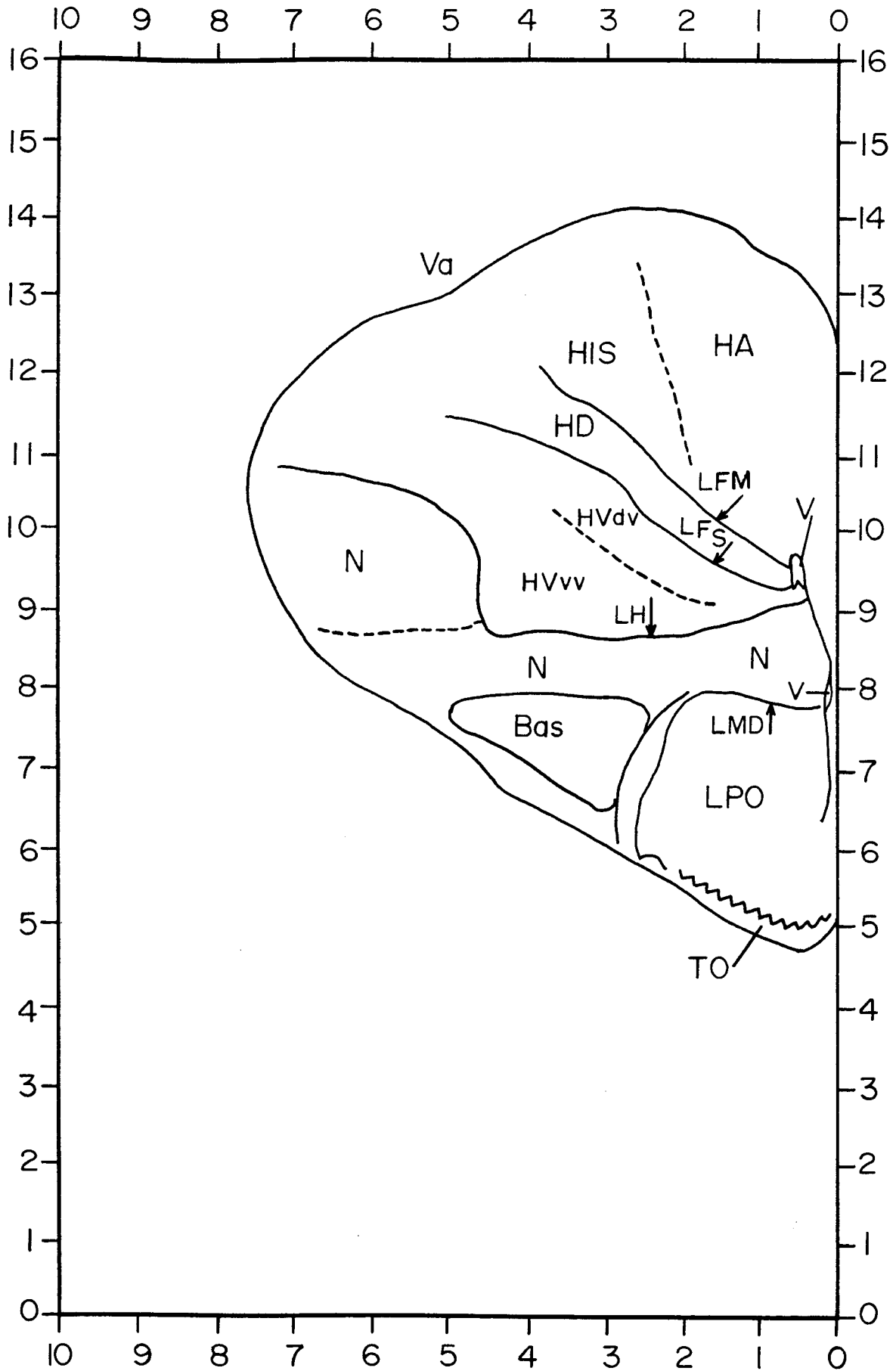




Bas	Nucleus basalis	HVvv	Hyperstriatum ventrale ventro-ventrale
HA	Hyperstriatum accessorium	LFM	Lamina frontalis suprema
HD	Hyperstriatum dorsale	LFS	Lamina frontalis superior
HIS	Hyperstriatum intercalatus superior	LH	Lamina hyperstriatica
HVdv	Hyperstriatum ventrale dorso-ventrale	LMD	Lamina medullaris dorsalis



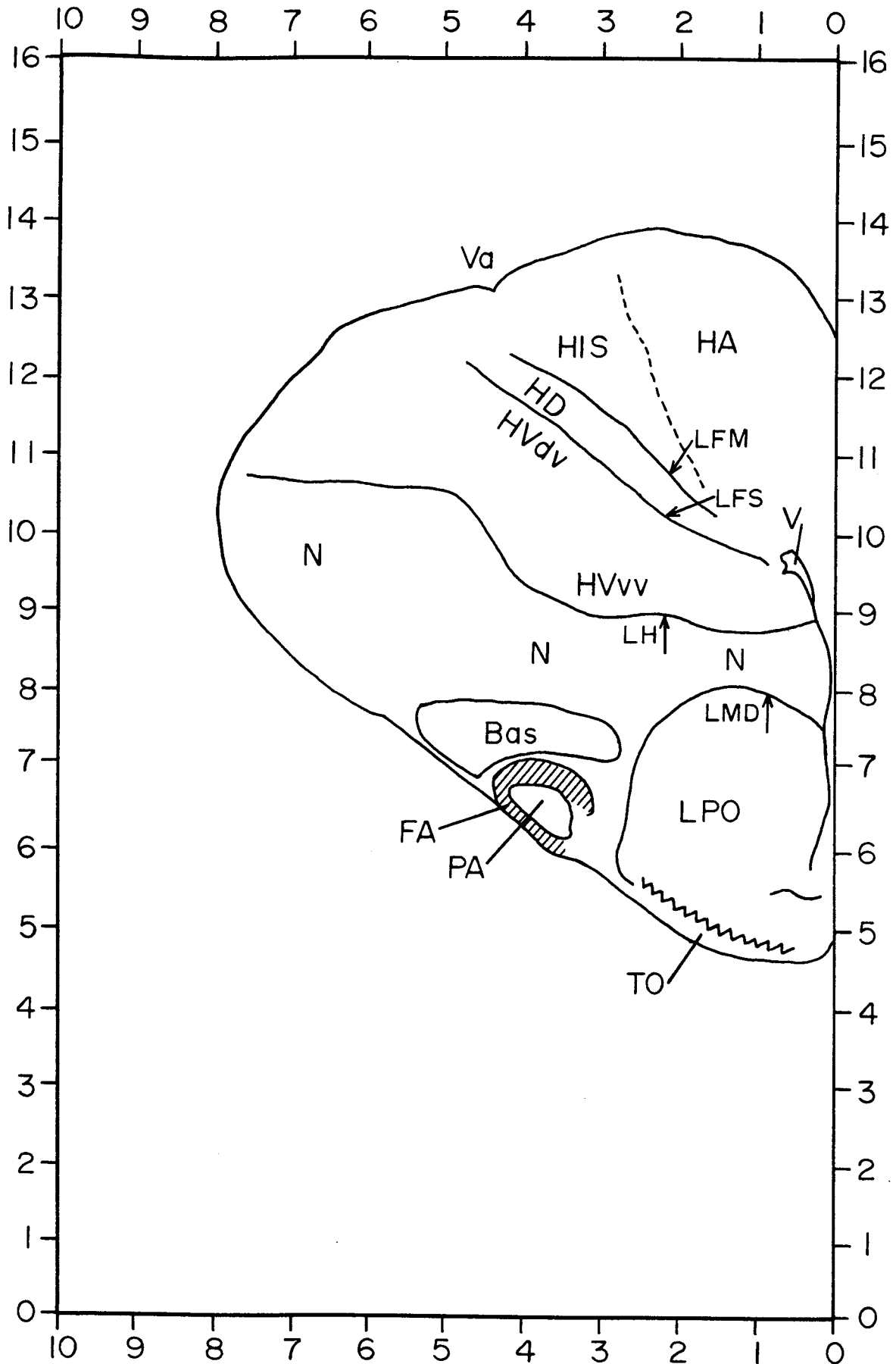
LPO Lobus parolfactorius
N Neostriatum
TO Tuberculum olfactorium
V Ventriculus
Va Vallecula



Bas	Nucleus basalis	HVvv	Hyperstriatum ventrale ventro-ventrale
HA	Hyperstriatum accessorium	LFM	Lamina frontalis suprema
HD	Hyperstriatum dorsale	LFS	Lamina frontalis superior
HIS	Hyperstriatum intercalatus superior	LH	Lamina hyperstriatica
HVdv	Hyperstriatum ventrale dorso-ventrale	LMD	Lamina medullaris dorsalis



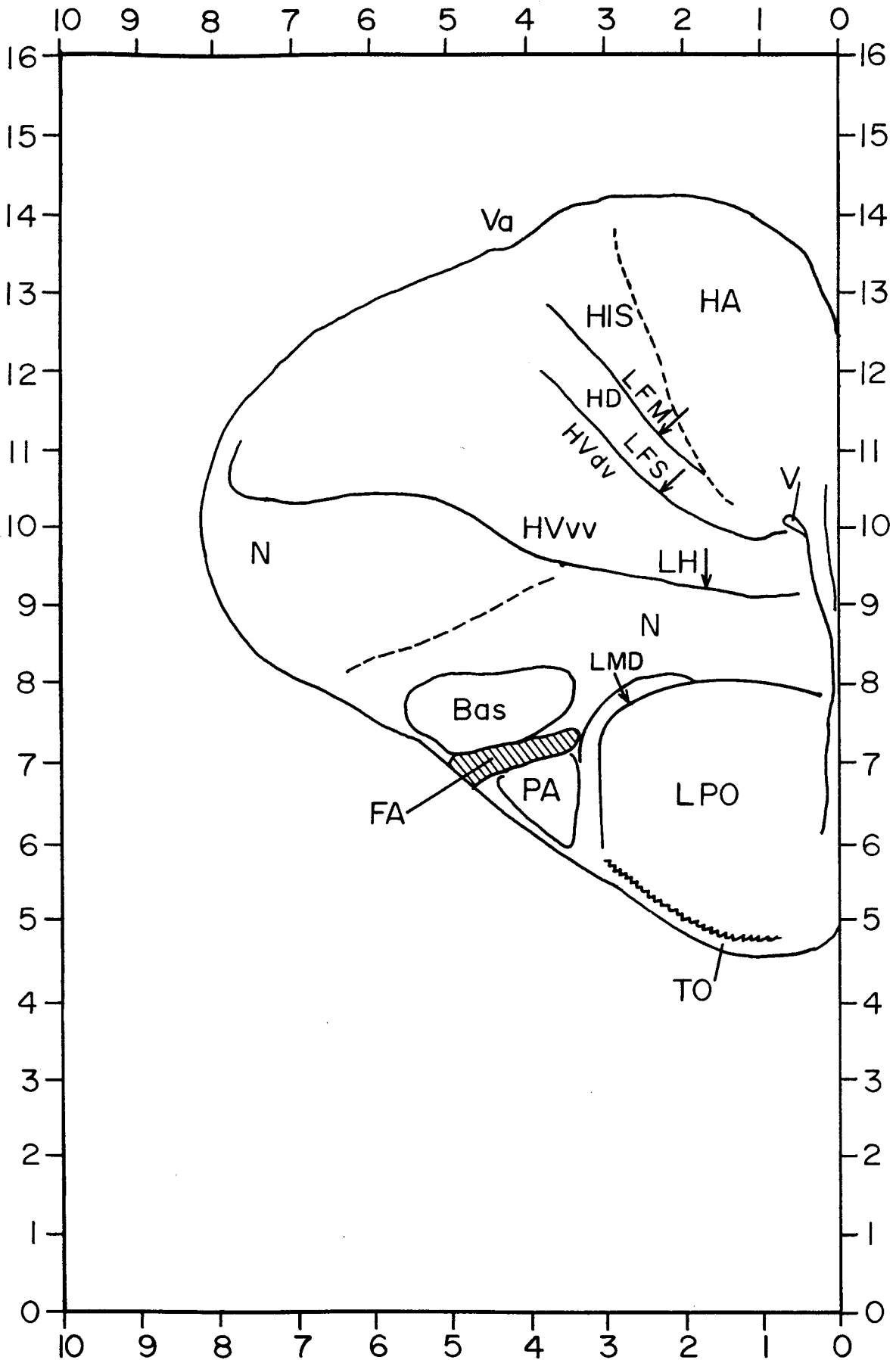
LPO Lobus parolfactorius
N Neostriatum
TO Tuberculum olfactorium
V Ventriculus
Va Vallecule



Bas	Nucleus basalis	HVvv	Hyperstriatum ventrale ventro-ventrale
FA	Tractus fronto-archistriatalis	LFM	Lamina frontalis suprema
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior
HD	Hyperstriatum dorsale	LH	Lamina hyperstriatica
HIS	Hyperstriatum intercalatus superior	LMD	Lamina medullaris dorsalis
HVdv	Hyperstriatum ventrale dorso-ventrale	LPO	Lobus parolfactorius

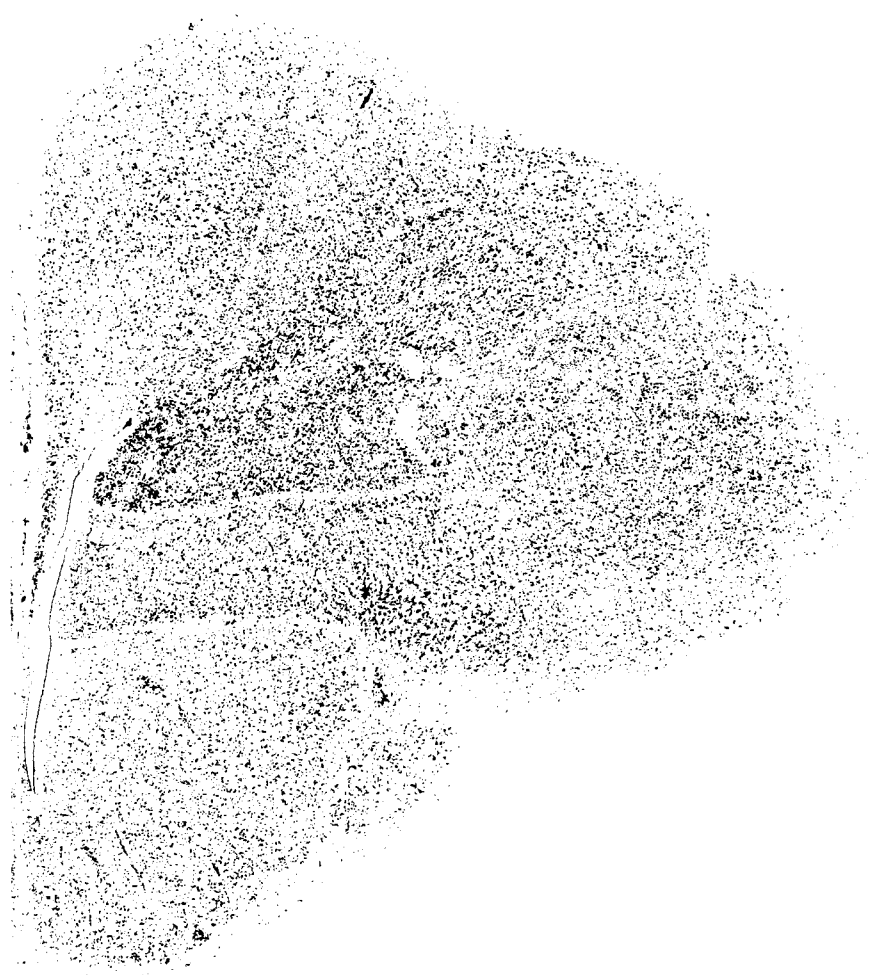


N Neostriatum
PA Paleostriatum augmentatum
TO Tuberculum olfactorium
V Ventriculus
Va Vallecule

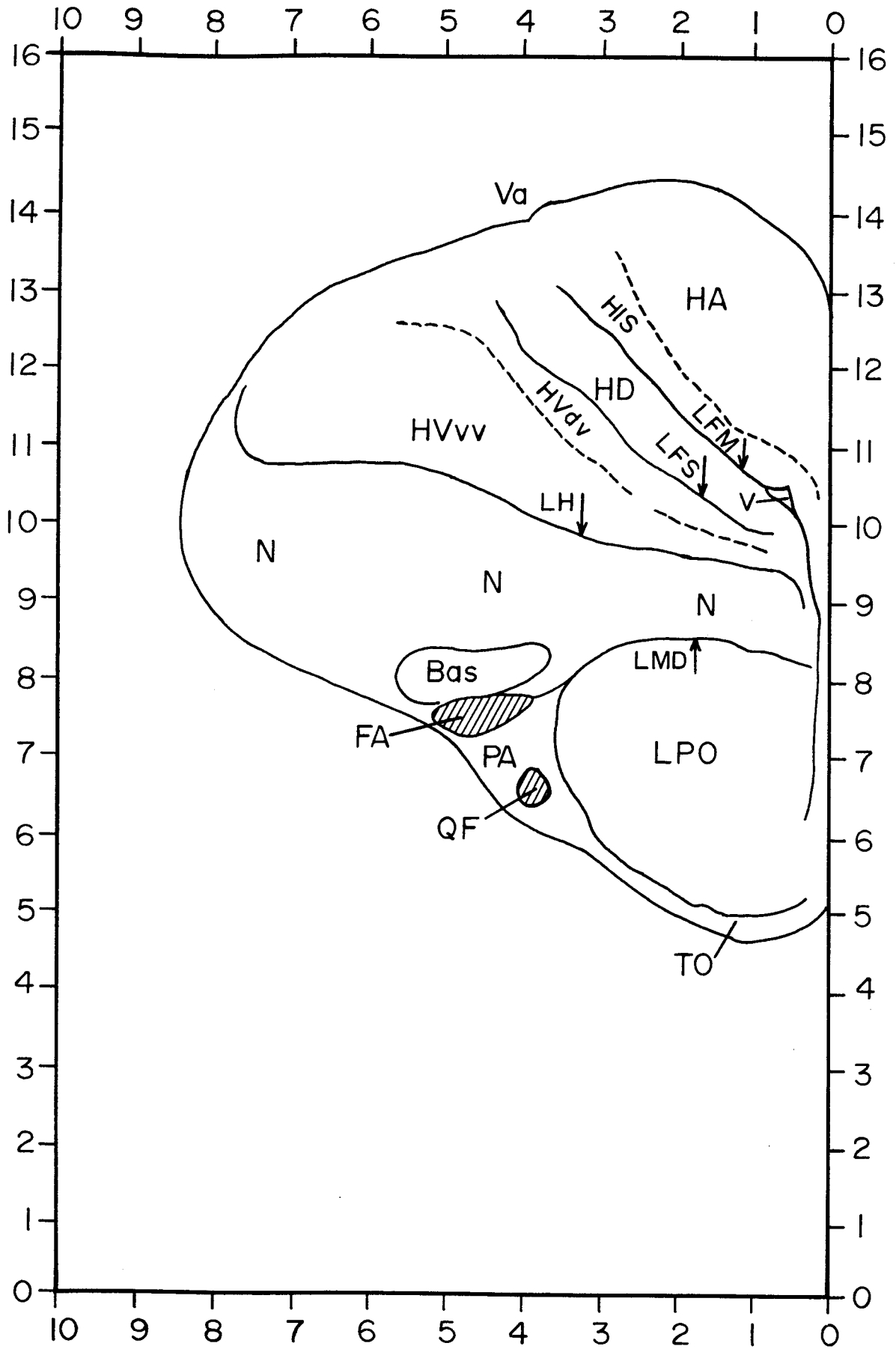


Bas Nucleus basalis
 FA Tractus fronto-archistriatalis
 HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HIS Hyperstriatum intercalatus superior
 HVdv Hyperstriatum ventrale dorso-ventrale

HVvv Hyperstriatum ventrale ventro-ventrale
 LFM Lamina frontalis suprema
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LMD Lamina medullaris dorsalis
 LPO Lobus parolfactorius



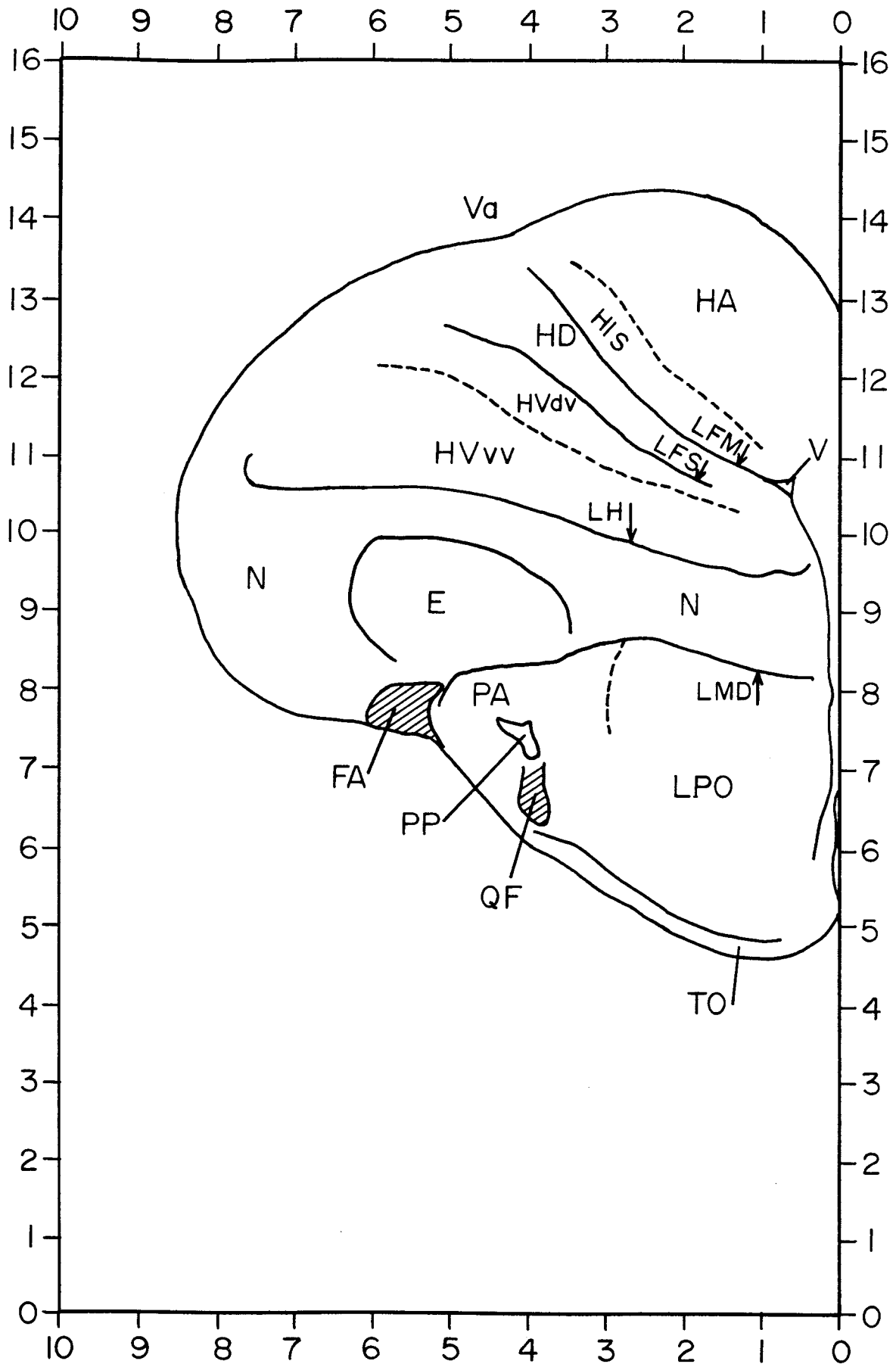
N Neostriatum
PA Paleostriatum augmentatum
TO Tuberculum olfactorium
V Ventriculus
Va Vallecule



Bas	Nucleus basalis	HVvv	Hyperstriatum ventrale ventro-ventrale
FA	Tractus fronto-archistriatalis	LFM	Lamina frontalis suprema
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior
HD	Hyperstriatum dorsale	LH	Lamina hyperstriatica
HIS	Hyperstriatum intercalatus superior	LMD	Lamina medullaris dorsalis
HVdv	Hyperstriatum ventrale dorso-ventrale	LPO	Lobus parolfactorius



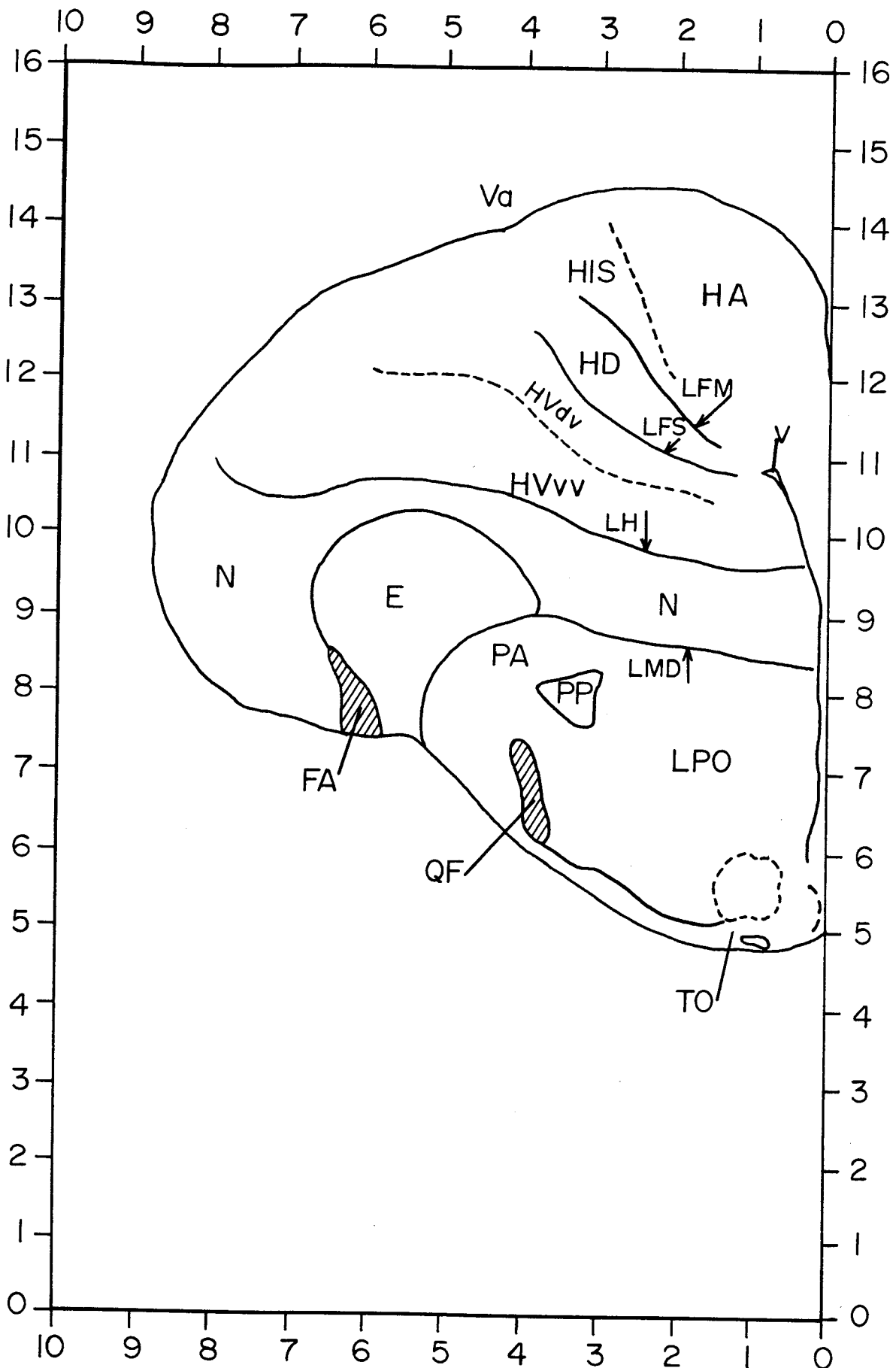
N Neostriatum
PA Paleostriatum augmentatum
QF Tractus quintofrontalis
TO Tuberculum olfactorium
V Ventriculus
Va Valleculla



E	Ectostriatum	HVvv	Hyperstriatum ventrale ventro-ventrale
FA	Tractus fronto-archistriatalis	LFM	Lamina frontalis suprema
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior
HD	Hyperstriatum dorsale	LH	Lamina hyperstriatica
HIS	Hyperstriatum intercalatus superior	LMD	Lamina medullaris dorsalis
HVdv	Hyperstriatum ventrale dorso-ventrale	LPO	Lobus parolfactorius



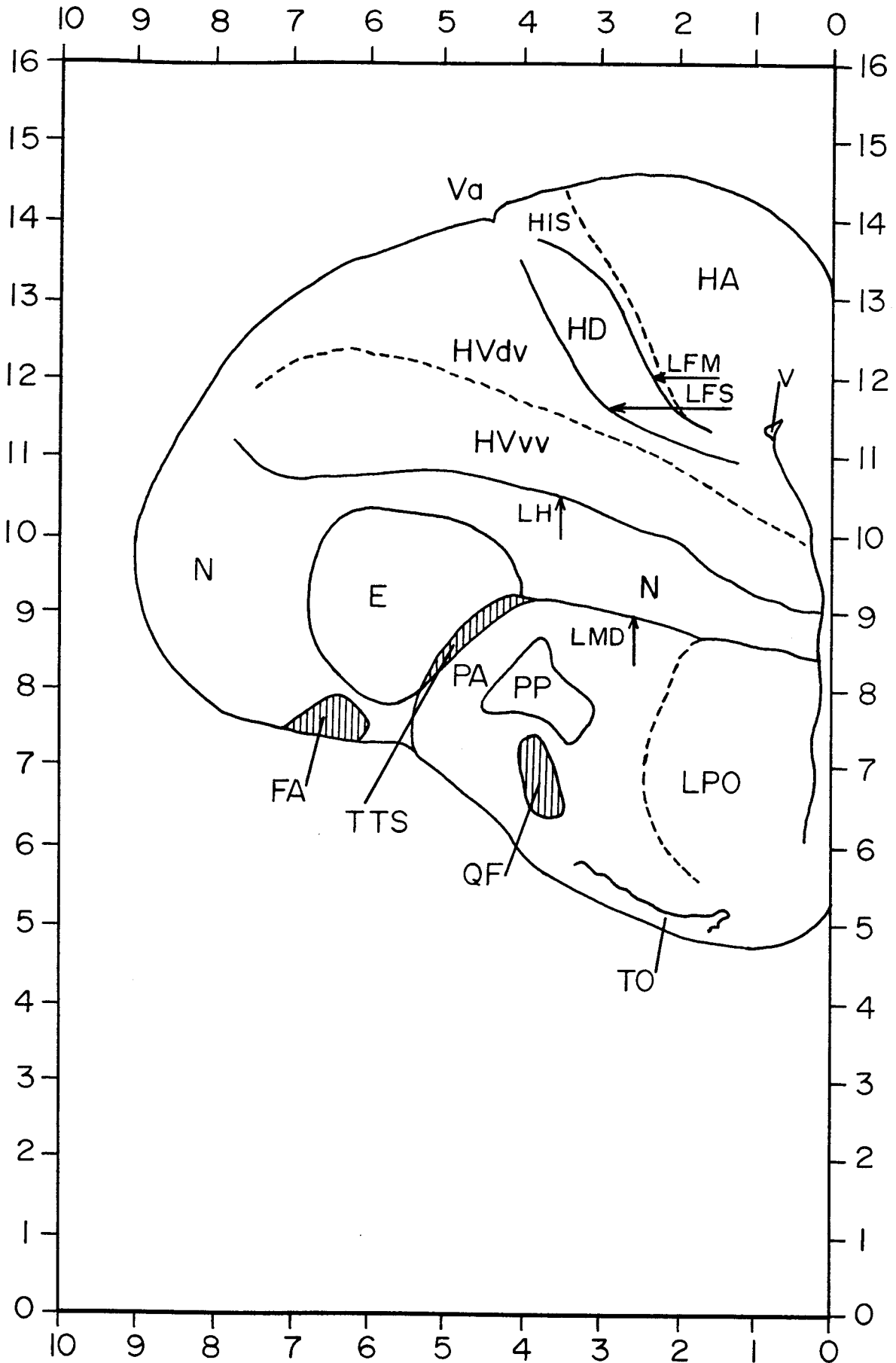
N Neostriatum
PA Paleostriatum augmentatum
PP Paleostriatum primitivum
QF Tractus quintofrontalis
TO Tuberculum olfactorium
V Ventriculus
Va Vallecule



E	Ectostriatum	HVvv	Hyperstriatum ventrale ventro-ventrale
FA	Tractus fronto-archistriatalis	LFM	Lamina frontalis medialis
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior
HD	Hyperstriatum dorsale	LH	Lamina hyperstriatica
HIS	Hyperstriatum intercalatus superior	LMD	Lamina medullaris dorsalis
HVdv	Hyperstriatum ventrale dorso-ventrale	LPO	Lobus parofactorius



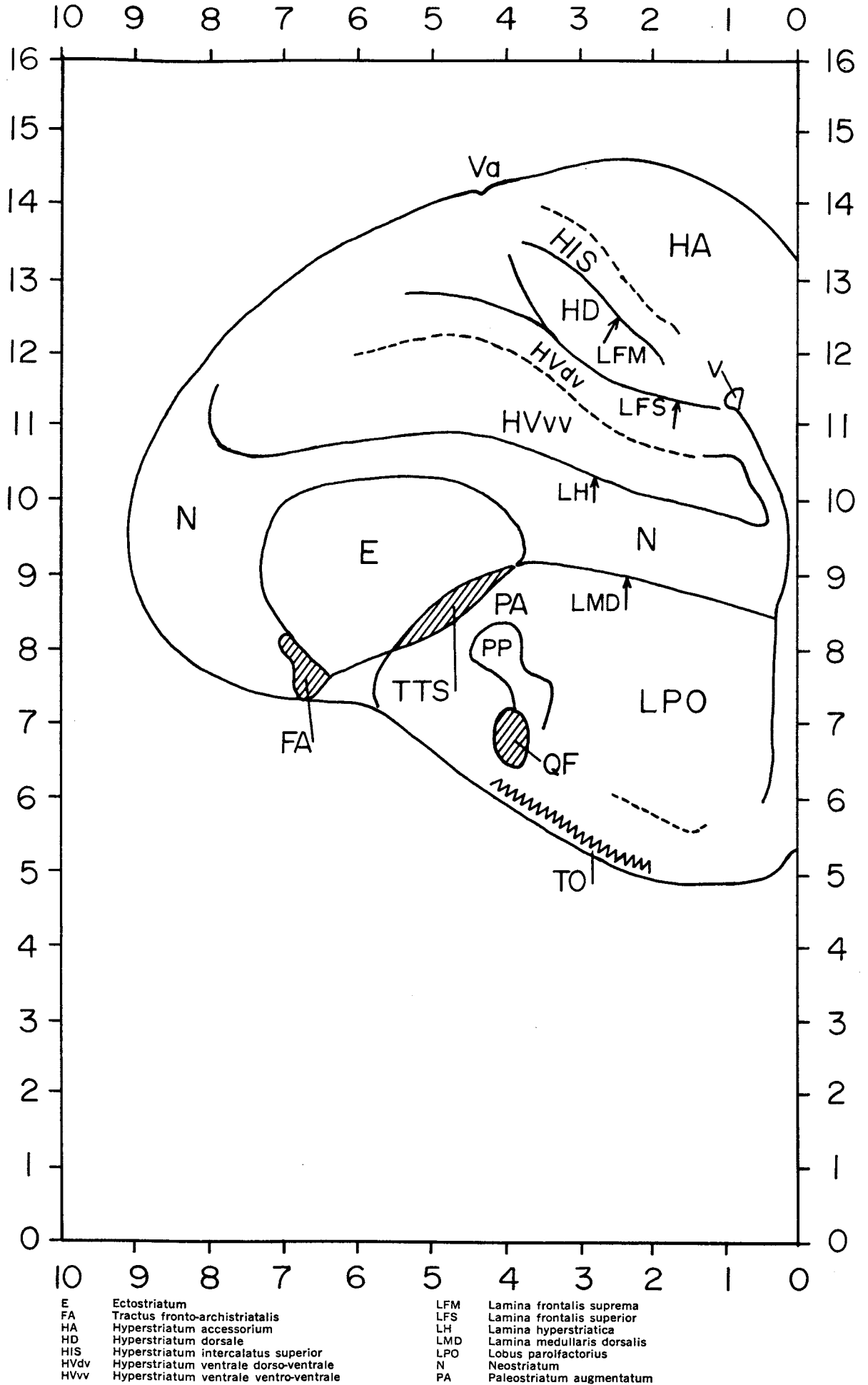
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PP Paleostriatum primitivum
QF Tractus quintofrontalis
TO Tuberculum olfactorium
V Ventriculus
Va Valleculla

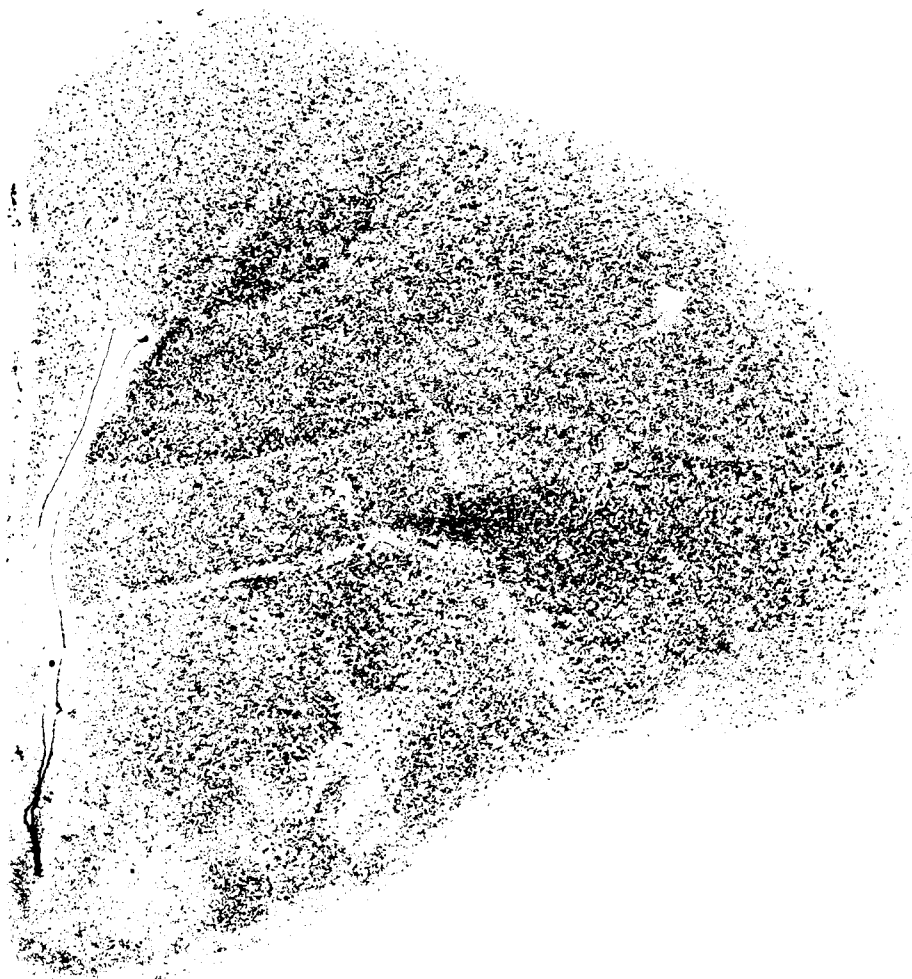


E	Ectostriatum	LFM	Lamina frontalis suprema
FA	Tractus fronto-archistriatalis	LFS	Lamina frontalis superior
HA	Hyperstriatum accessorium	LH	Lamina hyperstriatica
HD	Hyperstriatum dorsale	LMD	Lamina medullaris dorsalis
HIS	Hyperstriatum intercalatus superior	LPO	Lobus parolfactorius
HVdv	Hyperstriatum ventrale dorso-ventrale	N	Neostriatum
HVVv	Hyperstriatum ventrale ventro-ventrale	PA	Paleostriatum augmentatum

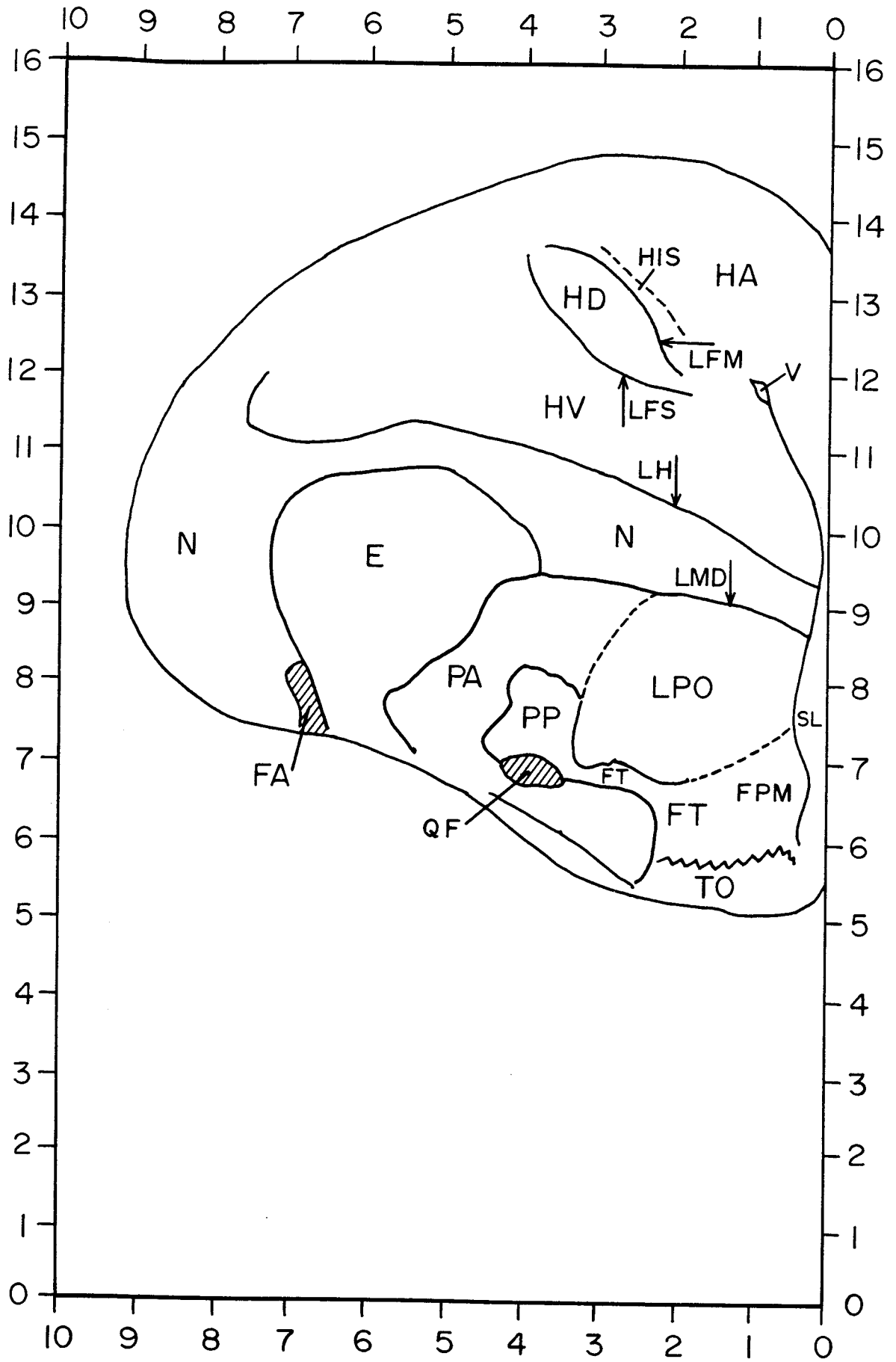


PP Paleostriatum primitivum
QF Tractus quintofrontalis
TO Tuberculum olfactorium
TTS Tractus thalamostriaticus
V Ventriculus
Va Vallecule

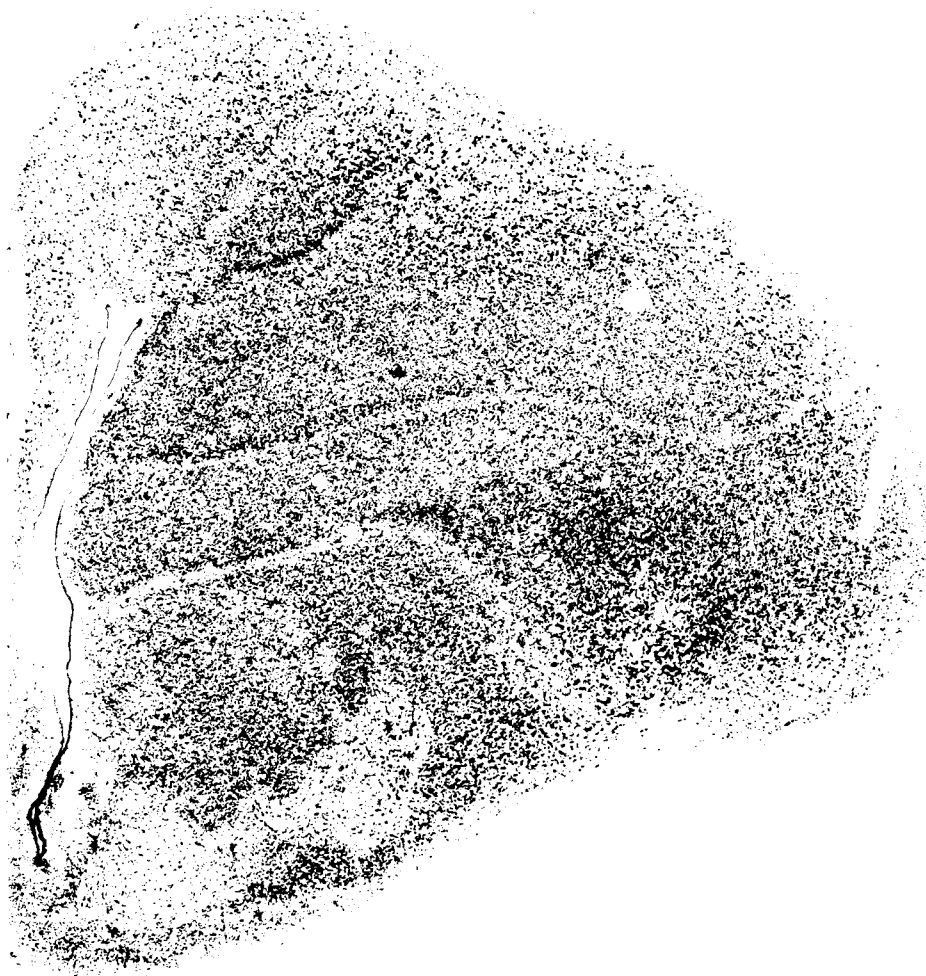




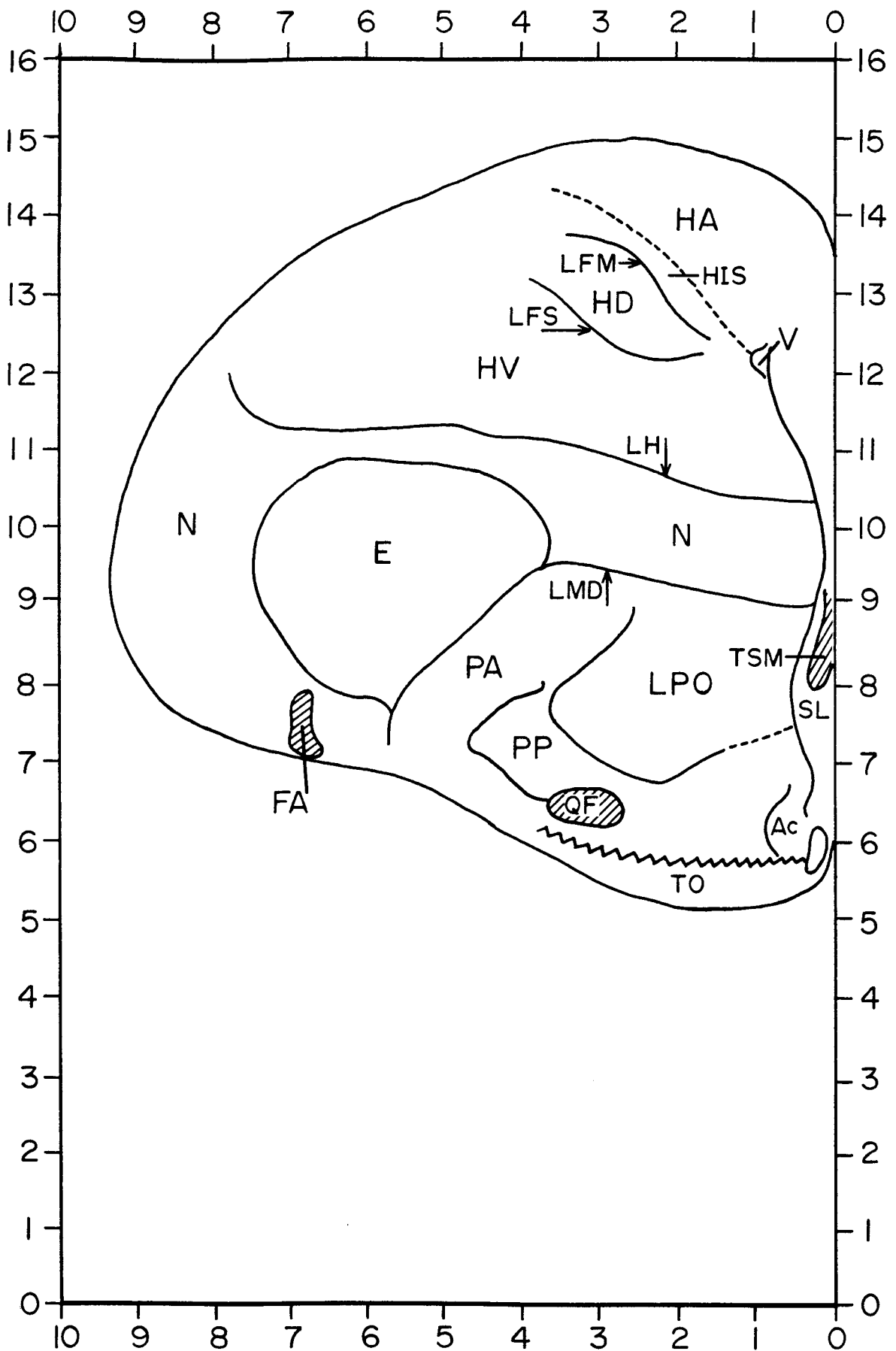
PP Paleostriatum primitivum
QF Tractus quintofrontalis
TO Tuberculum olfactorium
TTS Tractus thalamostriaticus
V Ventriculus
Va Valleculla



E	Ectoatrium	HIS	Hyperstriatum intercalatus superior
FA	Tractus fronto-archistriatalis	HV	Hyperstriatum ventrale
FT	Tractus fronto-thalamicus et tractus thalamo-frontalis	LFM	Lamina frontalis suprema
FPM	Fasciculus prosencephali medialis	LFS	Lamina frontalis superior
HA	Hyperstriatum accessorium	LH	Lamina hyperstriatica
HD	Hyperstriatum dorsale	LMD	Lamina medullaris dorsalis
		LPO	Lobus parolfactorius



N Neostriatum
PA Paleostriatum augmentatum
PP Paleostriatum primitivum
QF Tractus quintofrontalis
SL Nucleus septalis lateralis
TO Tuberculum olfactorium
V Ventriculus



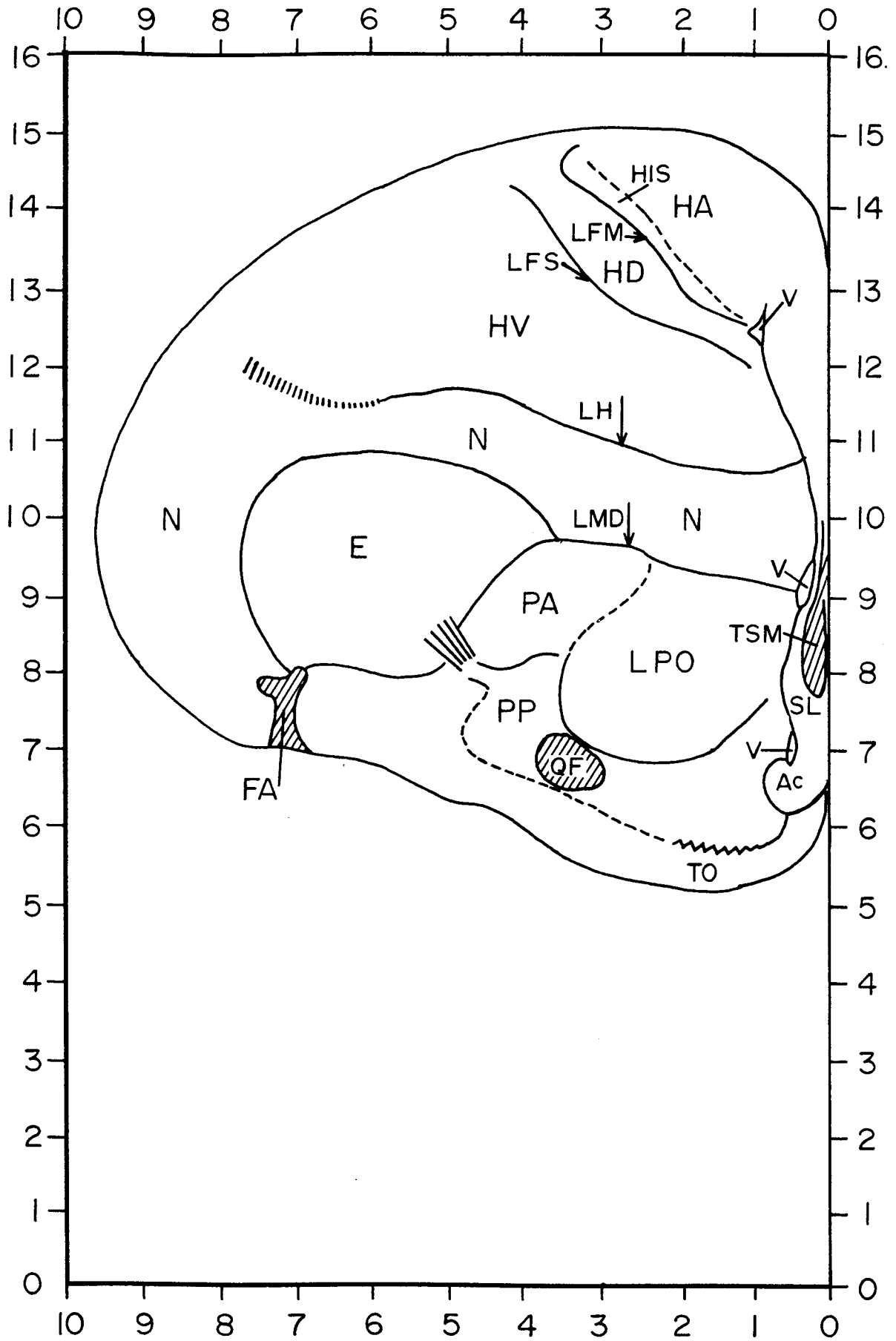
Ac Nucleus accumbens
 E Ectostriatum
 FA Tractus fronto-archistriatalis
 HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale

HIS Hyperstriatum intercalatus superior
 HV Hyperstriatum ventrale
 LFM Lamina frontalis suprema
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica

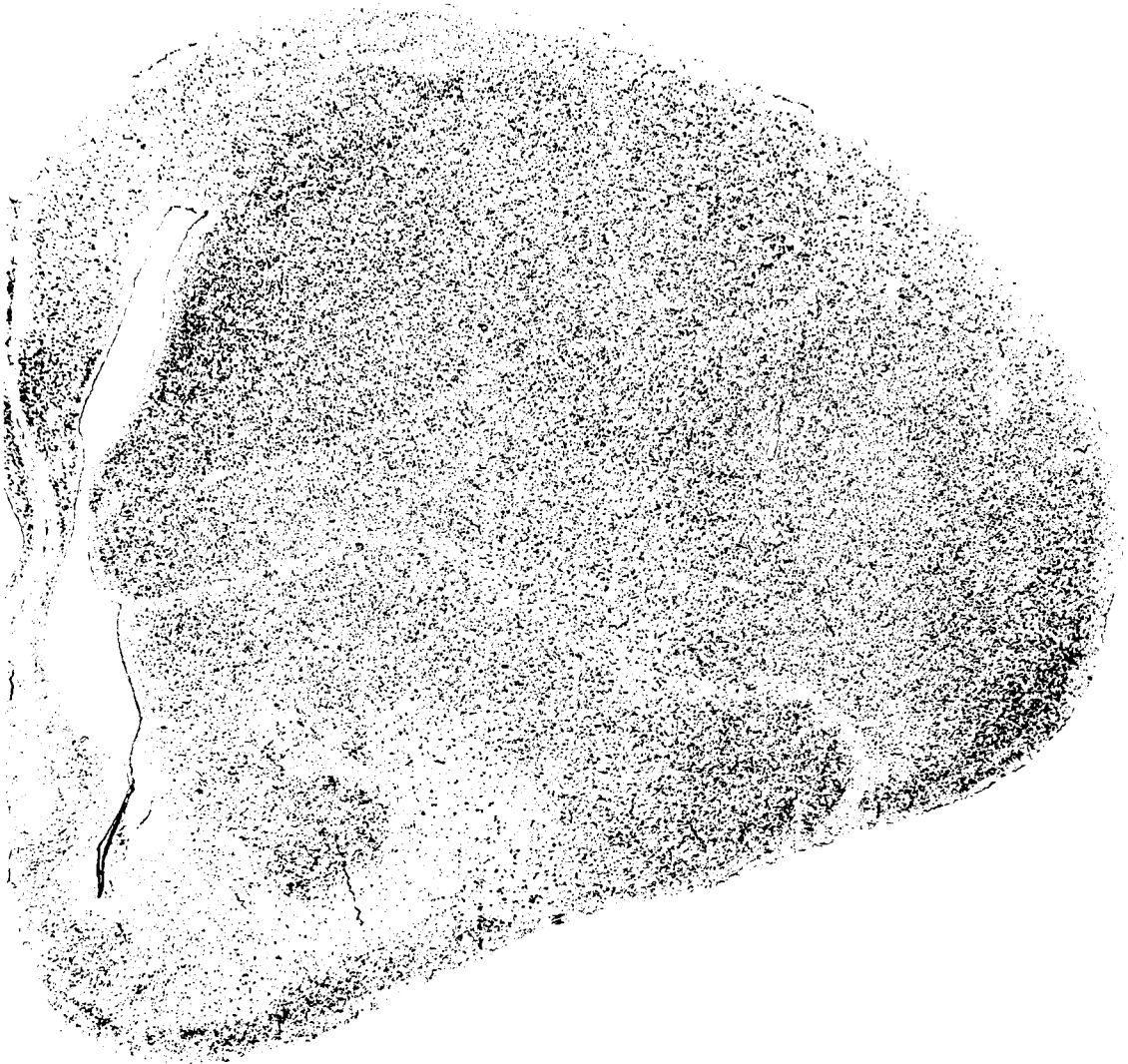


LMD Lamina medullaris dorsalis
LPO Lobus parolfactorius
N Neostriatum
PA Paleostriatum augmentatum
PP Paleostriatum primitivum

QF Tractus quinfofrontalis
SL Nucleus septalis lateralis
TO Tuberculum olfactorium
TSM Tractus septomesencephalicus
V Ventriculus

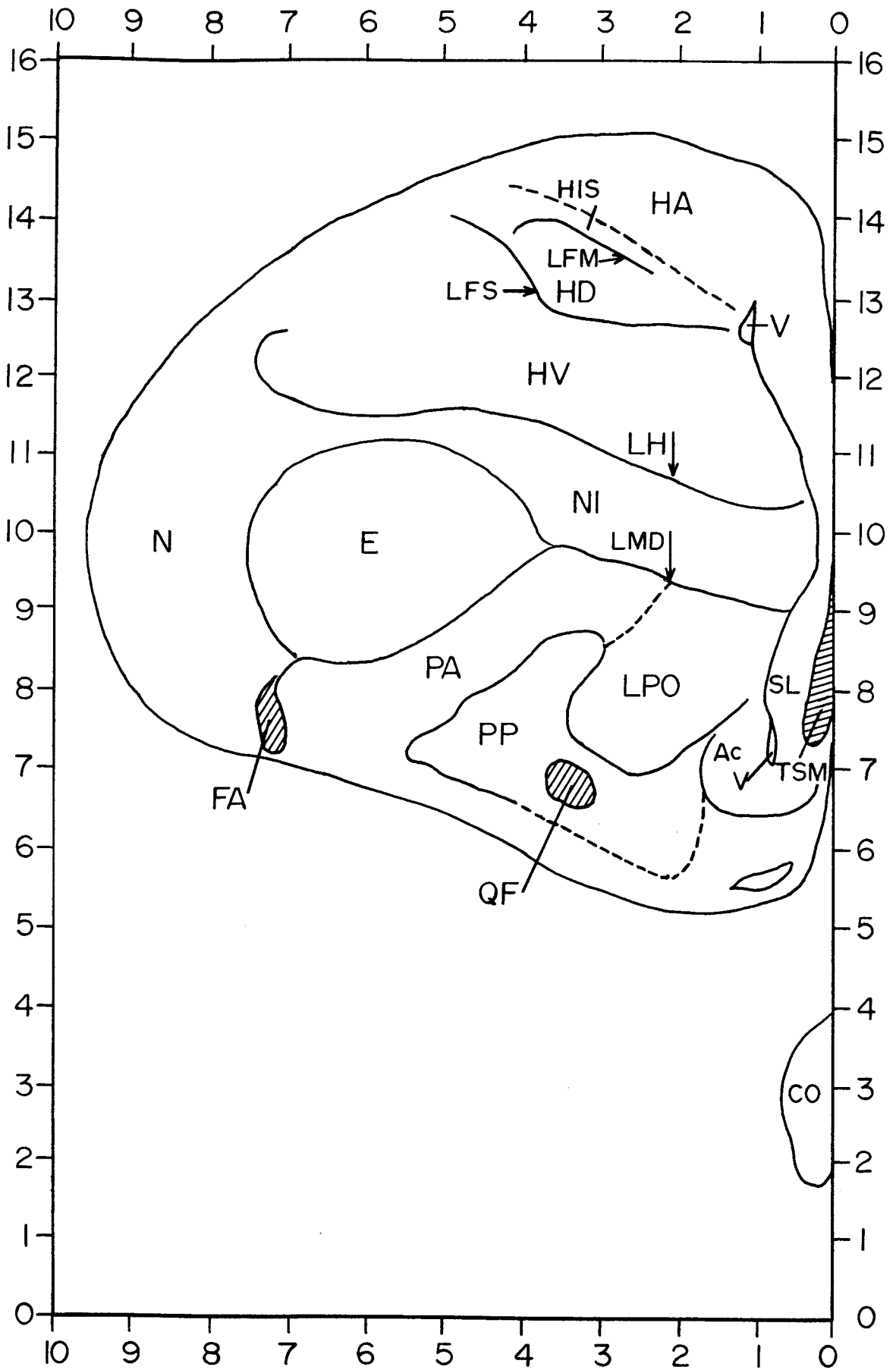


Ac	Nucleus accumbens	HIS	Hyperstriatum intercalatus superior
E	Ectoatrium	HV	Hyperstriatum ventrale
FA	Tractus fronto-archistriatalis	LFM	Lamina frontalis suprema
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior
HD	Hyperstriatum dorsale	LH	Lamina hyperstriatica

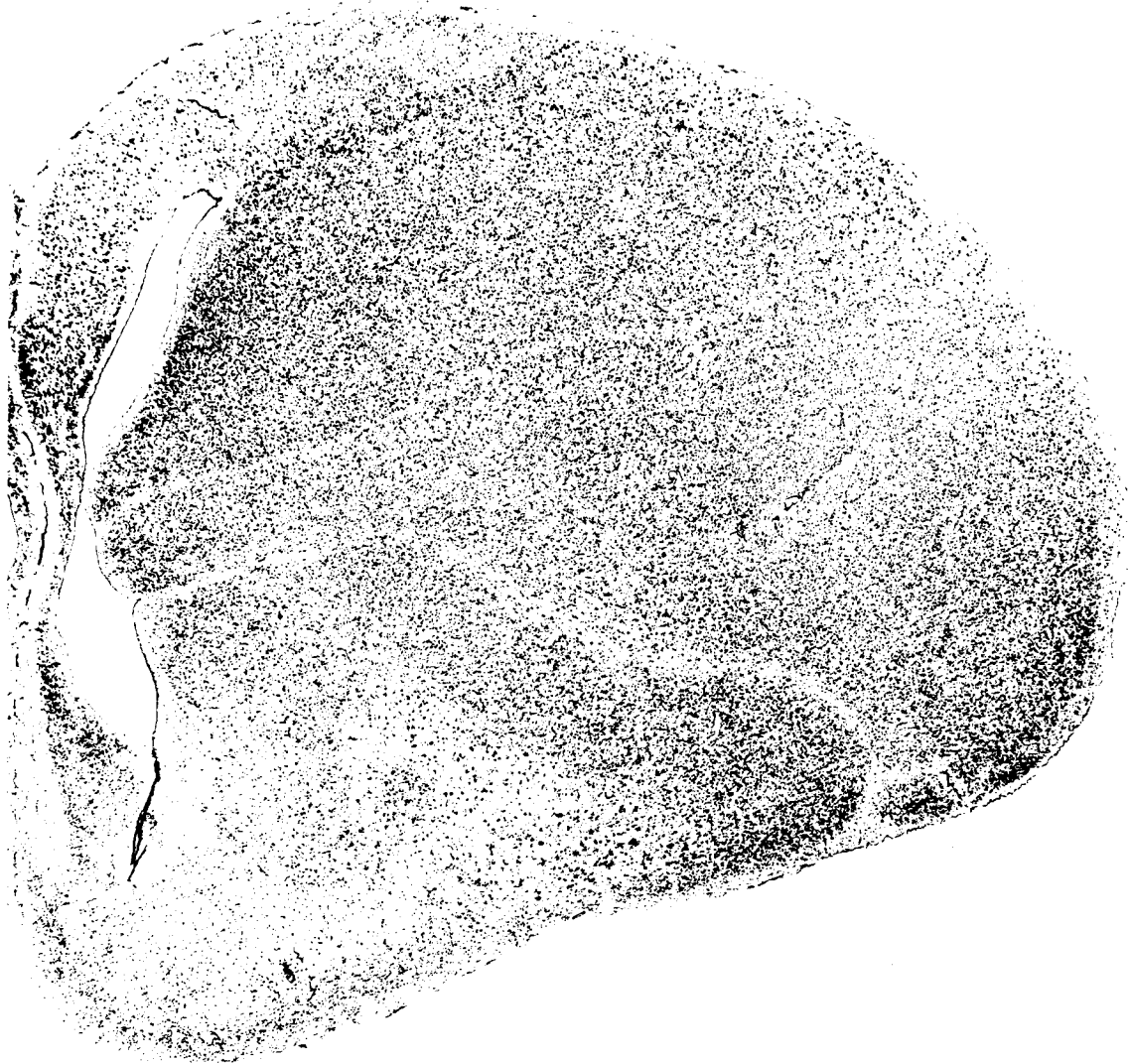


LMD Lamina medullaris dorsalis
LPO Lobus parolfactorius
N Neostriatum
PA Paleostriatum augmentatum
PP Paleostriatum primitivum

QF Tractus quinfofrontalis
SL Nucleus septalis lateralis
TO Tuberculum olfactorium
TSM Tractus septomesencephalicus
V Ventriculus

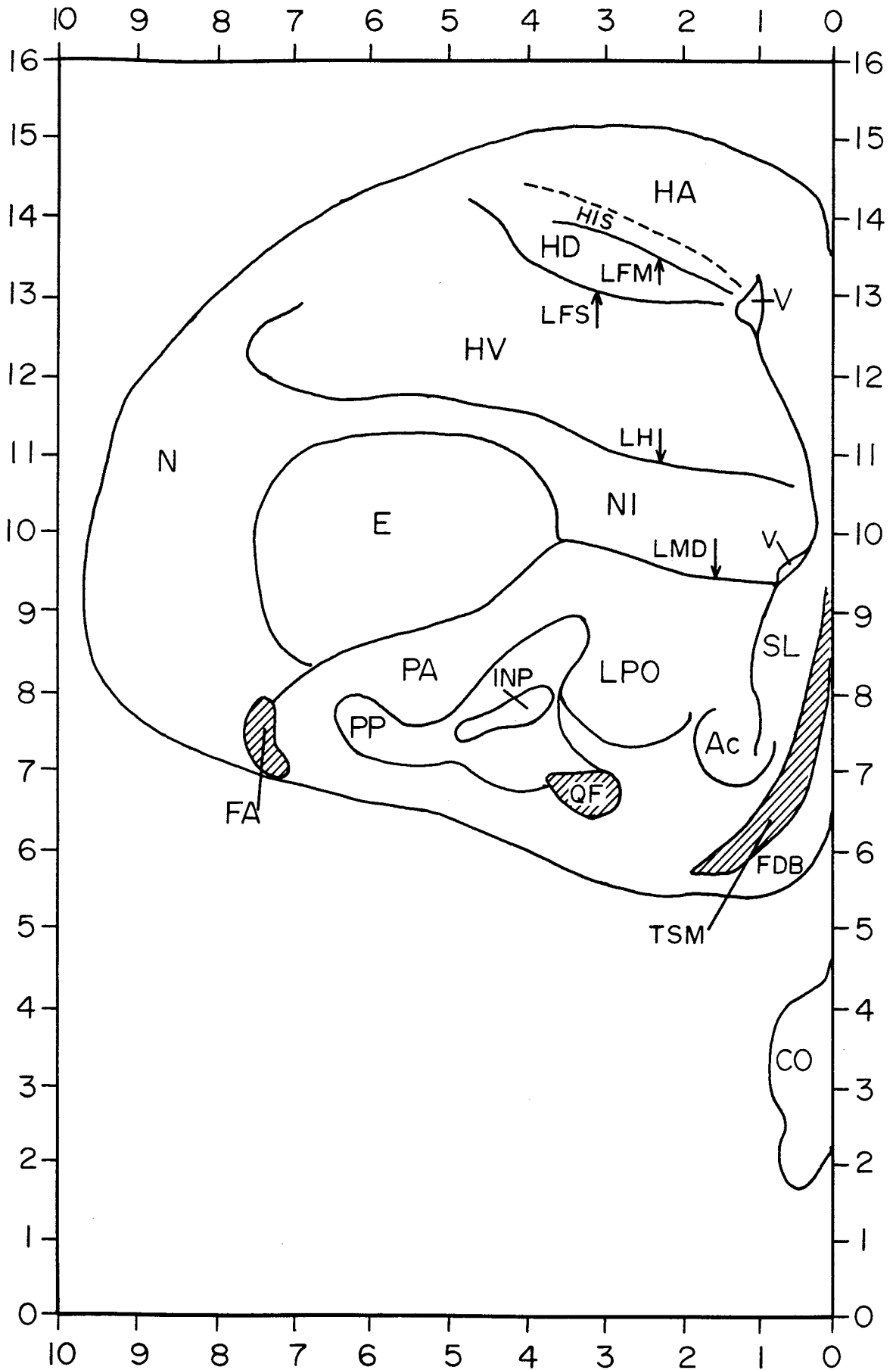


Ac	Nucleus accumbens	HD	Hyperstriatum dorsale
CO	Chiasma opticum	HIS	Hyperstriatum intercalatus superior
E	Ectostriatum	HV	Hyperstriatum ventrale
FA	Tractus fronto-archistriatalis	LFM	Lamina frontalis suprema
HA	Hyperstriatum accessorium	LFS	Lamina frontalis superior

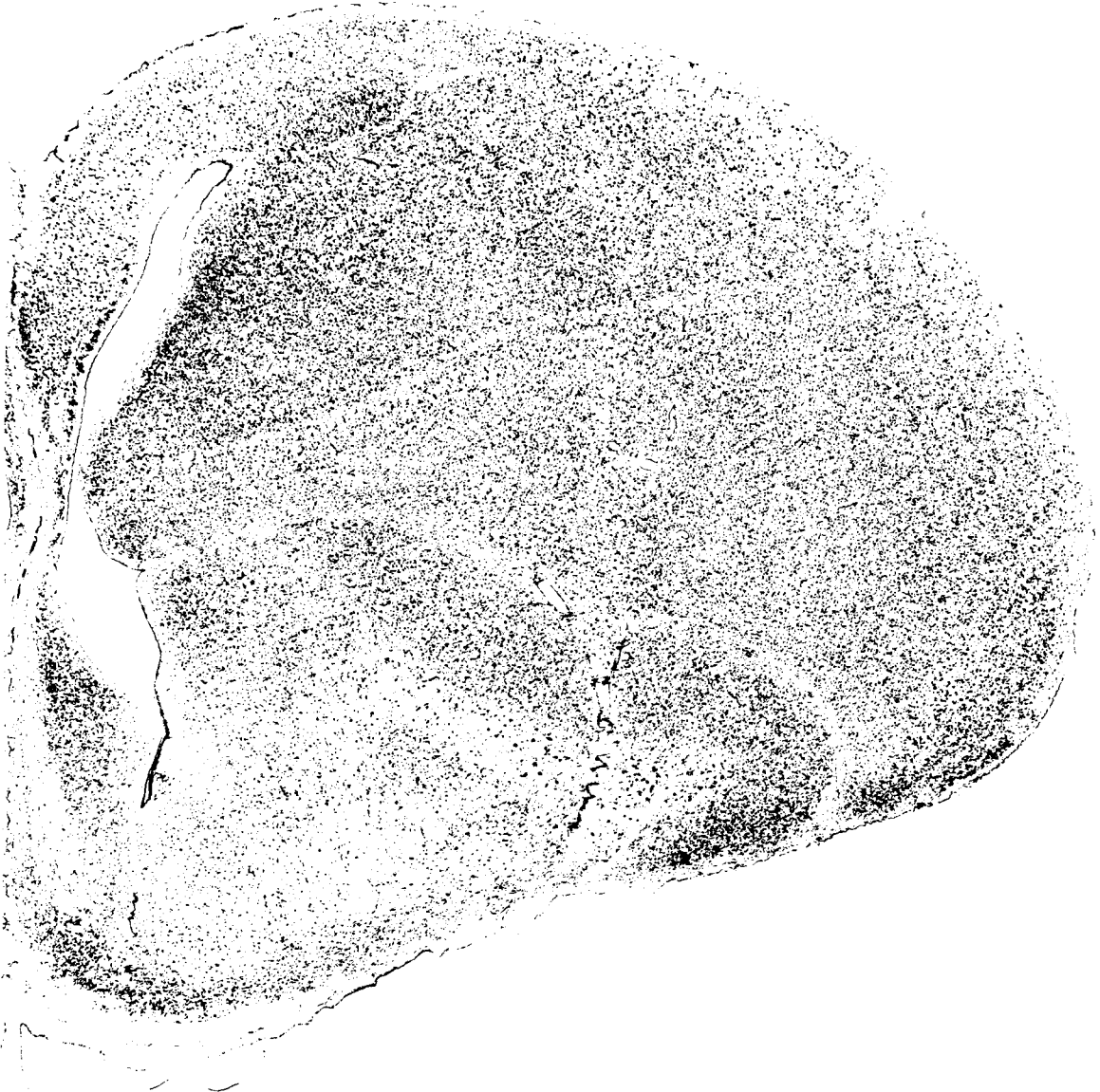


LH Lamina hyperstriatica
LMD Lamina medullaris dorsalis
LPO Lobus parolfactorius
N Neostriatum
NI Neostriatum intermedium

PA Paleostriatum augmentatum
PP Paleostriatum primitivum
QF Tractus quintofrontalis
SL Nucleus septalis lateralis
TSM Tractus septomesencephalicus
V Ventriculus

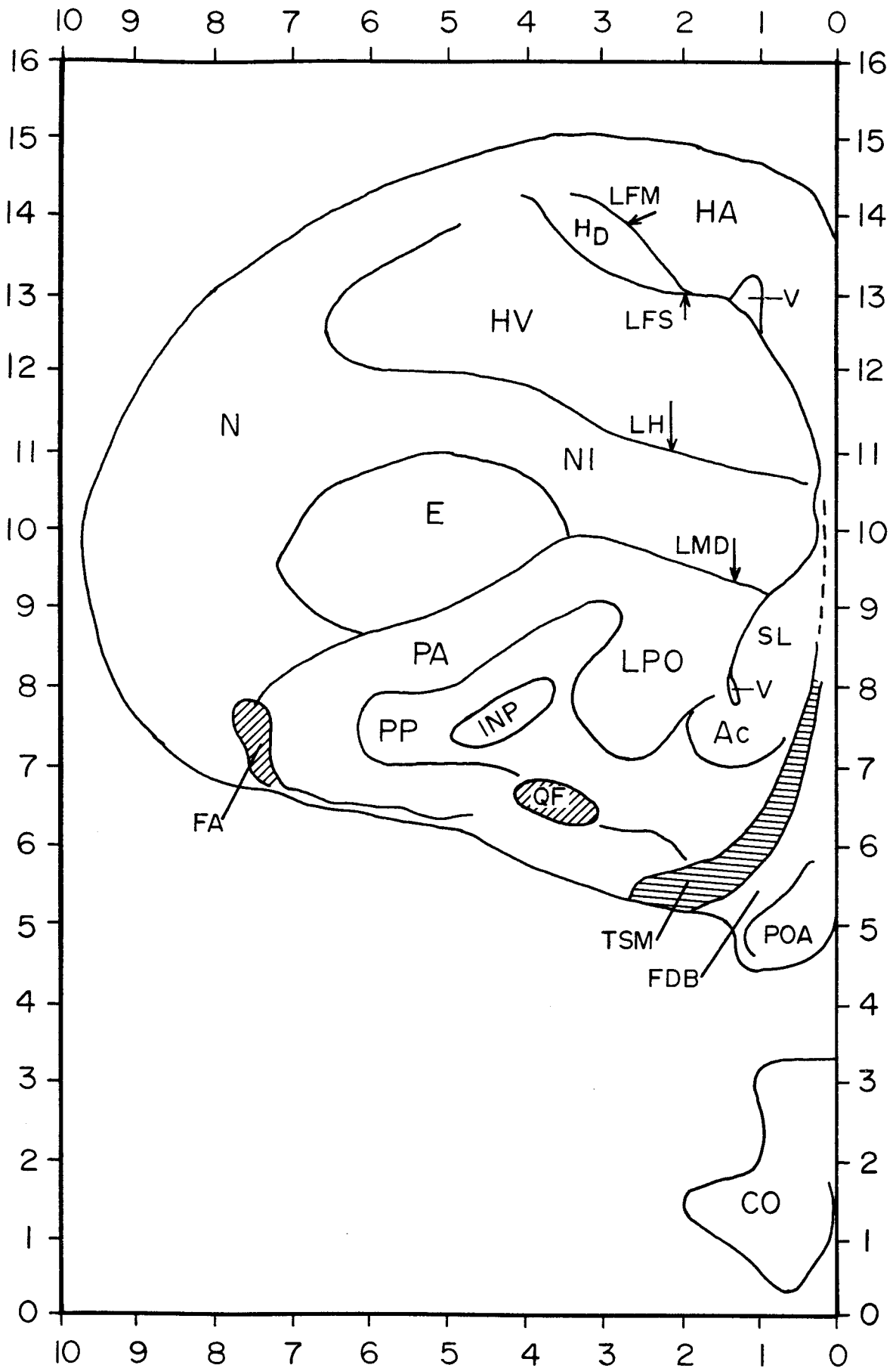


Ac	Nucleus accumbens	HA	Hyperstriatum accessorium
CO	Chiasma opticum	HD	Hyperstriatum dorsale
E	Ectostriatum	HIS	Hyperstriatum intercalatus superior
FA	Tractus fronto-archistriatalis	HV	Hyperstriatum ventrale
FDB	Fasciculus diagonalis Brocae	INP	Nucleus intrapeduncularis

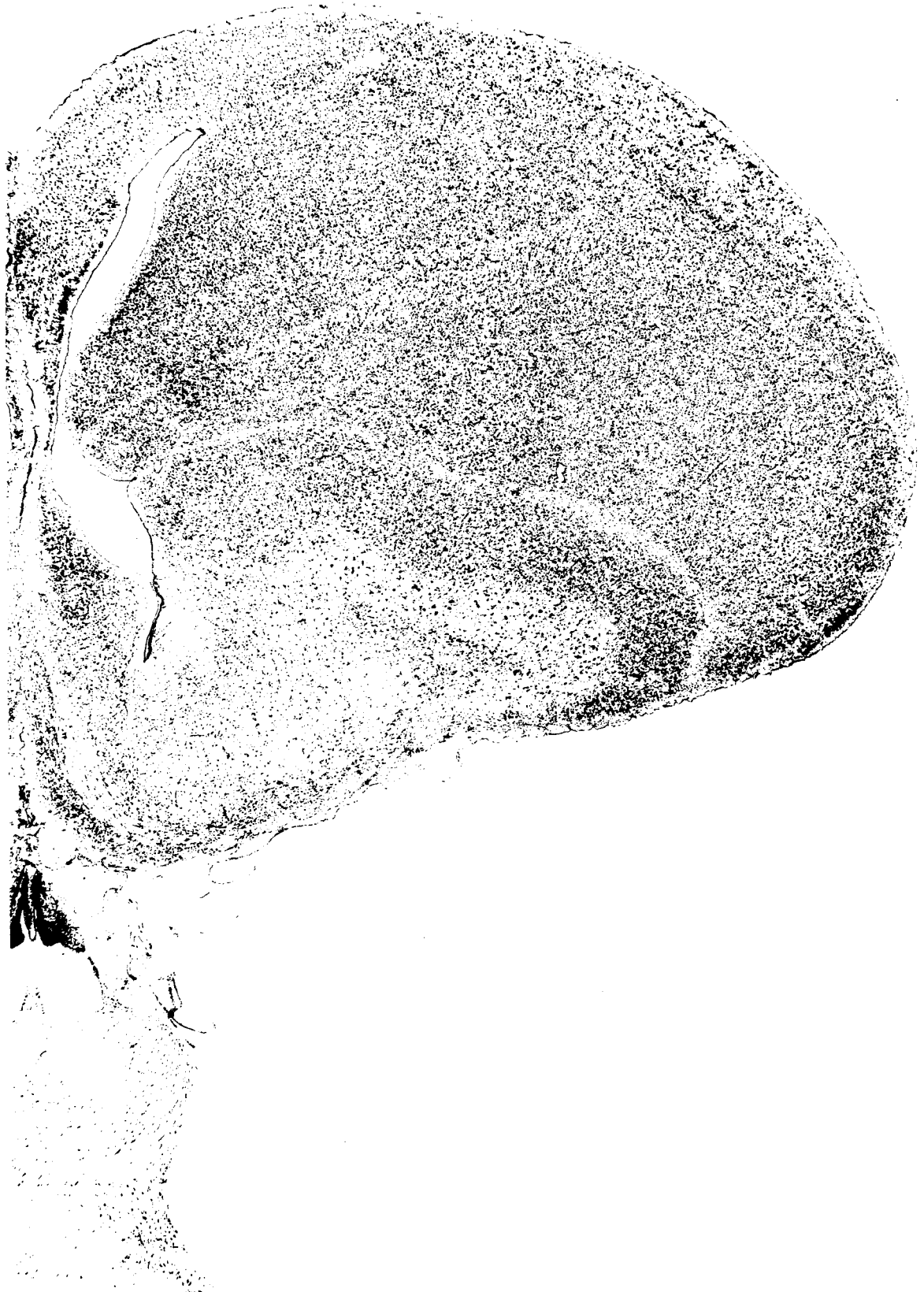


LFM Lamina frontalis suprema
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LMD Lamina medullaris dorsalis
 LPO Lobus parolfactorius
 N Neostriatum

NI Neostriatum intermedium
 PA Paleostriatum augmentatum
 PP Paleostriatum primitivum
 QF Tractus quinfofrontalis
 SL Nucleus septalis lateralis
 TSM Tractus septomesencephalicus
 V Ventriculus

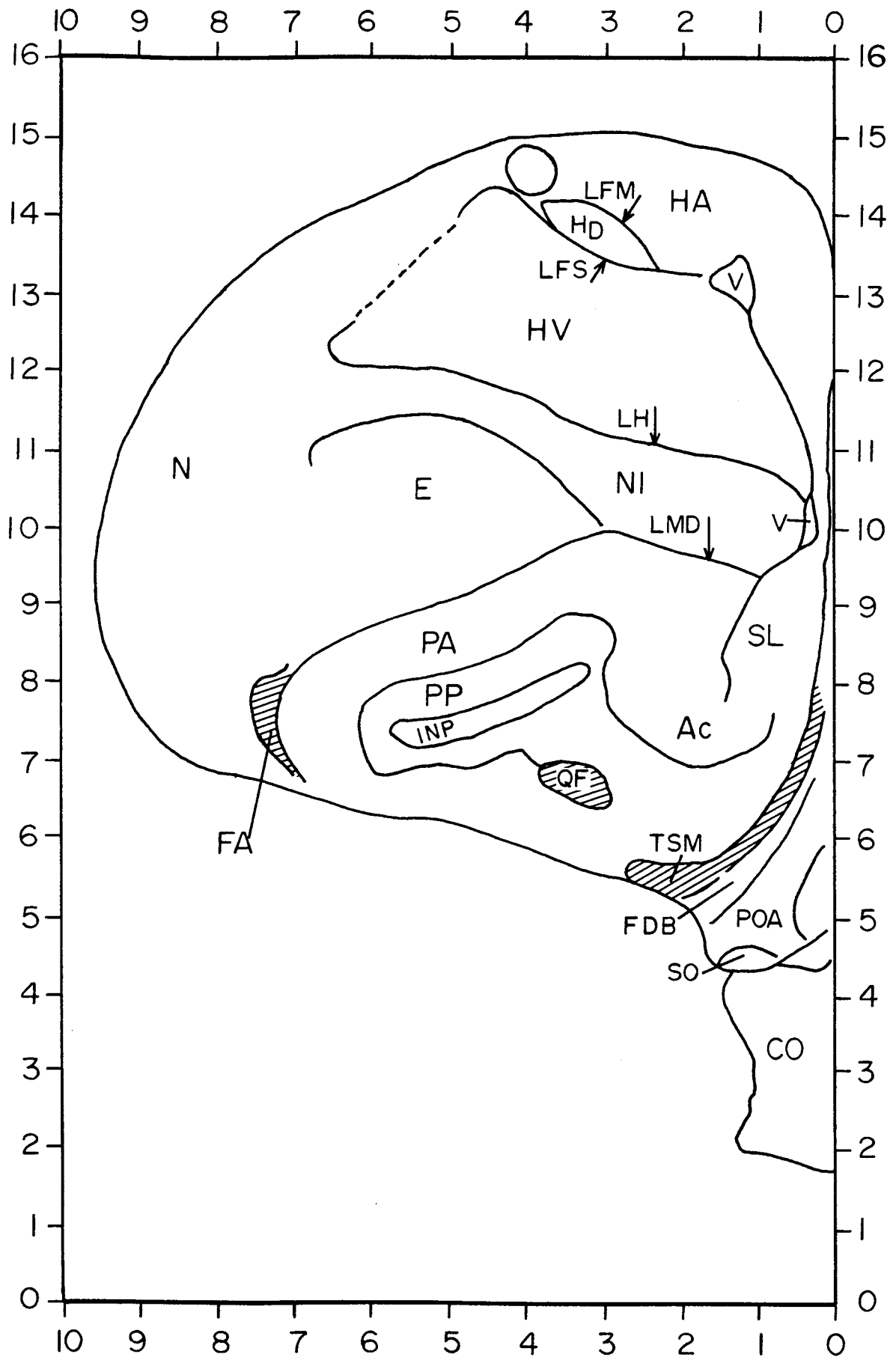


Ac	Nucleus accumbens	HA	Hyperstriatum accessorium
CO	Chiasma opticum	HD	Hyperstriatum dorsale
E	Ectostriatum	HV	Hyperstriatum ventrale
FA	Tractus fronto-archistriatalis	INP	Nucleus intrapeduncularis
FDB	Fasciculus diagonalis Brocae	LFM	Lamina frontalis suprema



LFS Lamina frontalis superior
LH Lamina hyperstriatica
LMD Lamina medullaris dorsalis
LPO Lobus parolfactorius
N Neostriatum
NI Neostriatum intermedium

PA Paleostriatum augmentatum
POA Nucleus preopticus anterior
PP Paleostriatum primitivum
QF Tractus quintofrontalis
SL Nucleus septalis lateralis
TSM Tractus septomesencephalicus
V Ventriculus



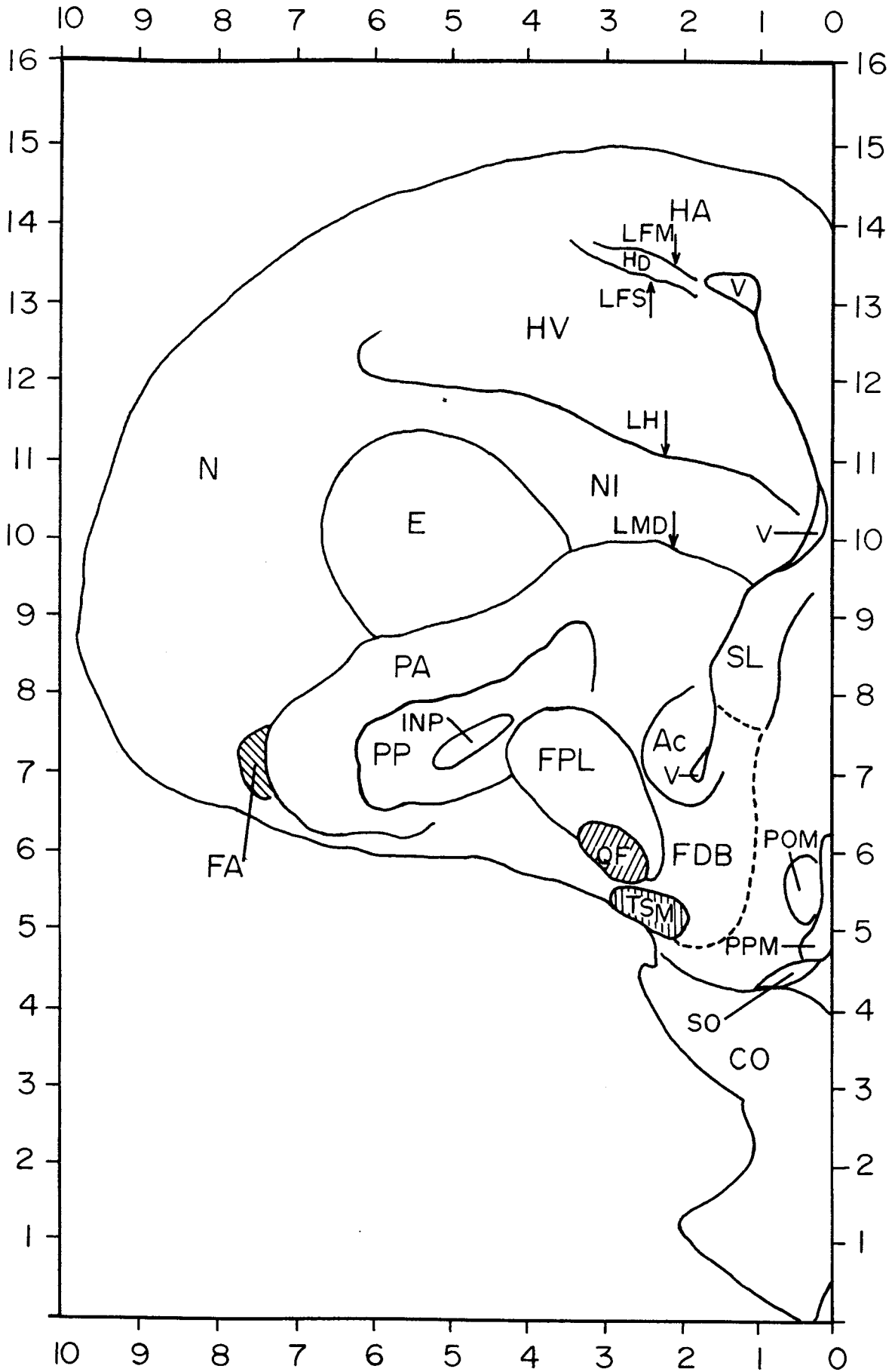
Ac Nucleus accumbens
 CO Chiasma opticum
 E Ectostriatum
 FA Tractus fronto-archistriatalis
 FDB Fasciculus diagonalis Brocae

HA Hyperstriatum accessorium
 HD Hyperstriatum dorsale
 HV Hyperstriatum ventrale
 INP Nucleus intrapeduncularis
 LFM Lamina frontalis supra



LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LMD Lamina medullaris dorsalis
 N Neostriatum
 NI Neostriatum intermedium
 PA Paleostriatum augmentatum

POA Nucleus preopticus anterior
 PP Paleostriatum primitivum
 QF Tractus quinfofrontalis
 SL Nucleus septalis lateralis
 SO Nucleus supraopticus (Ralph)
 TSM Tractus septomesencephalicus
 V Ventriculus

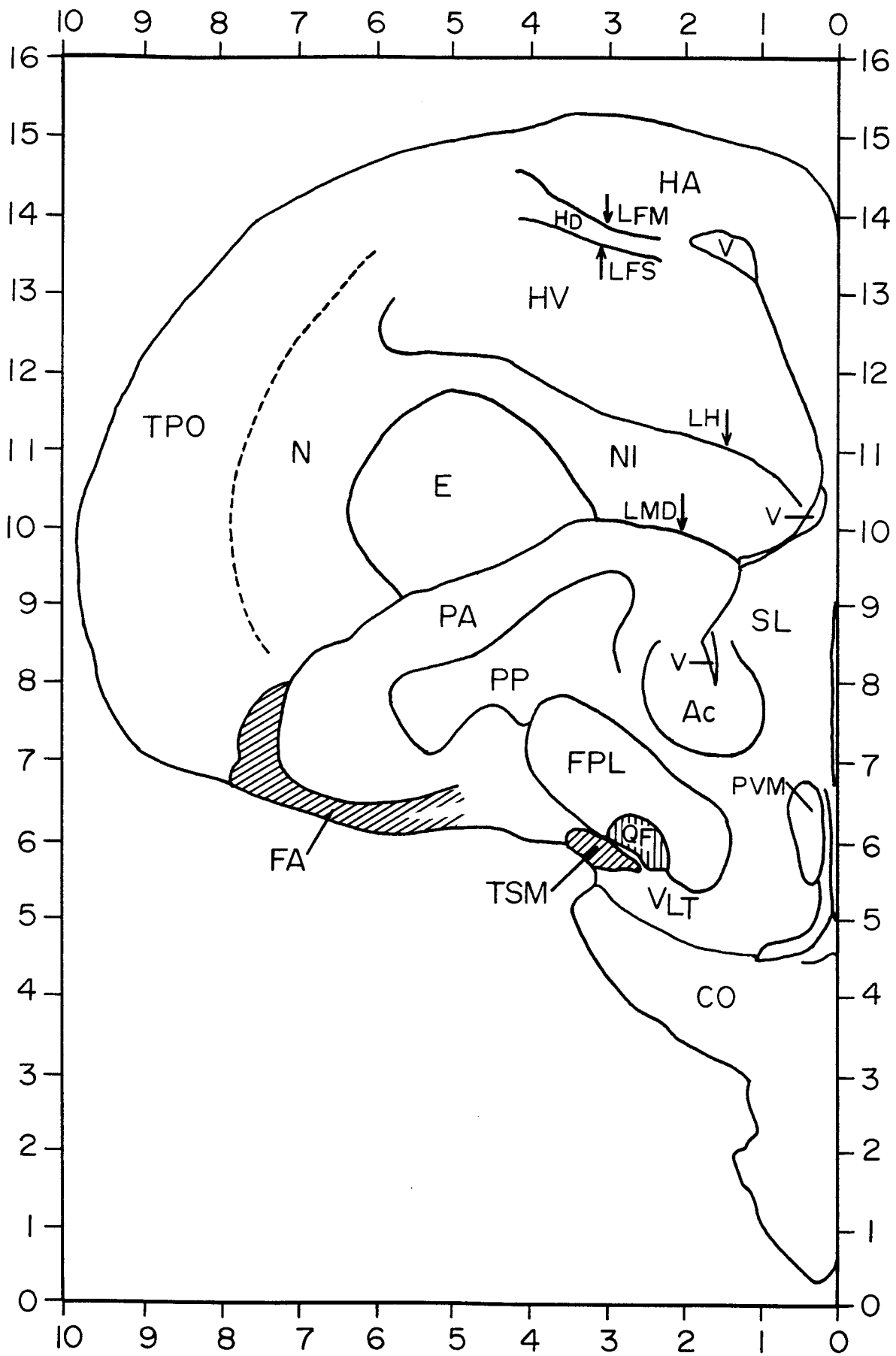


Ac	Nucleus accumbens	HA	Hyperstriatum accessorium
CO	Chiasma opticum	HD	Hyperstriatum dorsale
E	Ectoatrium	HV	Hyperstriatum ventrale
FA	Tractus fronto-archistriatalis	INP	Nucleus intrapeduncularis
FDB	Fasciculus diagonalis Brocae	LFM	Lamina frontalis supra
FPL	Fasciculus prosencephali lateralis	LFS	Lamina frontalis superior

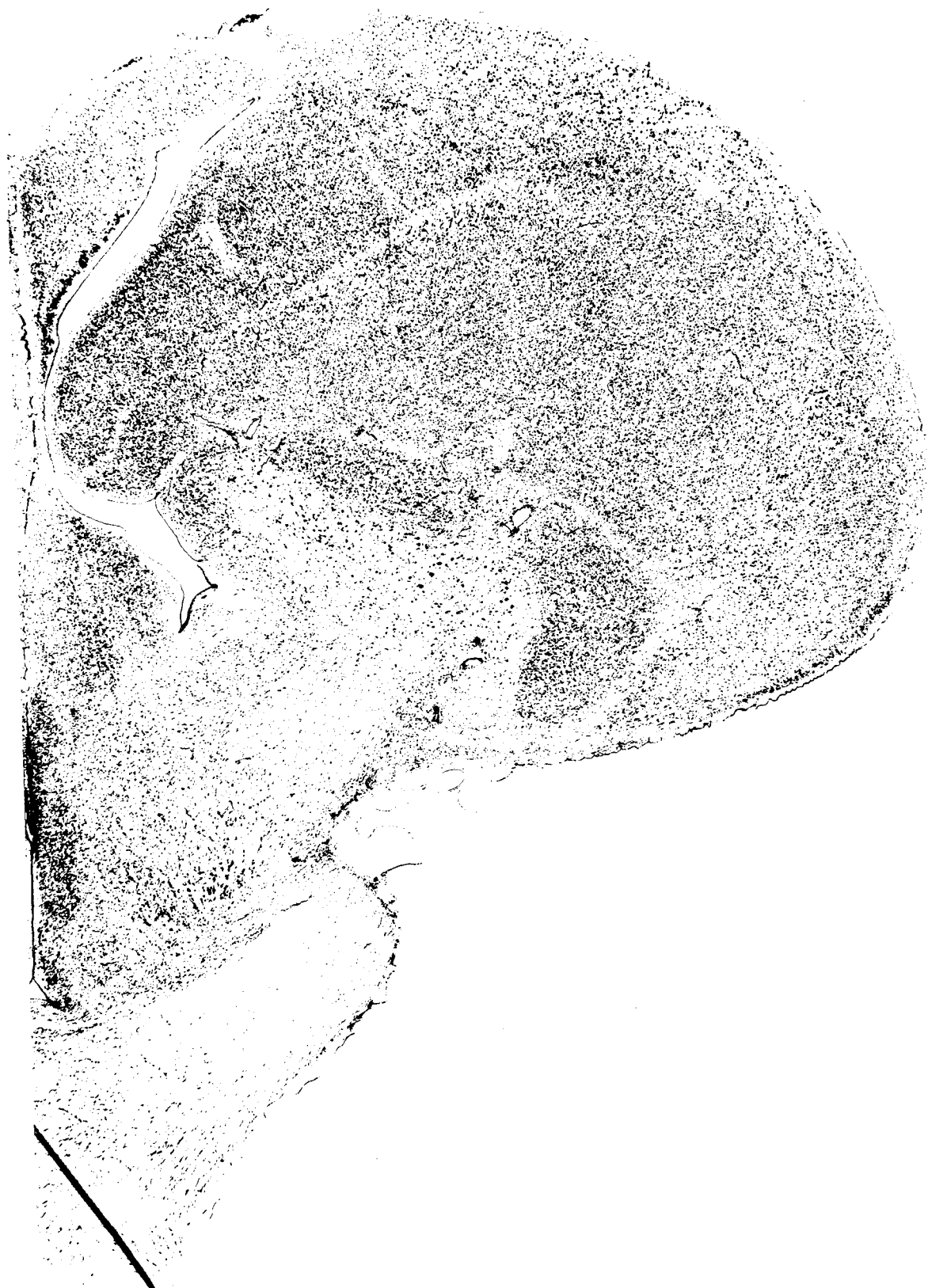


LH Lamina hyperstriatica
 LMD Lamina medullaris dorsalis
 N Neostriatum
 NI Neostriatum intermedium
 PA Paleostriatum augmentatum
 POM Nucleus preopticus medialis (Tienhoven)
 PP Paleostriatum primitivum

PPM Nucleus preopticus paraventricularis
 magnocellularis (Tienhoven)
 QF Tractus quintofrontalis
 SL Nucleus septalis lateralis
 SO Nucleus supraopticus (Ralph)
 TSM Tractus septomesencephalicus
 V Ventriculus

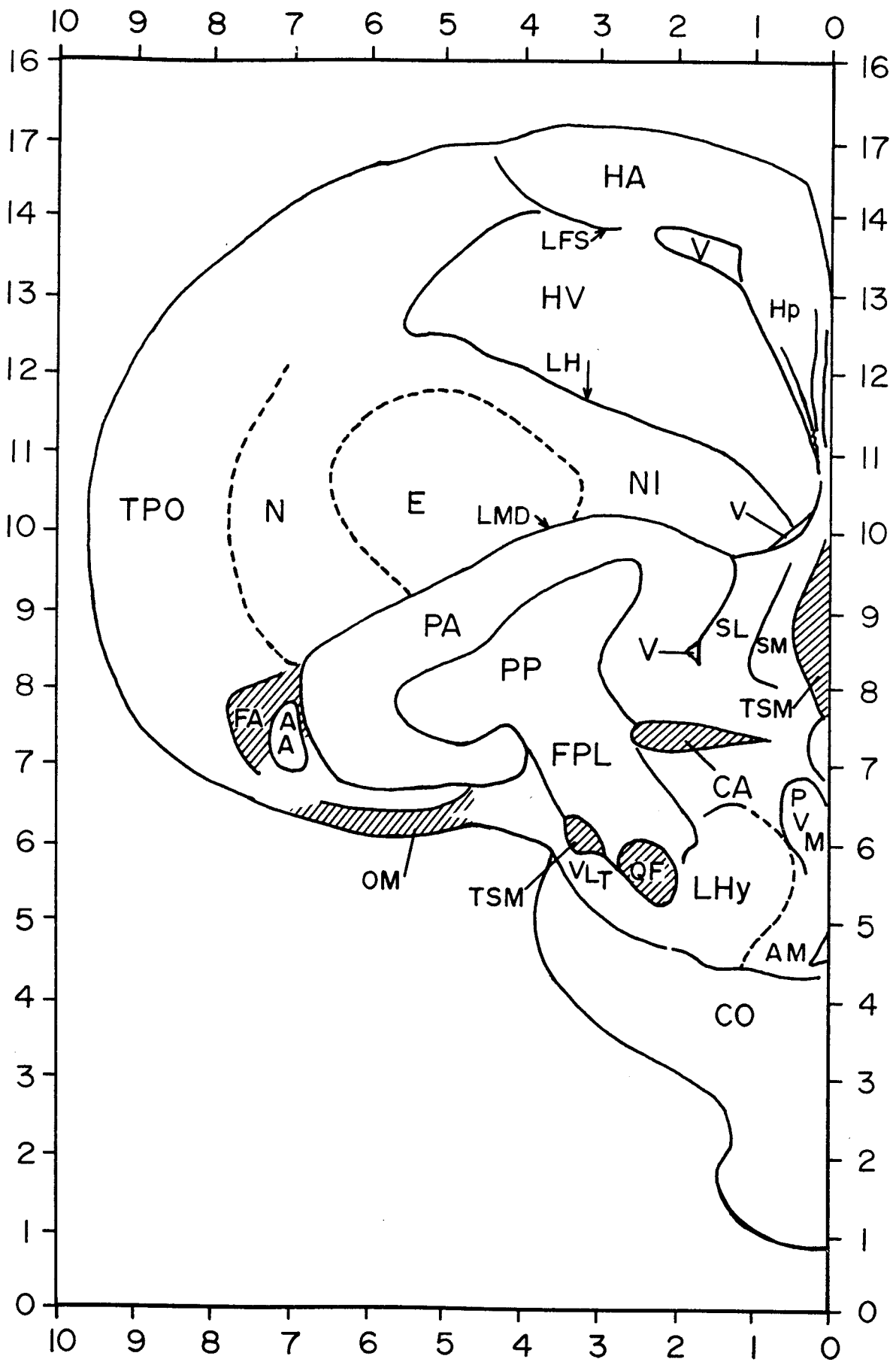


Ac	Nucleus accumbens	HD	Hyperstriatum dorsale
CO	Chiasma opticum	HV	Hyperstriatum ventrale
E	Ectoatrium	LFM	Lamina frontalis suprema
FA	Tractus fronto-archistriatalis	LFS	Lamina frontalis superior
FPL	Fasciculus prosencephali lateralis	LH	Lamina hyperstriatica
HA	Hyperstriatum accessorium	LMD	Lamina medullaris dorsalis

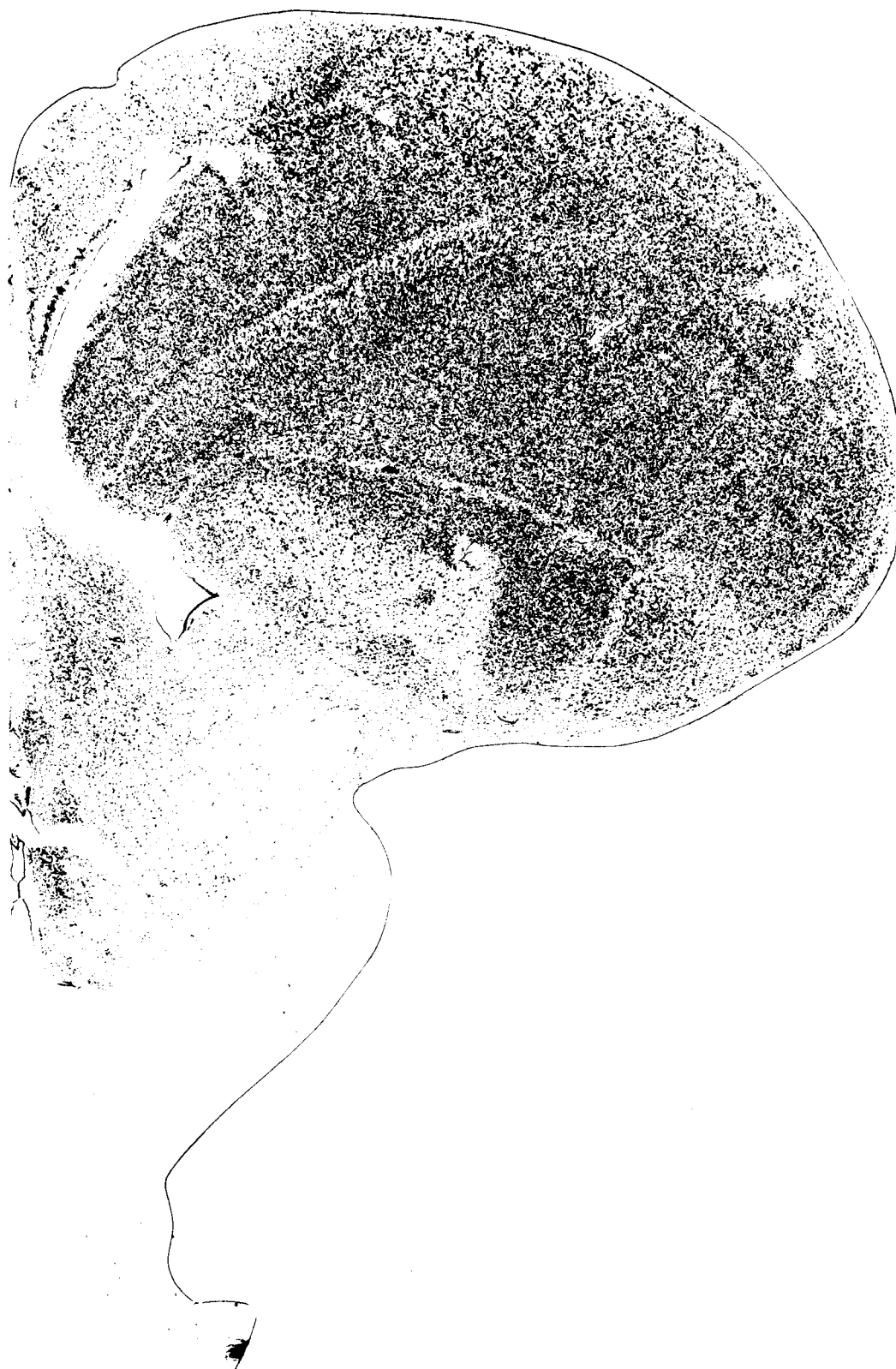


N Neostriatum
 NI Neostriatum intermedium
 PA Paleostriatum augmentatum
 PP Paleostriatum primitivum
 PVM Nucleus periventricularis magnocellularis
 QF Tractus quintofrontalis

SL Nucleus septalis lateralis
 TPO Area temporo-parieto-occipitalis (Edinger, Wallenberg, and Holmes)
 TSM Tractus septomesencephalicus
 V Ventriculus
 VLT Nucleus ventrolateralis thalami

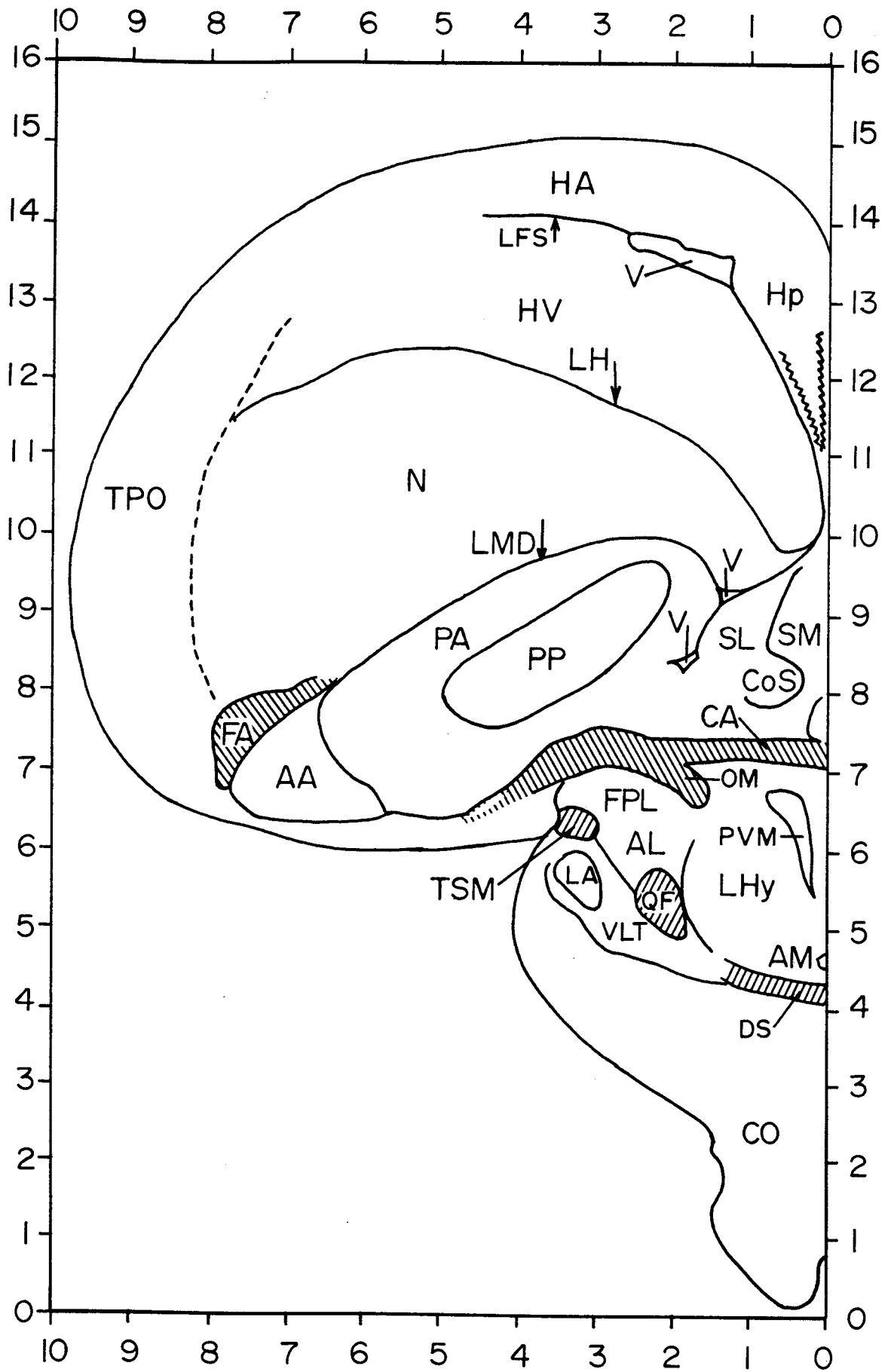


AA	Nucleus archistriatalis anterior	FPL	Fasciculus prosencephali lateralis
AM	Nucleus anterior medialis hypothalami	HA	Hyperstriatum accessorium
CA	Commissura anterior	Hp	Hippocampus
CO	Chiasma opticum	HV	Hyperstriatum ventrale
E	Ectostriatum	LFS	Lamina frontalis superior
FA	Tractus fronto-archistriatalis	LH	Lamina hyperstriatica

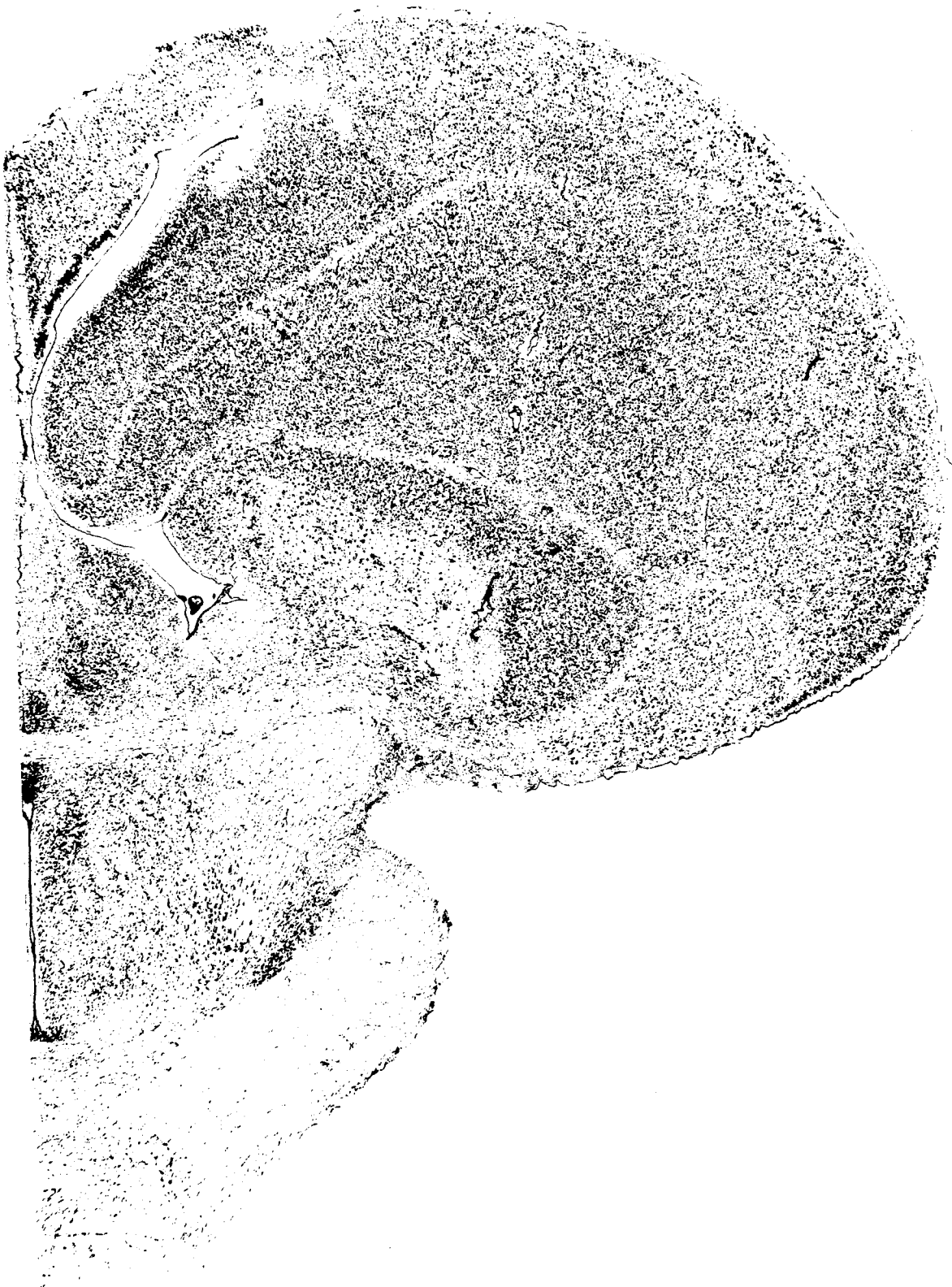


LHy Nucleus lateralis hypothalami
 LMD Lamina medullaris dorsalis
 N Neostriatum
 NI Neostriatum intermedium
 OM Tractus occipitomesencephalicus
 PA Paleostriatum augmentatum
 PP Paleostriatum primitivum
 PVM Nucleus periventricularis magnocellularis

QF Tractus quintofrontalis
 SL Nucleus septalis lateralis
 SM Nucleus septalis medialis
 TPO Area temporo-parieto-occipitalis (Edinger,
 Wallenberg, and Holmes)
 TSM Tractus septomesencephalicus
 V Ventriculus
 VLT Nucleus ventrolateralis thalami

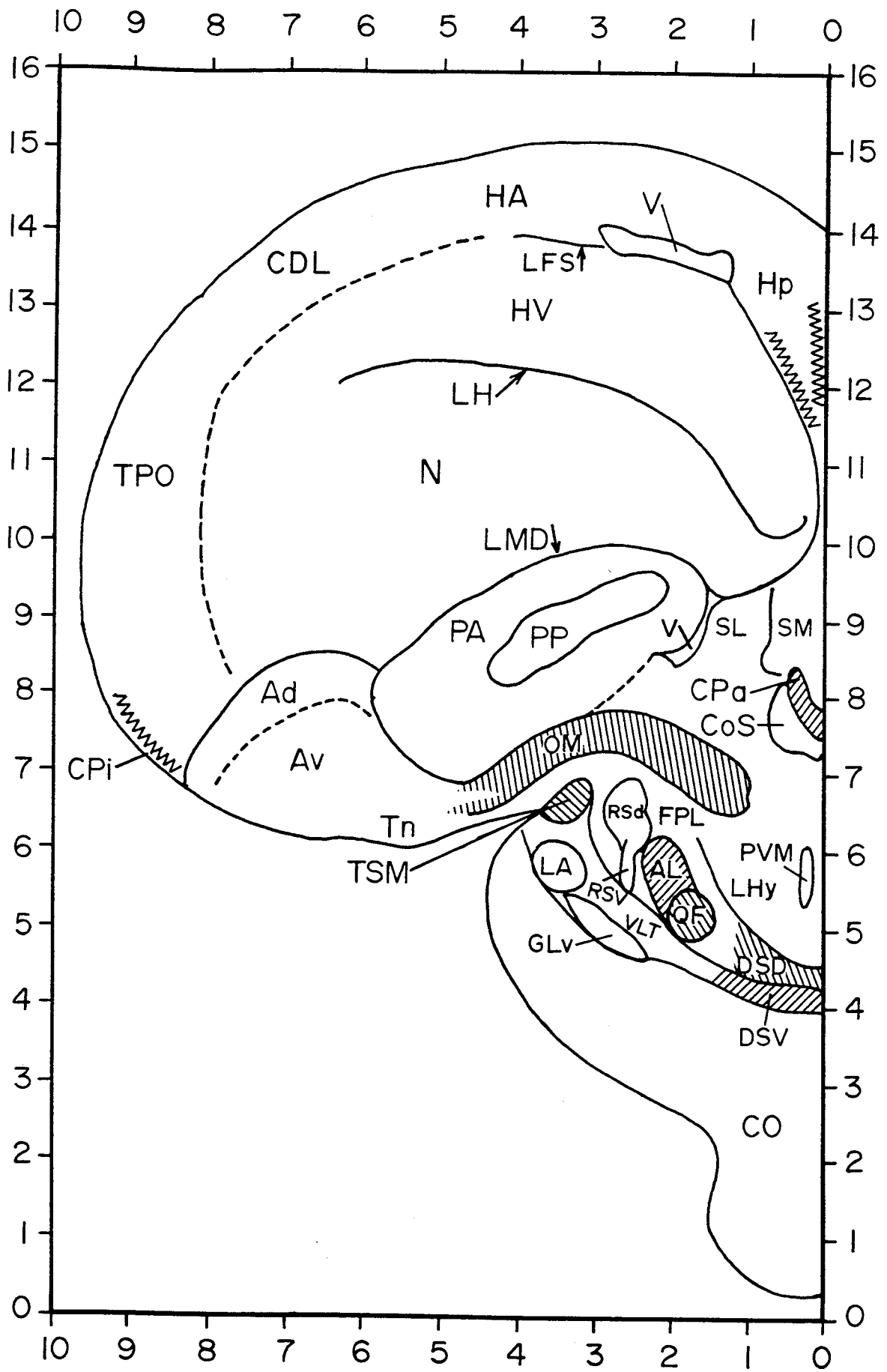


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|-----|---------------------------------------|-----|------------------------------------|
| AA | Nucleus archistriatalis anterior | DS | Decussatio supraoptica |
| AL | Ansa lenticularis | FA | Tractus fronto-archistriatalis |
| AM | Nucleus anterior medialis hypothalami | FPL | Fasciculus prosencephali lateralis |
| CA | Commissura anterior | HA | Hyperstriatum accessorium |
| CO | Chiasma opticum | Hp | Hippocampus |
| CoS | Nucleus commissuralis septi | HV | Hyperstriatum ventrale |



LA Nucleus lateralis anterior thalami
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LHy Nucleus lateralis hypothalami
 LMD Lamina medullaris dorsalis
 N Neostriatum
 OM Tractus occipitomesencephalicus
 PA Paleostriatum augmentatum
 PP Paleostriatum primitivum

PVM Nucleus periventricularis magnocellularis
 QF Tractus quintofrontalis
 SL Nucleus septalis lateralis
 SM Nucleus septalis medialis
 TPO Area temporo-parieto-occipitalis (Edinger,
 Wallenberg, and Holmes)
 TSM Tractus septomesencephalicus
 V Ventriculus
 VLT Nucleus ventrolateralis thalami

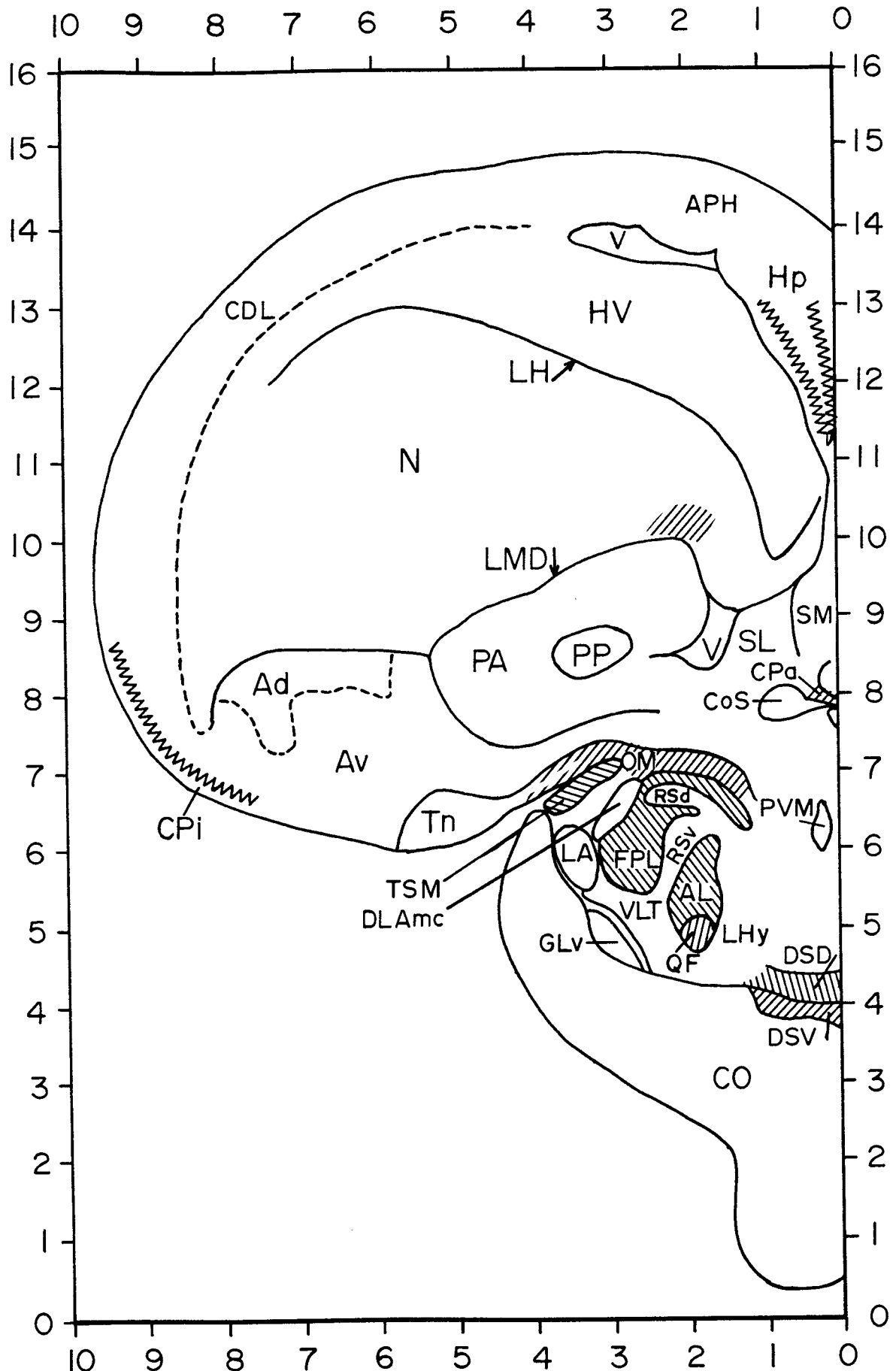


- | | | | |
|-----|---------------------------------|-----|---|
| Ad | Archistriatum, pars dorsalis. | CPa | Commissura pallii |
| AL | Ansa lenticularis | CPI | Cortex piriformis |
| Av | Archistriatum, pars ventralis | DSD | Decussatio supraoptica dorsalis |
| CDL | Area corticoidea dorsolateralis | DSV | Decussatio supraoptica ventralis |
| CO | Chiasma opticum | FPL | Fasciculus prosencephali lateralis |
| CoS | Nucleus commissuralis septi | GLV | Nucleus geniculatus lateralis, pars ventralis |



HA Hyperstriatum accessorium
 Hp Hippocampus
 HV Hyperstriatum ventrale
 LA Nucleus lateralis anterior thalami
 LFS Lamina frontalis superior
 LH Lamina hyperstriatica
 LH_y Nucleus lateralis hypothalami
 LMD Lamina medullaris dorsalis
 N Neostriatum
 OM Tractus occipitomesencephalicus
 PA Paleostriatum augmentatum
 PP Paleostriatum primitivum

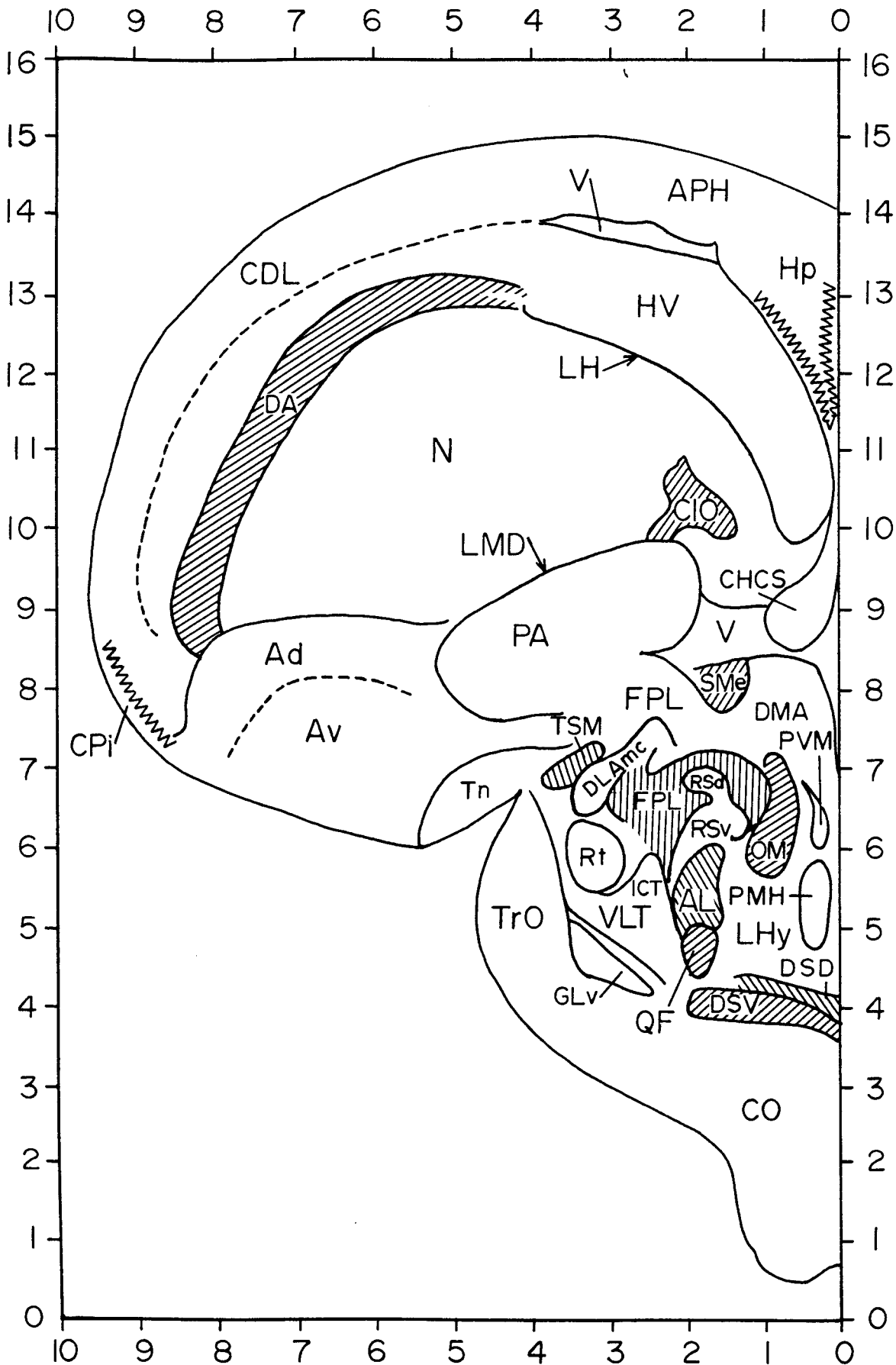
PVM Nucleus periventricularis magnocellularis
 QF Tractus quinfofrontalis
 RS_d Nucleus reticularis superior, pars dorsalis
 RS_v Nucleus reticularis superior, pars ventralis
 SL Nucleus septalis lateralis
 SM Nucleus septalis medialis
 Tn Nucleus taeniae
 TPO Area temporo-parieto-occipitalis (Edinger, Wallenberg, and Holmes)
 TSM Tractus septomesencephalicus
 V Ventriculus
 VLT Nucleus ventrolateralis thalami



- | | | | |
|-----|---------------------------------|-------|---|
| Ad | Archistriatum, pars dorsalis | CoS | Nucleus commissuralis septi |
| AL | Ansa lenticularis | CPa | Commissura pallii |
| APH | Area parahippocampalis | CPI | Cortex piriformis |
| Av | Archistriatum, pars ventralis | DLAmc | Nucleus dorsolateralis anterior thalami, pars magnocellularis |
| CDL | Area corticoidea dorsolateralis | DSD | Decussatio supraoptica dorsalis |
| CO | Chiasma opticum | | |



DSV	Decussatio supraoptica ventralis	PA	Paleostriatum augmentatum
FPL	Fasciculus prosencephali lateralis	PP	Paleostriatum primitivum
GLv	Nucleus geniculatus lateralis, pars ventralis	PVM	Nucleus periventricularis magnocellularis
Hp	Hippocampus	QF	Tractus quintofrontalis
HV	Hyperstriatum ventrale	RSd	Nucleus reticularis superior, pars dorsalis
LA	Nucleus lateralis anterior thalami	RSv	Nucleus reticularis superior, pars ventralis
LH	Lamina hyperstriatica	SL	Nucleus septalis lateralis
LHy	Nucleus lateralis hypothalami	SM	Nucleus septalis medialis
LMD	Lamina medullaris dorsalis	Tn	Nucleus taeniae
N	Neostriatum	TSM	Tractus septomesencephalicus
OM	Tractus occipitomesencephalicus	V	Ventriculus
		VLT	Nucleus ventrolateralis thalami



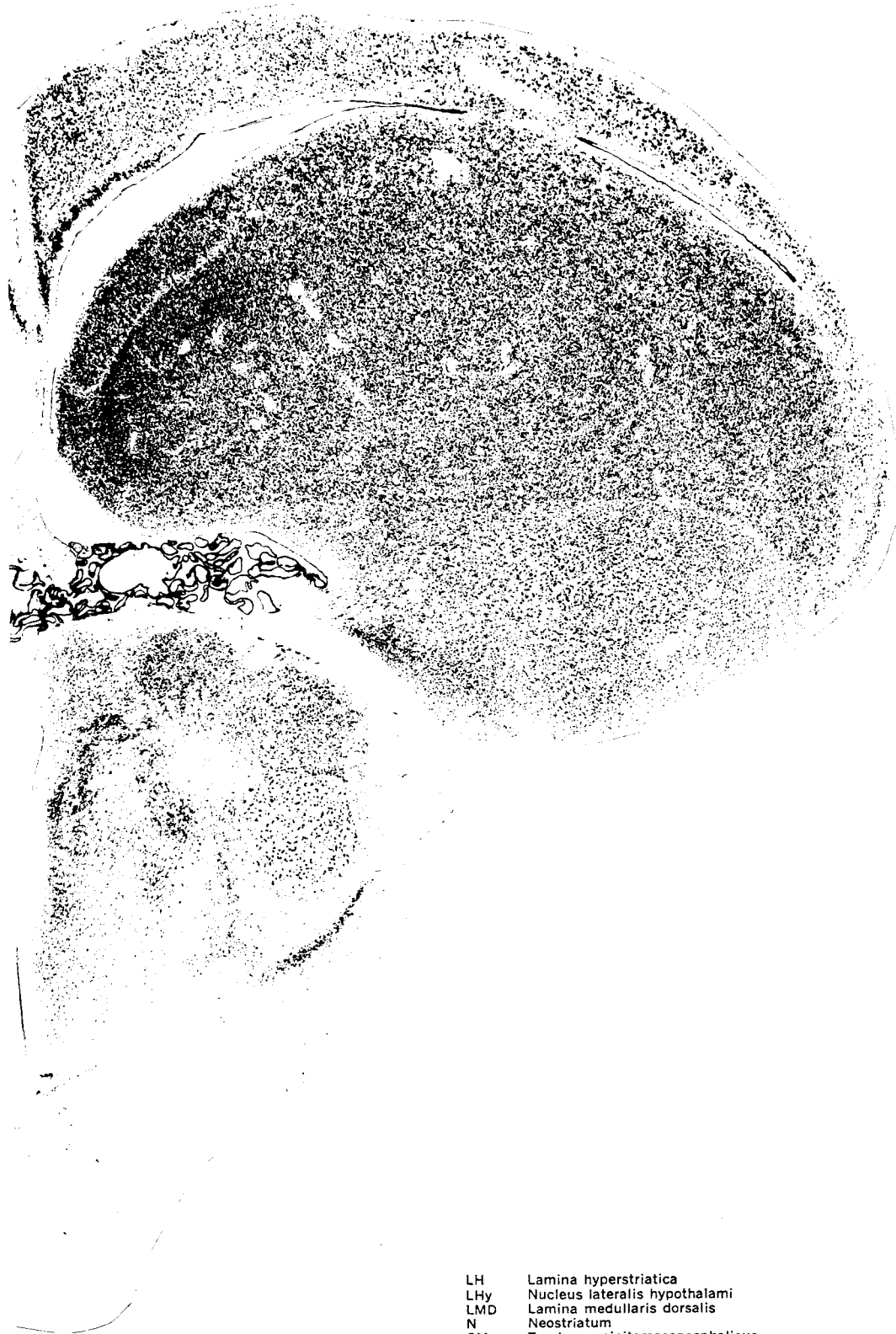
Ad	Archistriatum, pars dorsalis
AL	Ansa lenticularis
APH	Area parahippocampalis
Av	Archistriatum, pars ventralis
CDL	Area corticoidea dorsolateralis
CHCS	Tractus cortico-habenularis et cortico-septalis

CIO	Capsula interna occipitalis
CO	Chiasma opticum
CPI	Cortex piriformis
DA	Tractus archistriatalis dorsalis
DLAmc	Nucleus dorsolateralis anterior thalami, pars magnocellularis

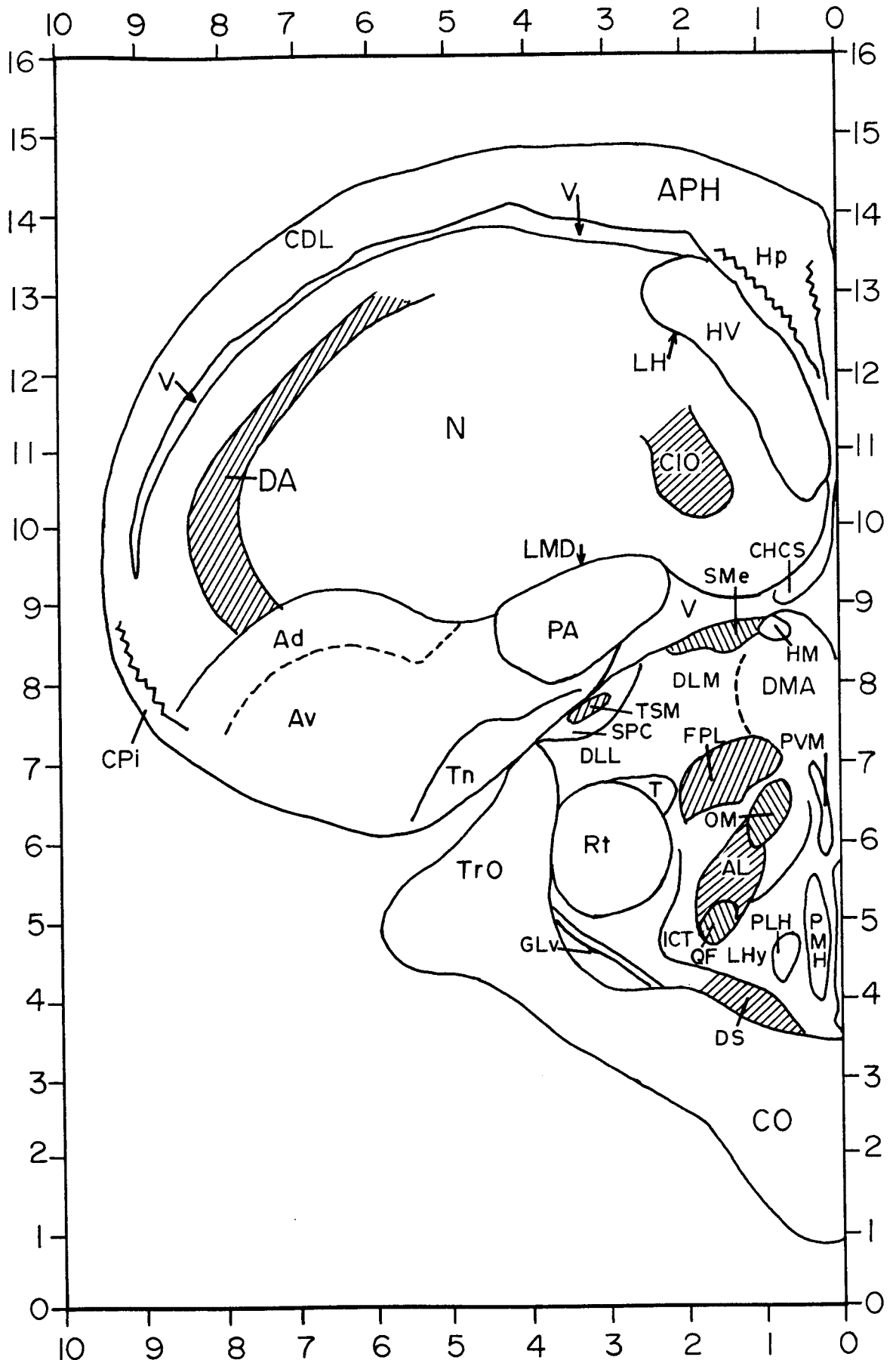


DMA Nucleus dorsomedialis anterior thalami
 DSD Decussatio supraoptica dorsalis
 DSV Decussatio supraoptica ventralis
 FPL Fasciculus prosencephali lateralis
 GLV Nucleus geniculatus lateralis, pars ventralis
 Hp Hippocampus
 HV Hyperstriatum ventrale
 ICT Nucleus intercalatus thalami
 LH Lamina hyperstriatica
 LHy Nucleus lateralis hypothalami

LMD Lamina medullaris dorsalis
 N Neostriatum
 OM Tractus occipitomesencephalicus
 PA Paleostriatum augmentatum
 PMH Nucleus medialis hypothalami posterioris
 PVM Nucleus periventricularis magnocellularis
 QF Tractus quinfofrontalis
 RSd Nucleus reticularis superior, pars dorsalis
 RSv Nucleus reticularis superior, pars ventralis
 Rt Nucleus rotundus
 SMe Stria medullaris
 Tn Nucleus taeniae
 TrO Tractus opticus
 TSM Tractus septomesencephalicus
 V Ventriculus
 VLT Nucleus ventrolateralis thalami

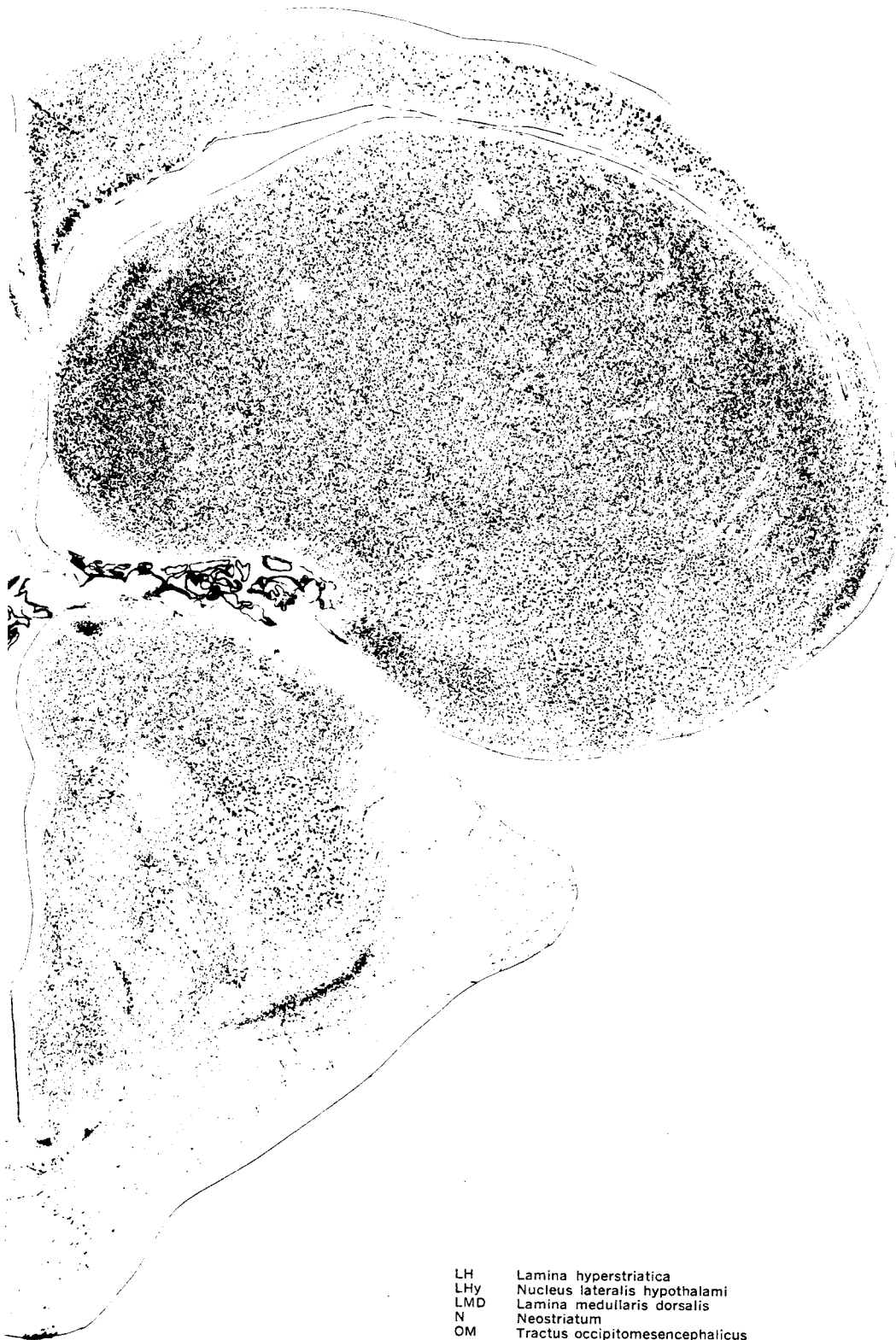


DLM	Nucleus dorsolateralis anterior thalami, pars medialis	LH	Lamina hyperstriatica
DMA	Nucleus dorsomedialis anterior thalami	LHy	Nucleus lateralis hypothalami
DSD	Decussatio supraoptica dorsalis	LMD	Lamina medullaris dorsalis
DSV	Decussatio supraoptica ventralis	N	Neostriatum
FPL	Fasciculus prosencephali lateralis	OM	Tractus occipitomesencephalicus
GLv	Nucleus geniculatus lateralis, pars ventralis	PA	Paleostriatum augmentatum
Hp	Hippocampus	PMH	Nucleus medialis hypothalami posterioris
HV	Hyperstriatum ventrale	PVM	Nucleus periventricularis magnocellularis
ICT	Nucleus intercalatus thalami	QF	Tractus quintofrontalis
		RSd	Nucleus reticularis superior, pars dorsalis
		Rt	Nucleus rotundus
		SME	Stria medullaris
		Tn	Nucleus taeniae
		TrO	Tractus opticus
		TSM	Tractus septomesencephalicus
		V	Ventriculus



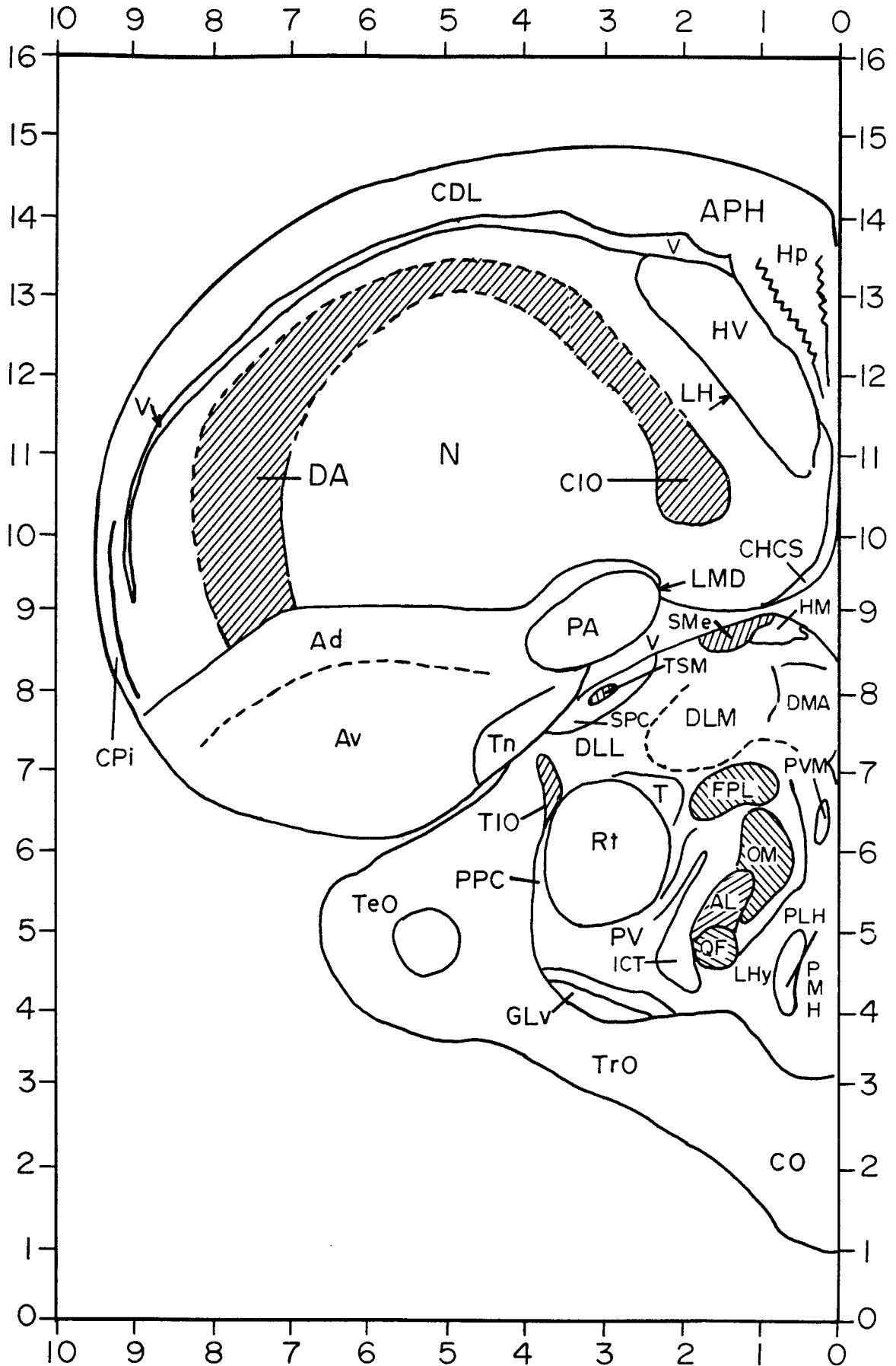
Ad Archistriatum, pars dorsalis
 AL Ansa lenticularis
 APH Area parahippocampalis
 Av Archistriatum, pars ventralis
 CDL Area corticoidea dorsolateralis
 CHCS Tractus cortico-habenularis et cortico-septalis

CIO Capsula interna occipitalis
 CO Chiasma opticum
 CPi Cortex piriformis
 DA Tractus archistriatalis dorsalis
 DLL Nucleus dorsolateralis anterior thalami, pars lateralis

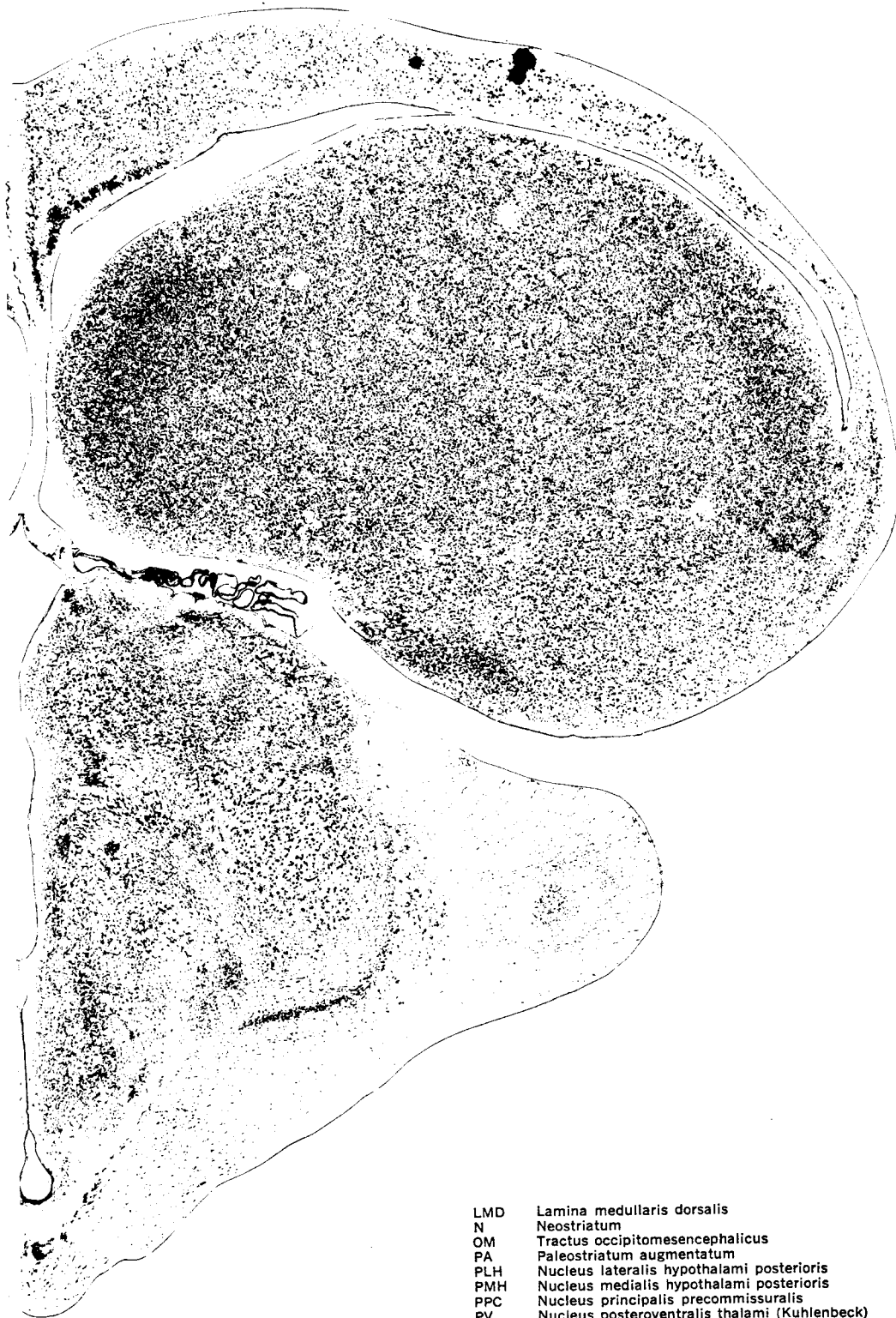


DLM Nucleus dorsolateralis anterior thalami, pars
 medialis
 DMA Nucleus dorsomedialis anterior thalami
 DS Decussatio supraoptica
 FPL Fasciculus prosencephali lateralis
 GLV Nucleus geniculatus lateralis, pars ventralis
 HM Nucleus habenularis medialis
 Hp Hippocampus
 HV Hyperstriatum ventrale
 ICT Nucleus intercalatus thalami

LH Lamina hyperstriatica
 LHy Nucleus lateralis hypothalami
 LMD Lamina medullaris dorsalis
 N Neostriatum
 OM Tractus occipitomesencephalicus
 PA Paleostriatum augmentatum
 PLH Nucleus lateralis hypothalami posterioris
 PMH Nucleus medialis hypothalami posterioris
 PVM Nucleus periventricularis magno-cellularis
 QF Tractus quintofrontalis
 Rt Nucleus rotundus
 SME Stria medullaris
 SPC Nucleus superficialis parvocellularis (Nucleus
 tractus septomesencephalici)
 T Nucleus triangularis
 Tn Nucleus taeniae
 TrO Tractus opticus
 TSM Tractus septomesencephalicus
 V Ventriculus

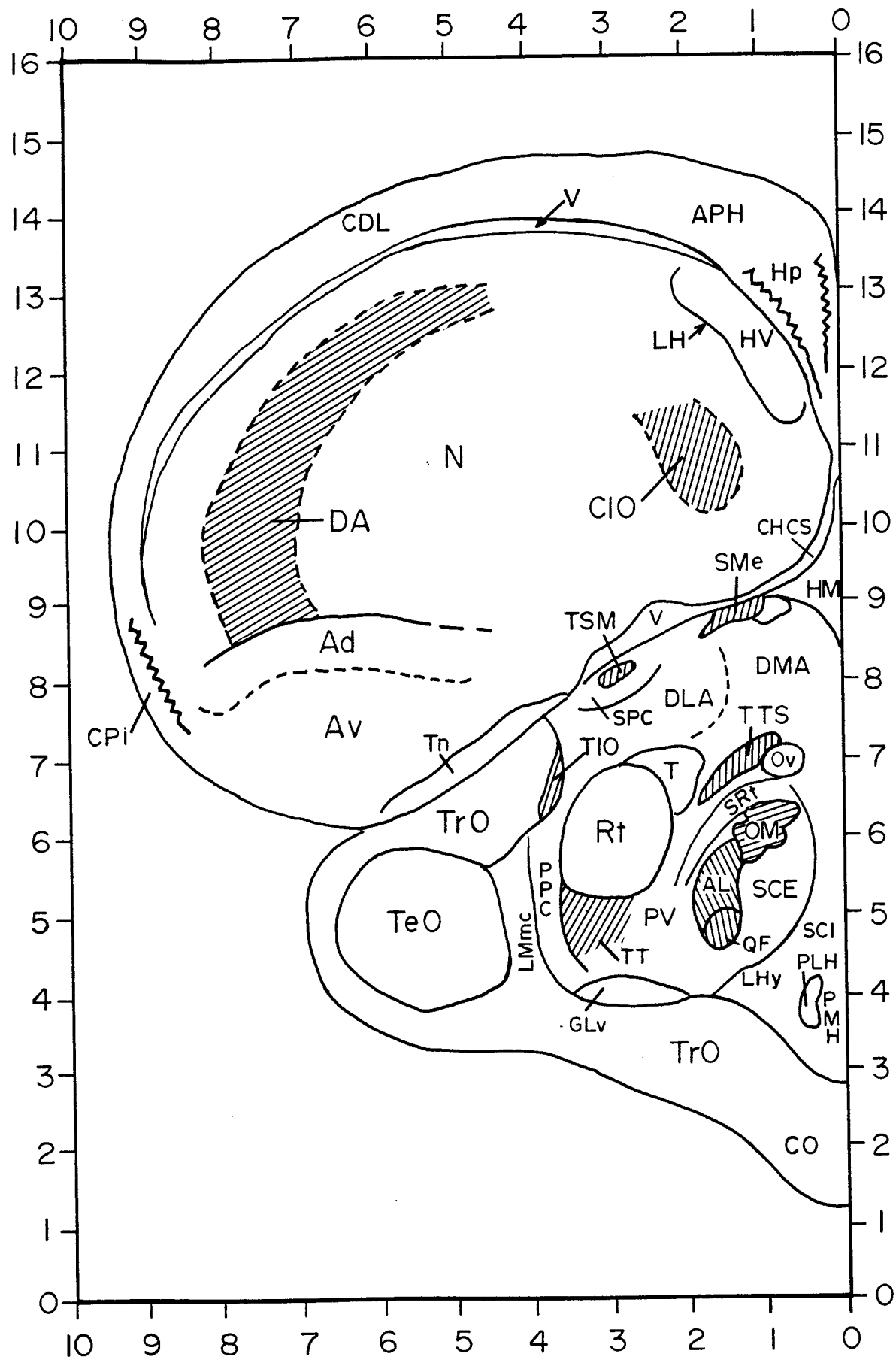


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|------|---|-----|---|
| Ad | Archistriatum, pars dorsalis | CIO | Capsula interna occipitalis |
| AL | Ansa lenticularis | CO | Chiasma opticum |
| APH | Area parahippocampalis | CPI | Cortex piriformis |
| Av | Archistriatum, pars ventralis | DA | Tractus archistriatalis dorsalis |
| CDL | Area corticoidea dorsolateralis | DLL | Nucleus dorsolateralis anterior thalami, pars lateralis |
| CHCS | Tractus cortico-habularis et cortico-septalis | | |



DLM Nucleus dorsolateralis anterior thalami, pars medialis
 DMA Nucleus dorsomedialis anterior thalami
 FPL Fasciculus prosencephali lateralis
 GLV Nucleus geniculatus lateralis, pars ventralis
 HM Nucleus habenularis medialis
 Hp Hippocampus
 HV Hyperstriatum ventrale
 ICT Nucleus intercalatus thalami
 LH Lamina hyperstriatica
 LHv Nucleus lateralis hypothalami

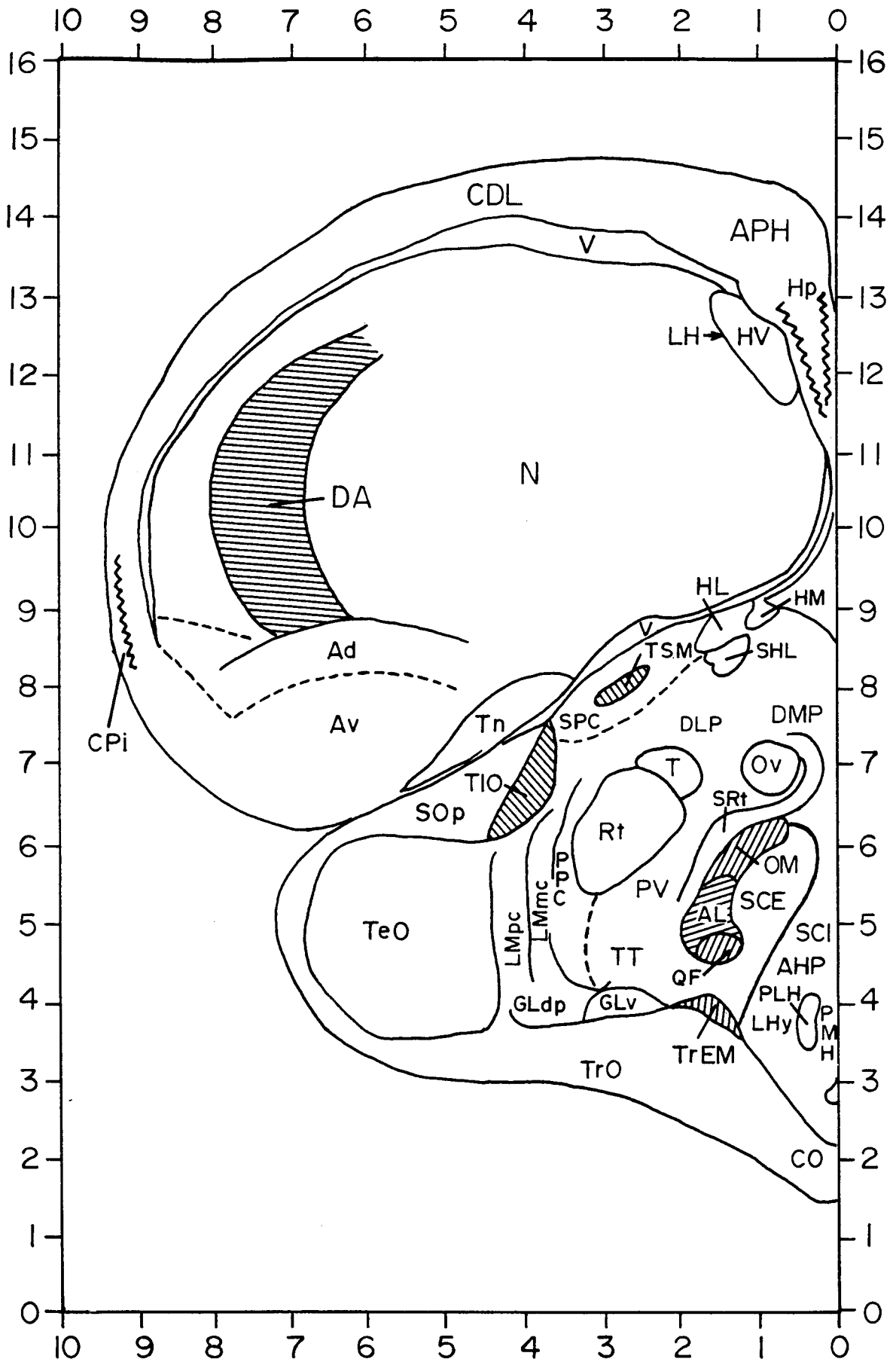
LMD Lamina medullaris dorsalis
 N Neostriatum
 OM Tractus occipitomesencephalicus
 PA Paleostriatum augmentatum
 PLH Nucleus lateralis hypothalami posterioris
 PMH Nucleus medialis hypothalami posterioris
 PPC Nucleus principalis precommissuralis
 PV Nucleus posteroventralis thalami (Kuhlenbeck)
 PVM Nucleus periventricularis magnocellularis
 QF Tractus quintofrontalis
 Rt Nucleus rotundus
 SMe Stria medullaris
 SPC Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
 T Nucleus triangularis
 TeO Tectum opticum
 TIO Tractus isthmo-opticus
 Tn Nucleus taeniae
 TrO Tractus opticus
 TSM Tractus septomesencephalicus
 V Ventriculus



Ad	Archistriatum, pars dorsalis	CIO	Capsula interna occipitalis
AL	Ansa lenticularis	CO	Chiasma opticum
APH	Area parahippocampalis	CPI	Cortex piriformis
Av	Archistriatum, pars ventralis	DA	Tractus archistriatalis dorsalis
CDL	Area corticoidea dorsolateralis	DLA	Nucleus dorsolateralis anterior thalami
CHCS	Tractus cortico-habularis et cortico-septalis	DMA	Nucleus dorsomedialis anterior thalami



GLV	Nucleus geniculatus lateralis, pars ventralis	PLH	Nucleus lateralis hypothalami posterioris
HM	Nucleus habenularis medialis	PMH	Nucleus medialis hypothalami posterioris
Hp	Hippocampus	PPC	Nucleus principalis precommissuralis
HV	Hyperstriatum ventrale	PV	Nucleus posteroventralis thalami (Kuhlenbeck)
LH	Lamina hyperstriatica	QF	Tractus quinfofrontalis
LHy	Nucleus lateralis hypothalami	Rt	Nucleus rotundus
LMmc	Nucleus lentiformis mesencephali, pars magnocellularis	SCE	Stratum cellulare externum
N	Neostriatum	SCI	Stratum cellulare internum
OM	Tractus occipitomesencephalicus	SMe	Stria medullaris
Ov	Nucleus ovoidalis	SPC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
		SRT	Nucleus subrotundus
		T	Nucleus triangularis
		TeO	Tectum opticum
		TIO	Tractus isthmo-opticus
		Tn	Nucleus taeniae
		TrO	Tractus opticus
		TSM	Tractus septomesencephalicus
		TT	Tractus tectothalamicus
		TTS	Tractus thalamostriaticus
		V	Ventriculus

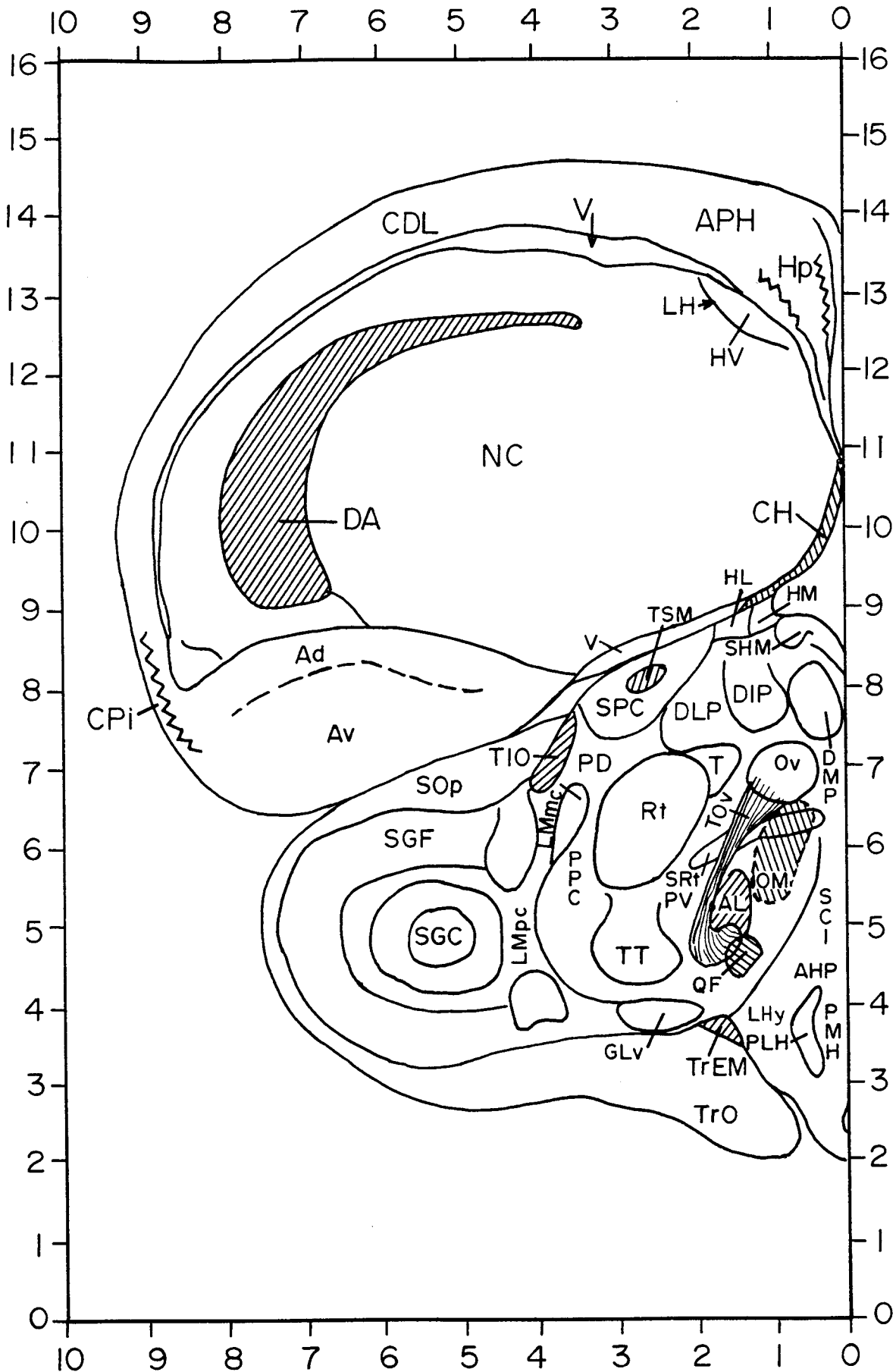


Ad Archistriatum, pars dorsalis
 AHP Area hypothalami posterioris
 AL Ansa lenticularis
 APH Area parahippocampalis
 Av Archistriatum, pars ventralis
 CDL Area corticoidea dorsolateralis

CO Chiasma opticum
 CPI Cortex piriformis
 DA Tractus archistriatalis dorsalis
 DLP Nucleus dorsolateralis posterior thalami
 DMP Nucleus dorsomedialis posterior thalami
 GLdp Nucleus geniculatus lateralis, pars dorsalis principalis



- | | | | |
|------|--|------|---|
| GLv | Nucleus geniculatus lateralis, pars ventralis | N | Neostriatum |
| HL | Nucleus habenularis lateralis | OM | Tractus occipitomesencephalicus |
| HM | Nucleus habenularis medialis | Ov | Nucleus ovoidalis |
| Hp | Hippocampus | PLH | Nucleus lateralis hypothalami posterioris |
| HV | Hyperstriatum ventrale | PMH | Nucleus medialis hypothalami posterioris |
| LH | Lamina hyperstriatica | PPC | Nucleus principalis precommissuralis |
| LHy | Nucleus lateralis hypothalami | PV | Nucleus posteroventralis thalami (Kuhlenbeck) |
| LMmc | Nucleus lentiformis mesencephali, pars magnocellularis | QF | Tractus quintofrontalis |
| LMpc | Nucleus lentiformis mesencephali, pars parvocellularis | Rt | Nucleus rotundus |
| | | SCE | Stratum cellulare externum |
| | | SCI | Stratum cellulare internum |
| | | SHL | Nucleus subhabenularis lateralis |
| | | SOP | Stratum opticum |
| | | SPC | Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici) |
| | | SRT | Nucleus subrotundus |
| | | T | Nucleus triangularis |
| | | TeO | Tectum opticum |
| | | TIO | Tractus isthmo-opticus |
| | | Tn | Nucleus taeniae |
| | | TrEM | Tractus nuclei ectomamillaris (basal optic root) |
| | | TrO | Tractus opticus |
| | | TSM | Tractus septomesencephalicus |
| | | V | Ventriculus |

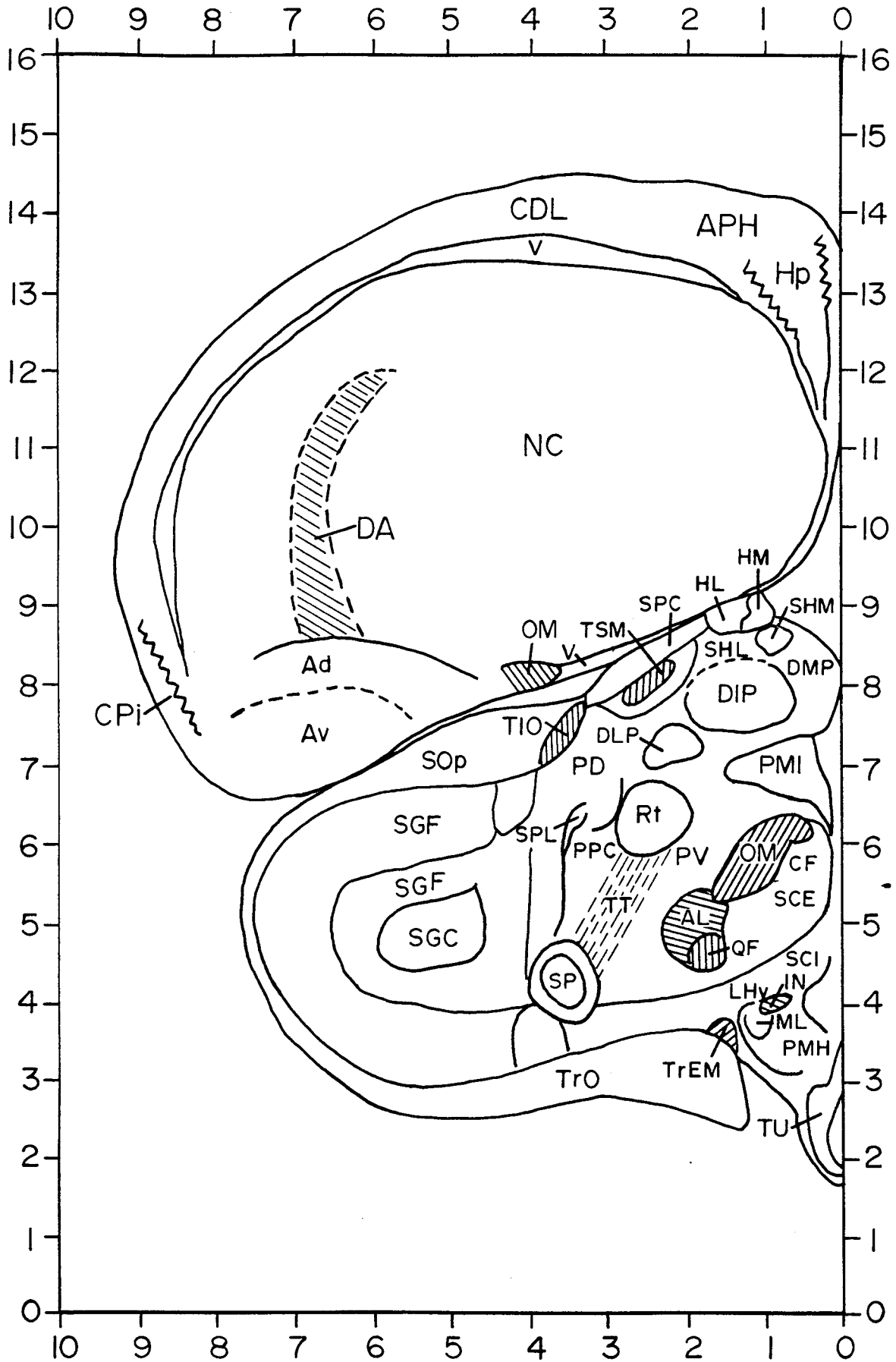


Ad	Archistriatum, pars dorsalis	CH	Tractus cortico-habenularis
AL	Ansa lenticularis	CPI	Cortex piriformis
AHP	Area hypothalami posterioris	DA	Tractus archistriatalis dorsalis
APH	Area parahippocampalis	DIP	Nucleus dorsointermedius posterior thalami
Av	Archistriatum, pars ventralis	DLP	Nucleus dorsolateralis posterior thalami
CDL	Area corticoidea dorsolateralis	DMP	Nucleus dorsomedialis posterior thalami



GLV Nucleus geniculatus lateralis, pars ventralis
 HL Nucleus habenularis lateralis
 HM Nucleus habenularis medialis
 Hp Hippocampus
 HV Hyperstriatum ventrale
 LH Lamina hyperstriatica
 LHy Nucleus lateralis hypothalami
 LMpc Nucleus lentiformis mesencephali, pars parvocellularis
 NC Neostriatum caudale
 OM Tractus occipitomesencephalicus
 Ov Nucleus ovoidalis
 PD Nucleus pretectalis diffusus
 PLH Nucleus lateralis hypothalami posterioris
 PMH Nucleus medialis hypothalami posterioris

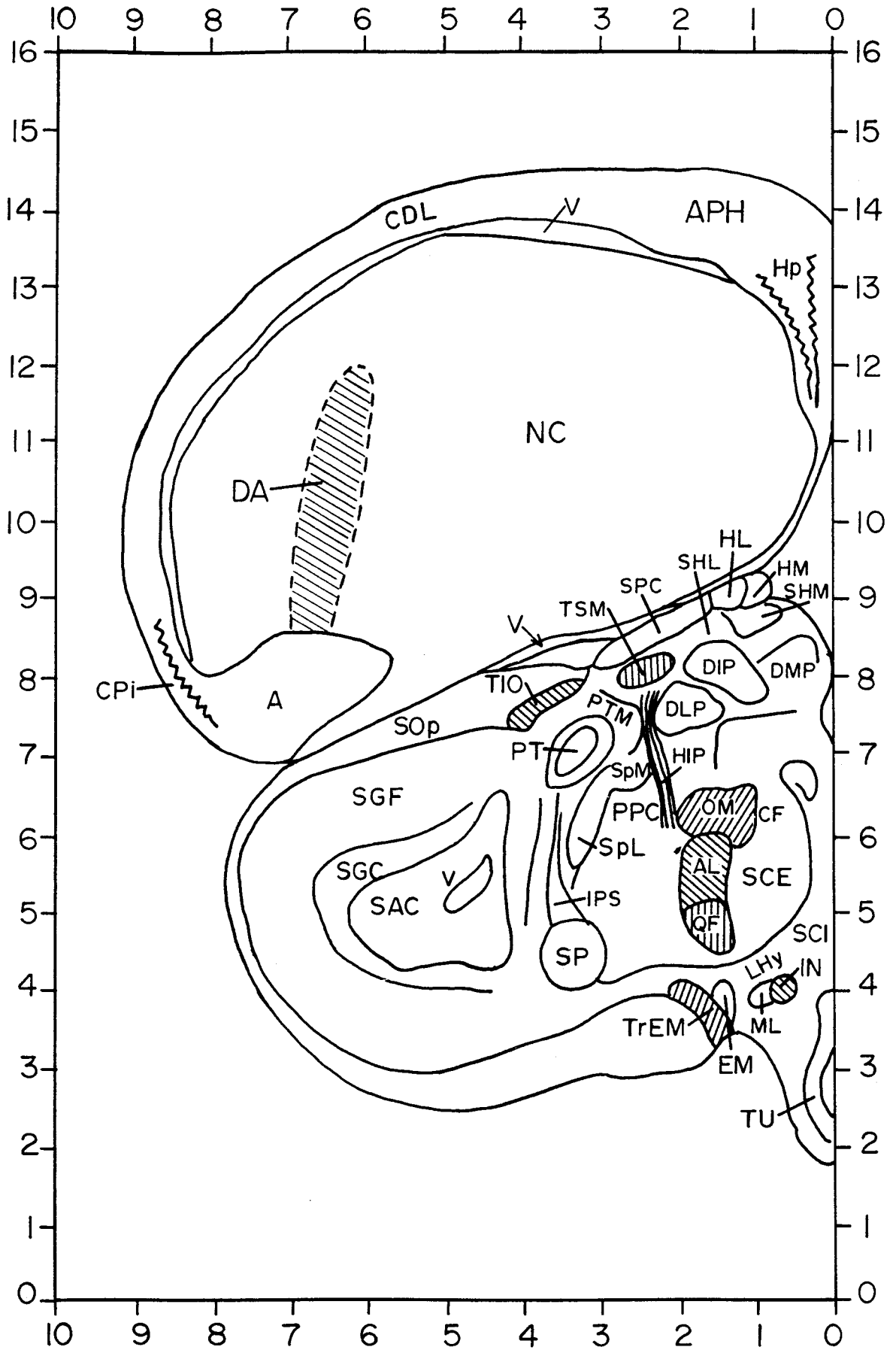
PPC Nucleus principalis precommissuralis
 PV Nucleus posteroventralis thalami (Kuhlenbeck)
 QF Tractus quintofrontalis
 Rt Nucleus rotundus
 SCl Stratum cellulare internum
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SHM Nucleus subhabenularis medialis
 SOP Stratum opticum
 SPC Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
 SRT Nucleus subrotundus
 T Nucleus triangularis
 TOv Tractus nuclei ovoidalis
 TIO Tractus isthmo-opticus
 TrEM Tractus nuclei ectomamillaris (basal optic root)
 TrO Tractus opticus
 TSM Tractus septomesencephalicus
 TT Tractus tectothalamicus
 V Ventriculus



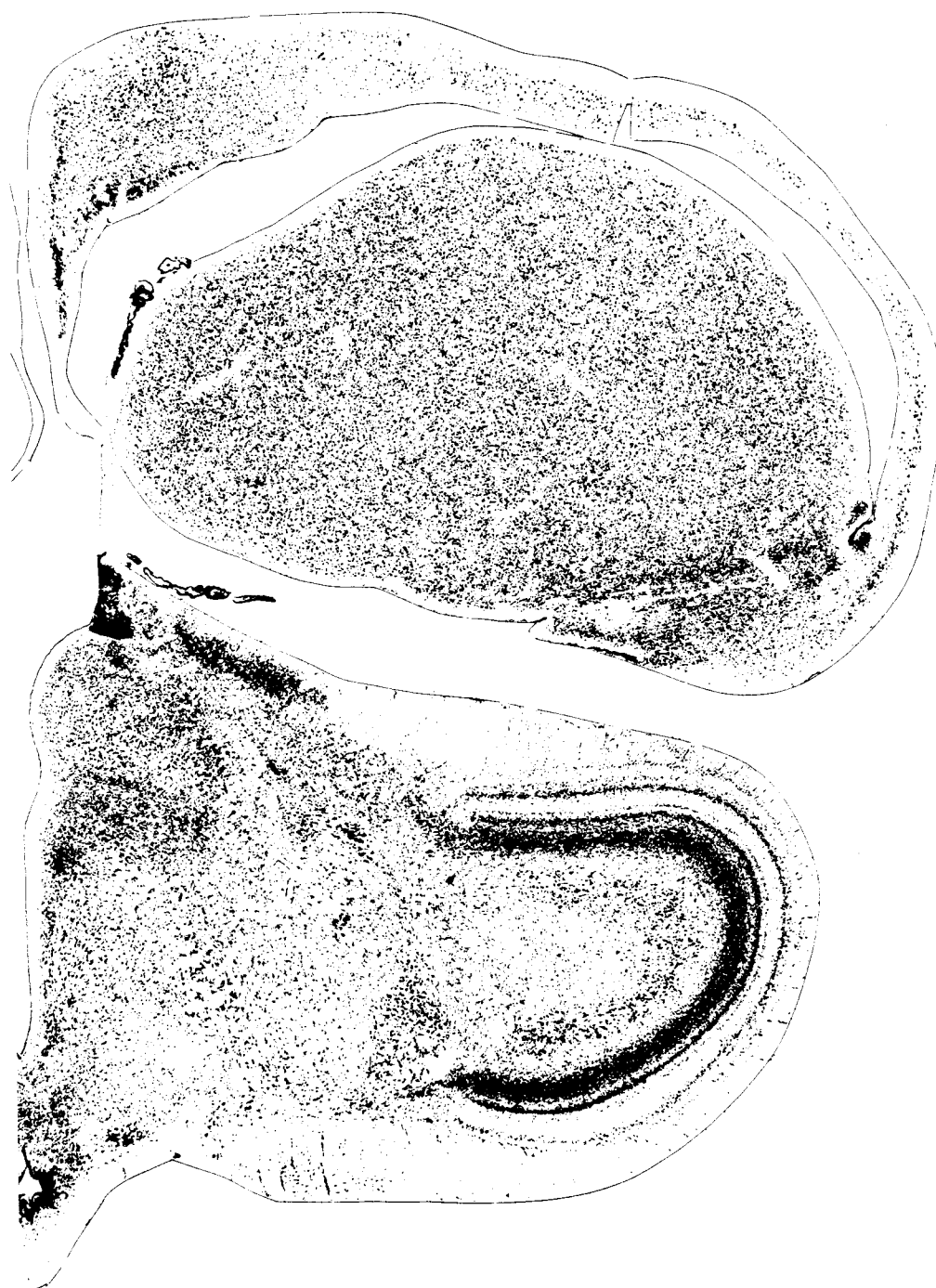
Ad	Archistriatum, pars dorsalis	DA	Tractus archistriatalis dorsalis
AL	Ansa lenticularis	DIP	Nucleus dorsointermedius posterior thalami
APH	Area parahippocampalis	DLP	Nucleus dorsolateralis posterior thalami
Av	Archistriatum, pars ventralis	DMP	Nucleus dorsomedialis posterior thalami
CDL	Area corticoidea dorsolateralis	HL	Nucleus habenularis lateralis
CF	Campi Forelli	HM	Nucleus habenularis medialis
CPI	Cortex piriformis	Hp	Hippocampus



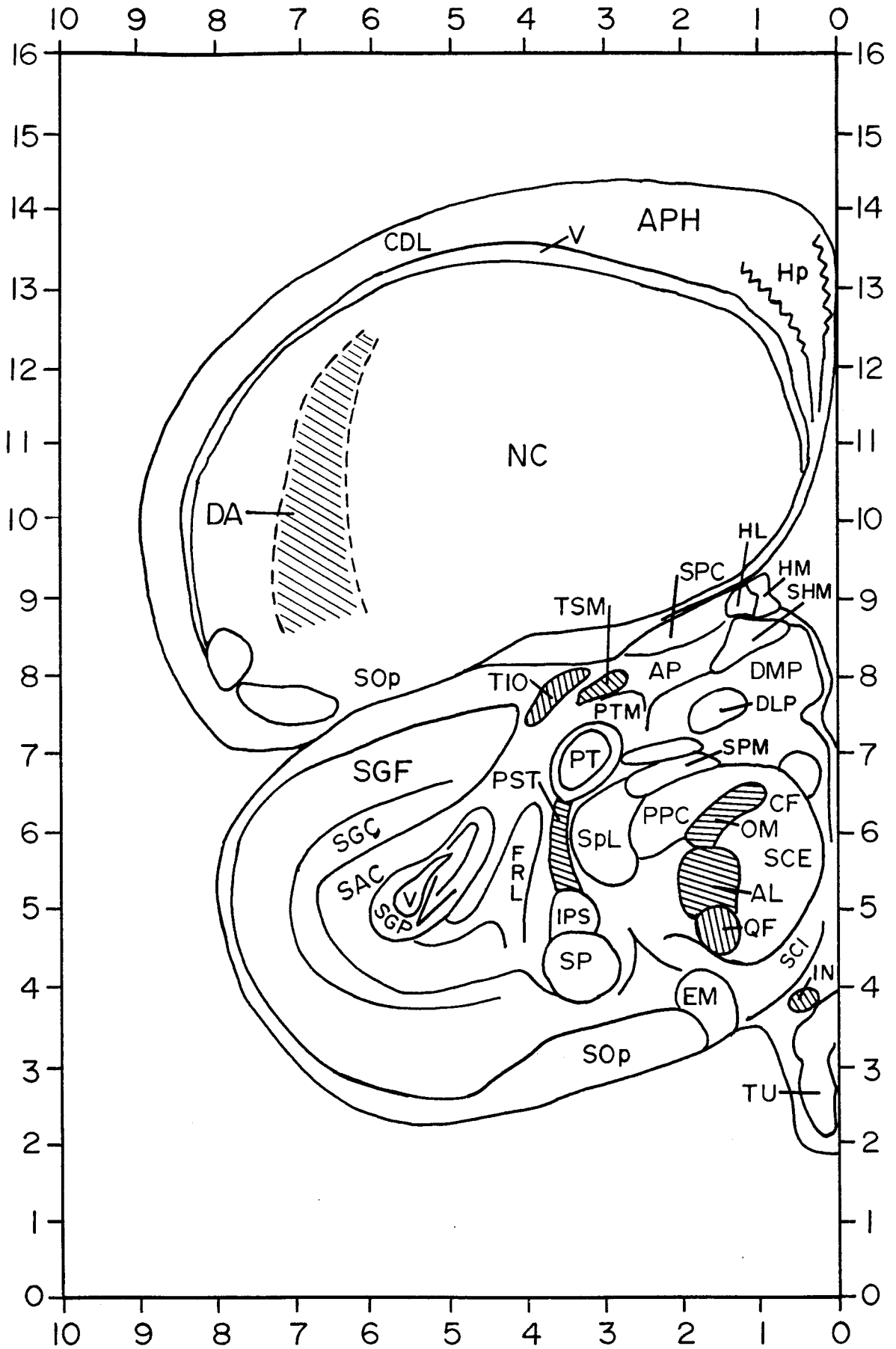
IN	Tractus infundibularis	SCE	Stratum cellulare externum
LHy	Nucleus lateralis hypothalami	SCI	Stratum cellulare internum
ML	Nucleus mamillaris lateralis	SGC	Stratum griseum centrale
NC	Neostriatum caudale	SGF	Stratum griseum et fibrosum superficiale
OM	Tractus occipitomesencephalicus	SHL	Nucleus subhabenularis lateralis
PD	Nucleus pretectalis diffusus	SHM	Nucleus subhabenularis medialis
PMH	Nucleus medialis hypothalami posterioris	SOP	Stratum opticum
PMI	Nucleus paramedianus internus thalami	SP	Nucleus subpretectalis
PPC	Nucleus principalis precommissuralis	SPC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
PV	Nucleus posteroventralis thalami (Kuhlenbeck)	SpL	Nucleus spiriformis lateralis
QF	Tractus quintofrontalis	TIO	Tractus isthmo-opticus
Rt	Nucleus rotundus	TSM	Tractus septomesencephalicus
		TrEM	Tractus nuclei ectomamillaris (basal optic root)
		TrO	Tractus opticus
		TT	Tractus tectothalamicus
		TU	Nucleus tuberos
		V	Ventriculus



A	Archistriatum	DIP	Nucleus dorsointermedius posterior thalami
AL	Ansa lenticularis	DLP	Nucleus dorsolateralis posterior thalami
APH	Area parahippocampalis	DMP	Nucleus dorsomedialis posterior thalami
CDL	Area corticoidea dorsolateralis	EM	Nucleus ectomammillaris
CF	Campi Forelli	HIP	Tractus habenulo-interpeduncularis
CPI	Cortex piriformis	HL	Nucleus habenularis lateralis
DA	Tractus archistriatalis dorsalis	HM	Nucleus habenularis medialis



Hp	Hippocampus	SGC	Stratum griseum centrale
IN	Nucleus infundibularis	SGF	Stratum griseum et fibrosum superficiale
IPS	Nucleus interstitio-preecto-subpretectalis	SHL	Nucleus subhabenularis lateralis
LHy	Nucleus lateralis hypothalami	SHM	Nucleus subhabenularis medialis
ML	Nucleus mamilaris lateralis	SOP	Stratum opticum
NC	Neostriatum caudale	SP	Nucleus subpretectalis
OM	Tractus occipitomesencephalicus	SPC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
PPC	Nucleus principalis precommissuralis	SpL	Nucleus spiriformis lateralis
PT	Nucleus pretectalis	SpM	Nucleus spiriformis medialis
PTM	Nucleus pretectalis medialis	TrEM	Tractus nuclei ectomamillaris (basal optic root)
QF	Tractus quintofrontalis	TIO	Tractus isthmo-opticus
SAC	Stratum album centrale	TSM	Tractus septomesencephalicus
SCE	Stratum cellulare externum	TU	Nucleus tuberosus
SCI	Stratum cellulare internum	V	Ventriculus

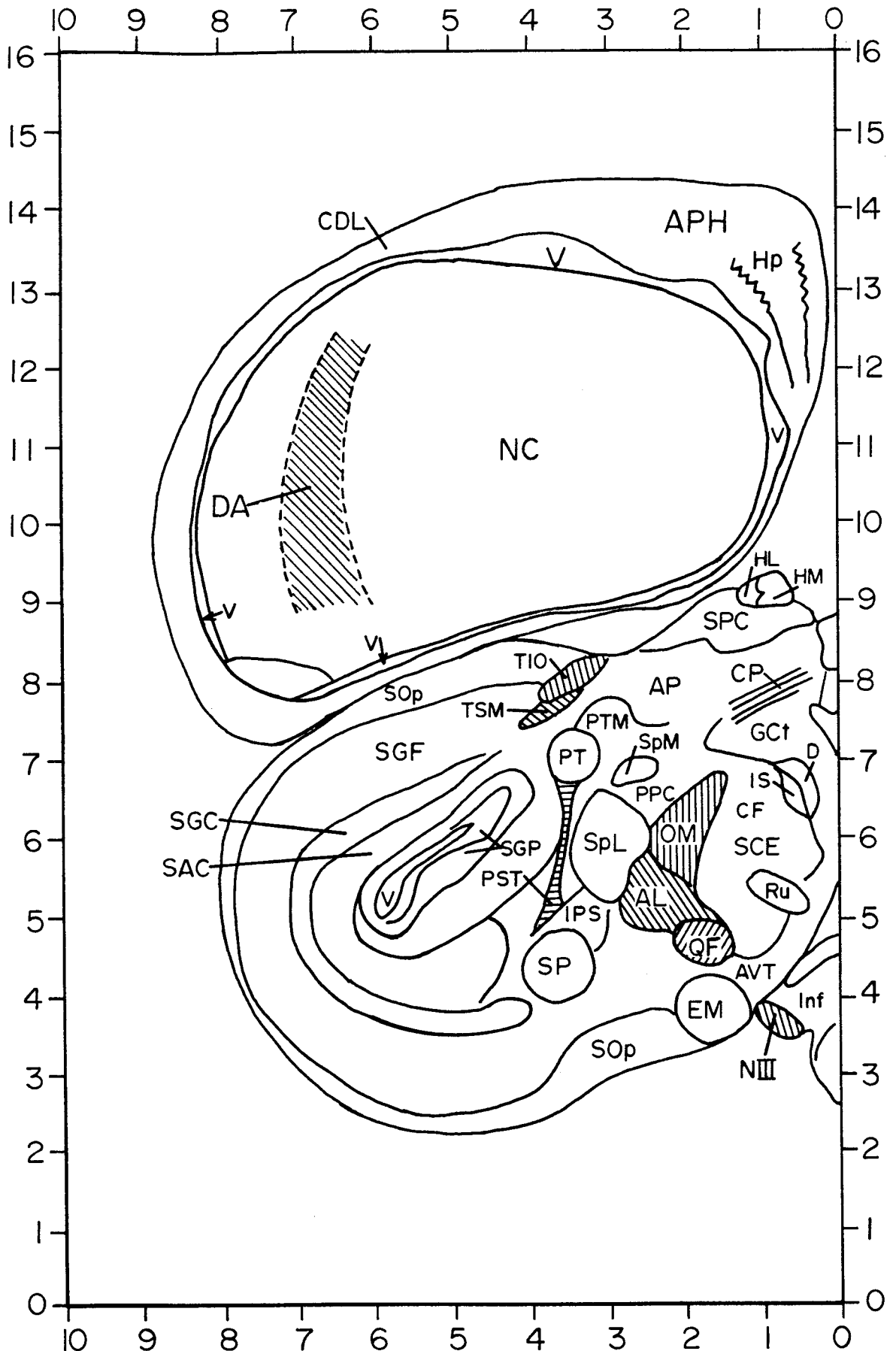


AP	Area pretektalis	DMP	Nucleus dorsomedialis posterior thalami
AL	Ansa lenticularis	EM	Nucleus ectomamillaris
APH	Area parahippocampalis	FRL	Formatio reticularis lateralis mesencephali
CDL	Area corticoidea dorsolateralis	HL	Nucleus habenularis lateralis
CF	Campi Forelli	HM	Nucleus habenularis medialis
DA	Tractus archistriatalis dorsalis	HP	Hippocampus
DLP	Nucleus dorsolateralis posterior thalami	IN	Tractus infundibularis



IPS Nucleus interstitio-prepecto-subprepectalis
 NC Neostriatum caudale
 OM Tractus occipitomesencephalicus
 PPC Nucleus principalis precommissuralis
 PST Tractus prepecto-subprepectalis
 PT Nucleus prepectalis
 PTM Nucleus prepectalis medialis
 QF Tractus quintofrontalis
 SAC Stratum album centrale
 SCE Stratum cellulare externum
 SCI Stratum cellulare internum
 SGC Stratum griseum centrale

SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SHM Nucleus subhabenularis medialis
 SOP Stratum opticum
 SP Nucleus subprepectalis
 SPC Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
 SpL Nucleus spiriformis lateralis
 SpM Nucleus spiriformis medialis
 TIO Tractus isthmo-opticus
 TSM Tractus septomesencephalicus
 TU Nucleus tuberis
 V Ventriculus

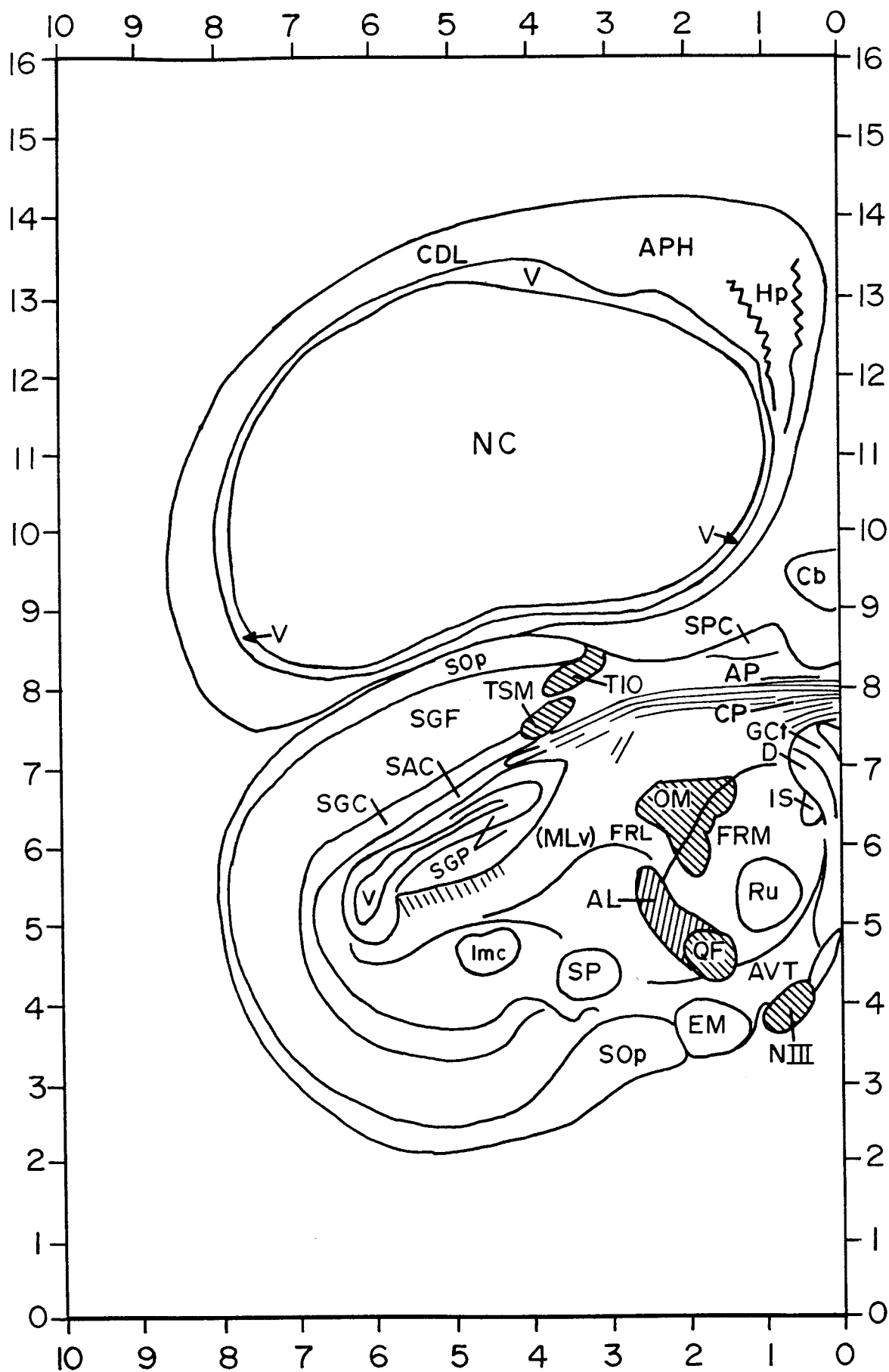


AL Ansa lenticularis
 AP Area pretecalis
 APH Area parahippocamalis
 AVT Area ventralis (Tsal)
 CDL Area corticoidea dorsolateralis
 CF Campi Forelli
 CP Commissura posterior

D Nucleus of Darkschewitsch
 DA Tractus archistriatalis dorsalis
 EM Nucleus ectomamillaris
 Gct Substantia grisea centralis
 HL Nucleus habenularis lateralis
 HM Nucleus habenularis medialis
 Hp Hippocampus



Inf	Infundibulum	SAC	Stratum album centrale
IPS	Nucleus interstitialis-pretecto-subpretectalis	SCE	Stratum cellulare externum
IS	Nucleus interstitialis (Cajal)	SGC	Stratum griseum centrale
NIII	Nervus oculomotorius	SGF	Stratum griseum et fibrosum superficiale
NC	Neostriatum caudale	SGP	Substantia grisea et fibrosa periventricularis
OM	Tractus occipitomesencephalicus	SOp	Stratum opticum
PPC	Nucleus principalis precommissuralis	SP	Nucleus subpretectalis
PST	Tractus pretecto-subpretectalis	SpL	Nucleus spiriformis lateralis
PT	Nucleus pretectalis	SpM	Nucleus spiriformis medialis
PTM	Nucleus pretectalis medialis	SPC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
QF	Tractus quinfrofrontalis	TIO	Tractus isthmo-opticus
Ru	Nucleus ruber	TSM	Tractus septomesencephalicus
		V	Ventriculus



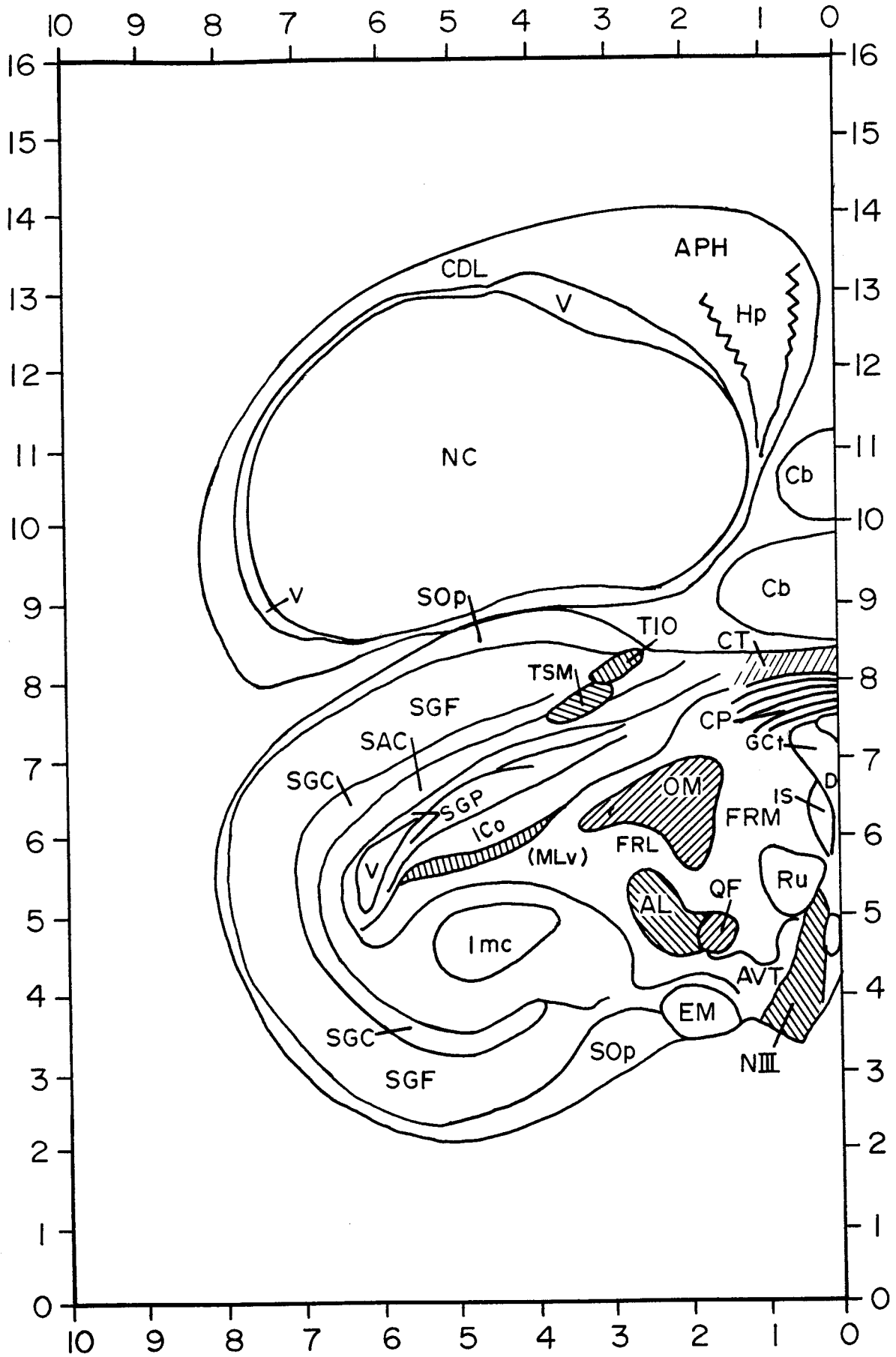
AL Ansa lenticularis
 AP Area pretektalis
 APH Area parahippocampalis
 AVT Area ventralis (Tsal)
 Cb Cerebellum
 CDL Area corticoidea dorsolateralis

CP Commissura posterior
 D Nucleus of Darkschewitsch
 EM Nucleus ectomamillaris
 FRL Formatio reticularis lateralis mesencephali
 FRM Formatio reticularis medialis mesencephali
 GCT Substantia grisea centralis



Hp Hippocampus
 lmc Nucleus isthmi, pars magnocellularis
 IS Nucleus interstitialis (Cajal)
 MLv Nucleus mesencephalicus lateralis, pars ventralis
 NC Neostriatum caudale
 NIII Nervus oculomotorius
 OM Tractus occipitomesencephalicus
 QF Tractus quintofrontalis
 Ru Nucleus ruber

SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SOP Stratum opticum
 SP Nucleus subpretectalis
 SPC Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
 TIO Tractus isthmo-opticus
 TSM Tractus septomesencephalicus
 V Ventriculus

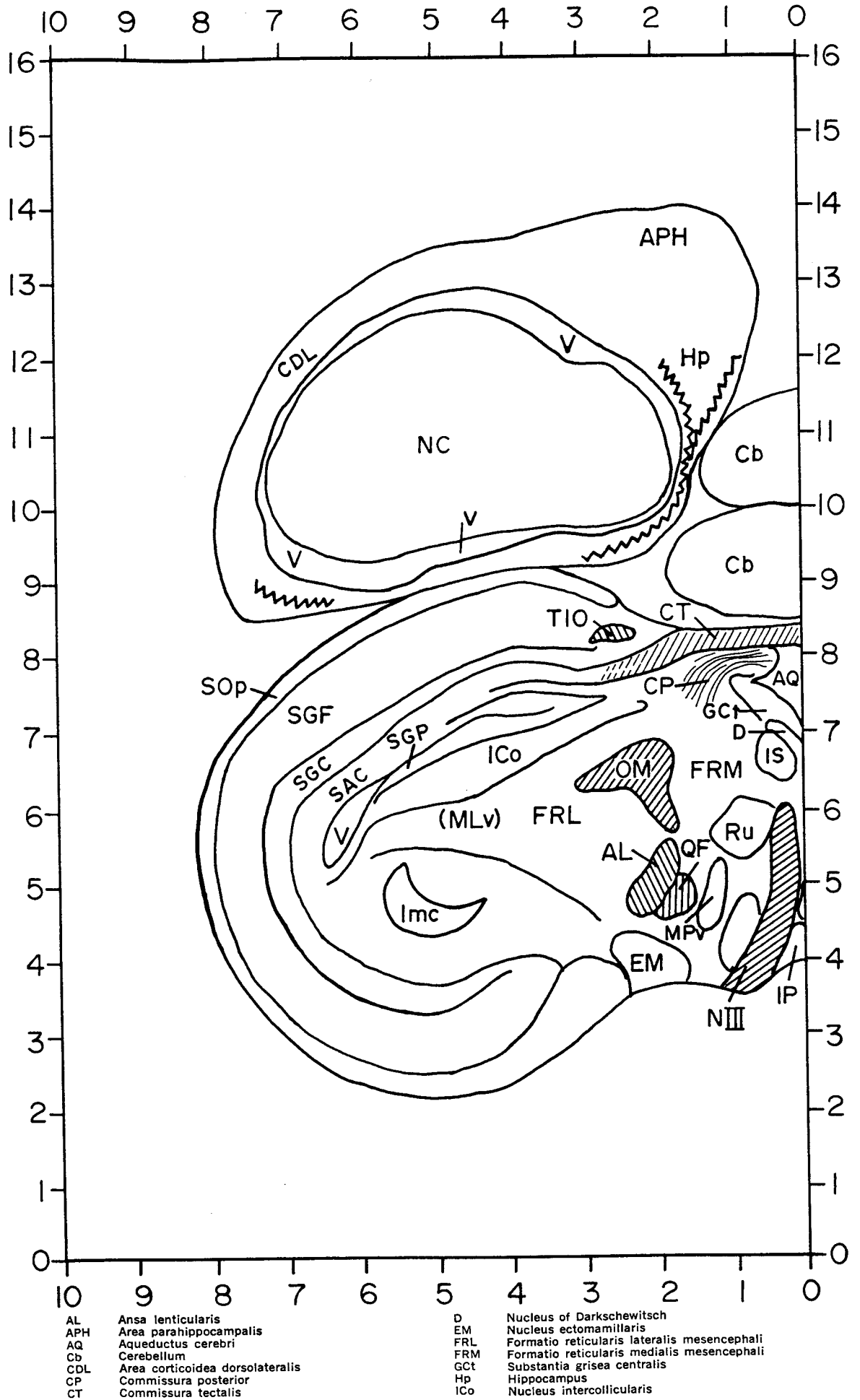


AL Ansa lenticularis
 APH Area parahippocampalis
 AVT Area centralis (Tsai)
 Cb Cerebellum
 CDL Area corticoidea dorsolateralis
 CP Commissura posterior

CT Commissura tectalis
 D Nucleus of Darkschewitsch
 EM Nucleus ectomamillaris
 FRL Formatio reticularis lateralis mesencephali
 FRM Formatio reticularis medialis mesencephali
 GCT Substantia grisea centralis



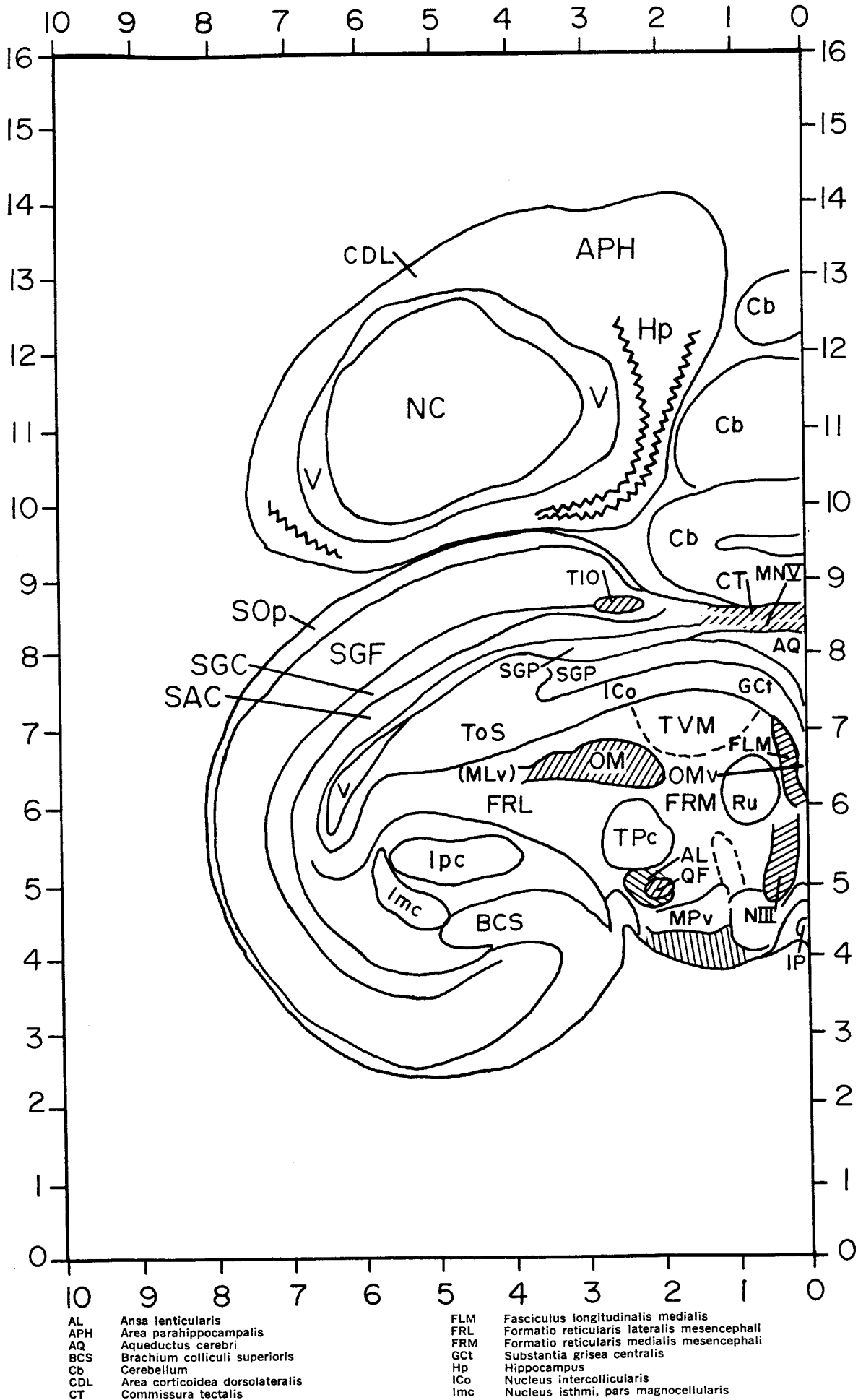
Hp	Hippocampus	Ru	Nucleus ruber
ICo	Nucleus intercollicularis	SAC	Stratum album centrale
Imc	Nucleus isthmi, pars magnocellularis	SGC	Stratum griseum centrale
IS	Nucleus interstitialis (Cajal)	SGF	Stratum griseum et fibrosum superficiale
MLv	Nucleus mesencephalicus lateralis, pars ventralis	SGP	Substantia grisea et fibrosa periventricularis
NC	Neostriatum caudale	SOp	Stratum opticum
NIII	Nervus oculomotorius	TIO	Tractus isthmo-opticus
OM	Tractus occipitomesencephalicus	TSM	Tractus septomesencephalicus
QF	Tractus quintofrontalis	V	Ventriculus





Imc Nucleus isthmi, pars magnocellularis
 IP Nucleus interpeduncularis
 IS Nucleus interstitialis (Cajal)
 MLv Nucleus mesencephalicus lateralis, pars ventralis
 MPv Nucleus mesencephalicus profundus, pars ventralis (Jungheer)
 NC Neostriatum caudale
 NIII Nervus oculomotorius
 OM Tractus occipitomesencephalicus

QF Tractus quinfofrontalis
 Ru Nucleus ruber
 SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SOP Stratum opticum
 TIO Tractus isthmo-opticus
 V Ventriculus



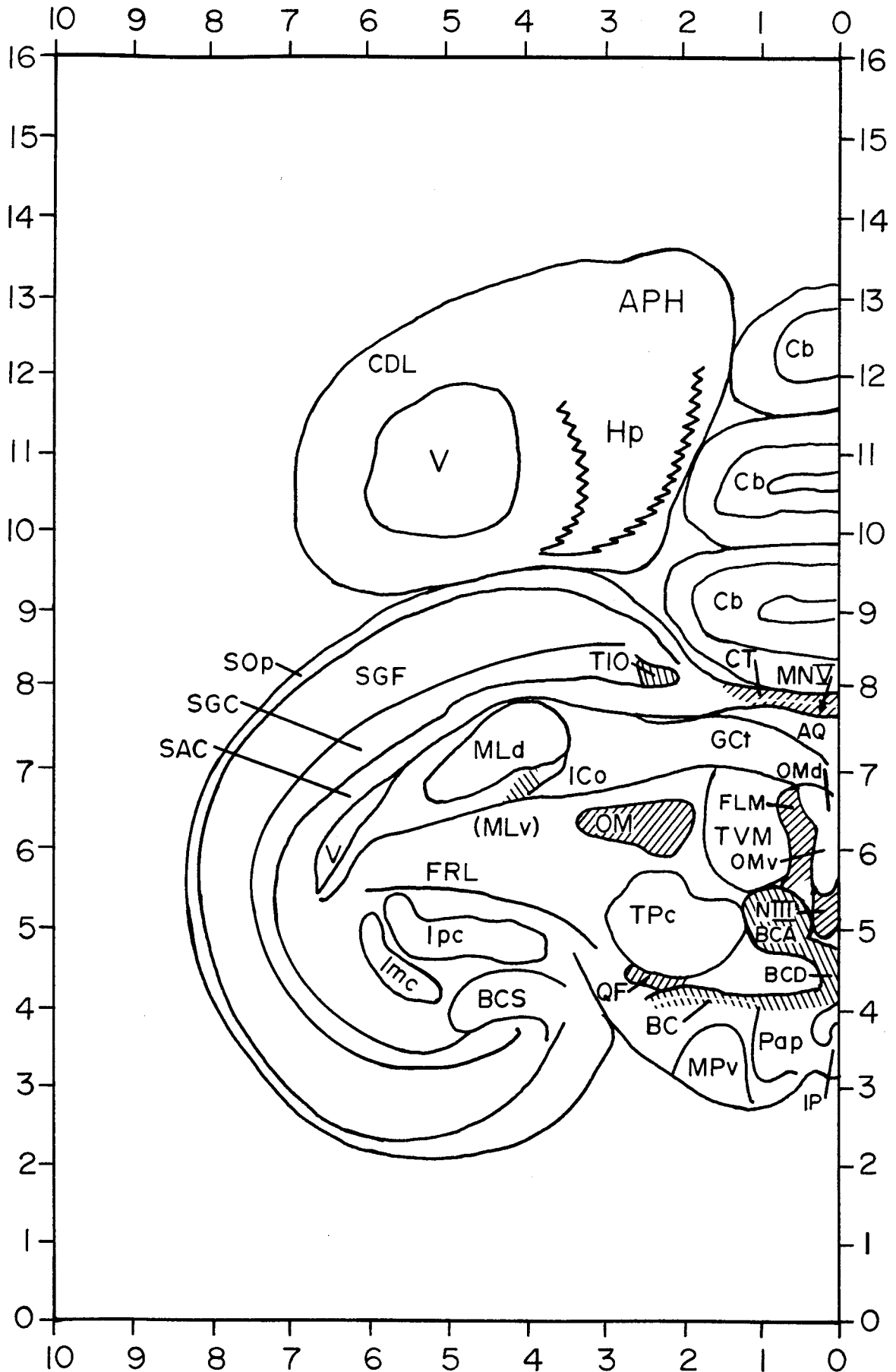
AL Ansa lenticularis
 APH Area parahippocampalis
 AQ Aqueductus cerebri
 BCS Brachium colliculi superioris
 Cb Cerebellum
 CDL Area corticoidea dorsolateralis
 CT Commissura tectalis

FLM Fasciculus longitudinalis medialis
 FRL Formatio reticularis lateralis mesencephali
 FRM Formatio reticularis medialis mesencephali
 GCl Substantia grisea centralis
 Hp Hippocampus
 ICo Nucleus intercollicularis
 Imc Nucleus isthmi, pars magnocellularis



IP Nucleus interpeduncularis
 Ipc Nucleus isthmi, pars parvocellularis
 MLv Nucleus mesencephalicus lateralis, pars ventralis
 MNV Nucleus mesencephalicus nervi trigemini
 MPv Nucleus mesencephalicus profundus, pars ventralis (Jungheer)
 NC Neostriatum caudale
 NIII Nervus oculomotorius
 OM Tractus occipitomesencephalicus
 OMv Nucleus nervi oculomotorii, pars ventralis
 QF Tractus quinfofrontalis

Ru Nucleus ruber
 SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SOP Stratum opticum
 TIO Tractus isthmo-opticus
 ToS Torus semicircularis
 TPc Nucleus tegmenti pedunculo-pontinus, pars compacta
 TVM Tractus vestibulo-mesencephalicus (Papez)
 V Ventriculus

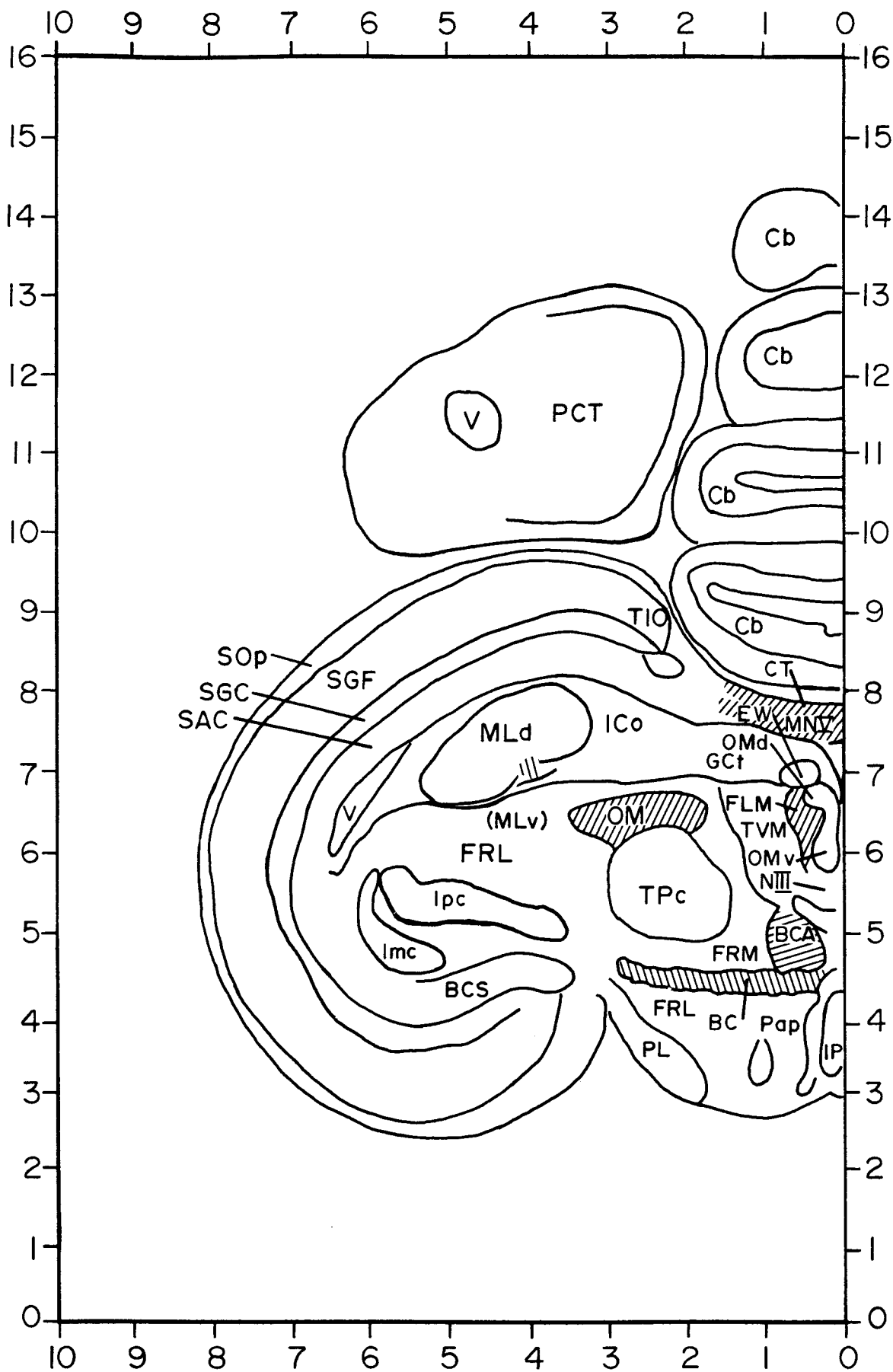


- | | | | |
|-----|----------------------------------|-----|---|
| APH | Area parahippocampalis | CDL | Area corticoidea dorsolateralis |
| AQ | Aqueductus cerebri | CT | Commissura tectalis |
| BC | Brachium conjunctivum | FLM | Fasciculus longitudinalis medialis |
| BCA | Brachium conjunctivum ascendens | FRL | Formatio reticularis lateralis mesencephali |
| BCD | Brachium conjunctivum descendens | GCT | Substantia grisea centralis |
| BCS | Brachium colliculi superioris | Hp | Hippocampus |
| Cb | Cerebellum | ICo | Nucleus intercollicularis |



Imc Nucleus isthmi, pars magnocellularis
 IP Nucleus interpeduncularis
 Ipc Nucleus isthmi, pars parvocellularis
 MLd Nucleus mesencephalicus lateralis, pars dorsalis
 MLv Nucleus mesencephalicus lateralis, pars ventralis
 MNV Nucleus mesencephalicus nervi trigemini
 MPv Nucleus mesencephalicus profundus, pars ventralis (Jungheer)
 NIII Nervus oculomotorius
 OM Tractus occipitomesencephalicus
 OMd Nucleus nervi oculomotorii, pars dorsalis

OMv Nucleus nervi oculomotorii, pars ventralis
 Pap Nucleus papilliformis
 QF Tractus quintofrontalis
 SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SOP Stratum opticum
 TIO Tractus isthmo-opticus
 TPc Nucleus tegmenti pedunculo-pontinus, pars compacta
 TVM Tractus vestibulo-mesencephalicus (Papez)
 V Ventriculus



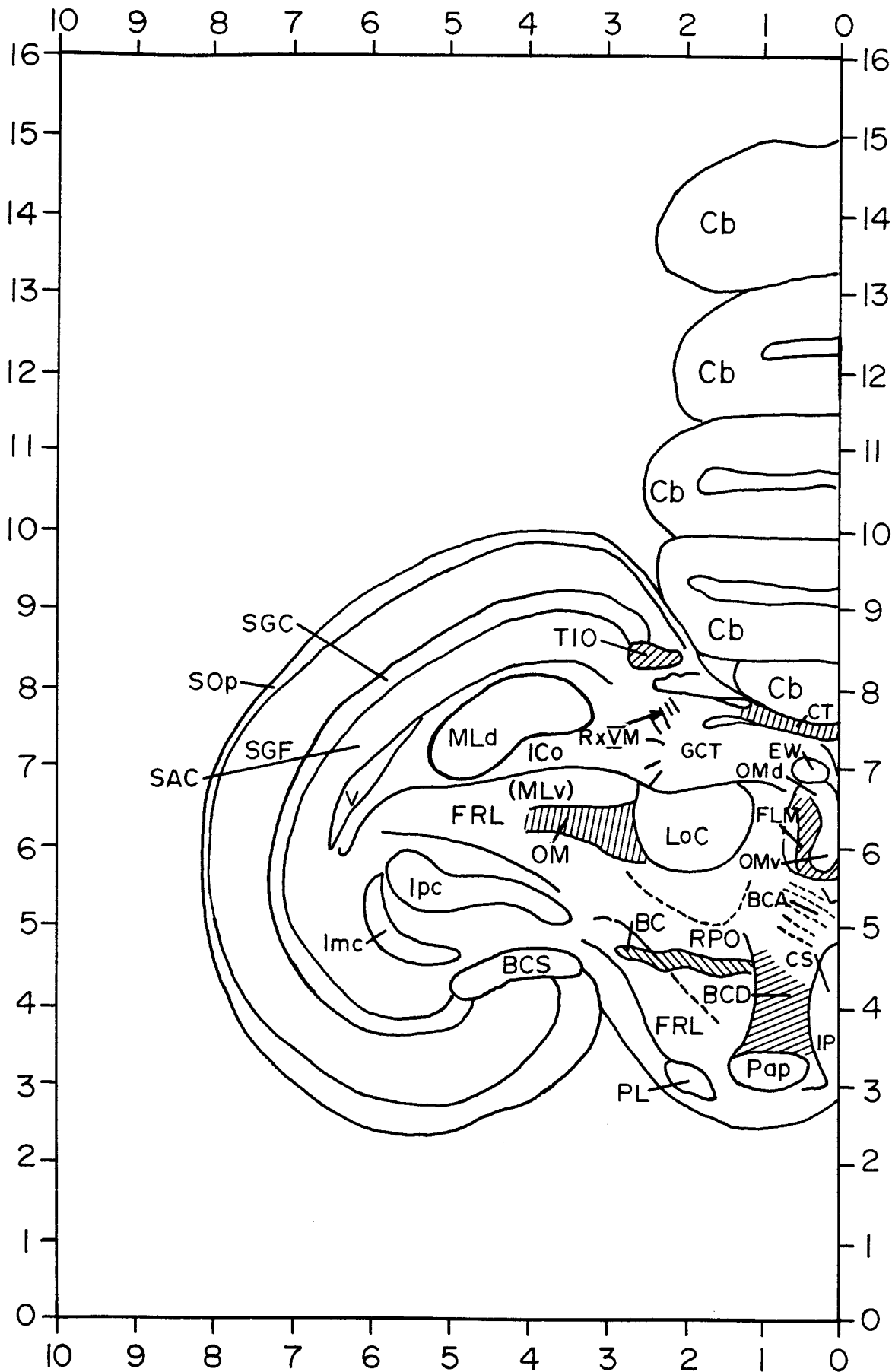
BC Brachium conjunctivum
 BCA Brachium conjunctivum ascendens
 BCS Brachium colliculi superioris
 Cb Cerebellum
 CT Commissura tectalis
 EW Nucleus of Edinger-Westphal

FLM Fasciculus longitudinalis medialis
 FRL Formatio reticularis lateralis mesencephali
 FRM Formatio reticularis medialis mesencephali
 GCt Substantia grisea centralis
 ICo Nucleus intercollicularis
 Imc Nucleus isthmi, pars magnocellularis



IP Nucleus interpeduncularis
 Ipc Nucleus isthmi, pars parvocellularis
 MLd Nucleus mesencephalicus lateralis, pars dorsalis
 MLv Nucleus mesencephalicus lateralis, pars ventralis
 MNV Nucleus mesencephalicus nervi trigemini
 NIII Nervus oculomotorius
 OM Tractus occipitomesencephalicus
 OMd Nucleus nervi oculomotorii, pars dorsalis
 OMv Nucleus nervi oculomotorii, pars ventralis
 Pap Nucleus papilloformis

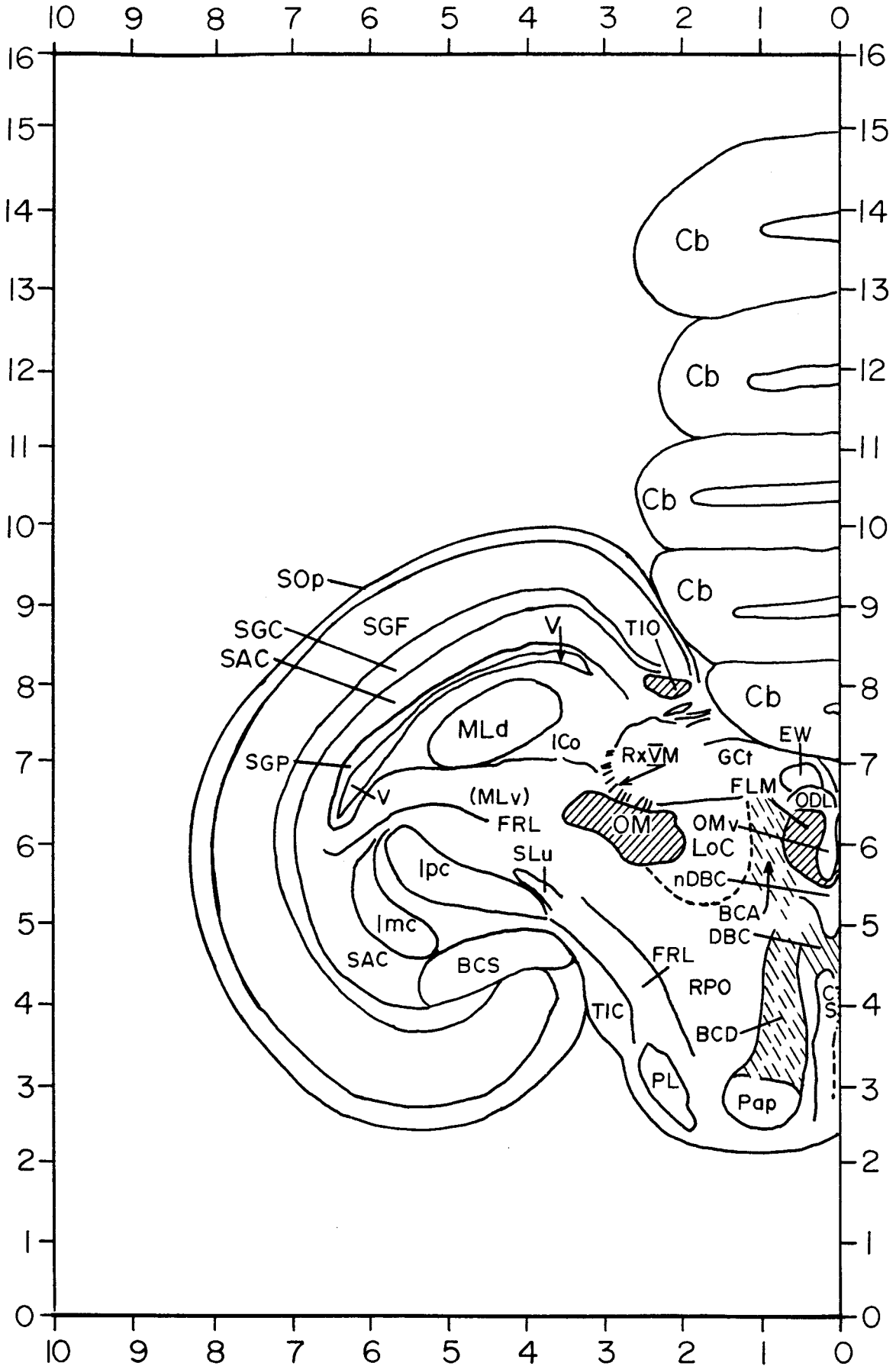
PCT Polus caudalis telencephali
 PL Nucleus pontis lateralis
 SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SOP Stratum opticum
 TIO Tractus isthmo-opticus
 TPc Nucleus tegmenti pedunculo-pontinus, pars compacta
 TVM Tractus vestibulo-mesencephalicus (Papez)
 V Ventriculus



BC	Brachium conjunctivum	CT	Commissura tectalis
BCA	Brachium conjunctivum ascendens	EW	Nucleus of Edinger-Westphal
BCD	Brachium conjunctivum descendens	FLM	Fasciculus longitudinalis medialis
BCS	Brachium colliculi superioris	FRL	Formatio reticularis lateralis mesencephali
Cb	Cerebellum	GCT	Substantia grisea centralis
CS	Nucleus centralis superior (Bechterew)	ICo	Nucleus intercollicularis



Imc	Nucleus isthmi, pars magnocellularis	Pap	Nucleus papilliformis
IP	Nucleus interpeduncularis	PL	Nucleus pontis lateralis
Ipc	Nucleus isthmi, pars parvocellularis	RPO	Nucleus reticularis pontis oralis
LoC	Locus ceruleus	RxXM	Radix mesencephalicus nervi trigemini
MLd	Nucleus mesencephalicus lateralis, pars dorsalis	SAC	Stratum album centrale
MLV	Nucleus mesencephalicus lateralis, pars ventralis	SGC	Stratum griseum centrale
OM	Tractus occipitomesencephalicus	SGF	Stratum griseum et fibrosum superficiale
OMd	Nucleus nervi oculomotorii, pars dorsalis	SOp	Stratum opticum
OMv	Nucleus nervi oculomotorii, pars ventralis	TIO	Tractus isthmo-opticus
		V	Ventriculus

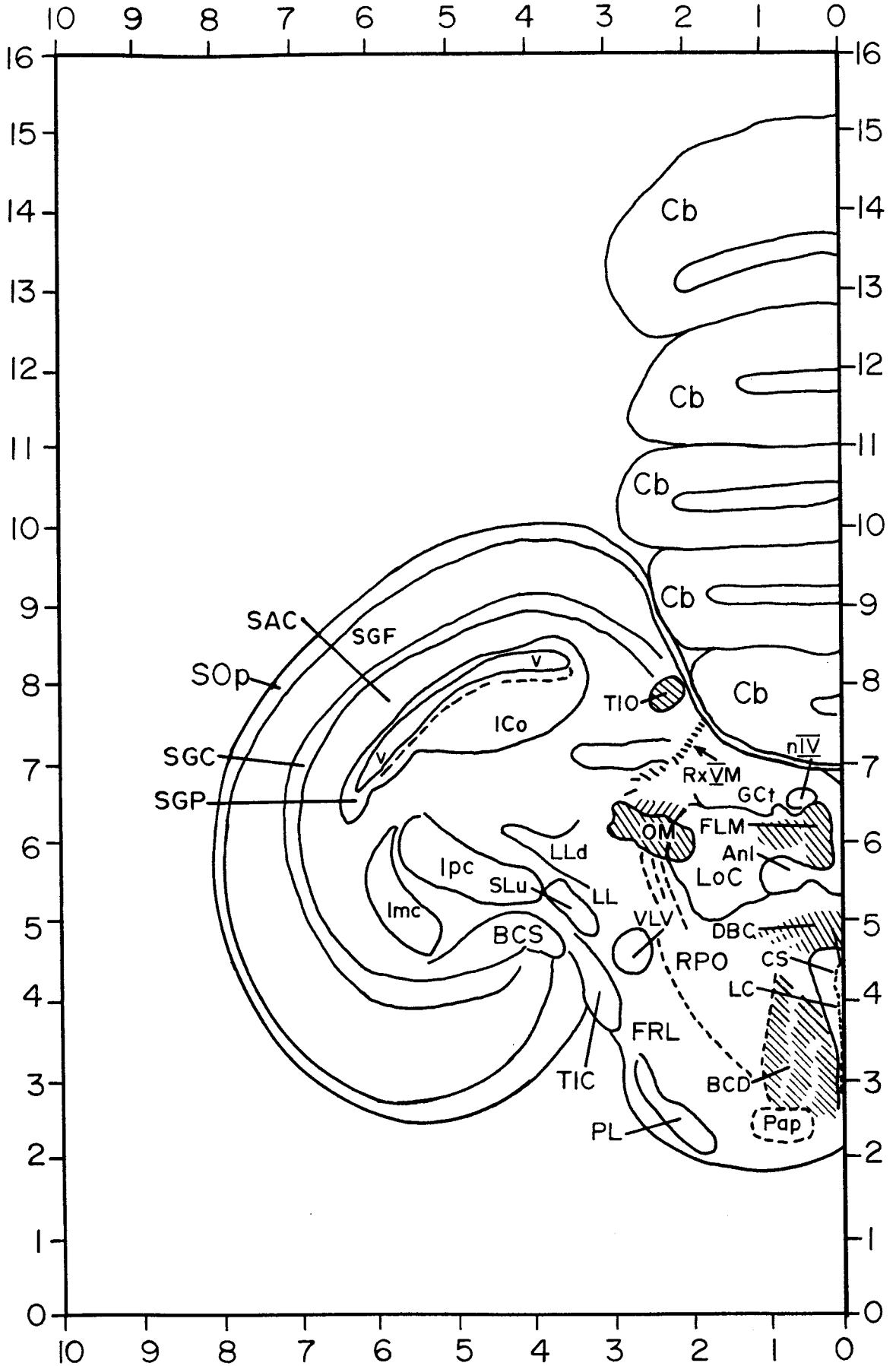


BCA	Brachium conjunctivum ascendens	EW	Nucleus of Edinger-Westphal
BCD	Brachium conjunctivum descendens	FLM	Fasciculus longitudinalis medialis
BCS	Brachium colliculi superioris	FRL	Formatio reticularis lateralis mesencephali
Cb	Cerebellum	Gct	Substantia grisea centralis
CS	Nucleus centralis superior (Bechterew)	ICo	Nucleus intercollicularis
DBC	Decussatio brachiorum conjuntivorum	lmc	Nucleus isthmi, pars magnocellularis



Ipc Nucleus isthmi, pars parvocellularis
 LoC Locus ceruleus
 MLd Nucleus mesencephalicus lateralis, pars dorsalis
 MLv Nucleus mesencephalicus lateralis, pars ventralis
 nDBC Nucleus decussationis brachiorum conjunctivorum
 ODL Nucleus nervi oculomotorii, pars dorsolateralis
 OM Tractus occipitomesencephalicus
 OMv Nucleus nervi oculomotorii, pars ventralis
 Pap Nucleus papilloformis
 PL Nucleus pontis lateralis

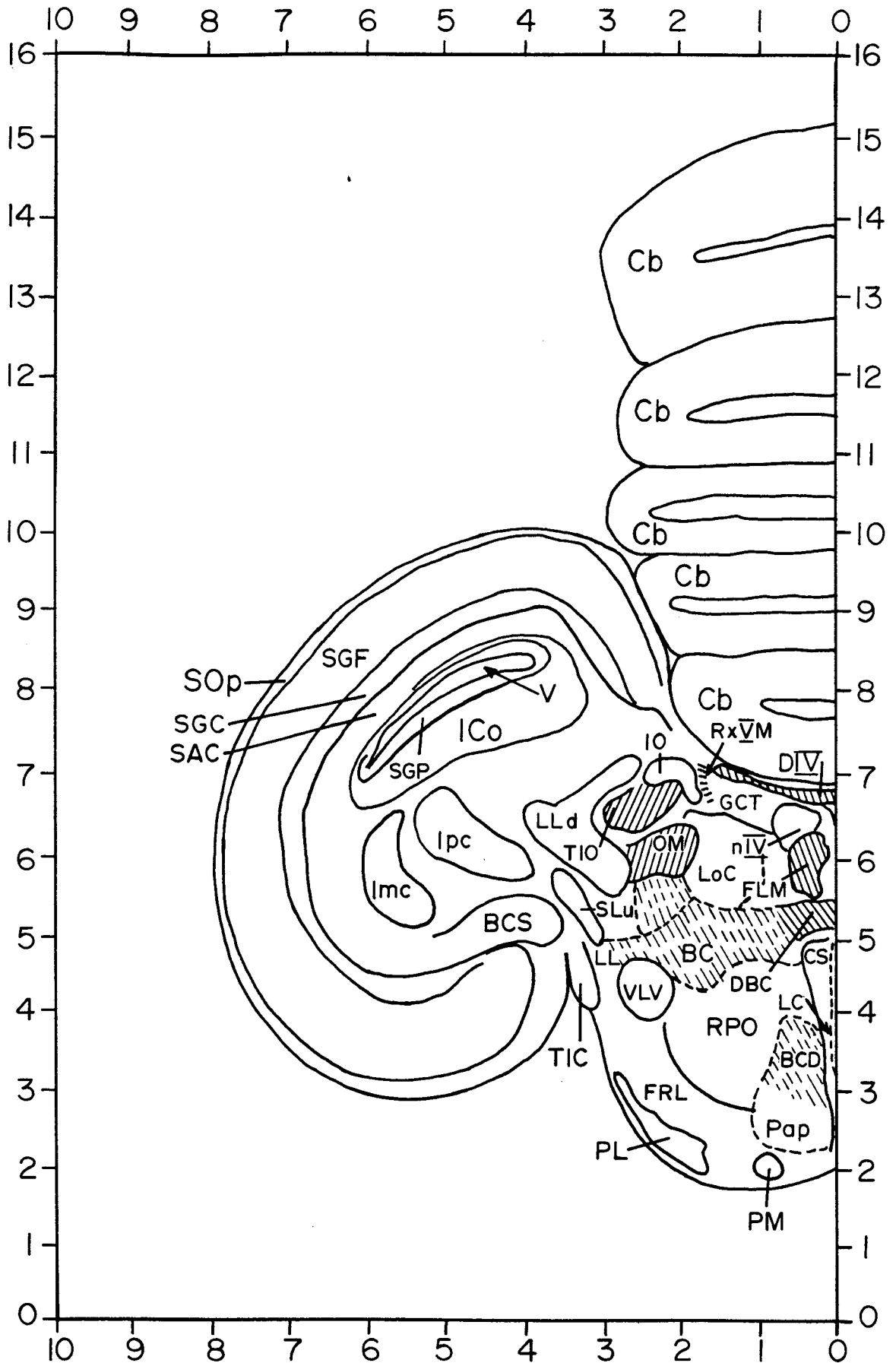
RPO Nucleus reticularis pontis oralis
 R:YM Radix mesencephalicus nervi trigemini
 SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SLu Nucleus semilunaris
 SOp Stratum opticum
 TIC Tractus isthmo-cerebellaris
 TIO Tractus isthmo-opticus
 V Ventriculus



- | | | | |
|-----|--|-----|---|
| Anl | Nucleus annularis | FLM | Fasciculus longitudinalis medialis |
| BCD | Brachium conjunctivum descendens | FRL | Formatio reticularis lateralis mesencephali |
| BCS | Brachium colliculi superioris | Gct | Substantia grisea centralis |
| Cb | Cerebellum | ICo | Nucleus intercollicularis |
| CS | Nucleus centralis superior (Bechterew) | lmc | Nucleus isthmi, pars magnocellularis |
| DBC | Decussatio brachiorum conjunctivorum | ipc | Nucleus isthmi, pars parvocellularis |

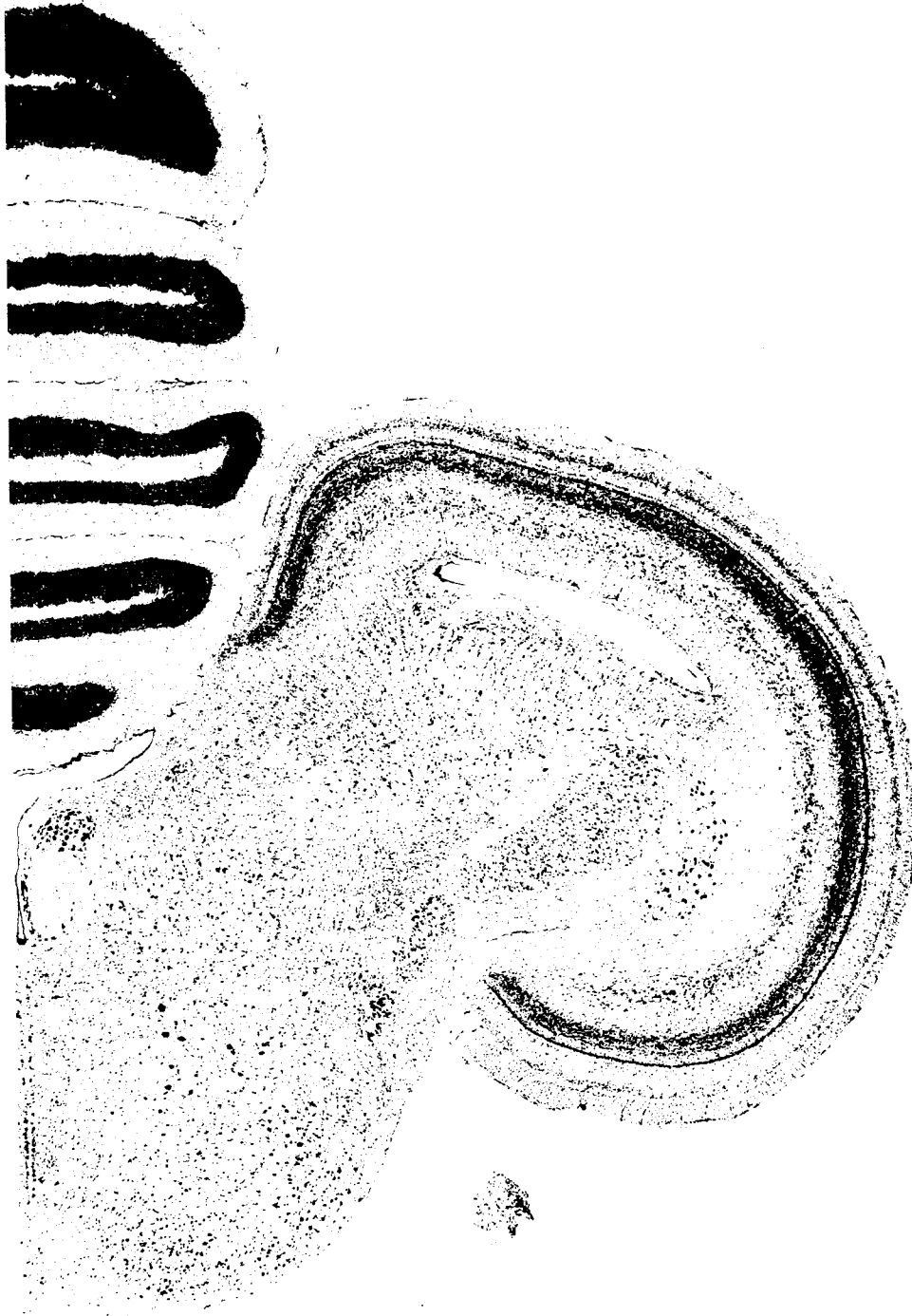


LC	Nucleus linearis caudalis	SAC	Stratum album centrale
LL	Lemniscus lateralis	SGC	Stratum griseum centrale
LLd	Nucleus lemnisci lateralis, pars dorsalis (Groebbels)	SGF	Stratum griseum et fibrosum superficiale
LoC	Locus ceruleus	SGP	Substantia grisea et fibrosa periventricularis
nIV	Nucleus nervi trochlearis	SLu	Nucleus semilunaris
OM	Tractus occipitomesencephalicus	SOP	Stratum opticum
Pap	Nucleus papilliformis	TIC	Tractus isthmo-cerebellaris
PL	Nucleus pontis lateralis	TIO	Tractus isthmo-opticus
RPO	Nucleus reticularis pontis oralis	V	Ventriculus
RxIM	Radix mesencephalicus nervi trigemini	VLV	Nucleus ventralis lemnisci lateralis



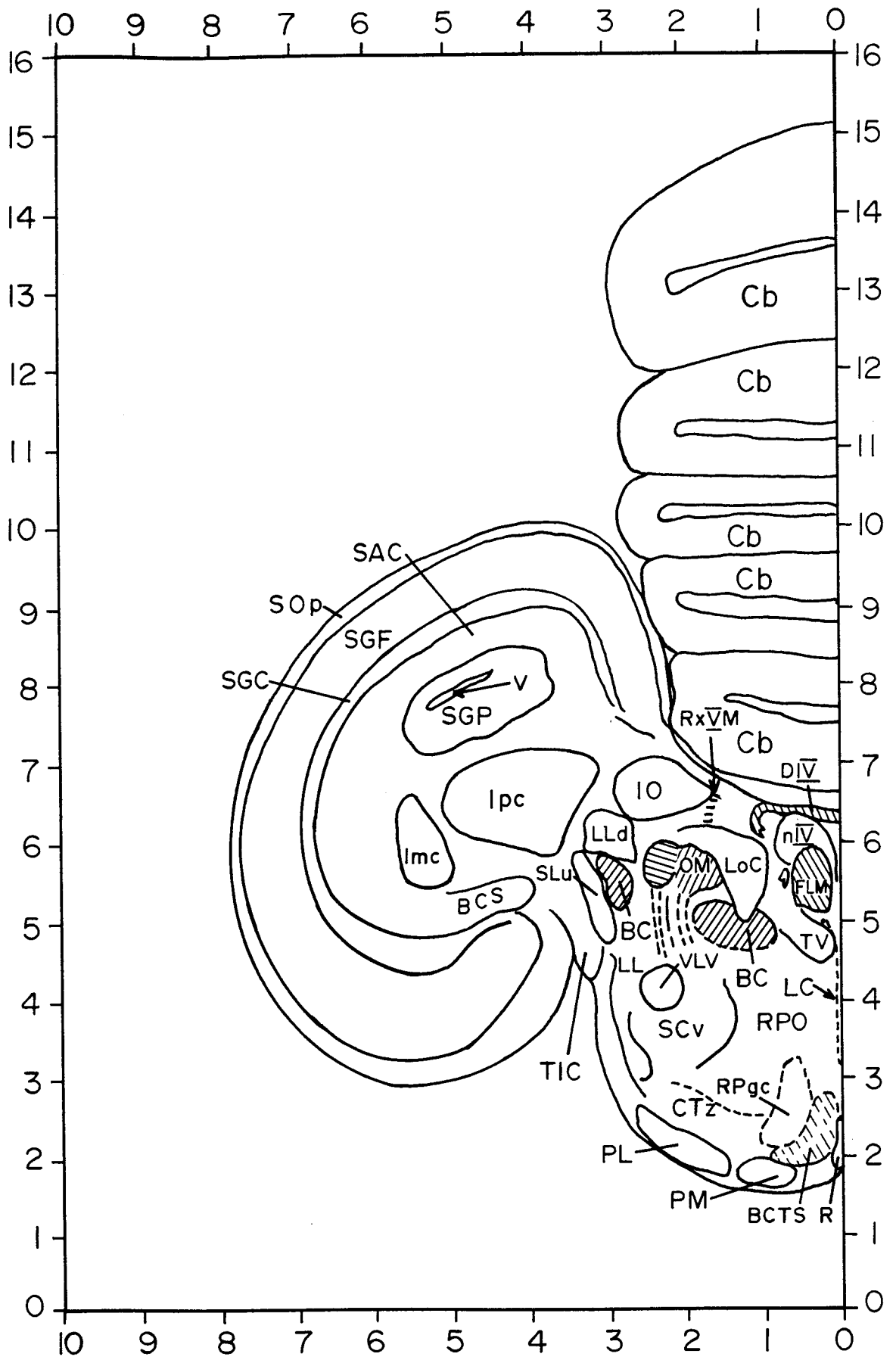
BC Brachium conjunctivum
 BCD Brachium conjunctivum descendens
 BCS Brachium colliculi superioris
 Cb Cerebellum
 CS Nucleus centralis superior (Bechterew)
 DBC Decussatio brachiorum conjunctivorum

DIV Decussatio nervi trochlearis
 FLM Fasciculus longitudinalis medialis
 FRL Formatio reticularis lateralis mesencephali
 GCT Substantia grisea centralis
 ICo Nucleus intercollicularis
 Imc Nucleus isthmi, pars magnocellularis



IO Nucleus isthmo-opticus
 Ipc Nucleus isthmi, pars parvocellularis
 LC Nucleus linearis caudalis
 LL Lemniscus lateralis
 LLd Nucleus lemnisci lateralis, pars dorsalis (Groebbels)
 LoC Locus ceruleus
 nIX Nucleus nervi trochlearis
 OM Tractus occipitomesencephalicus
 Pap Nucleus papilliformis
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis

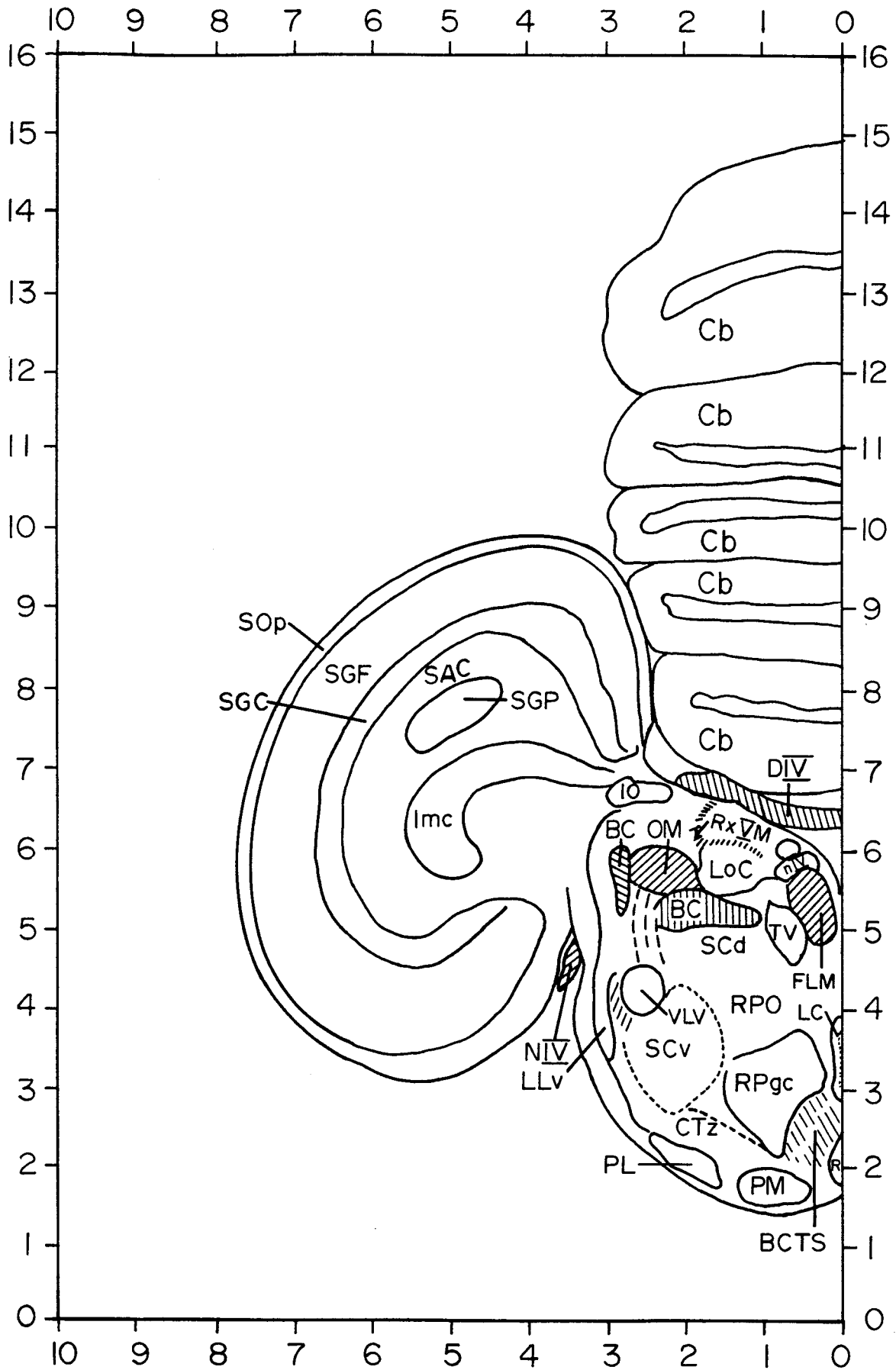
RPO Nucleus reticularis pontis oralis
 RxIM Radix mesencephalicus nervi trigemini
 SAC Stratum album centrale
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SLu Nucleus semilunaris
 SOp Stratum opticum
 TIC Tractus isthmo-cerebellaris
 TIO Tractus isthmo-opticus
 V Ventriculus
 VLV Nucleus ventralis lemnisci lateralis



BC	Brachium conjunctivum	DIV	Decussatio nervi trochlearis
BCS	Brachium colliculi superioris	FLM	Fasciculus longitudinalis medialis
BCTS	Brachium conjunctivum descendens et tractus tectospinalis	lmc	Nucleus isthmi, pars magnocellularis
Cb	Cerebellum	ipc	Nucleus isthmi, pars parvocellularis
CTz	Corpus trapezoideum (Papez)	IO	Nucleus isthmo-opticus
		LC	Nucleus linearis caudalis



LL	Lemniscus lateralis	RxVM	Radix mesencephalicus nervi trigemini
LLd	Nucleus lemnisci lateralis, pars dorsalis (Groebbeis)	SAC	Stratum album centrale
LoC	Locus ceruleus	SCv	Nucleus suberuleus ventralis
nIV	Nucleus nervi trochlearis	SGC	Stratum griseum centrale
OM	Tractus occipitomesencephalicus	SGF	Stratum griseum et fibrosum superficiale
PL	Nucleus pontis lateralis	SGP	Substantia grisea et fibrosa periventricularis
PM	Nucleus pontis medialis	SLu	Nucleus semilunaris
R	Nuclei raphe	SOP	Stratum opticum
RPgc	Nucleus reticularis pontis caudalis, pars gigantocellularis	TIC	Tractus isthmo-cerebellaris
RPO	Nucleus reticularis pontis oralis	TV	Nucleus tegmenti ventralis (Gudden)
		V	Ventriculus
		VLV	Nucleus ventralis lemnisci lateralis

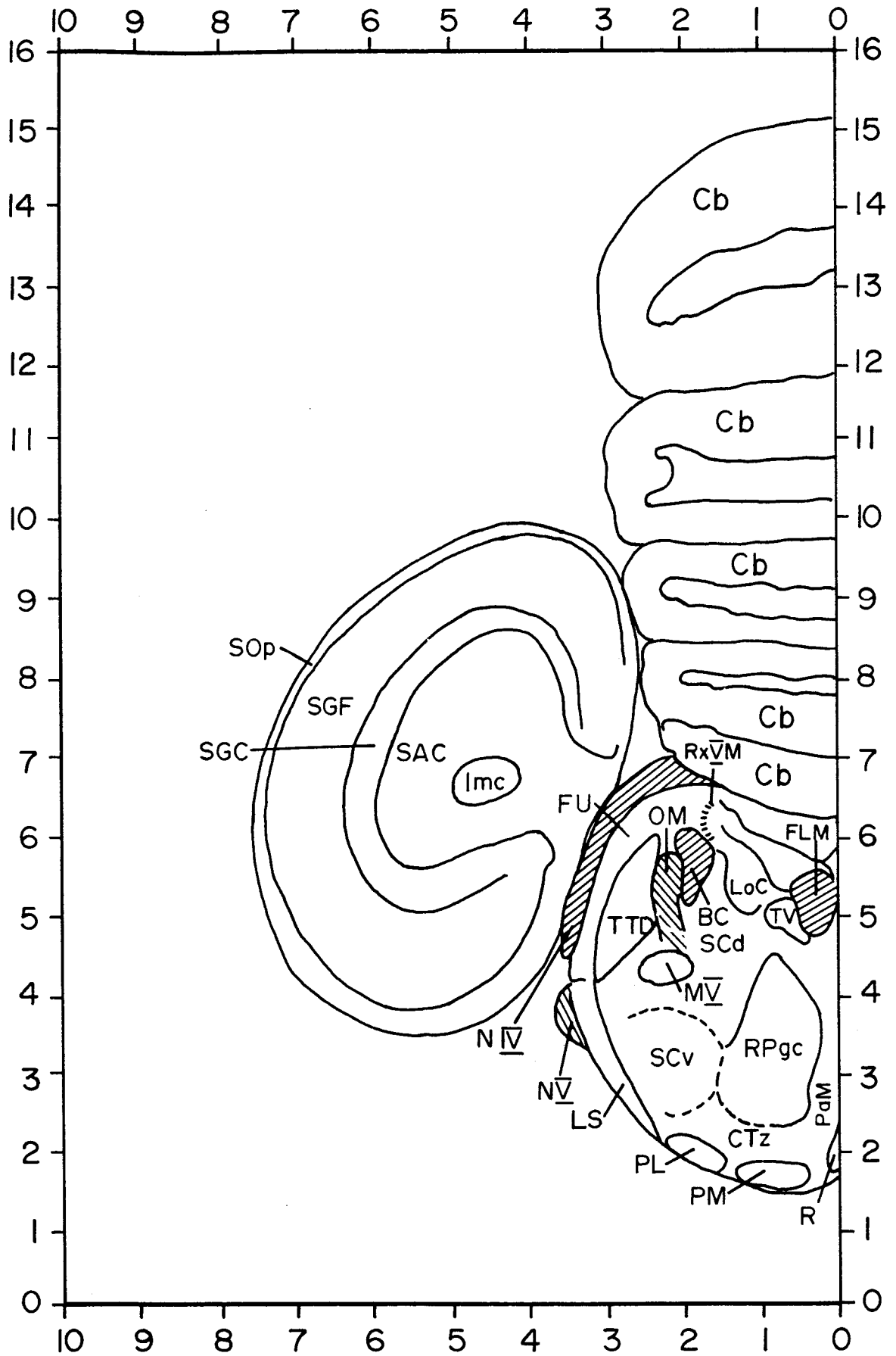


BC	Brachium conjunctivum	FLM	Fasciculus longitudinalis medialis
BCTS	Brachium conjunctivum descendens et tractus tectospinalis	Imc	Nucleus isthmi, pars magnocellularis
Cb	Cerebellum	IO	Nucleus isthmo-opticus
CTz	Corpus trapezoideum (Papez)	LC	Nucleus linearis caudalis
DIV	Decussatio nervi trochlearis	LLV	Nucleus lemnisci lateralis, pars ventralis (Groebbels)

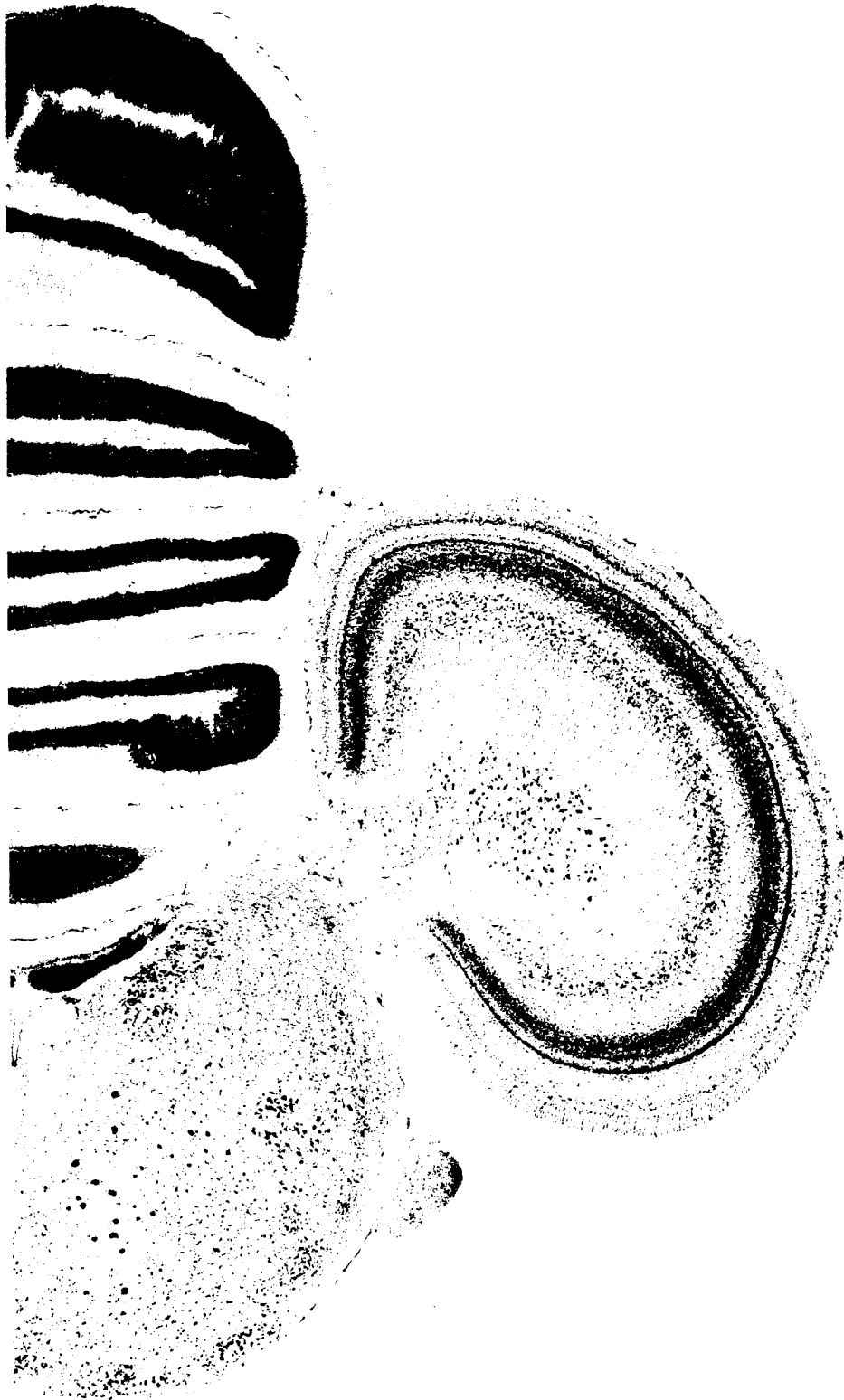


LoC Locus ceruleus
 NIV Nervus trochlearis
 nIV Nucleus nervi trochlearis
 OM Tractus occipitomesencephalicus
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis
 R Nuclei raphes
 RPgc Nucleus reticularis pontis caudalis, pars
 gigantocellularis
 RPO Nucleus reticularis pontis oralis

RxIM Radix mesencephalicus nervi trigemini
 SAC Stratum album centrale
 SCd Nucleus subceruleus dorsalis
 SCv Nucleus subceruleus ventralis
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SGP Substantia grisea et fibrosa periventricularis
 SOp Stratum opticum
 TV Nucleus tegmenti ventralis (Gudden)
 VLV Nucleus ventralis lemnisci lateralis

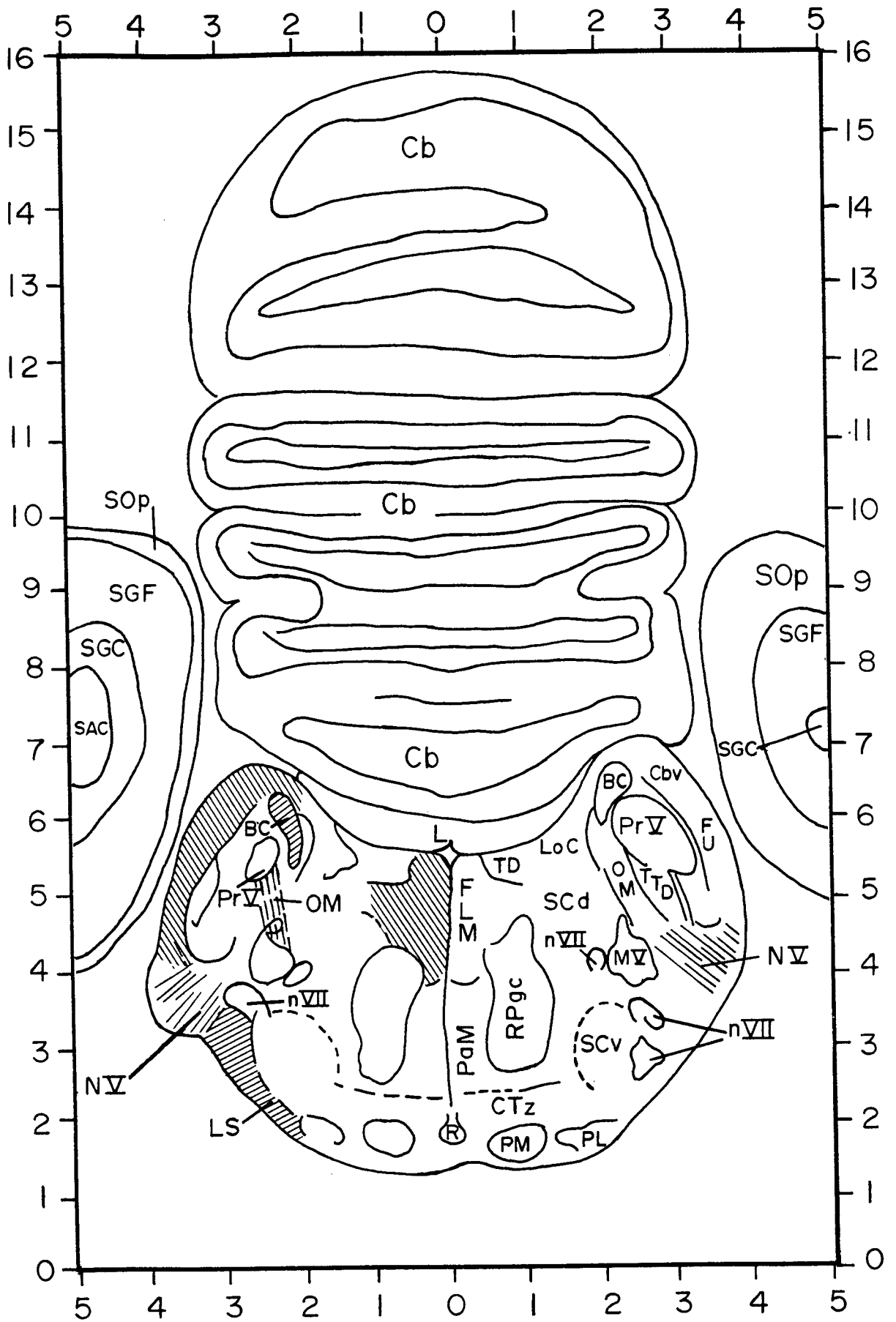


BC	Brachium conjunctivum	LoC	Locus ceruleus
Cb	Cerebellum	LS	Lemniscus spinalis
CTz	Corpus trapezoideum (Papez)	MV	Nucleus motorius nervi trigemini
FLM	Fasciculus longitudinalis medialis	NIV	Nervus trochlearis
FU	Fasciculus uncinatus (Russell)	NV	Nervus trigeminus
lmc	Nucleus isthmi, pars magnocellularis	OM	Tractus occipitomesencephalicus

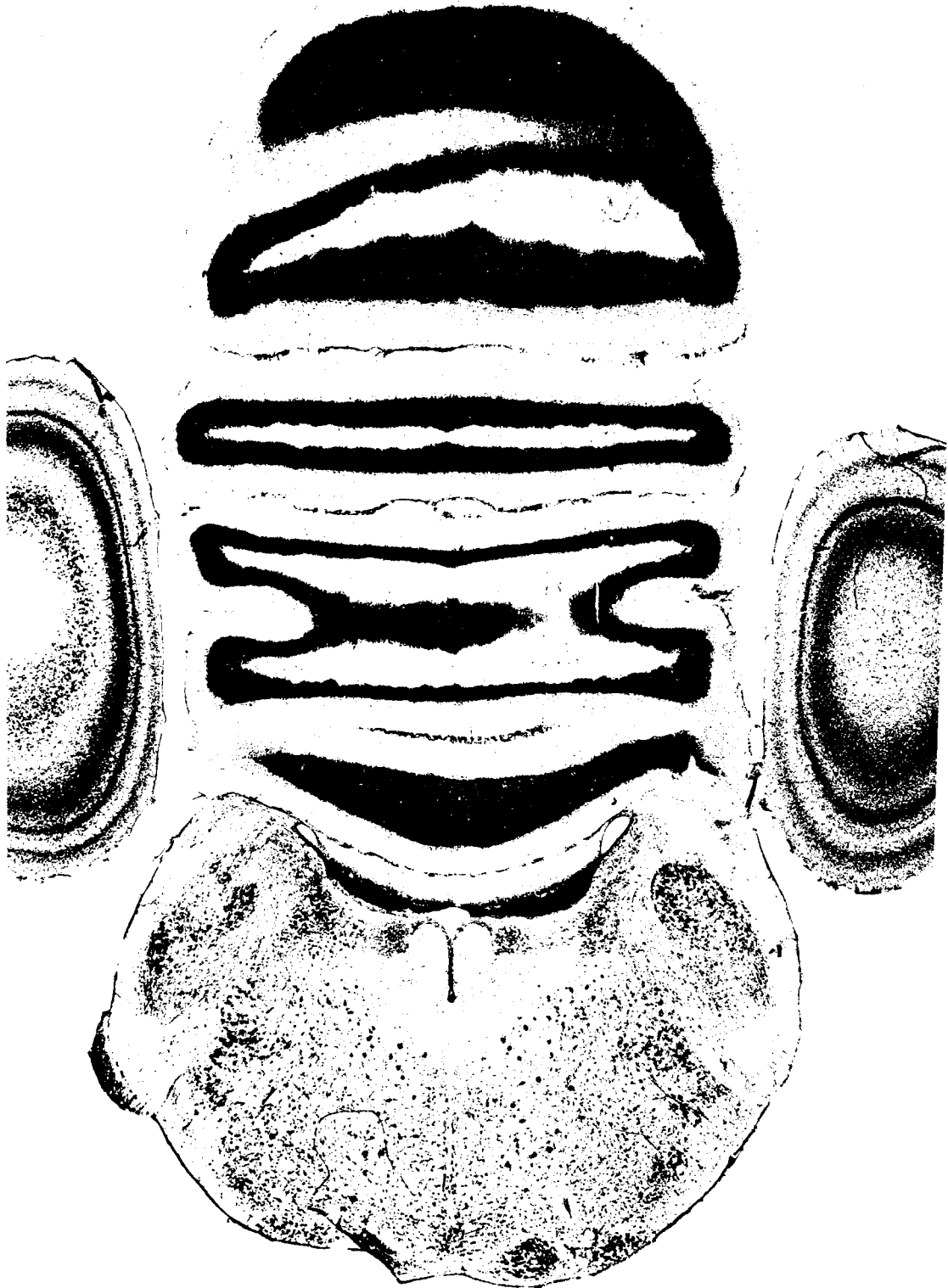


PaM Nucleus paramedianus
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis
 R Nuclei raphes
 RPgc Nucleus reticularis pontis caudalis, pars
 gigantocellularis
 RxVM Radix mesencephalicus nervi trigemini

SAC Stratum album centrale
 SCd Nucleus subceruleus dorsalis
 SCv Nucleus subceruleus ventralis
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SOP Stratum opticum
 TTD Nucleus et tractus descendens nervi trigemini
 TV Nucleus tegmenti ventralis (Gudden)

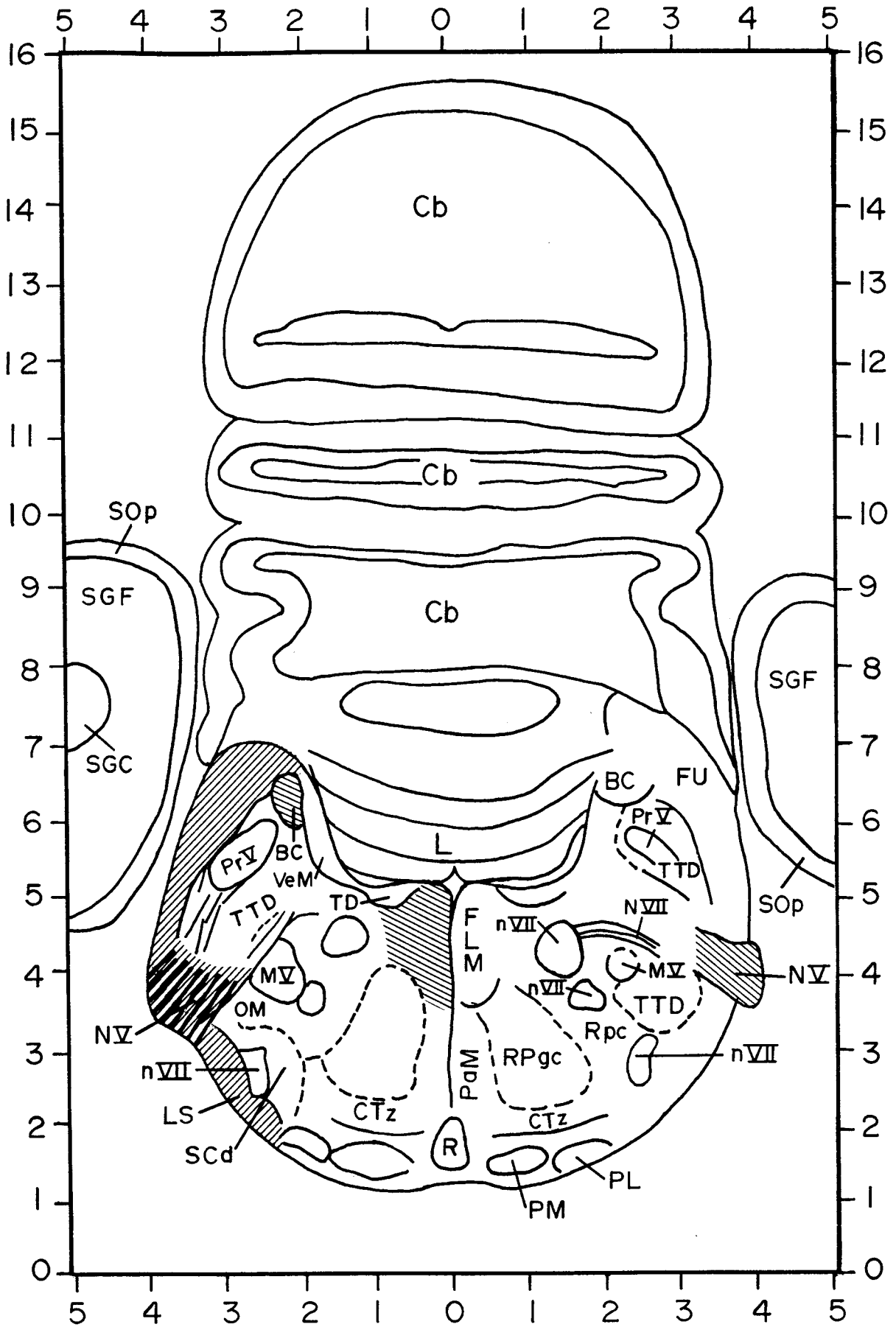


- | | | | |
|-----|-------------------------------------|------|----------------------------------|
| BC | Brachium conjunctivum | L | Lingula |
| Cb | Cerebellum | LoC | Locus ceruleus |
| Cbv | Tractus spinocerebellaris ventralis | LS | Lemniscus spinalis |
| CTz | Corpus trapezoideum (Papez) | MV | Nucleus motorius nervi trigemini |
| FLM | Fasciculus longitudinalis medialis | NV | Nervus trigeminus |
| FU | Fasciculus uncinatus (Russell) | nVII | Nucleus nervi facialis |



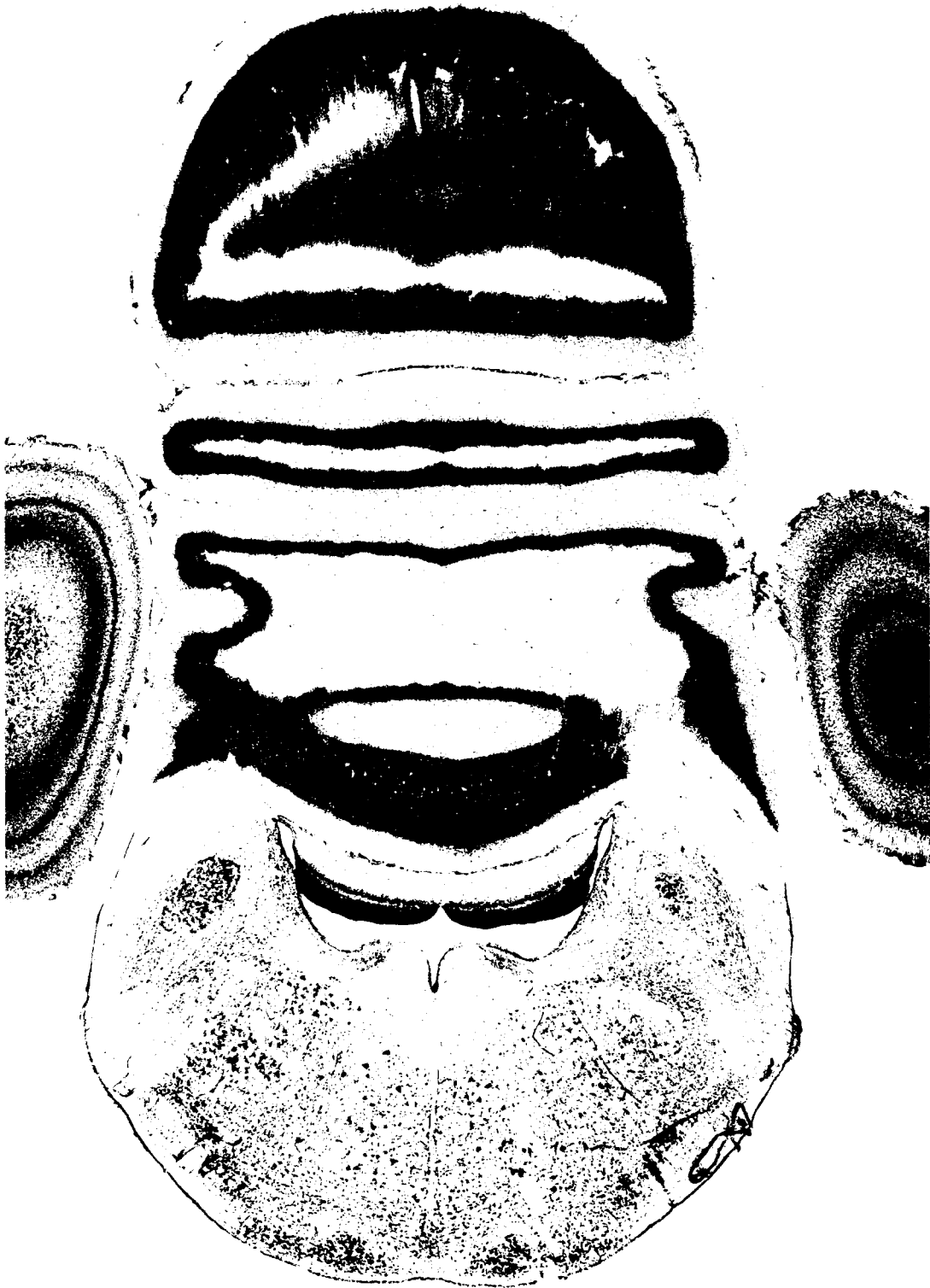
OM Tractus occipitomesencephalicus
 PaM Nucleus paramedianus
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis
 PrV Nucleus sensorius principalis nervi trigemini
 R Nuclei raphes
 RPgc Nucleus reticularis pontis caudalis, pars gigantocellularis

SAC Stratum album centrale
 SCd Nucleus subceruleus dorsalis
 SCv Nucleus subceruleus ventralis
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SOP Stratum opticum
 TD Nucleus tegmenti dorsalis (Gudden)
 TTD Nucleus et tractus descendens nervi trigemini



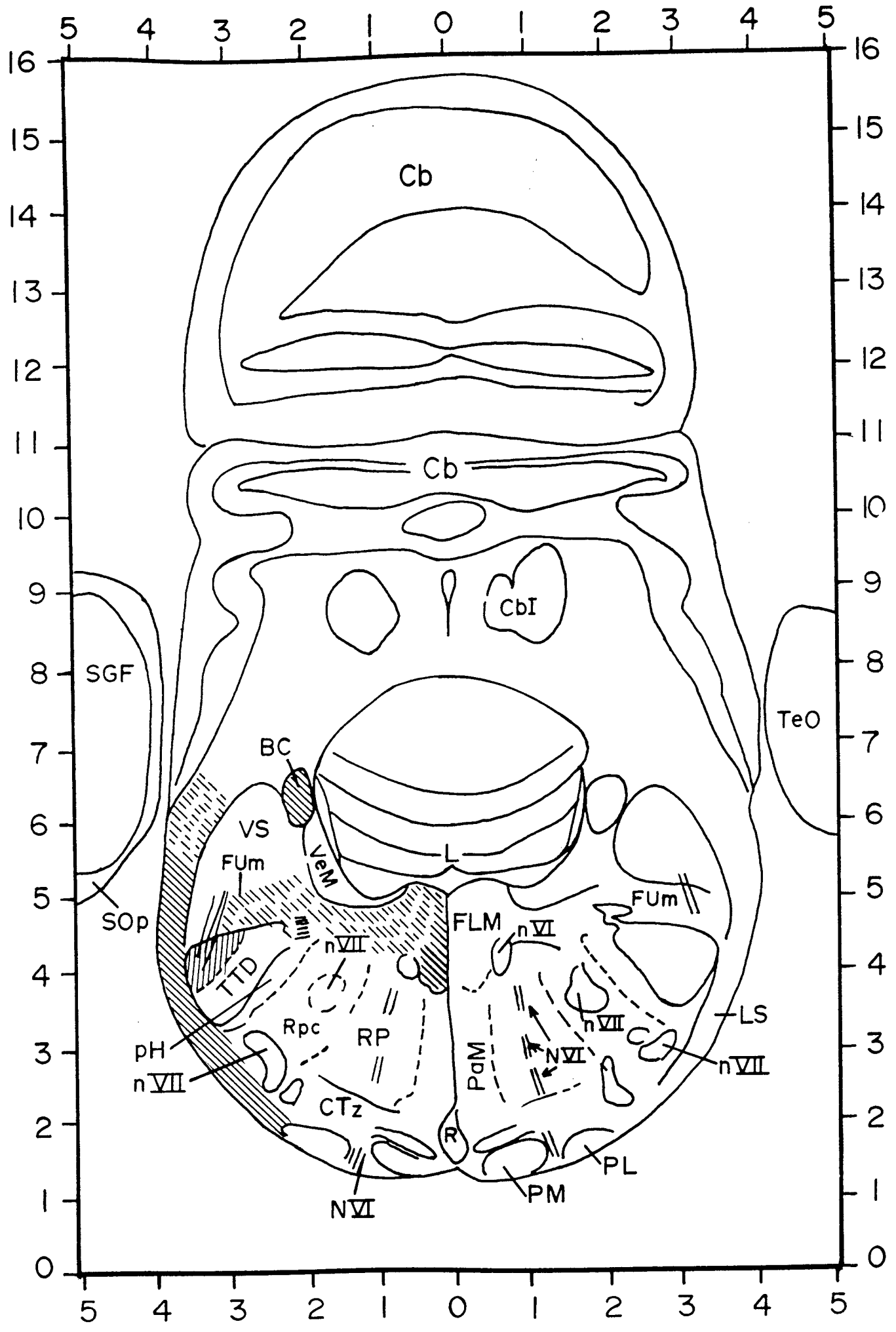
BC Brachium conjunctivum
 Cb Cerebellum
 CTz Corpus trapezoideum (Papez)
 FLM Fasciculus longitudinalis medialis
 FU Fasciculus uncinatus (Russell)
 L Lingula

LS Lemniscus spinalis
 MV Nucleus motorius nervi trigemini
 NV Nervus trigeminus
 NVII Nervus facialis
 nVII Nucleus nervi facialis
 OM Tractus occipitomesencephalicus



PaM Nucleus paramedianus
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis
 PrV Nucleus sensorius principalis nervi trigemini
 R Nuclei raphes
 Rpc Nucleus reticularis parvocellularis
 RPgc Nucleus reticularis pontis caudalis, pars gigantocellularis

SCd Nucleus subceruleus dorsalis
 SGC Stratum griseum centrale
 SGF Stratum griseum et fibrosum superficiale
 SOP Stratum opticum
 TD Nucleus tegmenti dorsalis (Gudden)
 TTD Nucleus et tractus descendens nervi trigemini
 VeM Nucleus vestibularis medialis

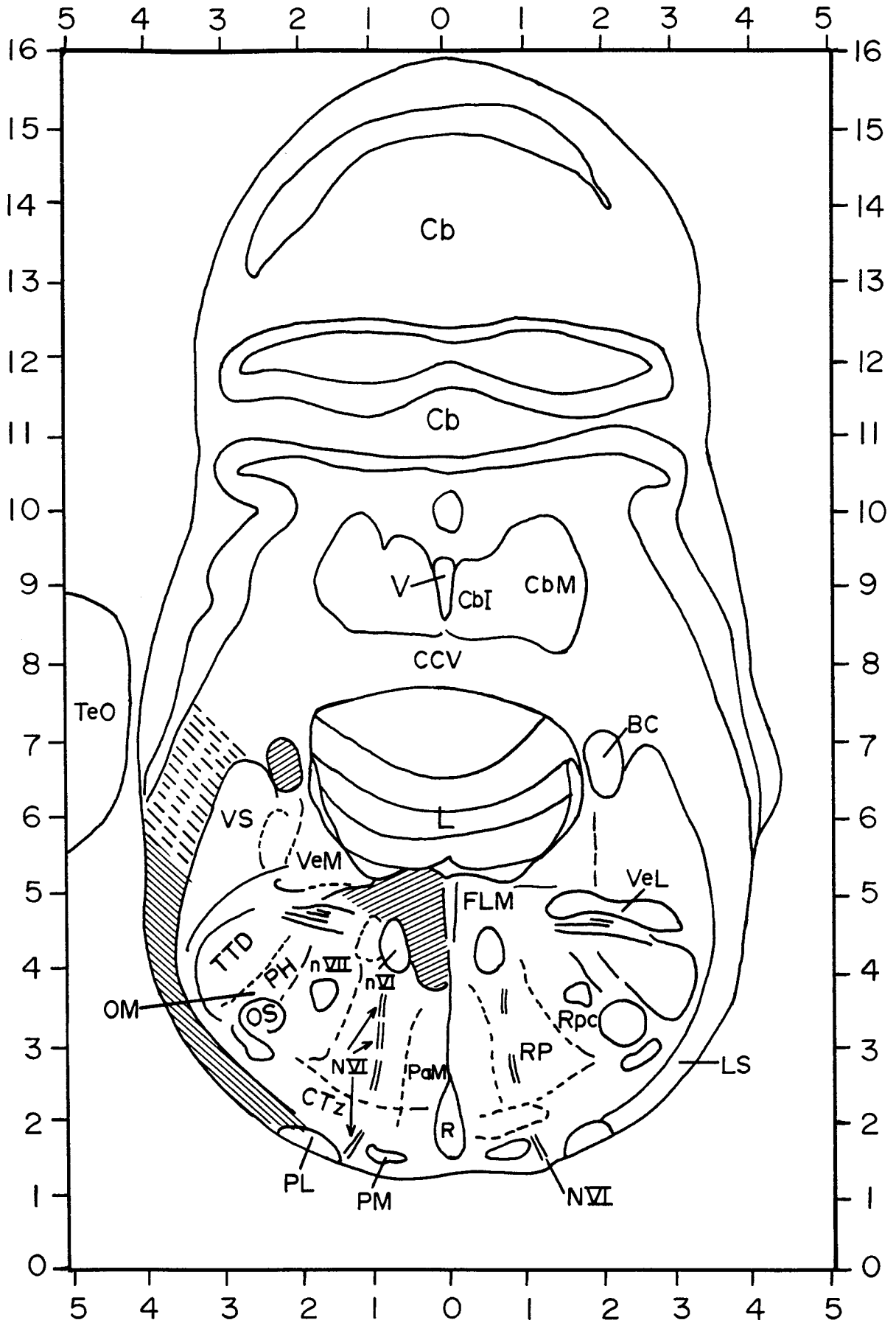


- | | | | |
|-----|---|------|------------------------|
| BC | Brachium conjunctivum | L | Lingula |
| Cb | Cerebellum | LS | Lemniscus spinalis |
| CbI | Nucleus cerebellaris internus | NVI | Nervus abducens |
| CTz | Corpus trapezoideum (Papez) | nVII | Nucleus nervi abducens |
| FLM | Fasciculus longitudinalis medialis | nVII | Nucleus nervi facialis |
| FUm | Fasciculus uncinatus (Russell), pars medialis | PaM | Nucleus paramedianus |



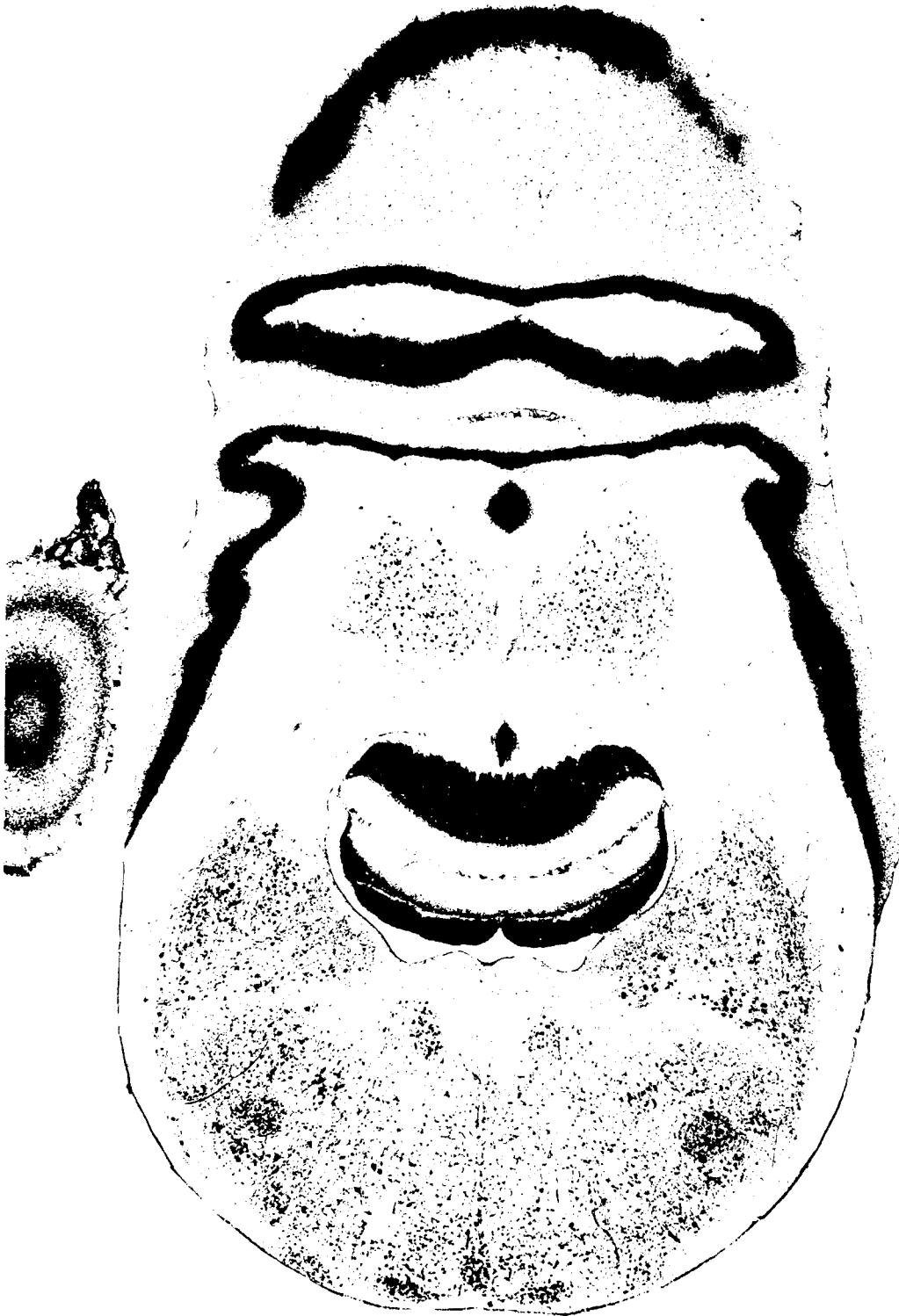
PH Plexus of Horsley
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis
 R Nuclei raphes
 RP Nucleus reticularis pontis caudalis
 Rpc Nucleus reticularis parvocellularis

SGF Stratum griseum et fibrosum superficiale
 SOp Stratum opticum
 TeO Tectum opticum
 TTD Nucleus et tractus descendens nervi trigemini
 VeM Nucleus vestibularis medialis
 VS Nucleus vestibularis superior



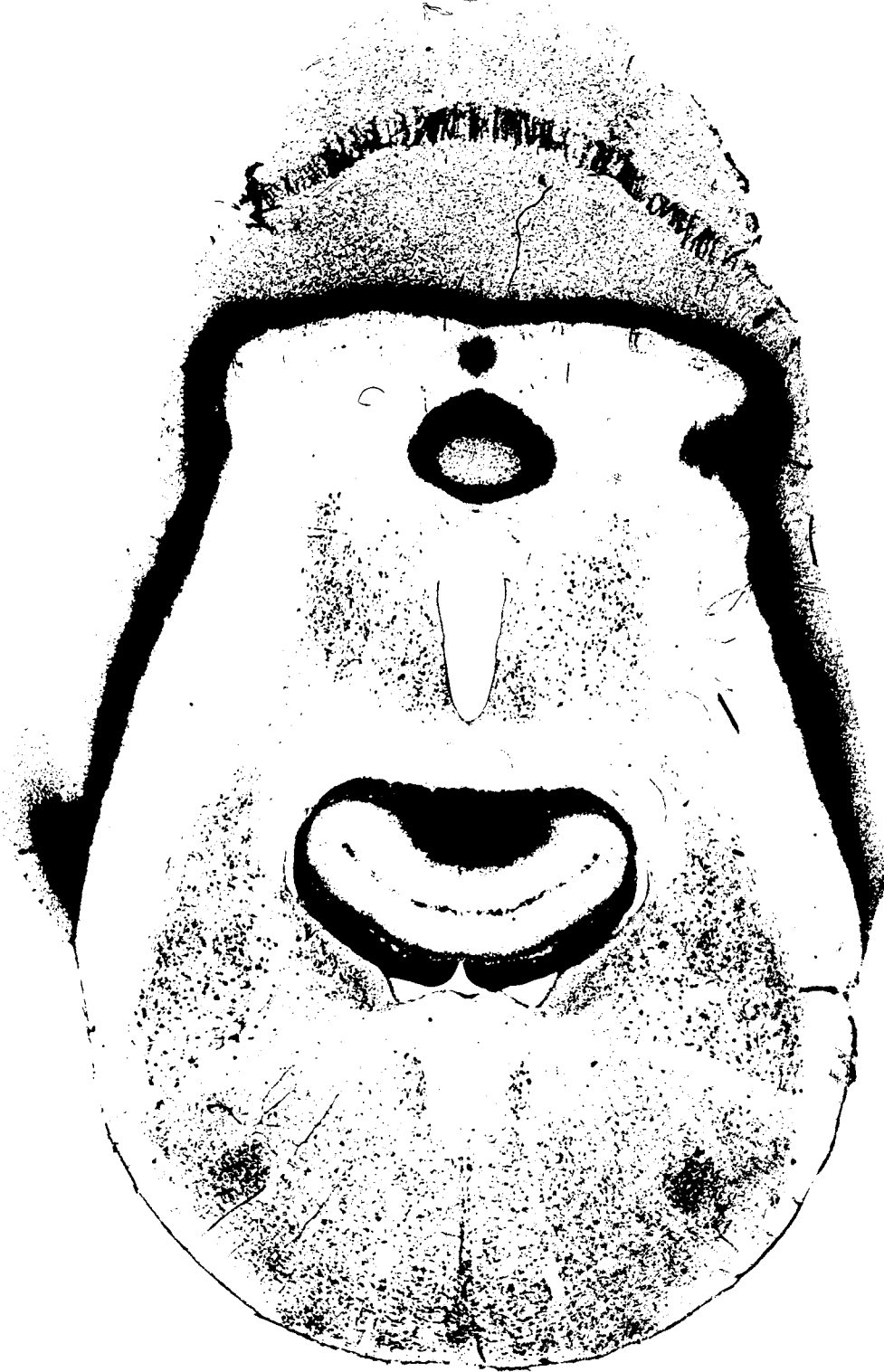
BC Brachium conjunctivum
 Cb Cerebellum
 CbI Nucleus cerebellaris internus
 CbM Nucleus cerebellaris intermedius
 CCV Commissura cerebellaris ventralis
 CTz Corpus trapezoideum (Papez)

FLM Fasciculus longitudinalis medialis
 L Lingula
 LS Lemniscus spinalis
 nVI Nervus abducens
 NVI Nucleus nervi abducentis
 nVII Nucleus nervi facialis



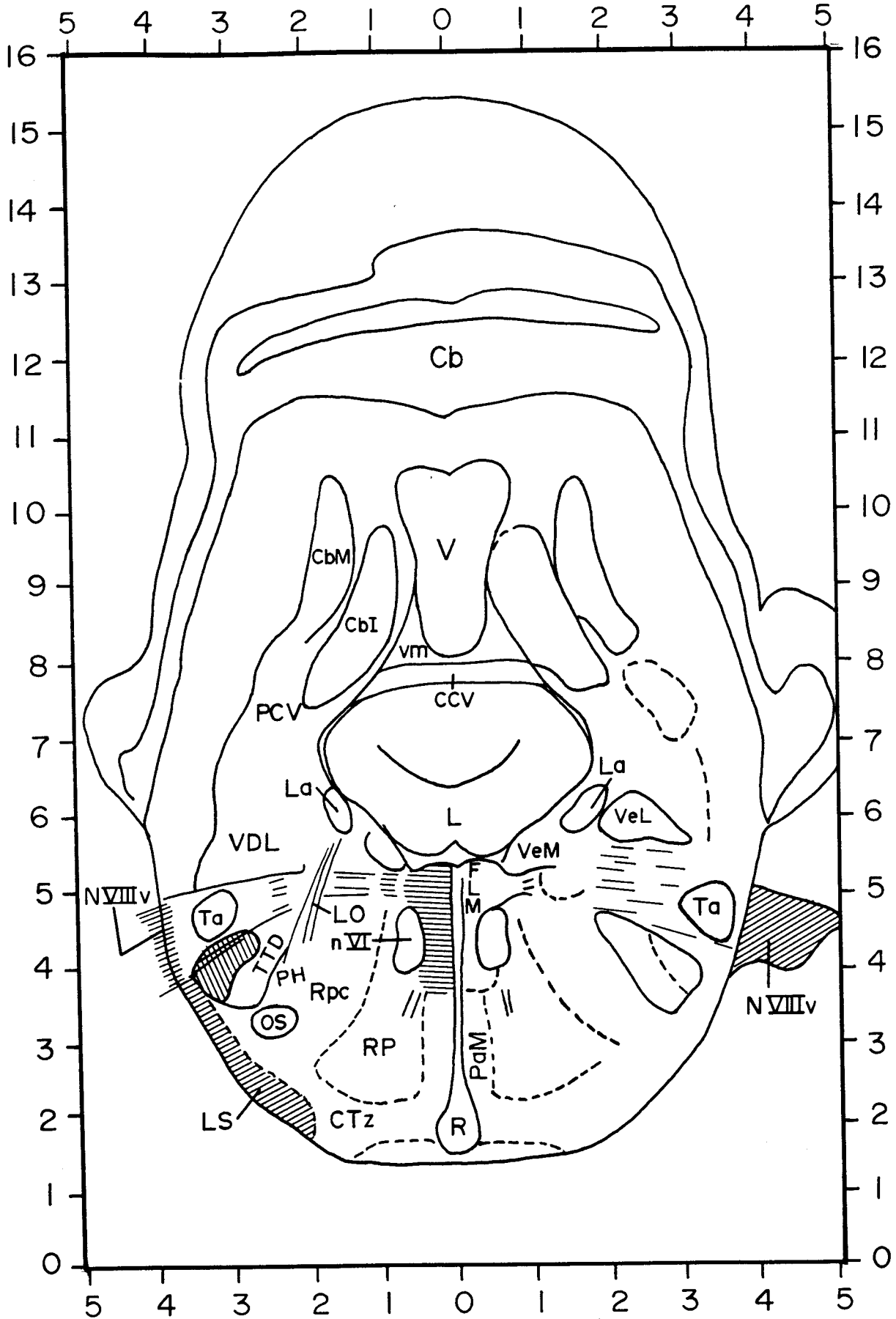
OM Tractus occipitomesencephalicus
 OS Nucleus olivaris superior
 PaM Nucleus paramedianus
 PH Plexus of Horsley
 PL Nucleus pontis lateralis
 PM Nucleus pontis medialis
 R Nuclei raphe

RP Nucleus reticularis pontis caudalis
 Rpc Nucleus reticularis parvocellularis
 TeO Tectum opticum
 TTD Nucleus et tractus descendens nervi trigemini
 V Ventriculus
 VeL Nucleus vestibularis lateralis
 VeM Nucleus vestibularis medialis
 VS Nucleus vestibularis superior



nVI Nucleus nervi abducentis
 OS Nucleus olivaris superior
 PaM Nucleus paramedianus
 PCV Processus lateralis cerebello-vestibularis
 PL Nucleus pontis lateralis
 PH Plexus of Horsley
 PM Nucleus pontis medialis
 R Nuclei raphes

RP Nucleus reticularis pontis caudalis
 Rpc Nucleus reticularis parvocellularis
 TTD Nucleus et tractus descendens nervi trigemini
 VeL Nucleus vestibularis lateralis
 VeM Nucleus vestibularis medialis
 vm Nucleus cerebellaris internus, pars ventromedialis
 VS Nucleus vestibularis superior

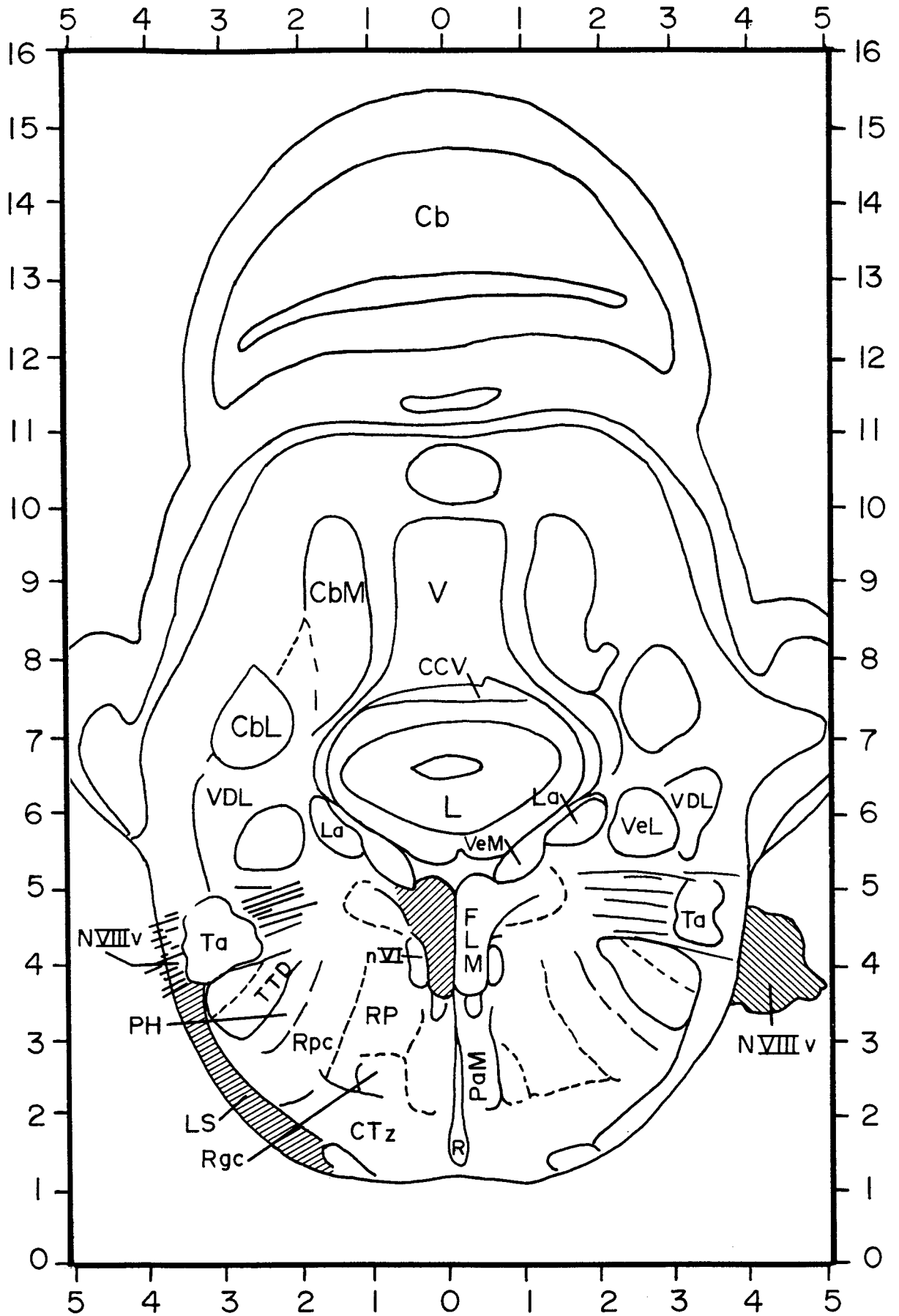


Cb	Cerebellum	L	Lingula
CbI	Nucleus cerebellaris internus	La	Nucleus laminaris
CbM	Nucleus cerebellaris intermedius	LO	Tractus lamino-olivaris
CCV	Commissura cerebellaris ventralis	LS	Lemniscus spinalis
CTz	Corpus trapezoideum (Papez)	nVI	Nucleus nervi abducentis
FLM	Fasciculus longitudinalis medialis	N VIII v	Nervus octavus, pars vestibularis



OS Nucleus olivaris superior
 PH Plexus of Horsley
 PaM Nucleus paramedianus
 PCV Processus lateralis cerebello-vestibularis
 R Nuclei raphes
 RP Nucleus reticularis pontis caudalis
 Rpc Nucleus reticularis parvocellularis

Ta Nucleus tangentialis (Cajal)
 TTD Nucleus et tractus descendens nervi trigemini
 V Ventriculus
 VDL Nucleus vestibularis dorsolateralis (Sanders)
 VeL Nucleus vestibularis lateralis
 VeM Nucleus vestibularis medialis
 vm Nucleus cerebellaris internus, pars ventromedialis

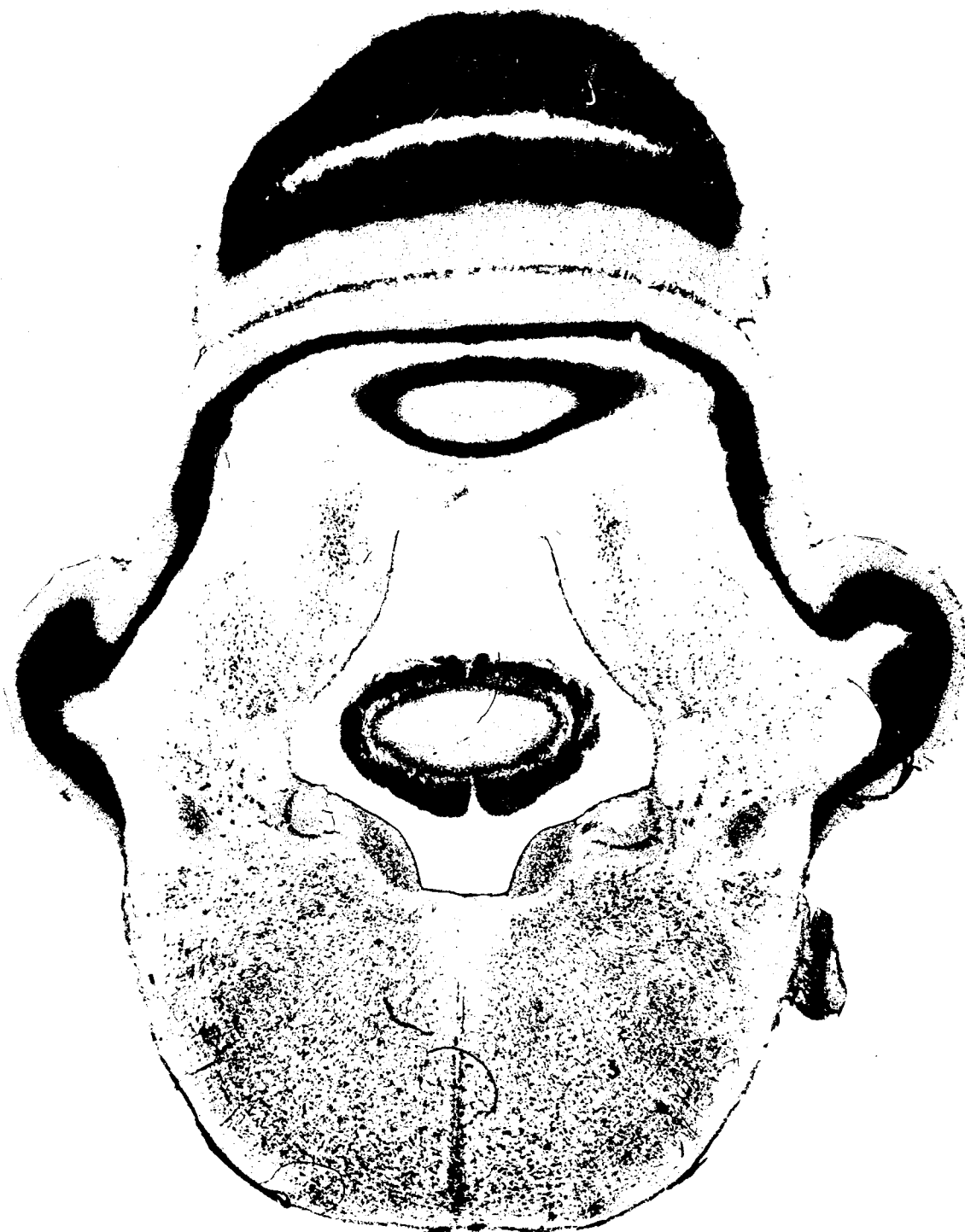


Cb	Cerebellum	L	Lingula
CbL	Nucleus cerebellaris lateralis	La	Nucleus laminaris
CbM	Nucleus cerebellaris intermedius	LS	Lemniscus spinalis
CCV	Commissura cerebellaris ventralis	nVI	Nucleus nervi abducentis
CTz	Corpus trapezoideum (Papez)	N VIII v	Nervus octavius, pars vestibularis
FLM	Fasciculus longitudinalinalis medialis	PaM	Nucleus paramedianus



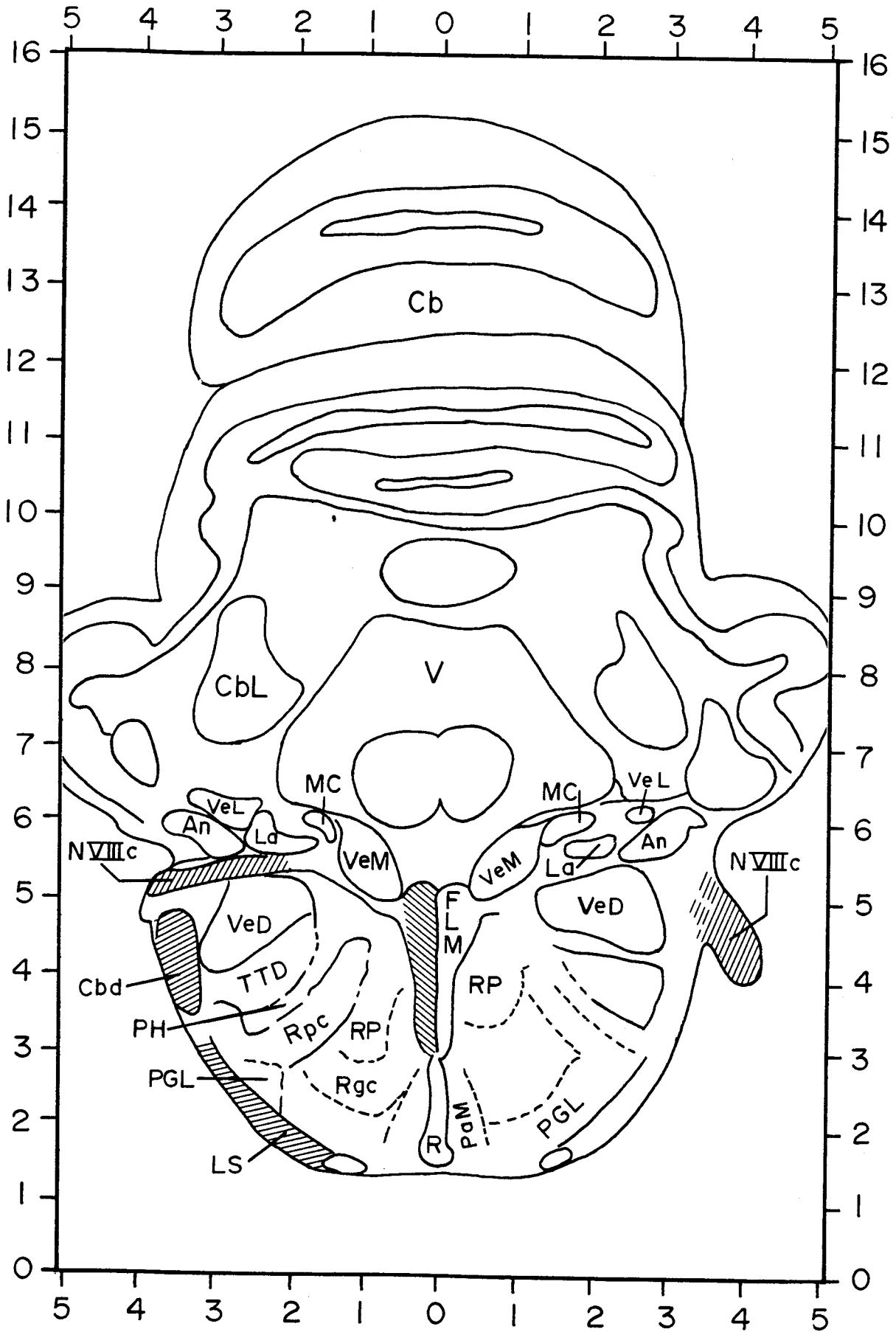
PH Plexus of Horsley
 R Nuclei raphes
 Rgc Nucleus reticularis gigantocellularis
 RP Nucleus reticularis pontis caudalis
 Rpc Nucleus reticularis parvocellularis

Ta Nucleus tangentialis (Cajal)
 TTD Nucleus et tractus descendens nervi trigemini
 V Ventriculus
 VDL Nucleus vestibularis dorsolateralis (Sanders)
 VeL Nucleus vestibularis lateralis
 VeM Nucleus vestibularis medialis



PaM Nucleus paramedianus
 PH Plexus of Horsley
 R Nuclei raphes
 Rgc Nucleus reticularis gigantocellularis
 RP Nucleus reticularis pontis caudalis
 Rpc Nucleus reticularis parvocellularis

Ta Nucleus tangentialis (Cajal)
 TTD Nucleus et tractus descendens nervi trigemini
 V Ventriculus
 VeD Nucleus vestibularis descendens
 VeL Nucleus vestibularis lateralis
 VeM Nucleus vestibularis medialis



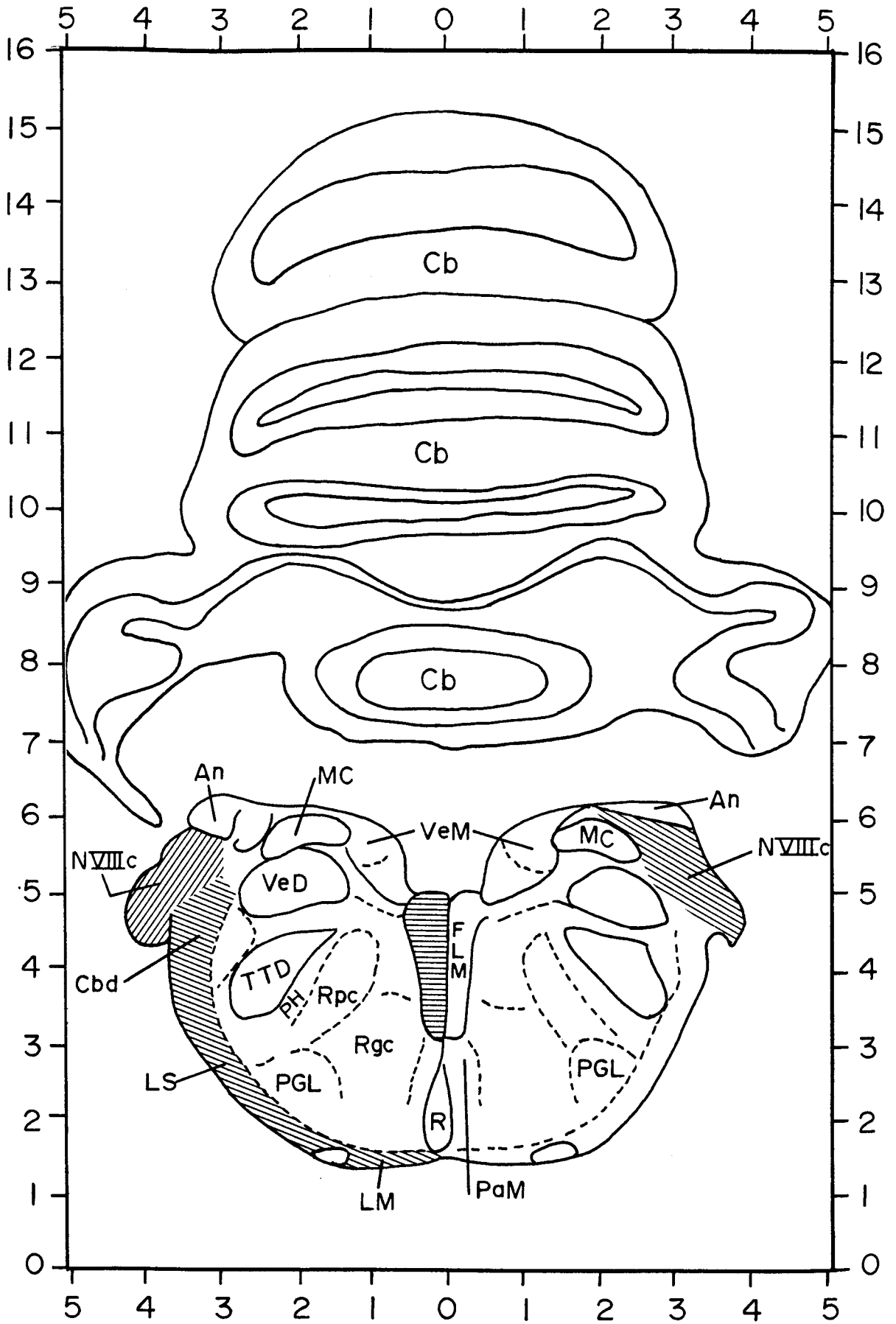
An Nucleus angularis
 Cb Cerebellum
 Cbd Tractus spinocerebellaris dorsalis
 CbL Nucleus cerebellaris lateralis
 FLM Fasciculus longitudinalis medialis
 La Nucleus laminaris

LS Lemniscus spinalis
 MC Nucleus magnocellularis
 NVIIIc Nervus octavus, pars cochlearis
 PaM Nucleus paramedianus
 PGL Nucleus paragigantocellularis lateralis



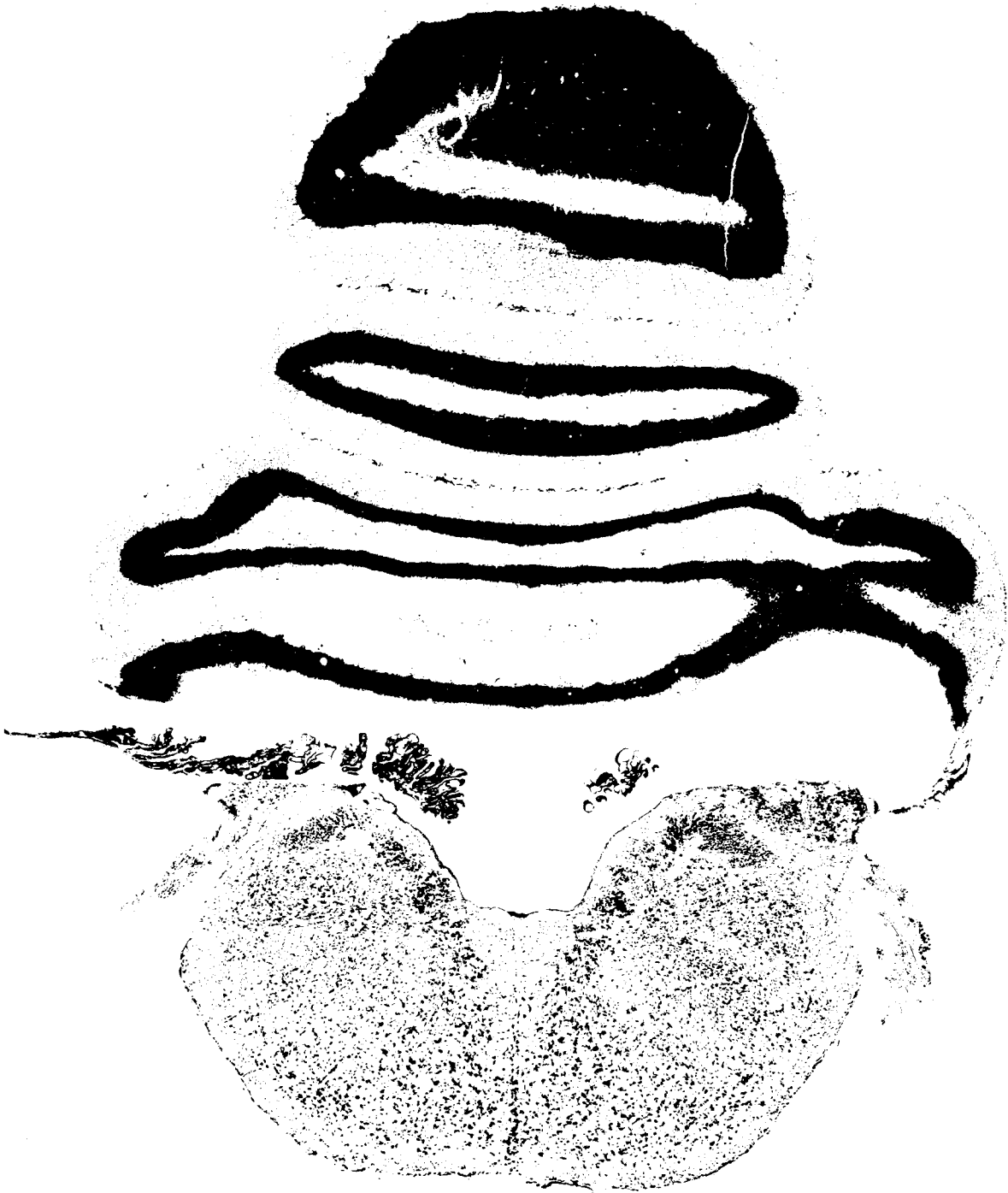
PH Plexus of Horsley
R Nuclei raphes
Rgc Nucleus reticularis gigantocellularis
RP Nucleus reticularis pontis caudalis
Rpc Nucleus reticularis parvo-cellularis

TTD Nucleus et tractus descendens nervi trigemini
V Ventriculus
VeD Nucleus vestibularis descendens
VeL Nucleus vestibularis lateralis
VeM Nucleus vestibularis medialis



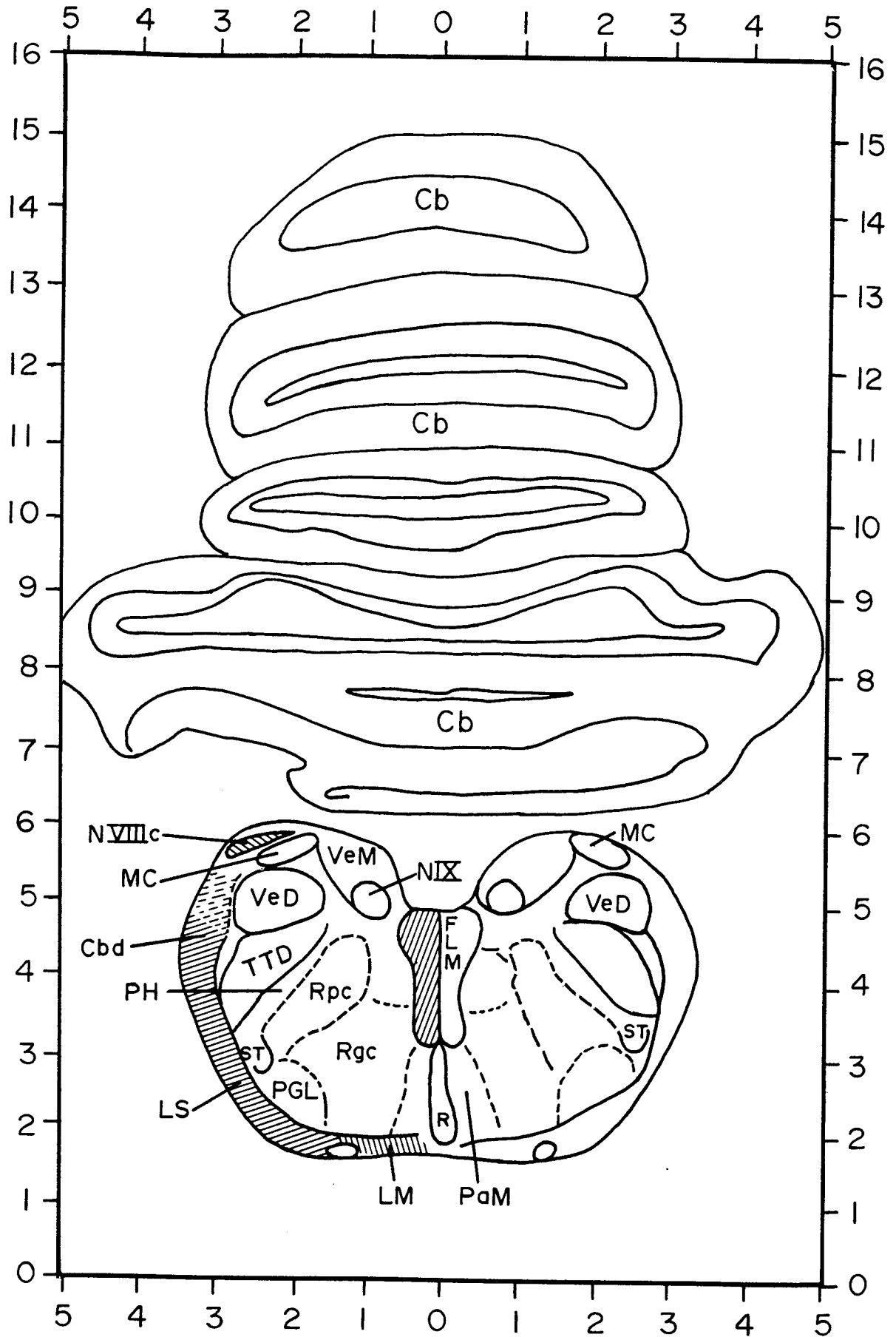
An Nucleus angularis
 Cb Cerebellum
 Cbd Tractus spinocerebellaris dorsalis
 FLM Fasciculus longitudinalis medialis
 LM Lemniscus medialis

LS Lemniscus spinalis
 MC Nucleus magnocellularis
 NVIIIc Nervus octavus, pars cochlearis
 PaM Nucleus paramedianus
 PGL Nucleus paragigantocellularis lateralis



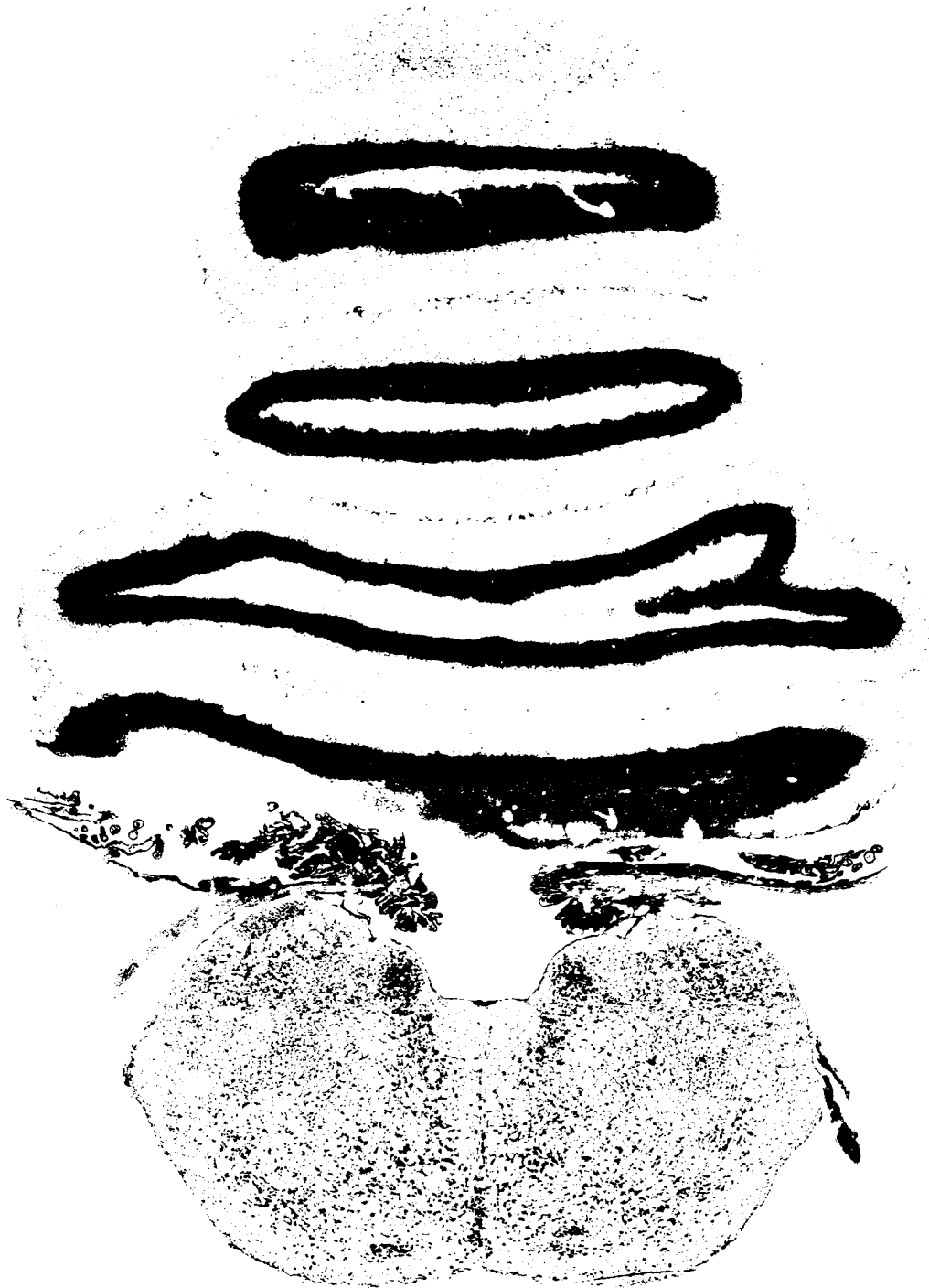
PH Plexus of Horsley
R Nuclei raphes
Rgc Nucleus reticularis gigantocellularis
Rpc Nucleus reticularis parvocellularis

TTD Nucleus et tractus descendens nervi trigemini
VeD Nucleus vestibularis descendens
VeM Nucleus vestibularis medialis



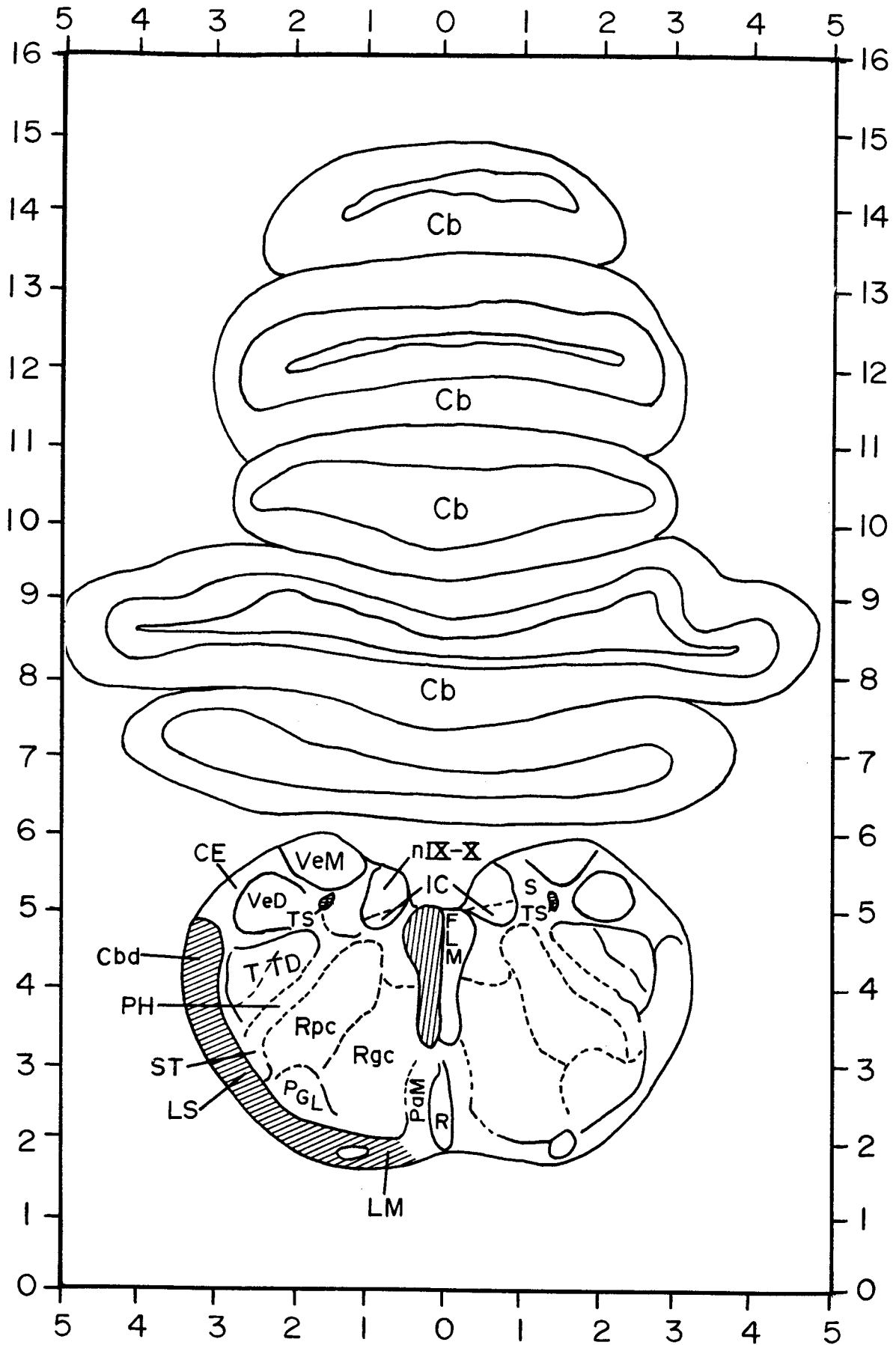
Cb Cerebellum
 Cbd Tractus spinocerebellaris dorsalis
 FLM Fasciculus longitudinalis medialis
 LS Lemniscus spinalis

LM Lemniscus medialis
 MC Nucleus magnocellularis
 NVIIIc Nervus octavus, pars cochlearis
 nIX Nucleus nervi glossopharyngei



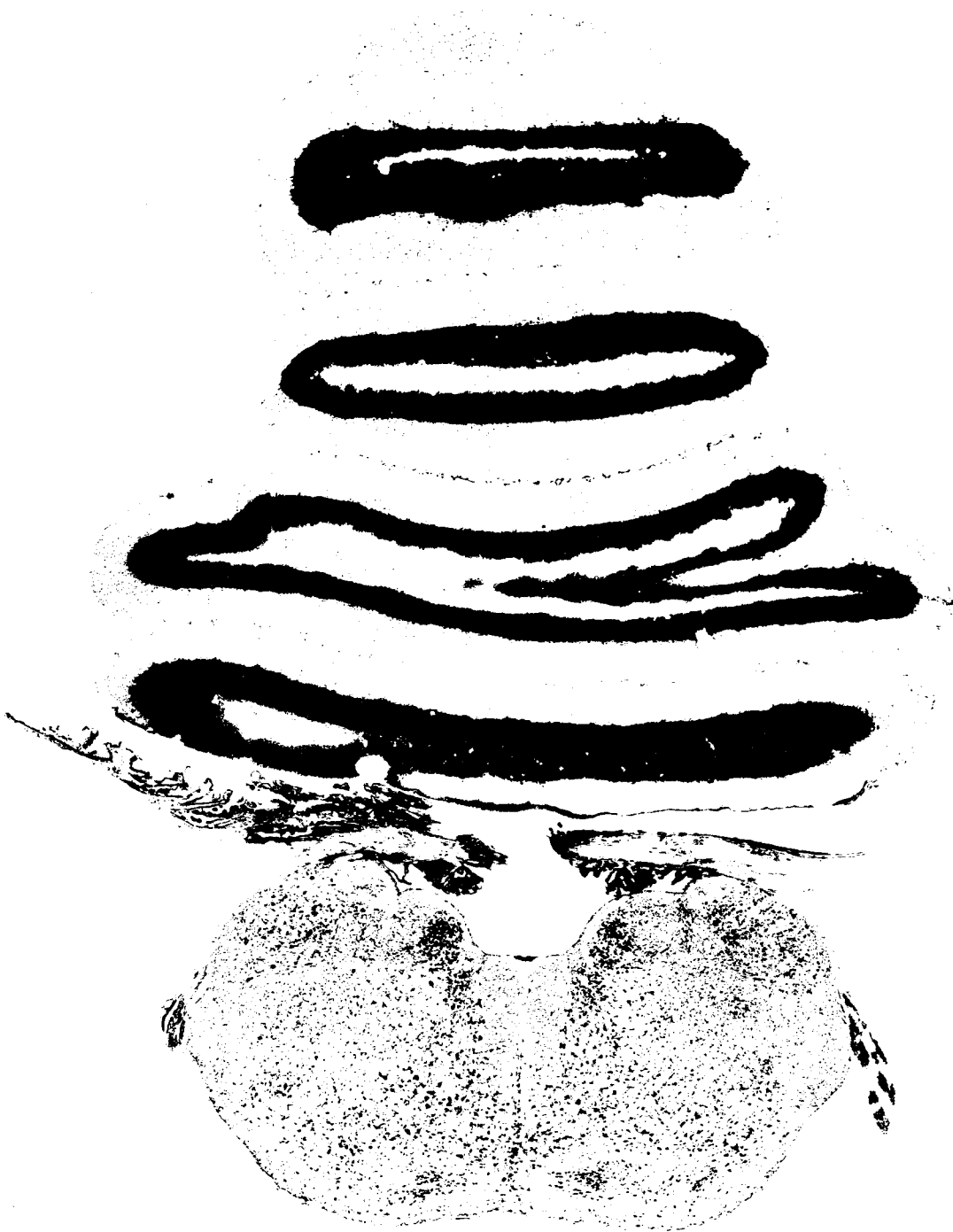
PaM Nucleus paramedianus
PGL Nucleus paragigantocellularis lateralis
PH Plexus of Horsley
R Nuclei raphes
Rgc Nucleus reticularis gigantocellularis

Rpc Nucleus reticularis parvocellularis
ST Nucleus subtrigeminus
TTD Nucleus et tractus descendens nervi trigemini
VeD Nucleus vestibularis descendens
VeM Nucleus vestibularis medialis



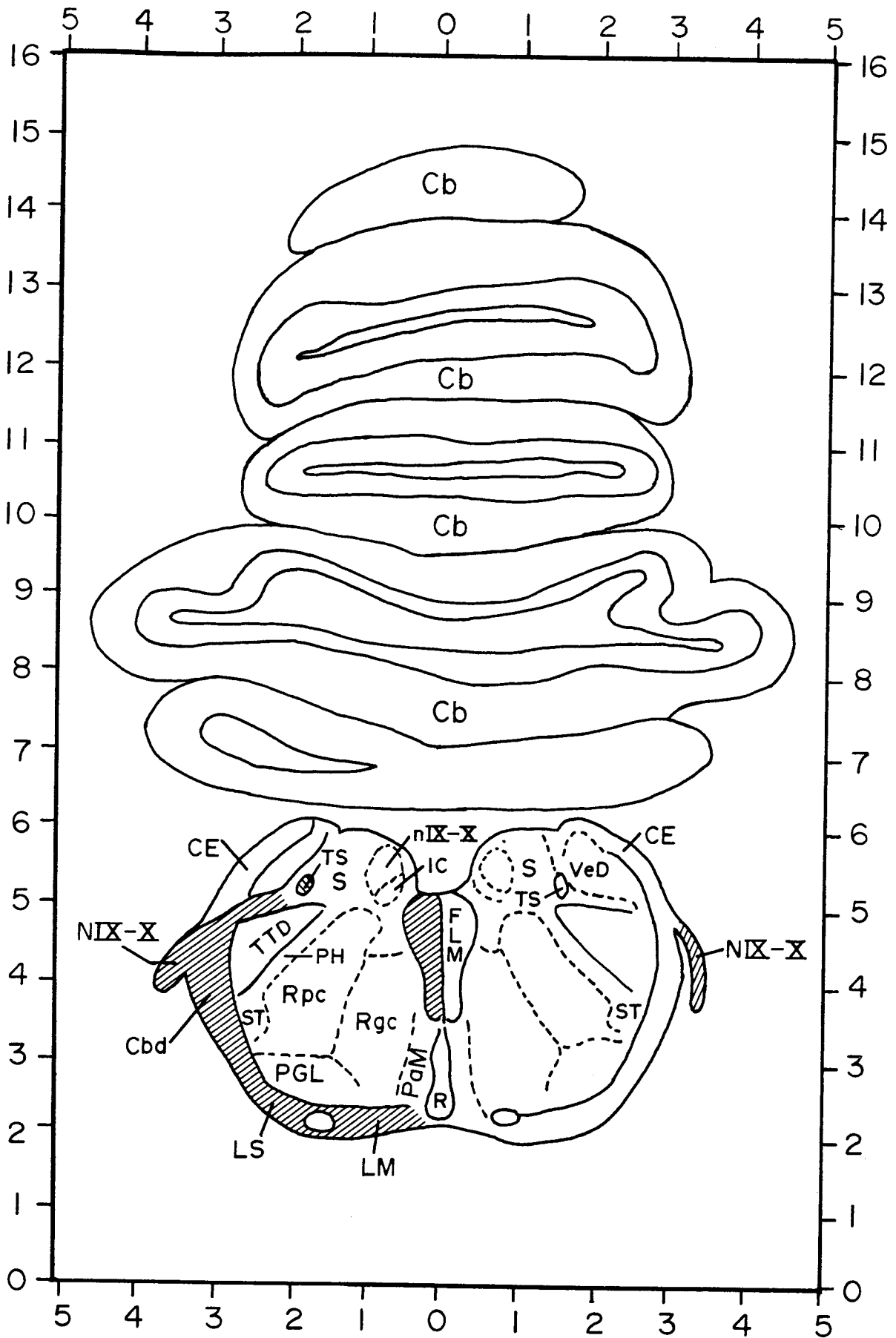
Cb Cerebellum
 Cbd Tractus spinocerebellaris dorsalis
 CE Nucleus cuneatus externus
 FLM Fasciculus longitudinalis medialis
 IC Nucleus intercalatus

LM Lemniscus medialis
 LS Lemniscus spinalis
 nIX-X Nucleus nervi glossopharyngei et nucleus motorius dorsalis nervi vagi
 PaM Nucleus paramedianus



PGL Nucleus paragigantocellularis lateralis
 PH Plexus of Horsley
 R Nuclei raphes
 Rgc Nucleus reticularis gigantocellularis
 Rpc Nucleus reticularis parvocellularis

S Nucleus solitarius
 ST Nucleus subtrigeminalis
 TS Tractus solitarius
 TTD Nucleus et tractus descendens nervi trigemini
 VeD Nucleus vestibularis descendens
 VeM Nucleus vestibularis medialis



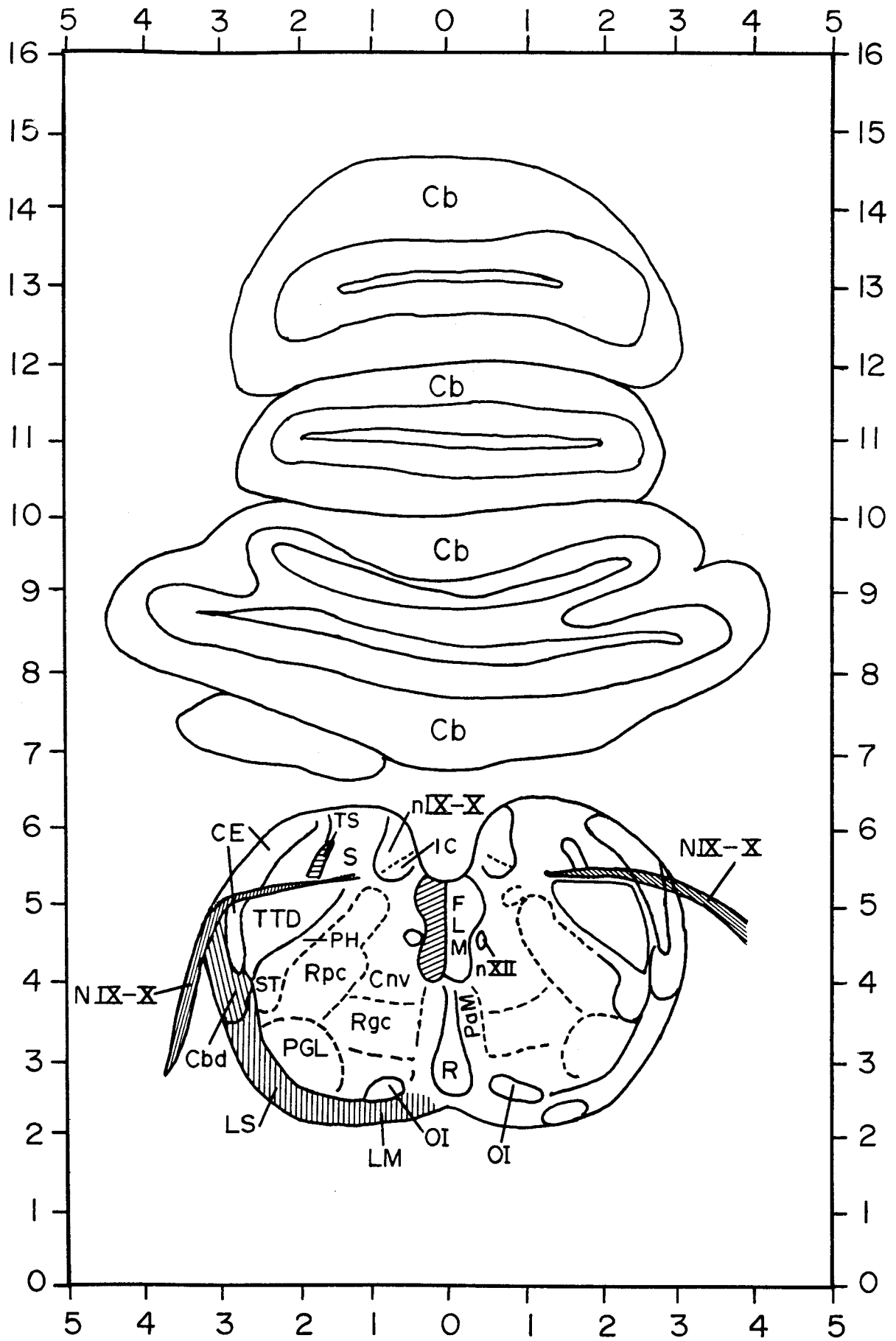
Cb Cerebellum
 Cbd Tractus spinocerebellaris dorsalis
 CE Nucleus cuneatus externus
 FLM Fasciculus longitudinalis medialis
 IC Nucleus intercalatus

LM Lemniscus medialis
 LS Lemniscus spinalis
 NIX-X Nervi glossopharyngeus et vagus
 nIX-X Nucleus nervi glossopharyngei et nucleus motorius dorsalis nervi vagi

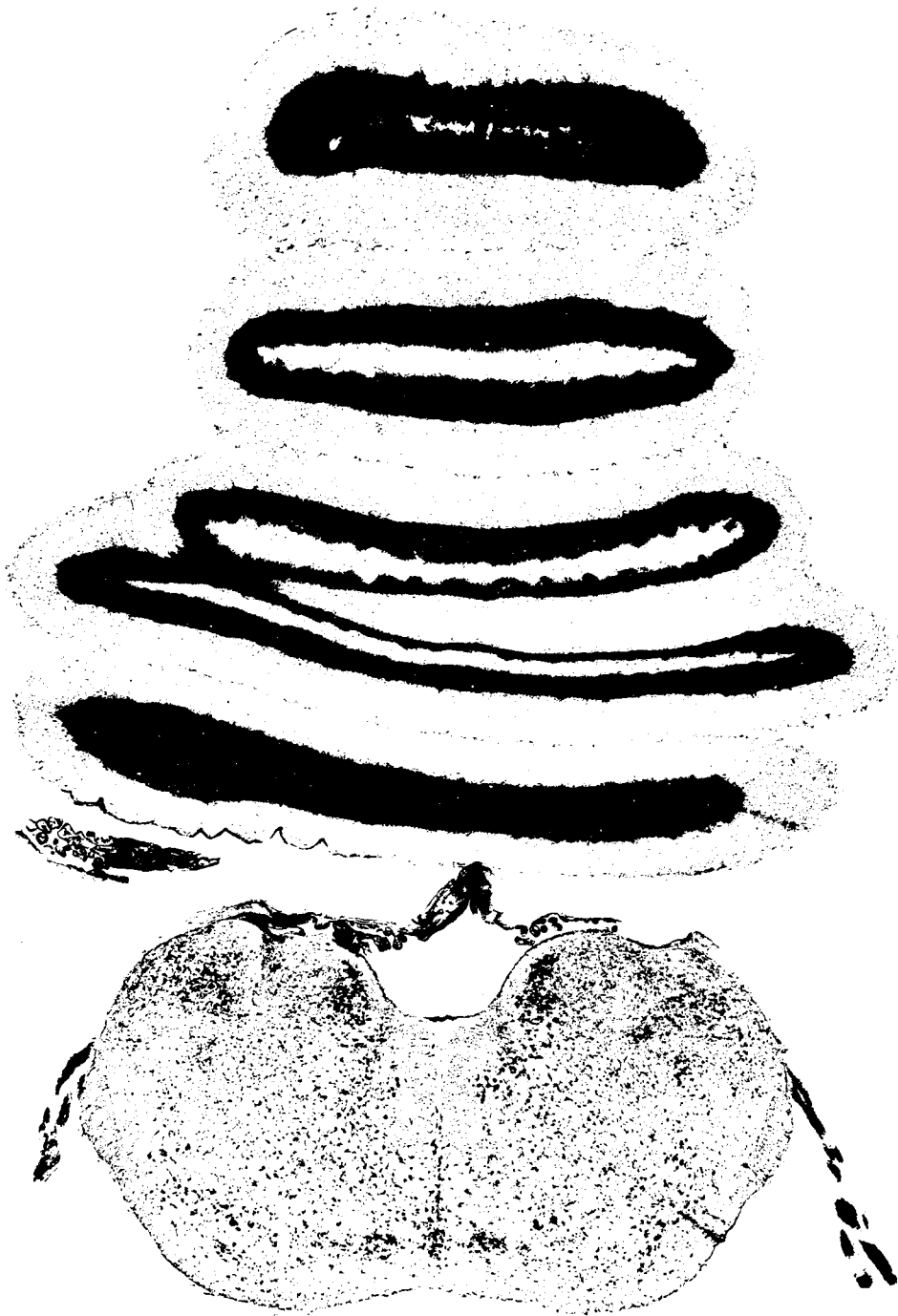


PaM Nucleus paramedianus
PGL Nucleus paragigantocellularis lateralis
PH Plexus of Horsley
R Nuclei raphes
Rgc Nucleus reticularis gigantocellularis

Rpc Nucleus reticularis parvocellularis
S Nucleus solitarius
ST Nucleus subtrigeminalis
TS Tractus solitarius
TTD Nucleus et tractus descendens nervi trigemini
VeD Nucleus vestibularis descendens

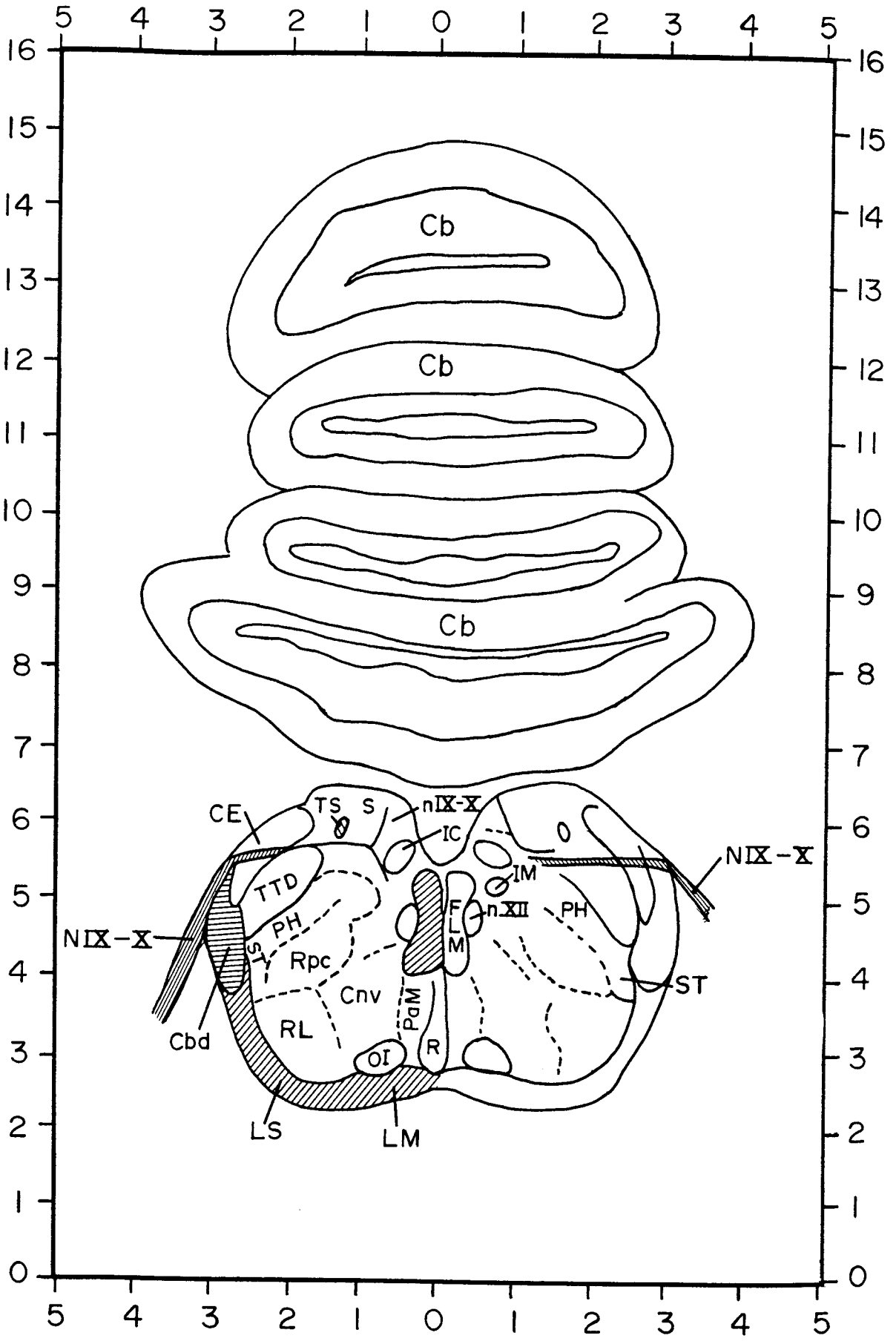


- | | | | |
|-----|---|-------|---|
| Cb | Cerebellum | IC | Nucleus intercalatus |
| Cbd | Tractus spinocerebellaris dorsalis | LM | Lemniscus medialis |
| CE | Nucleus cuneatus externus | LS | Lemniscus spinalis |
| Cnv | Nucleus centralis medullae oblongatae, pars ventralis | nIX-X | Nervi glossopharyngeus et vagus |
| FLM | Fasciculus longitudinalis medialis | nIX-X | Nucleus nervi glossopharyngei et nucleus motorius dorsalis nervi vagi |

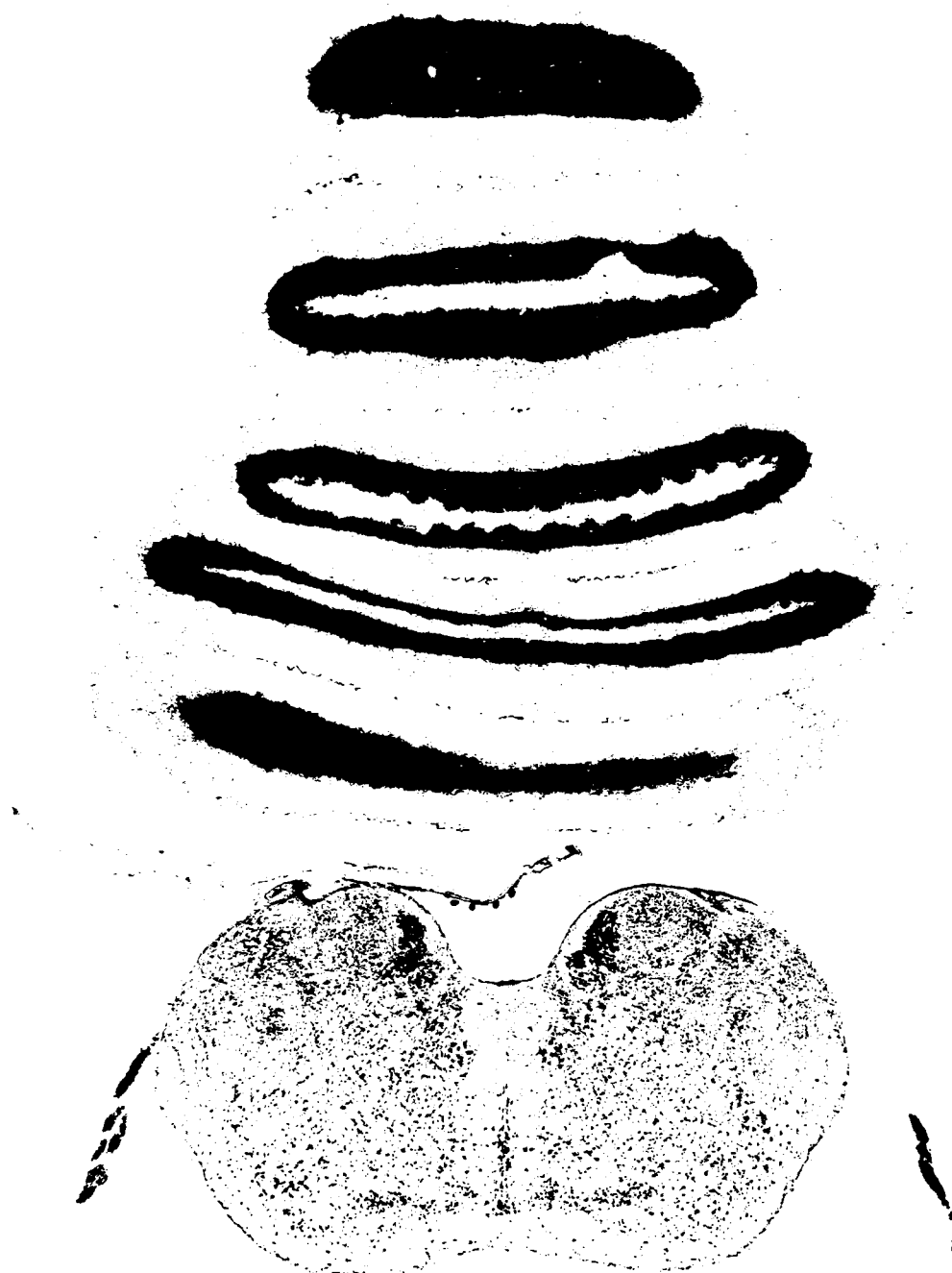


nXII Nucleus nervi hypoglossi
 OI Nucleus olivaris inferior
 PaM Nucleus paramedianus
 PGL Nucleus paragigantocellularis lateralis
 PH Plexus of Horsley
 R Nuclei raphes

Rgc Nucleus reticularis gigantocellularis
 Rpc Nucleus reticularis parvocellularis
 S Nucleus solitarius
 ST Nucleus subtrigeminalis
 TS Tractus solitarius
 TTD Nucleus et tractus descendens nervi trigemini

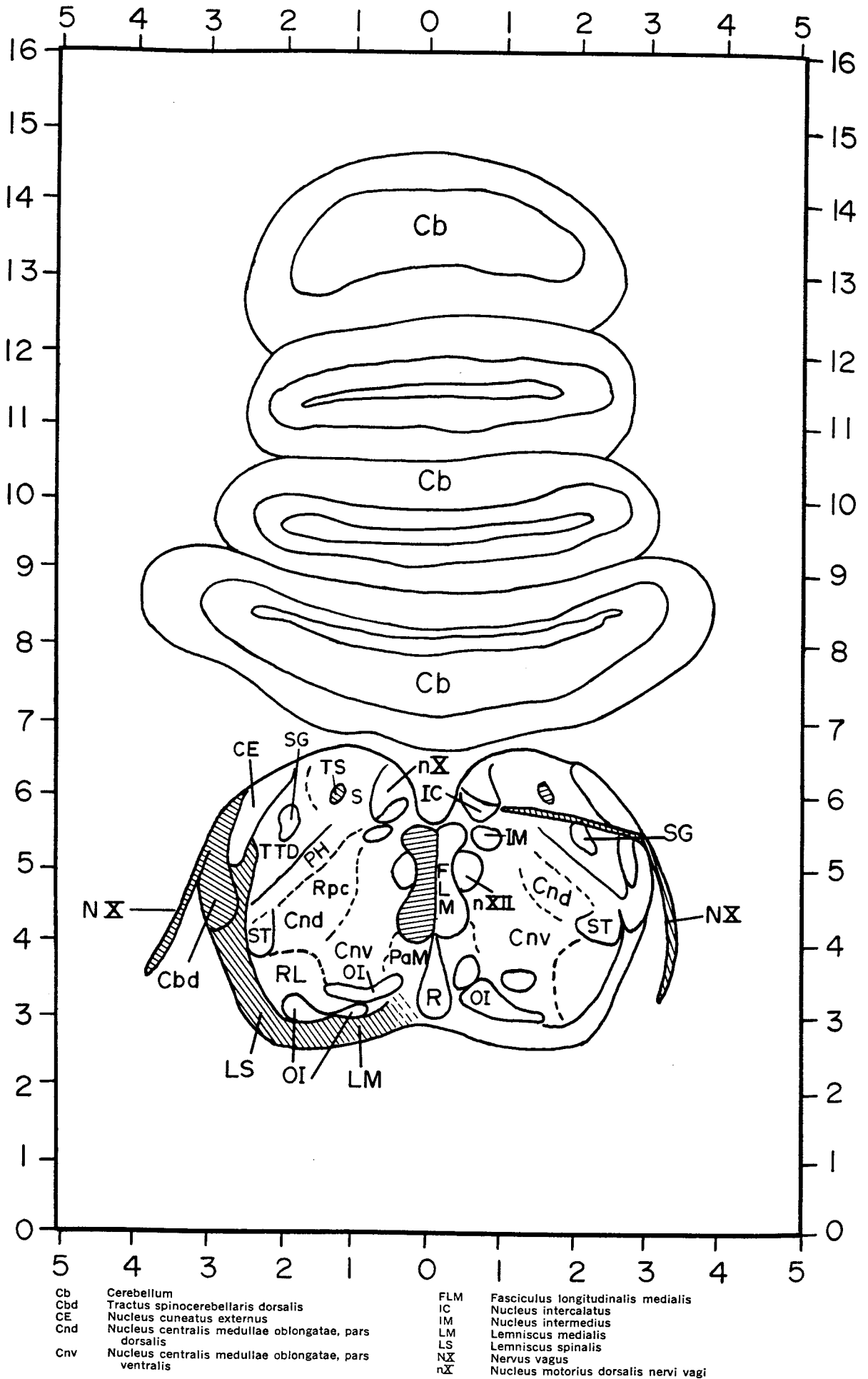


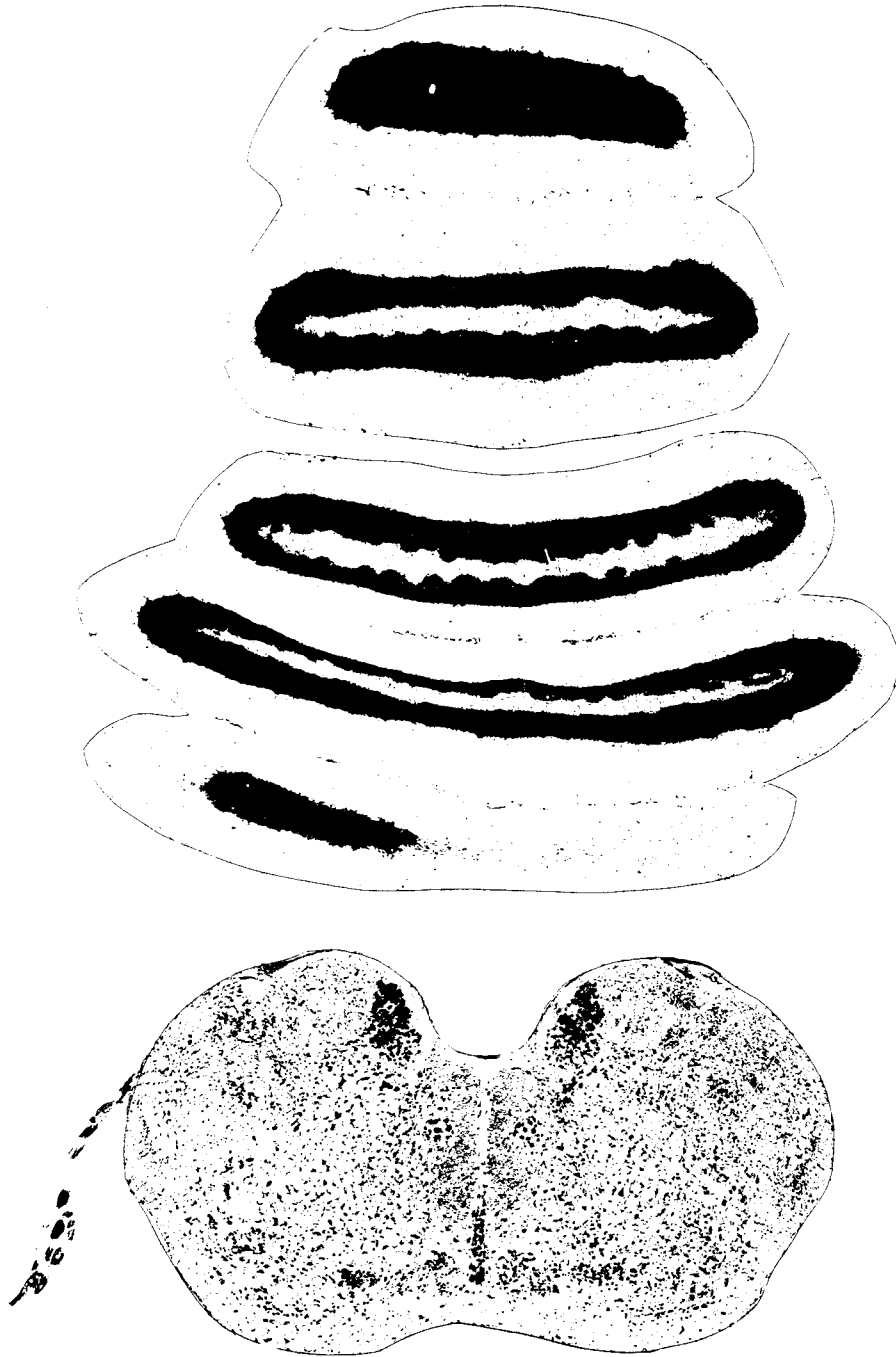
- | | | | |
|-----|---|-------|---------------------------------|
| Cb | Cerebellum | IC | Nucleus intercalatus |
| Cbd | Tractus spinocerebellaris dorsalis | IM | Nucleus intermedius |
| CE | Nucleus cuneatus externus | LM | Lemniscus medialis |
| Cnv | Nucleus centralis medullae oblongatae, pars ventralis | LS | Lemniscus spinalis |
| FLM | Fasciculus longitudinalis medialis | NIX-X | Nervi glossopharyngeus et vagus |



nIX-X Nucleus nervi glossopharyngei et nucleus
 motorius dorsalis nervi vagi
 nXII Nucleus nervi hypoglossi
 OI Nucleus olivaris inferior
 PaM Nucleus paramedianus

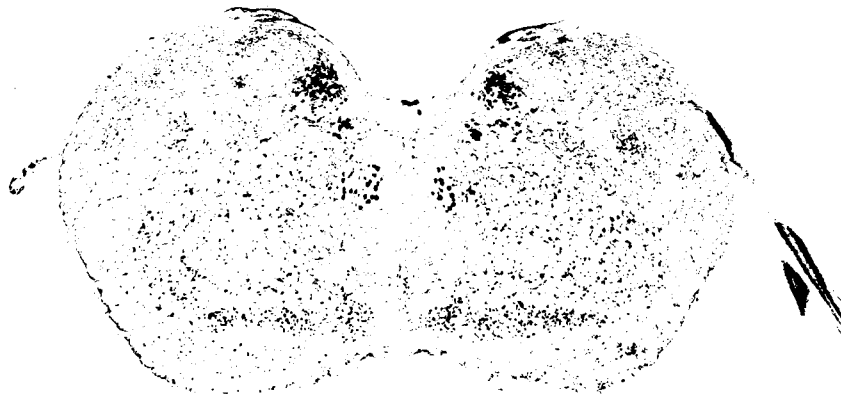
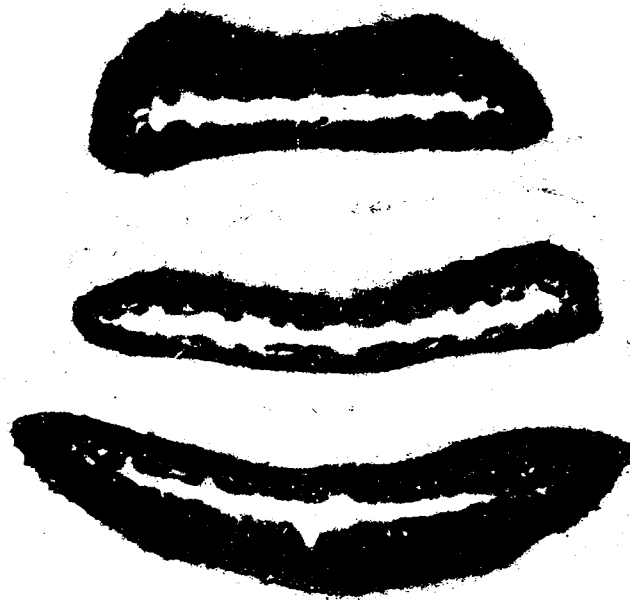
R Nuclei raphes
 RL Nucleus reticularis lateralis
 Rpc Nucleus reticularis parvocellularis
 S Nucleus solitarius
 ST Nucleus subtrigeminalis
 TS Tractus solitarius





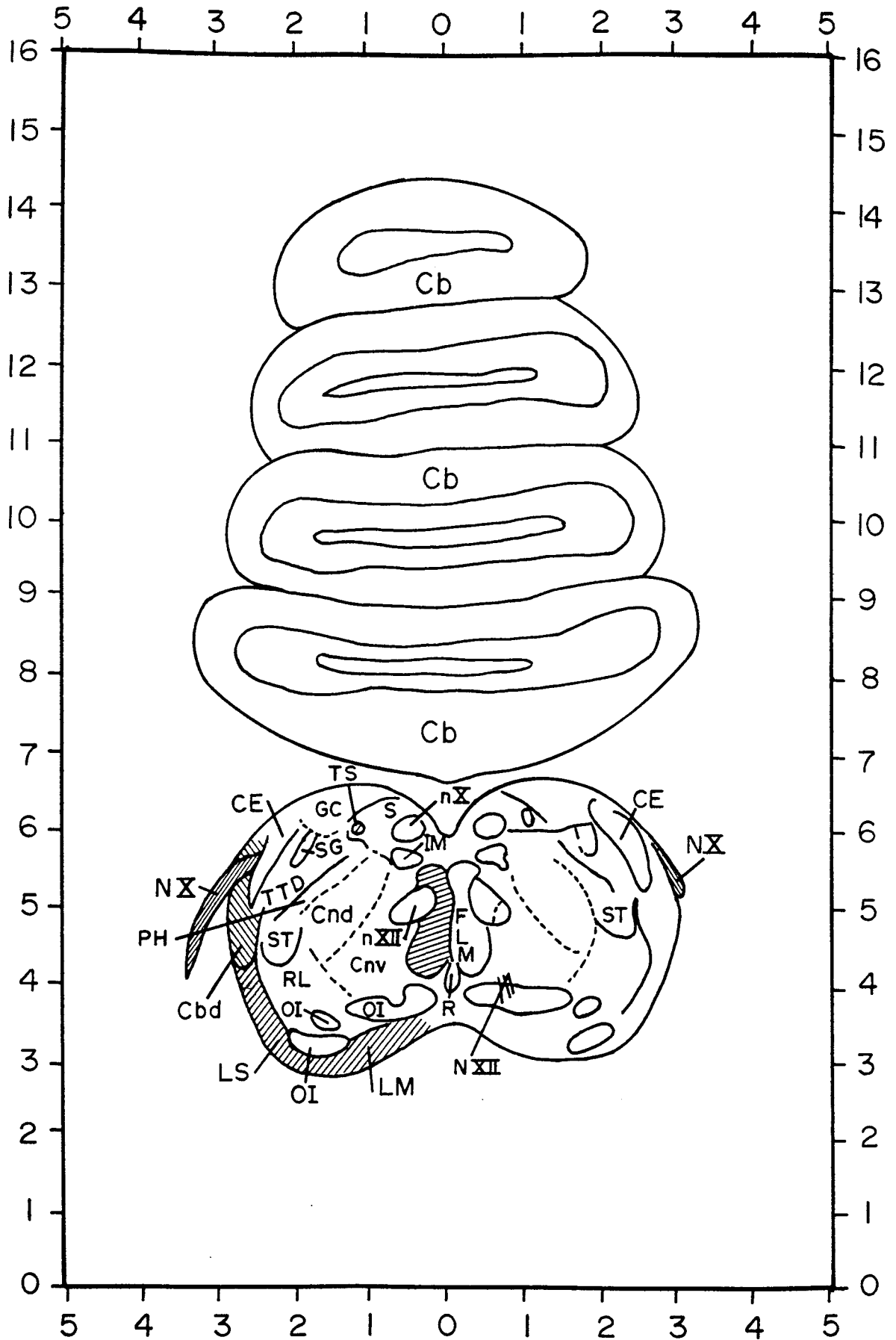
nXII Nucleus nervi hypoglossi
 OI Nucleus olivaris inferior
 PaM Nucleus paramedianus
 PH Plexus of Horsley
 R Nuclei raphes
 RL Nucleus reticularis lateralis

Rpc Nucleus reticularis parvocellularis
 S Nucleus solitarius
 SG Substantia gelatinosa Rolandi (trigemi)
 ST Nucleus subtrigeminalis
 TS Tractus solitarius
 TTD Nucleus et tractus descendens nervi trigemi

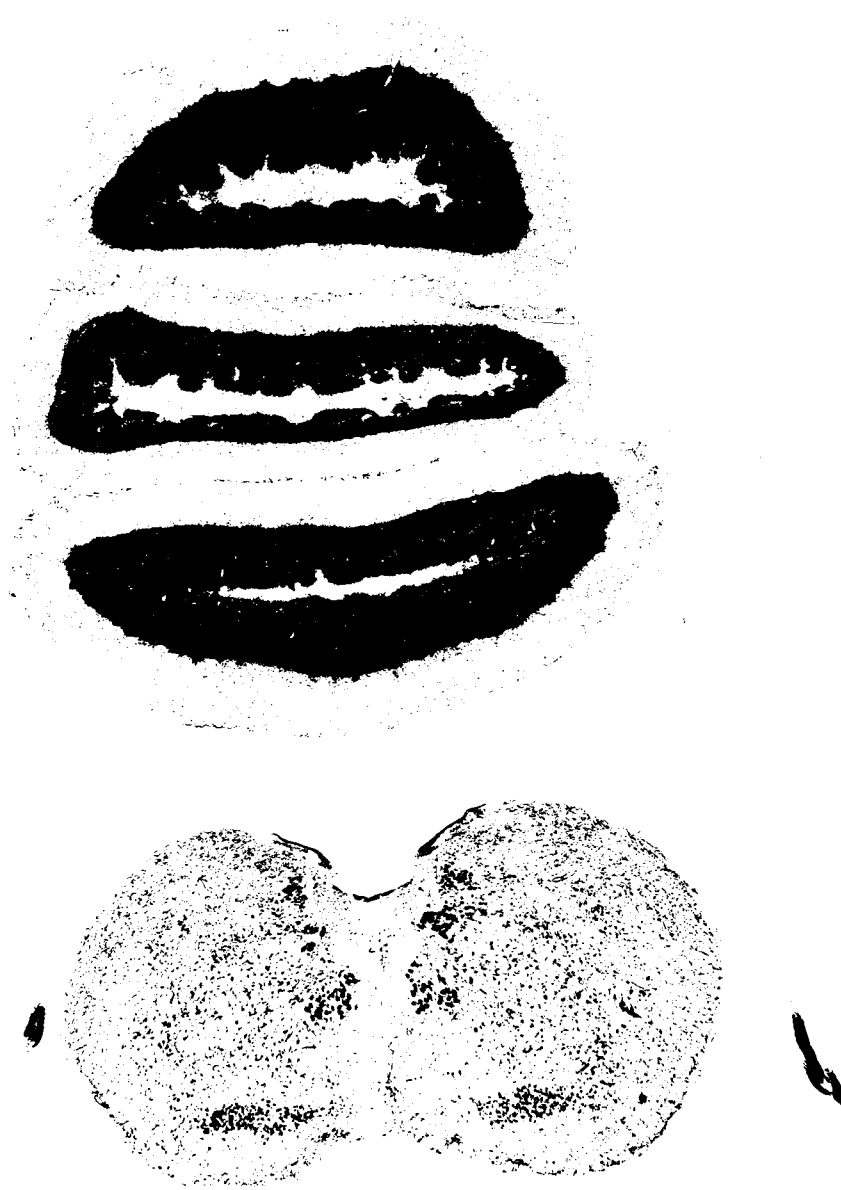


LS Lemniscus spinalis
 NX Nervus vagus
 nX Nucleus motorius dorsalis nervi vagi
 nXII Nucleus nervi hypoglossi
 OI Nucleus olivaris inferior
 PH Plexus of Horsley

R Nuclei raphes
 RL Nucleus reticularis lateralis
 S Nucleus solitarius
 SG Substantia gelatinosa Rolandi (trigemini)
 ST Nucleus subtrigeminalis
 TS Tractus solitarius
 TTD Nucleus et tractus descendens nervi trigemini

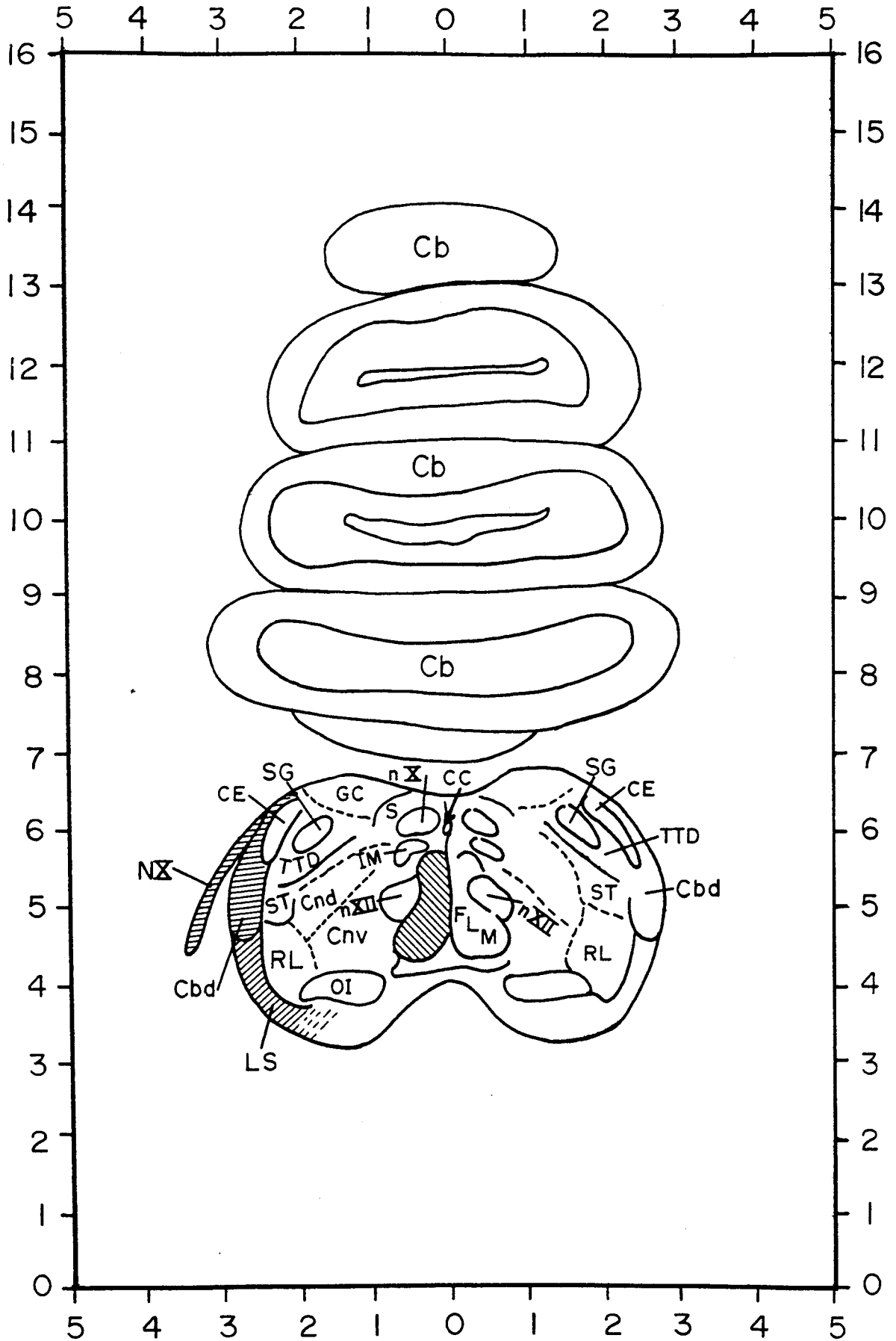


Cb	Cerebellum	Cnv	Nucleus centralis medullae oblongatae, pars ventralis
Cbd	Tractus spinocerebellaris dorsalis	FLM	Fasciculus longitudinalis medialis
CE	Nucleus cuneatus externus	GC	Nuclei gracilis et cuneatus
Cnd	Nucleus centralis medullae oblongatae, pars dorsalis	IM	Nucleus intermedius



LM Lemniscus medialis
 LS Lemniscus spinalis
 NX Nervus vagus
 NXII Nervus hypoglossus
 nX Nucleus motorius dorsalis nervi vagi
 nXII Nucleus nervi hypoglossi
 OI Nucleus olivaris inferior

PH Plexus of Horsley
 R Nuclei raphes
 RL Nucleus reticularis lateralis
 S Nucleus solitarius
 SG Substantia gelatinosa Rolandi (trigemini)
 ST Nucleus subtrigeminalis
 TS Tractus solitarius
 TTD Nucleus et tractus descendens nervi trigemini

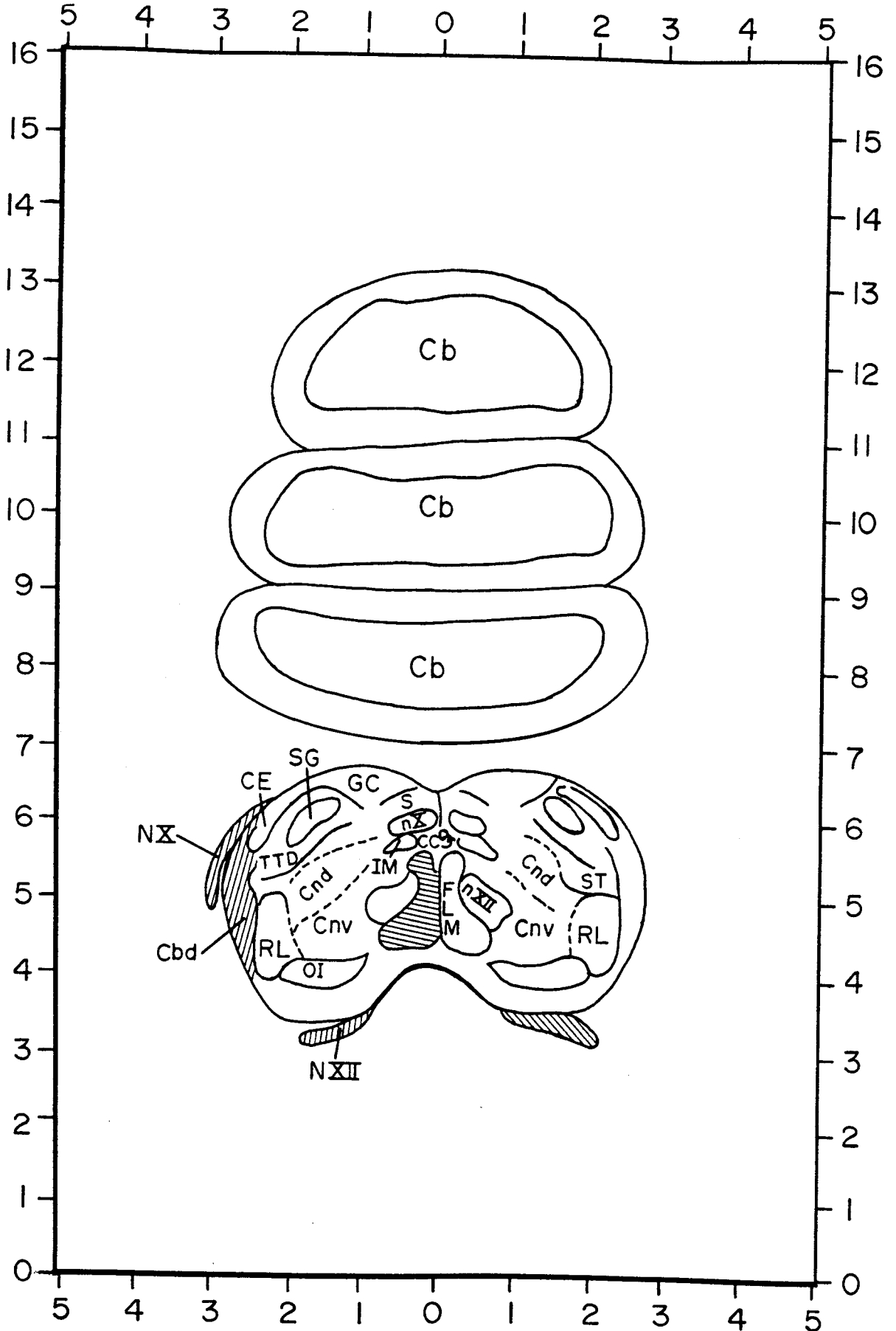


Cb	Cerebellum	Cnv	Nucleus centralis medullae oblongatae, pars ventralis
Cbd	Tractus spinocerebellaris dorsalis	FLM	Fasciculus longitudinalis medialis
CC	Canalis centralis	GC	Nuclei gracilis et cuneatus
CE	Nucleus cuneatus externus	IM	Nucleus intermedius
Cnd	Nucleus centralis medullae oblongatae, pars dorsalis	LS	Lemniscus spinalis



NX Nervus vagus
 nX Nucleus motorius dorsalis nervi vagi
 nXII Nucleus nervi hypoglossi
 OI Nucleus olivaris inferior
 RL Nucleus reticularis lateralis

S Nucleus solitarius
 SG Substantia gelatinosa Rolandi (trigemini)
 ST Nucleus subtrigeminalis
 TTD Nucleus et tractus descendens nervi trigemini

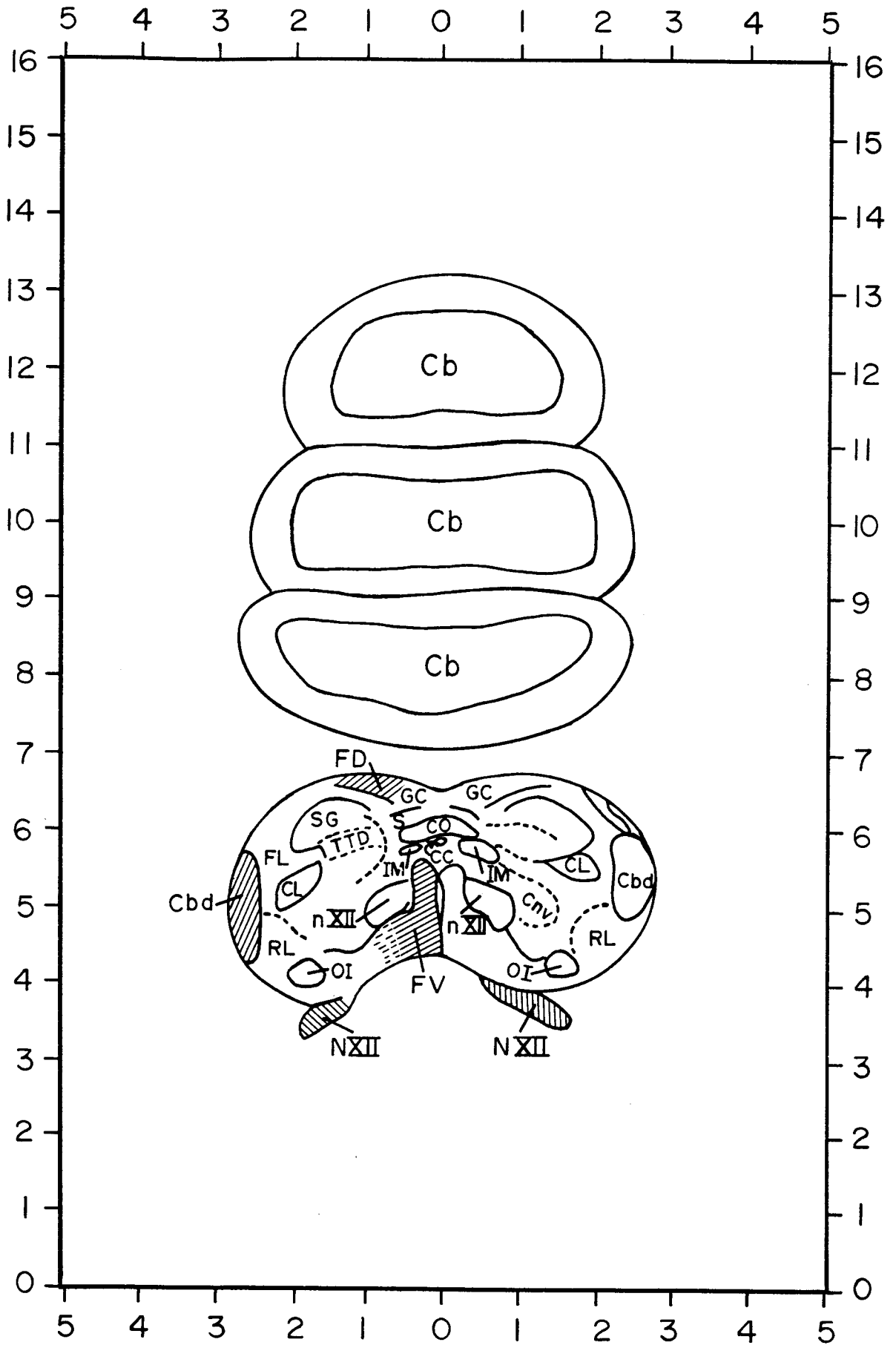


- | | | | |
|-----|--|-----|---|
| Cb | Cerebellum | Cnv | Nucleus centralis medullae oblongatae, pars ventralis |
| Cbd | Tractus spinocerebellaris dorsalis | FLM | Fasciculus longitudinalis medialis |
| CC | Canalis centralis | GC | Nuclei gracilis et cuneatus |
| CE | Nucleus cuneatus externus | IM | Nucleus intermedius |
| Cnd | Nucleus centralis medullae oblongatae, pars dorsalis | NX | Nervus vagus |



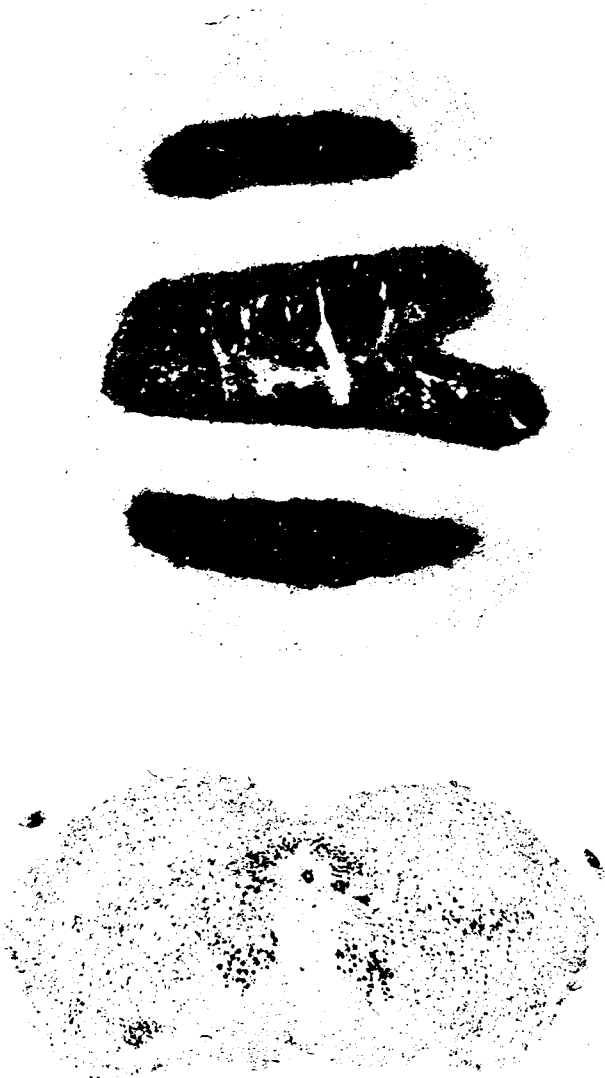
NXII Nervus hypoglossus
nX Nucleus motorius dorsalis nervi vagi
nXII Nucleus nervi hypoglossi
OI Nucleus olivaris inferior

RL Nucleus reticularis lateralis
S Nucleus solitarius
SG Substantia gelatinosa Rolandi (trigemini)
ST Nucleus subtrigeminalis
TTD Nucleus et tractus descendens nervi trigemini



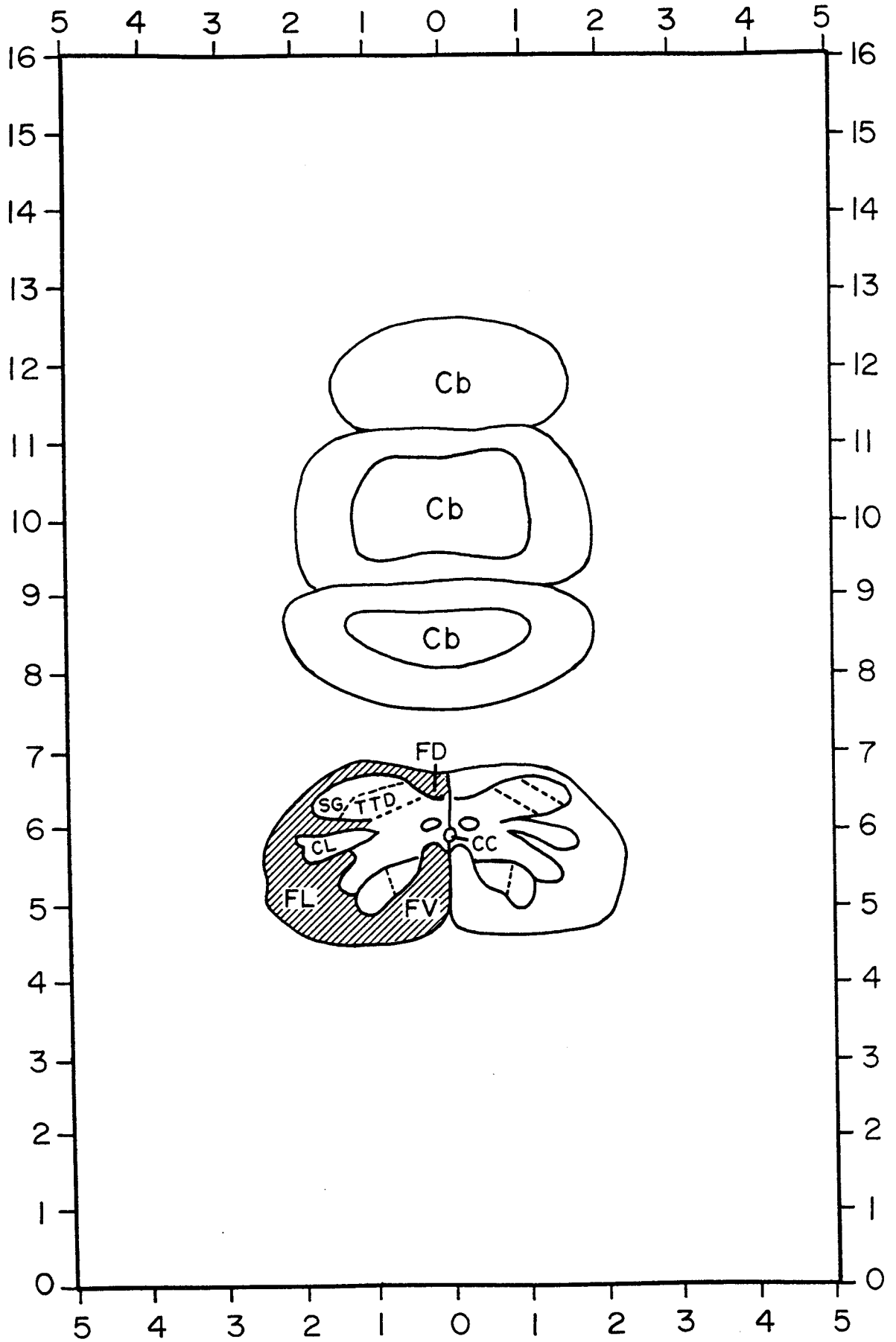
Cb Cerebellum
 Cbd Tractus spinocerebellaris dorsalis
 CC Canalis centralis
 CL Nucleus cervicalis lateralis

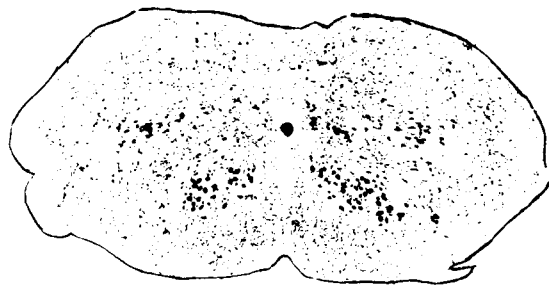
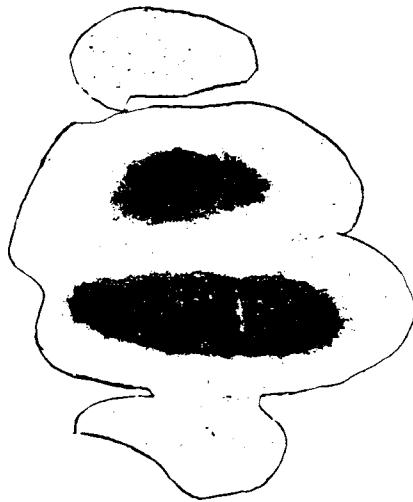
Cnv Nucleus centralis medullae oblongatae, pars ventralis
 Co Nucleus commissuralis (Haller)
 FD Funiculus dorsalis



FL Funiculus lateralis
FV Funiculus ventralis
GC Nuclei gracilis et cuneatus
IM Nucleus intermedius
NXII Nervus hypoglossus

nXII Nucleus nervi hypoglossi
OI Nucleus olivaris inferior
RL Nucleus reticularis lateralis
S Nucleus solitarius
SG Substantia gelatinosa Rolandi (trigemini)
TTD Nucleus et tractus descendens nervi trigemini





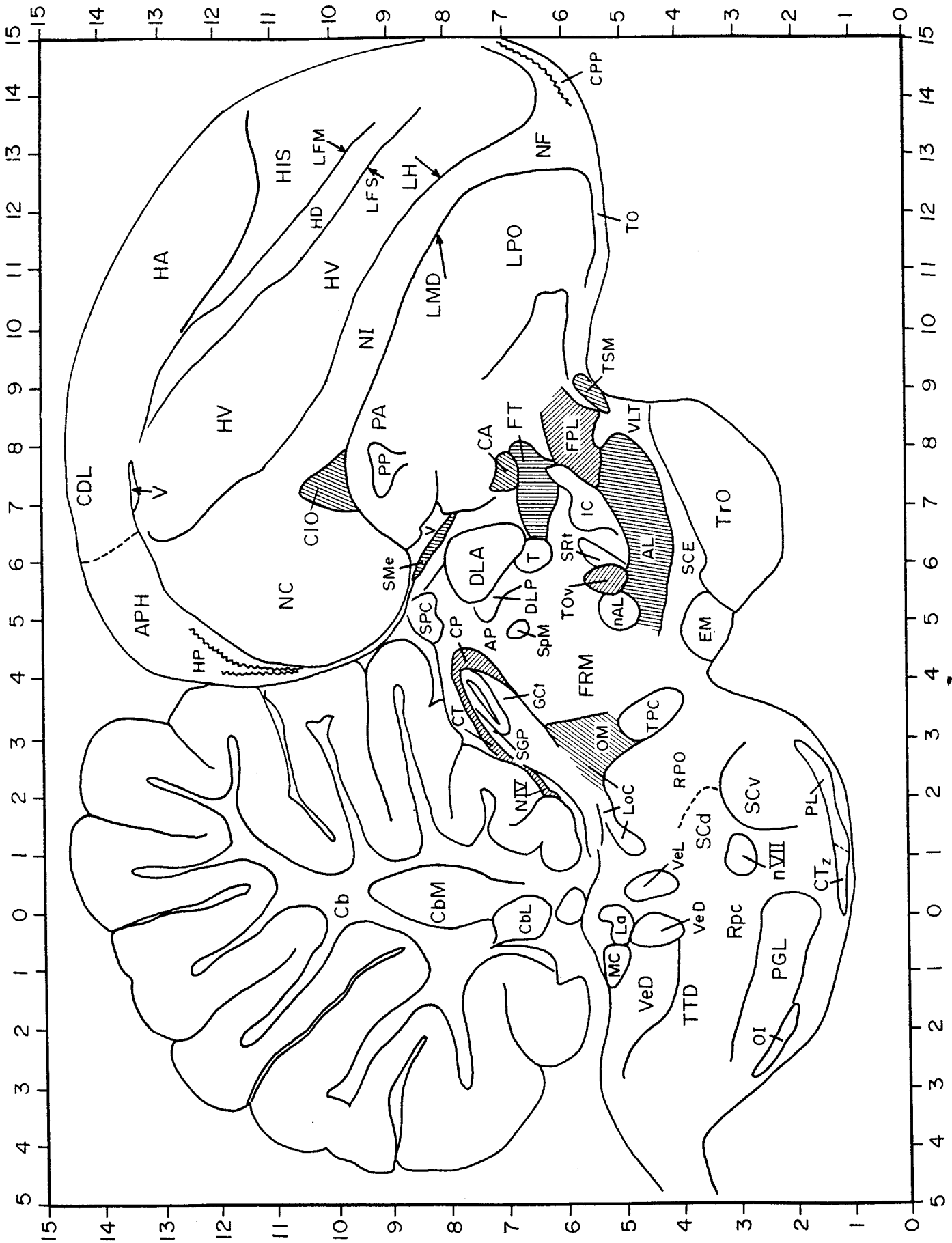


AHP	Area hypothalami posterioris	DSD	Decussatio supraoptica dorsalis	LPO	Lobus parolfactorius	POM	Nucleus preopticus medialis (van Trienhoven)
AM	Nucleus anterior medialis hypothalami	DSV	Decussatio supraoptica ventralis	MNV	Nucleus mesencephali nervi trigemini	PVM	Nucleus periventricularis magnocellularis
Ani	Nucleus annularis	EW	Nucleus of Edinger-Westphal	N	Neostriatum	Rgc	Nucleus reticularis gigantocellularis
APH	Area parahippocampalis	FD	Funiculus dorsalis	NC	Nucleus caudale	RP	Nucleus reticularis pontis caudalis
BO	Bulbus olfactorius	FLM	Funiculus ventralis	NIII	Nervus oculomotorius	RPgc	Nucleus reticularis pontis caudalis, pars gigantocellularis
CA	Commissura anterior	FV	Funiculus ventralis	nIV	Nucleus nervi trochlearis	Ru	Nucleus ruber
Cb	Cerebellum	GC	Nuclei gracilis et cuneatus	nX	Nucleus motorius nervi vagi	S	Nucleus solitarius
CCV	Commissura cerebellaris ventralis	Gct	Substantia grisea centralis	nXII	Nucleus nervi hypoglossi	Str	Stratum cellulare externum
CHCS	Tractus cortico-habenularis et cortico-septalis	HA	Hyperstriatum accessorium	OI	Nucleus olivaris inferior	SCE	Stratum cellulare internum
CO	Chiasma opticum	Hb	Nucleus habenularis	OMd	Nucleus nervi oculomotorii, pars dorsalis	SL	Nucleus septalis lateralis
CoS	Nucleus commissuralis septi	Hc	Hippocampus	Ov	Nucleus nervi oculomotorii, pars ventralis	SM	Nucleus septalis medialis
CP	Commissura posterior	Hv	Hyperstriatum ventrale	P	Nucleus ovoidalis	TO	Tuberculum olfactorium
CS	Nucleus centralis superior (Bechterew)	IM	Nucleus intermedialis	PaM	Corpus pineale	TSM	Tractus septomesencephalicus
CT	Commissura tectalis	IP	Nucleus interpeduncularis	PMH	Nucleus paramedianus	TU	Nucleus tuberculi
DBC	Decussatio brachiorum conjunctivorum	LFM	Lamina frontalis suprema	PMI	Nucleus medialis hypothalami posterioris	V	Ventriculus
DWA	Nucleus dorsomedialis anterior thalami	LH	Lamina hyperstriatica	POA	Nucleus paramedianus internus thalami	vm	Nucleus cerebellaris internus, pars ventromedialis
DMP	Nucleus dorsomedialis posterior thalami	LMD	Lamina medullaris dorsalis		Nucleus preopticus anterior		



AnI	Nucleus annularis	LPO	Lobus parolfactorius	PMI	Nucleus paramedianus internus thalami
APH	Area parahippocampalis	MNY	Nucleus mesencephali nervi trigemini	POA	Nucleus preopticus anterior
AQ	Aqueductus cerebri	NC	Neostriatum caudale	RGC	Nucleus reticularis gigantocellularis
AVT	Area ventralis (Tsa)	NF	Neostriatum frontale	RP	Nucleus reticularis pontis caudalis
BO	Bulbus olfactorius	NI	Neostriatum intermedium	RPGC	Nucleus reticularis pontis caudalis, pars gigantocellularis
CA	Commissura anterior	NII	Nervus oculomotorius	RPO	Nucleus reticularis pontis oralis
Cb	Cerebellum	NIV	Nervus abducens	Ru	Nucleus ruber
Cbl	Nucleus cerebellaris internus	NXII	Nervus hypoglossus	S	Nucleus solitarius
CF	Campi Foreli	nIV	Nucleus nervi trochlearis	SCE	Stratum cellulare externum
CHCS	Tractus cortico-habenularis et cortico-septalis	nIX	Nucleus nervi abducentis	SH	Nucleus subhabenularis
Cnd	Tractus cortico-habenularis et cortico-septalis dorsalis	nX	Nucleus nervi glossopharyngei	SL	Nucleus septalis lateralis
CO	Chiasma opticum	nXI	Nucleus motorius dorsalis nervi vagi	SMe	Stria medullaris
CP	Commissura posterior	nXII	Nucleus olivaris inferior	SRT	Nucleus subrotundus
CT	Commissura tectalis	OI	Tractus occipitomesencephalicus	TD	Nucleus tegmenti dorsalis (Gudden)
CTZ	Corpus trapezoidaleum (Papez)	OV	Nucleus ovoidalis	TO	Tuberculum olfactorium
DBC	Decussatio brachiorum conjungivorum	PA	Nucleus augmentatus	TSM	Tractus septomesencephalicus
DMA	Nucleus dorsomedialis anterior thalami	Pap	Nucleus papilliformis	V	Ventriculus
DMP	Nucleus dorsomedialis posterior thalami	PLH	Nucleus lateralis hypothalami posterioris	VeM	Nucleus vestibularis medialis
DSD	Decussatio supraoptica dorsalis	PM	Nucleus pontis medialis		
DSV	Decussatio supraoptica ventralis				
FD	Funiculus dorsalis				
FDB	Fasciculus diagonalis Brocae				
FL	Funiculus lateralis				
FLM	Fasciculus longitudinalis medialis				
FV	Funiculus ventralis				
GC	Nuclei gracilis et cuneatus				
Gct	Substantia grisea centralium				
HA	Hyperstriatum accessorium				
Hb	Nucleus habenularis				
HD	Hyperstriatum dorsale				
Hv	Hippocampus				
Hv	Hyperstriatum ventrale				
IM	Nucleus intermedius				
L	Lingula				
L	Lamina frontalis suprema				
LFS	Lamina frontalis superior				
LH	Lamina hyperstriatica				
LHy	Nucleus lateralis hypothalami				
LMD	Lamina medullaris dorsalis				

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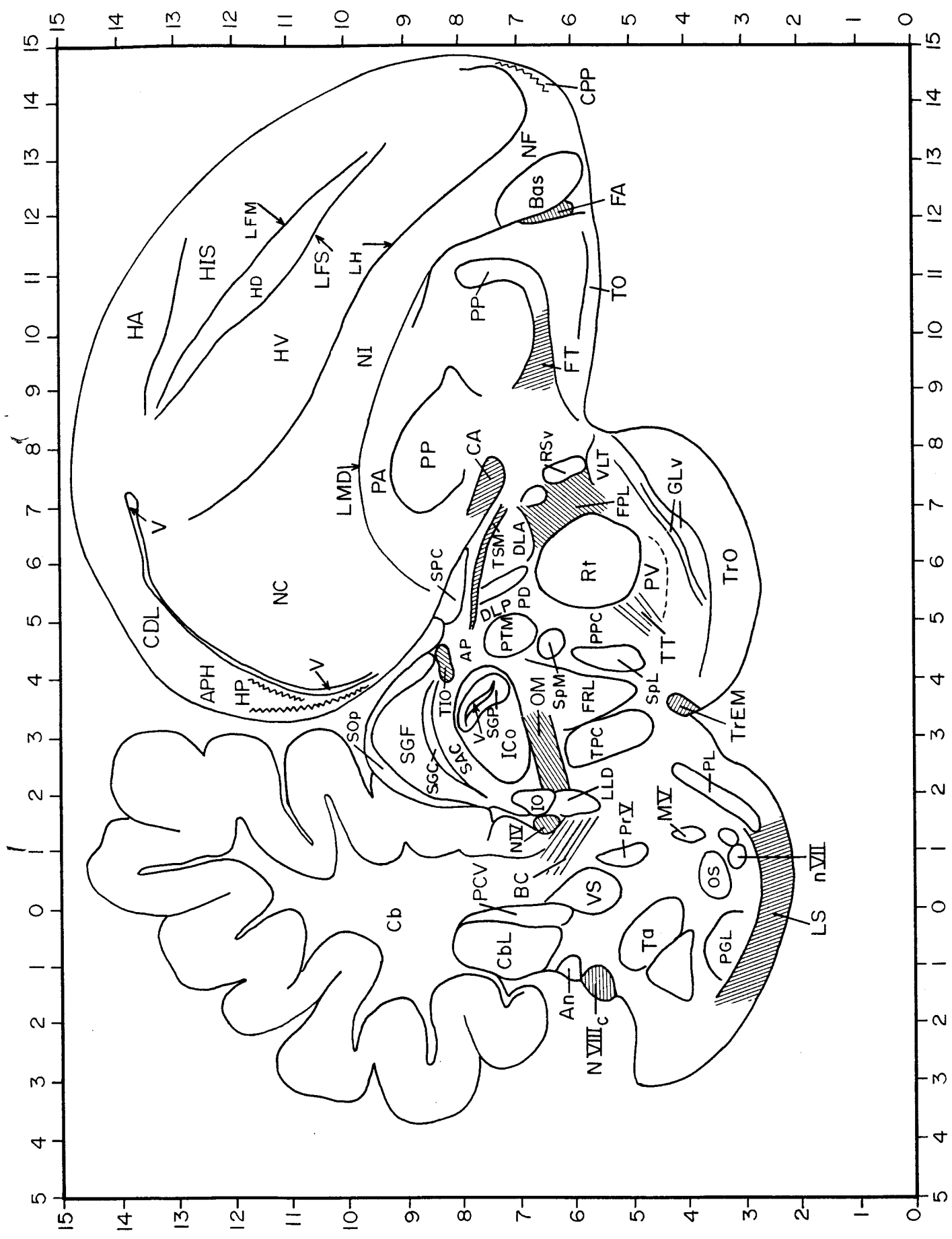




AL	Ansa lenticularis	nAL	Nucleus ansae lenticularis	SGP	Substantia grisea et fibrosa periventricularis
AP	Area prefrontalis	NC	Neostriatum caudale	SMe	Stria medullaris
APH	Area parahippocampalis	NF	Neostriatum frontale	SPC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalici)
CA	Commissura anterior	NI	Neostriatum intermedium	SpM	Nucleus spiriformis medialis
CB	Cerebellum	NIJ	Nervus trochlearis	Srt	Nucleus subrotundus
CbL	Nucleus cerebellaris lateralis	nVII	Nucleus nervi facialis	T	Nucleus triangularis
CbM	Nucleus cerebellaris medialis	OI	Nucleus olivaris inferior	TO	Tuberculum olfactorium
CDL	Area corticoidea dorsolateralis	OM	Tractus occipitomesencephalicus	TOv	Nucleus nuclei ovoidalis
CIO	Capsula interna occipitalis	PA	Paleostriatum augmentatum	TPc	Nucleus tegmenti pedunculo-pontinus, pars compacta
CP	Commissura posterior	PCL	Nucleus paraventricularis lateralis	TrO	Tractus opticus
CPP	Commissura prepiriformis	PL	Nucleus pontis lateralis	TSM	Tractus septomesencephalicus
CT	Corpus trapezoidum (Papez)	PP	Paleostriatum primitivum	TTD	Nucleus et tractus descendens nervi trigemini
CTZ	Nucleus dorsolateralis anterior thalami	RPO	Nucleus reticularis parvocellularis	V	Ventriculus
DLA	Nucleus dorsolateralis posterior thalami	SCd	Nucleus reticularis pontis oralis	VeD	Nucleus vestibularis descendens
DLP	Nucleus dorsolateralis posterior thalami	SCE	Nucleus suberuleus dorsalis	VeL	Nucleus vestibularis lateralis
EM	Nucleus ectoramillaris	SCV	Stratum cellulare externum	VLT	Nucleus ventrolateralis thalami
FPL	Fasciculus prosencephali lateralis		Nucleus suberuleus ventralis		
		FRM	Formatio reticularis medialis		
		FT	Tractus fronto-thalamicus et thalamo-frontalis		
		Gct	Substantia grisea centralis		
		HA	Hyperstriatum accessorium		
		HD	Hyperstriatum dorsale		
		HIS	Hyperstriatum intercalatus superior		
		Hp	Hippocampus		
		HV	Hyperstriatum ventrale		
		IC	Nucleus intercalatus		
		La	Nucleus laminae		
		LFS	Lamina frontalis superior		
		LH	Lamina hyperstriatica		
		LMD	Lamina medullaris dorsalis		
		LoC	Locus ceruleus		
		LPO	Lobus parolfactorius		
		MC	Nucleus magnocellularis		



AP	Area pretektalis	HD	Hyperstriatum dorsale	NI	Neostriatum intermedium	SOP	Stratum opticum
APH	Area parahippocampalis	HIS	Hyperstriatum intercalatus superior	NIV	Nervus trochlearis	SPC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalic)
Bas	Nucleus basalis	Hp	Hippocampus	NVIIc	Nervus octavus, pars cochlearis	SpM	Nucleus spiriformis medialis
BC	Nucleus basalis	Hv	Hyperstriatum ventrale	OM	Nucleus nervi facialis	ST	Nucleus subtrigeminalis
CA	Brachium conjunctivum	ICo	Nucleus intercollicularis	OS	Tractus occipitomesencephalicus	TIO	Tractus isthmo-opticus
CB	Commissura anterior	IO	Nucleus isthmo-opticus	PA	Nucleus olivaris superior	TO	Tuberculum olfactorium
CbL	Cerebellum	La	Nucleus laminae	PCV	Paleostriatum augmentatum	Tpc	Nucleus tegmenti pedunculo-pontinus, pars compacta
CbL	Nucleus cerebellaris lateralis	LFM	Lamina frontalis suprema	PGL	Processus lateralis cerebello-vestibularis	TrO	Tractus opticus
CbM	Nucleus cerebellaris medialis	LFS	Lamina frontalis superior	PL	Nucleus pontis lateralis	TSM	septomesencephalicus
CDL	Nucleus cerebellaris dorsolateralis	LH	Lamina hyperstriatica	PL	Nucleus pontis lateralis	TT	tectothalamicus
CPP	Area corticoidea dorsolateralis	LMD	Lamina medullaris dorsalis	PP	Paleostriatum primitivum	TTD	Nucleus et tractus descendens nervi trigemini
DLA	Cortex prepiriformis	LH	Lamina medullaris dorsalis	PPC	Nucleus principalis precommissuralis	V	Ventriculus
DLP	Nucleus dorsolateralis anterior thalami	Lob	Lobus parolfactorius	RPO	Nucleus reticularis pontis oralis	VeD	Nucleus vestibularis descendens
EM	Nucleus dorsolateralis posterior thalami	Lenn	Lemniscus spinalis	RSV	Nucleus reticularis superior, pars ventralis	VeL	Nucleus vestibularis lateralis
FPL	Nucleus ectomammillaris	Nuc	Nucleus megalocellularis	Rt	Nucleus rotundus	VLT	Nucleus ventrolateralis thalami
FRL	Fasciculus prosencephali lateralis	Nuc	Nucleus motorius nervi trigemini	SCV	Nucleus subceruleus ventralis	VS	Nucleus ventrolateralis thalami
GLV	Formatio reticularis lateralis	Ne	Neostriatum caudale	SGF	Stratum griseum et fibrosum superficiale		Nucleus vestibularis superior
HA	Nucleus geniculatus lateralis, pars ventralis	NF	Neostriatum frontale	SGP	Substantia grisea et fibrosa periventricularis		
	Hyperstriatum accessorium						

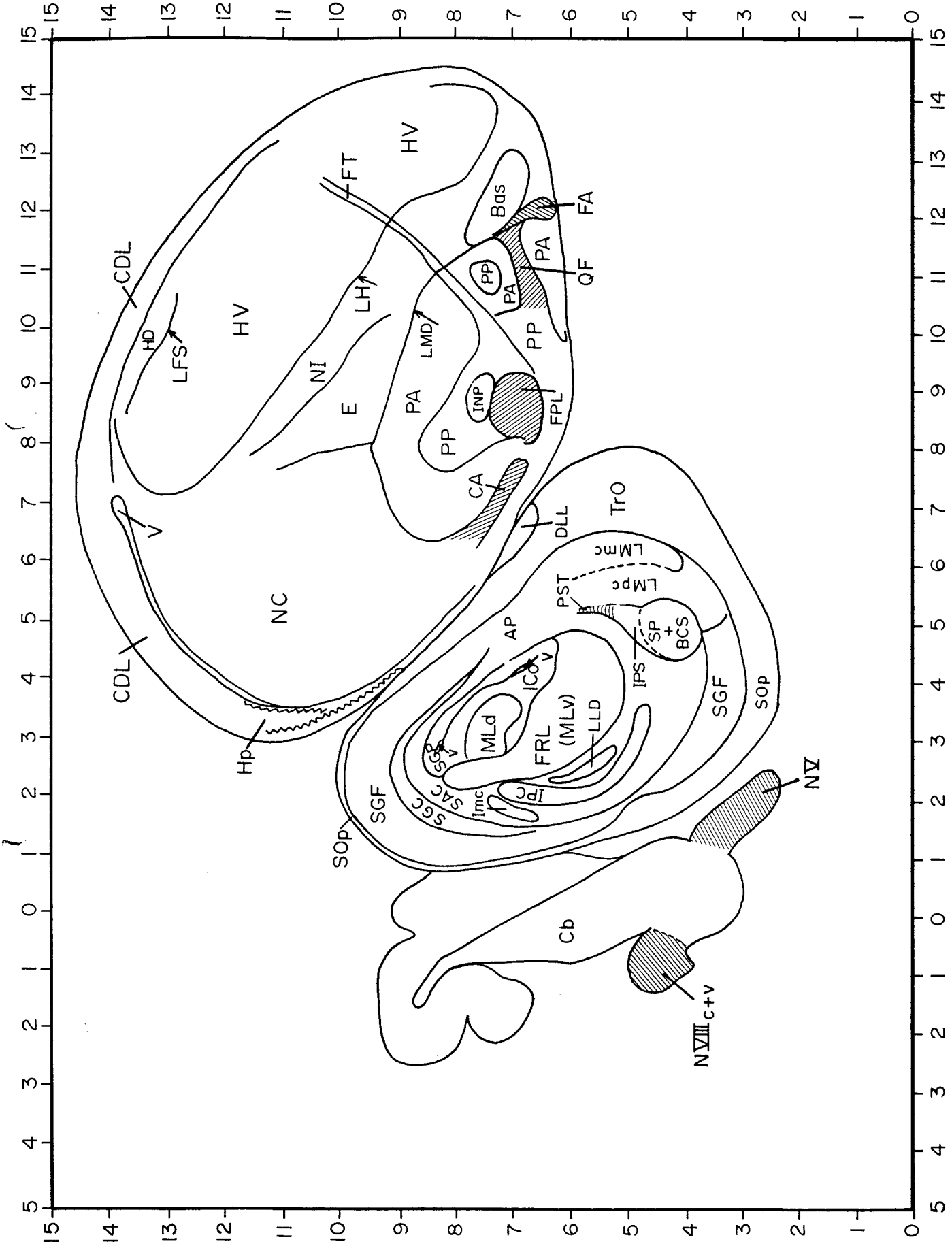




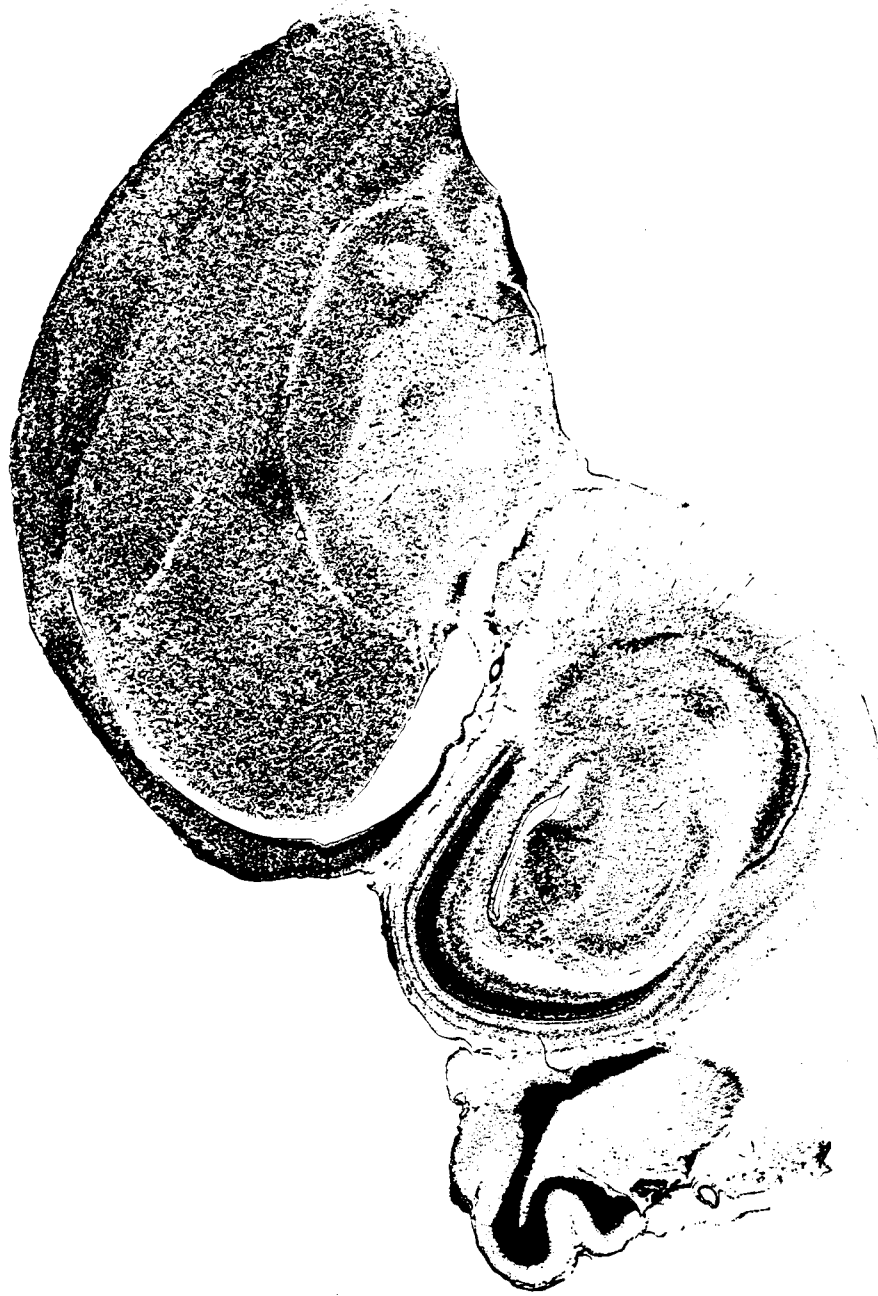
An	Nucleus angularis	HD	Hyperstriatum dorsale	NZIIc	Nervus octavus, pars cochlearis	SGF	Stratum griseum et fibrosum superficiale
AP	Area prefrontalis	HIS	Hippocampus	nVII	Nucleus nervi facialis	SGP	Substantia grisea et fibrosa periventricularis
APH	Area parahippocampalis	HP	Hyperstriatum ventrale	OM	Tractus occipitomesencephalicus	SOp	Stratum opticum
Bas	Nucleus basalis	HV	Nucleus intercollicularis	OS	Nucleus olivaris superior	SFC	Nucleus superficialis parvocellularis (Nucleus tractus septomesencephalic)
BC	Brachium conjunctivum	ICo	Nucleus isthmo-opticus	PA	Processus lateralis cerebello-vestibularis	SpL	Nucleus spiriformis lateralis
CA	Commissura anterior	IO	Nucleus isthmo-opticus	PCV	Nucleus pretectalis diffusus	SpM	Nucleus spiriformis medialis
Cb	Cerebellum	LFM	Lamina frontalis suprema	PD	Nucleus paragigantocellularis lateralis	Ta	Nucleus tangentialis (Cajal)
CbL	Nucleus cerebellaris lateralis	LH	Lamina frontalis superior	PGL	Nucleus pontis lateralis	TIO	Tractus isthmo-opticus
CDL	Area corticoidea dorsolateralis	LH	Lamina hyperstriatica	PL	Neostriatum primitivum	TO	Tuberculum olfactorium
CPP	Cortex prepiriformis	Lld	Nucleus lemnisci lateralis, pars dorsalis (Groebbel)	PP	Nucleus principalis precommissuralis	TPc	Nucleus tegmenti pedunculo-pontinus, pars compacta
DLA	Nucleus dorsolateralis anterior thalami	LMD	Lamina medullaris dorsalis	PVC	Nucleus posteroventralis thalami (Kühnlenbeck)	TRM	Tractus nuclei ectomammillaris (basal optic root)
DLP	Nucleus dorsolateralis posterior thalami	LS	Lemniscus spinalis	PV	Nucleus sensorius principalis, nervi trigemini	TrO	Tractus opticus
FA	Tractus fronto-archistriatalis	MZ	Nucleus motorius nervi trigemini	PXY	Nucleus pretectalis medialis	TSM	Tractus septomesencephalicus
FPL	Fasciculus prosencephali lateralis	NC	Neostriatum caudale	PTM	Nucleus reticularis superior, pars ventralis	TT	Tractus tectothalamicus
FRL	Tractus fronto-thalamicus et thalamo-frontalis	NF	Neostriatum frontale	RSV	Nucleus reticularis superior, pars ventralis	V	Ventriculus
FT	Nucleus geniculatus lateralis, pars ventralis	NI	Neostriatum intermedium	Rt	Nucleus rotundus	VLT	Nucleus ventrolateralis thalami
GLV	Hyperstriatum accessorium	NIV	Nervus trochlearis	SAC	Stratum album centrale	VS	Nucleus vestibularis superior



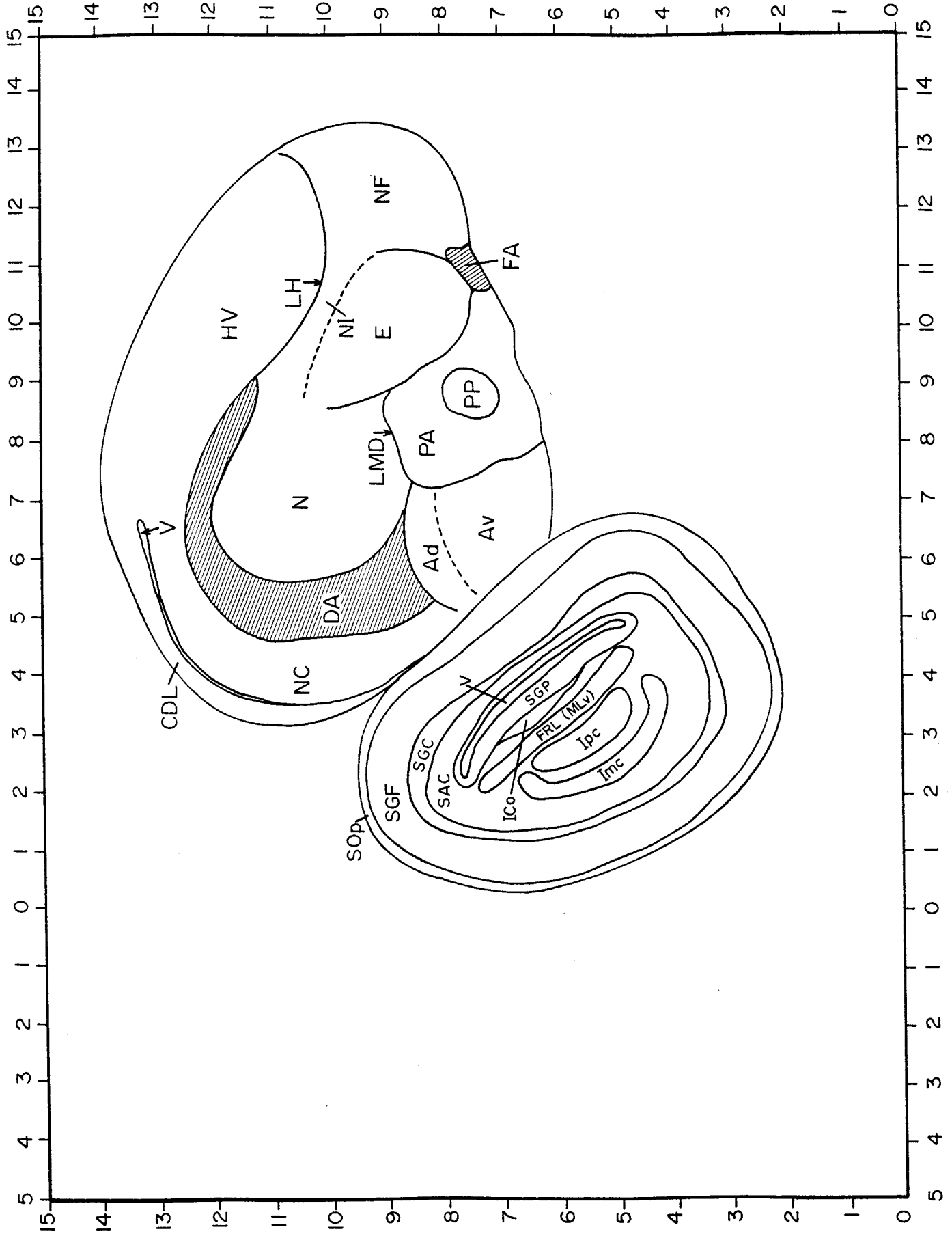
An	Nucleus angularis	HD	Hyperstriatum dorsale	MLV	Nucleus mesencephalicus lateralis, pars ventralis	SAC	Stratum album centrale
APH	Area pretecalis	HIS	Hippocampus	NC	Neostriatum caudale	SGC	Stratum griseum centrale
Bas	Area parahippocampalis	Hp	Nucleus intercollicularis	NF	Neostriatum frontale	SGF	Stratum griseum et fibrosum superficiale
CA	Nucleus basalis	HV	Nucleus isthmi, pars magnocellularis	NI	Neostriatum intermedium	SGP	Substantia grisea et fibrosa periventricularis
Cb	Commissura anterior	ICo	Nucleus isthmi, pars parvocellularis	NIIV	Nervus trochlearis	SOP	Stratum opticum
Cbl	Cerebellum	Imc	Nucleus isthmi, pars parvocellularis	NY	Nervus trigeminus	SP	Nucleus subpretectalis
CDL	Nucleus cerebellaris lateralis	INP	Nucleus isthmi, pars parvocellularis	NV	Nervus octavus, pars cochlearis	SPC	Nucleus subpretectalis
CDL	Nucleus cerebellaris lateralis	IPc	Nucleus isthmi, pars parvocellularis	NVIV	Nervus trigeminus	SPL	Nucleus superficialis parvocellularis (Nucleus tractus septimesencephalicus)
CPP	Area corticoidea dorsolateralis	LA	Nucleus lateralis anterior thalami	PA	Paleostriatum augmentatum	Ta	Nucleus spiriformis lateralis
DLA	Nucleus dosolateralis anterior thalami	LFS	Lamina frontalis suprema	PD	Paleostriatum diffusum	Tio	Nucleus tangentialis (Cajal)
DLP	Nucleus dosolateralis posterior thalami	LH	Lamina hyperstriatica	PP	Paleostriatum primitivum	TSM	Tractus isthmo-opticus
E	Ectostriatum	Lld	Nucleus lemnisci lateralis, pars dorsalis	PPC	Nucleus principalis precommissuralis	TT	Tractus septimesencephalicus
FA	Tractus fronto-archistriaticus	LMD	Nucleus lemnisci lateralis, pars dorsalis	PT	Nucleus sensorius principalis, nervi trigemini	TrO	Tractus tectothalamicus
FRL	Fasciculus prosencephali lateralis	MLd	Lamina medullaris dorsalis	QF	Nucleus pretectalis	V	Ventriculus
FRL	Formatio reticularis lateralis		Nucleus mesencephalicus lateralis, pars dorsalis	Rt	Tractus quintofrontalis	VS	Nucleus vestibularis superior
FT	Tractus fronto-thalamicus et thalamo-frontalis						
GLV	Nucleus geniculatus lateralis, pars ventralis						

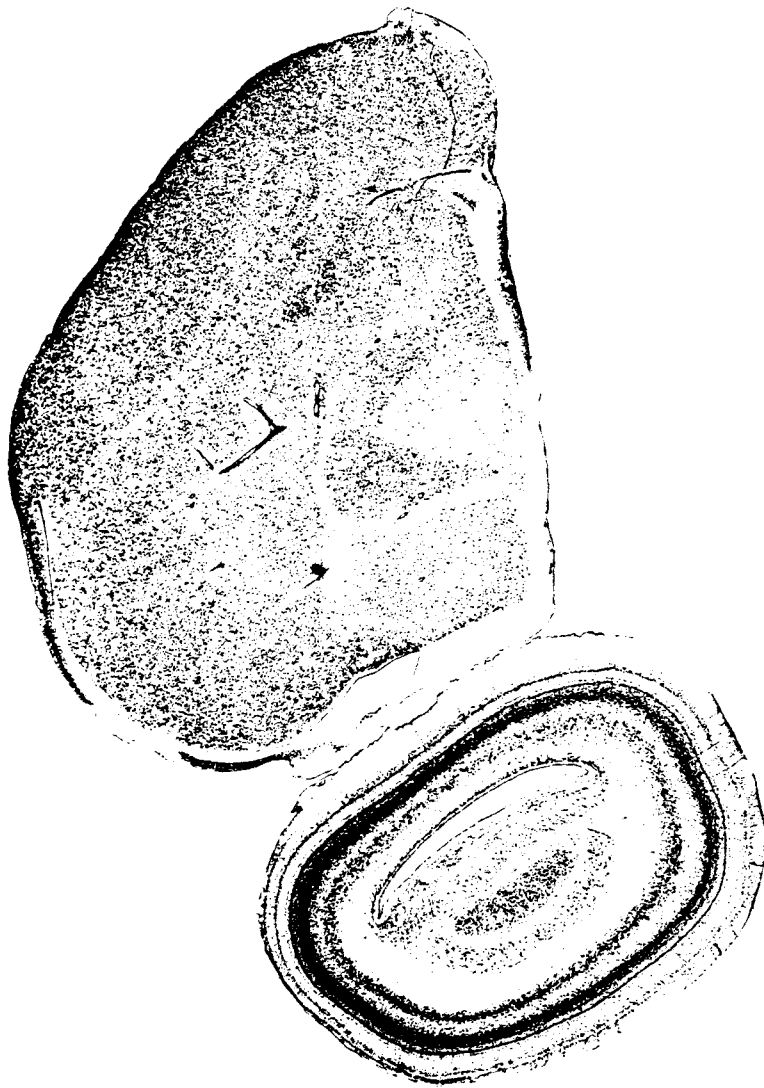


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|-----|---|------|--|--------|--|
| AP | Area prefrontalis | IMC | Nucleus isthmi, pars magnocellularis | NC | Neostriatum caudale |
| BAS | Nucleus basalis | INP | Nucleus intrapeduncularis | NI | Neostriatum intermedium |
| BCS | Brachium colliculi superioris | IPC | Nucleus isthmi, pars parvocellularis | NT | Nervus trigeminus |
| CA | Commissura anterior | IPS | Nucleus interstitio-preecto-subpretectalis | NXIIIc | Nervus oculus, pars cochlearis |
| Cb | Cerebellum | LFS | Lamina frontalis superior | NXIIIv | Nervus oculus, pars vestibularis |
| CDL | Area corticoidea dorsolateralis | LH | Lamina hyperstriatica | PA | Palaeostriatum augmentatum |
| DLL | Nucleus dorsolateralis anterior thalami, pars lateralis | LLd | Nucleus lemnisci lateralis, pars dorsalis (Groebbel) | PP | Palaeostriatum primitivum |
| E | Ectostriatum | LMD | Lamina medullaris dorsalis | PST | Tractus preecto-subpretectalis |
| FA | Tractus fronto-archistriatalis | LMmc | Nucleus lentiformis mesencephali, pars magnocellularis | QF | Tractus quintofrontalis |
| FPL | Fasciculus prosencephali lateralis | LMpc | Nucleus lentiformis mesencephali, pars parvocellularis | SAC | Stratum album centrale |
| FRL | Formatio reticularis lateralis | MLd | Nucleus mesencephalicus lateralis, pars dorsalis | SGC | Stratum griseum centrale |
| FT | Tractus fronto-thalamicus et thalamo-frontalis | MLV | Nucleus mesencephalicus lateralis, pars ventralis | SGF | Stratum griseum et fibrosum superficiale |
| HD | Hyperstriatum dorsale | | | SGP | Substantia grisea et fibrosa periventricularis |
| HP | Hippocampus | | | SOp | Stratum opticum |
| HV | Hyperstriatum ventrale | | | SP | Nucleus subpretectalis |
| ICo | Nucleus intercollicularis | | | Tro | Tractus opticus |
| | | | | V | Ventriculus |





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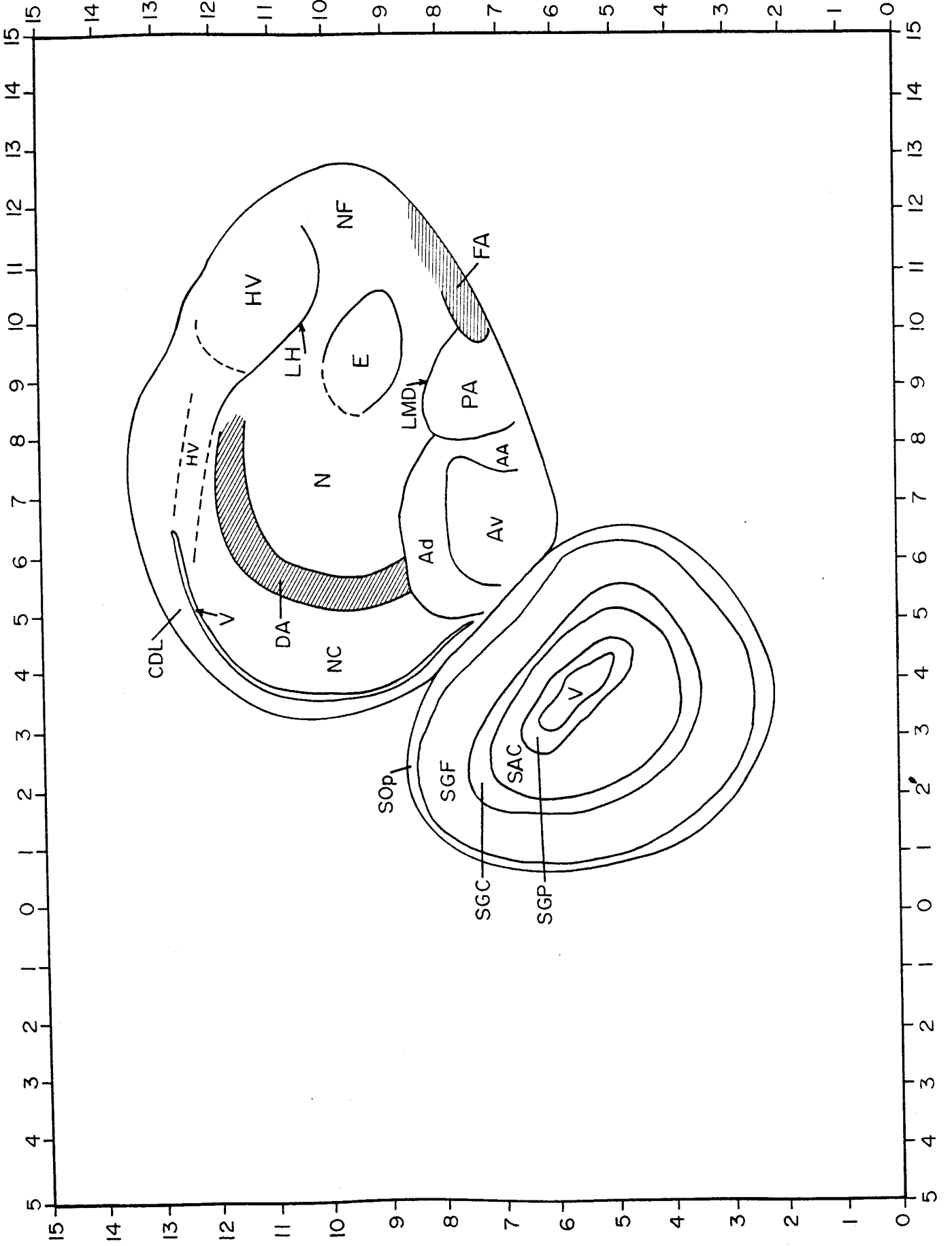
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 Area corticoidea dorsolateralis
 Tractus dorsalis archistriaticus
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 Formatio reticularis lateralis
 Hyperstriatum ventrale

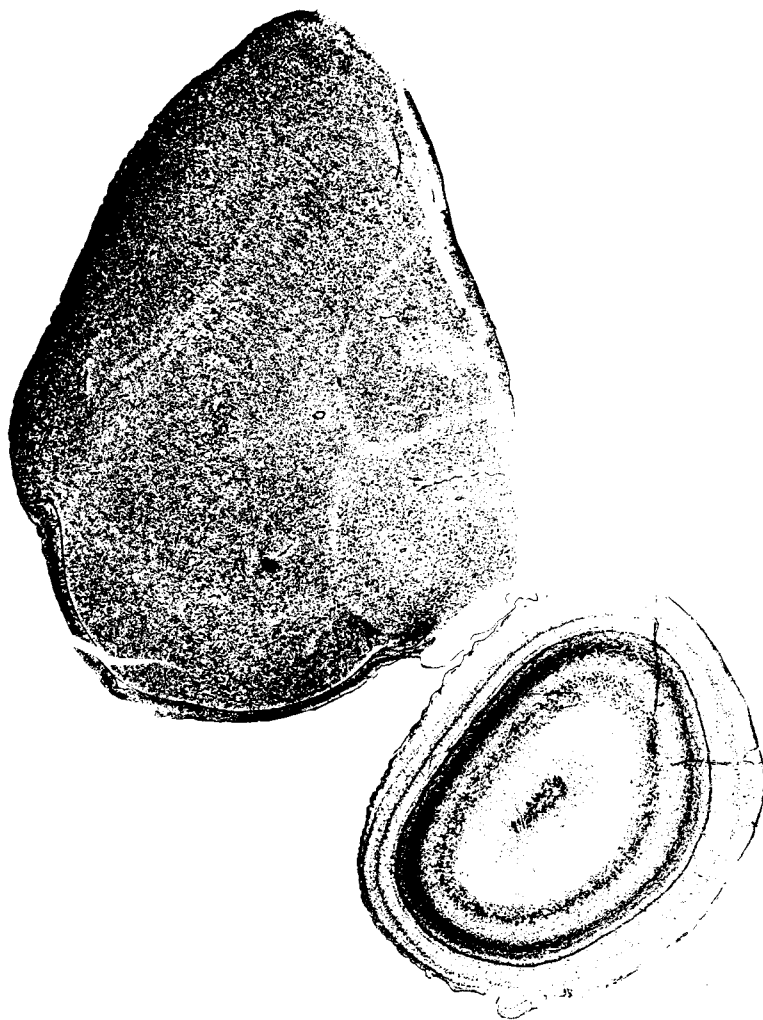
ICo
 Imc
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 LH
 LMD
 MLV
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 NC
 NF

Nucleus intercollicularis
 Nucleus isthmi, pars magnocellularis
 Nucleus isthmi, pars parvocellularis
 Lamina hyperstriatica
 Lamina medullaris dorsalis
 Nucleus mesencephalicus lateralis, pars ventralis
 Neostriatum
 Neostriatum caudale
 Neostriatum frontale

NI
 PA
 PP
 SAC
 SGC
 SGF
 SGP
 SDP
 V

Neostriatum intermedium
 Paleostriatum augmentatum
 Paleostriatum primitivum
 Stratum album centrale
 Stratum griseum centrale
 Stratum griseum et fibrosum superficiale
 Substantia grisea et fibrosa periventricularis
 Stratum opticum
 Ventriculus





AA
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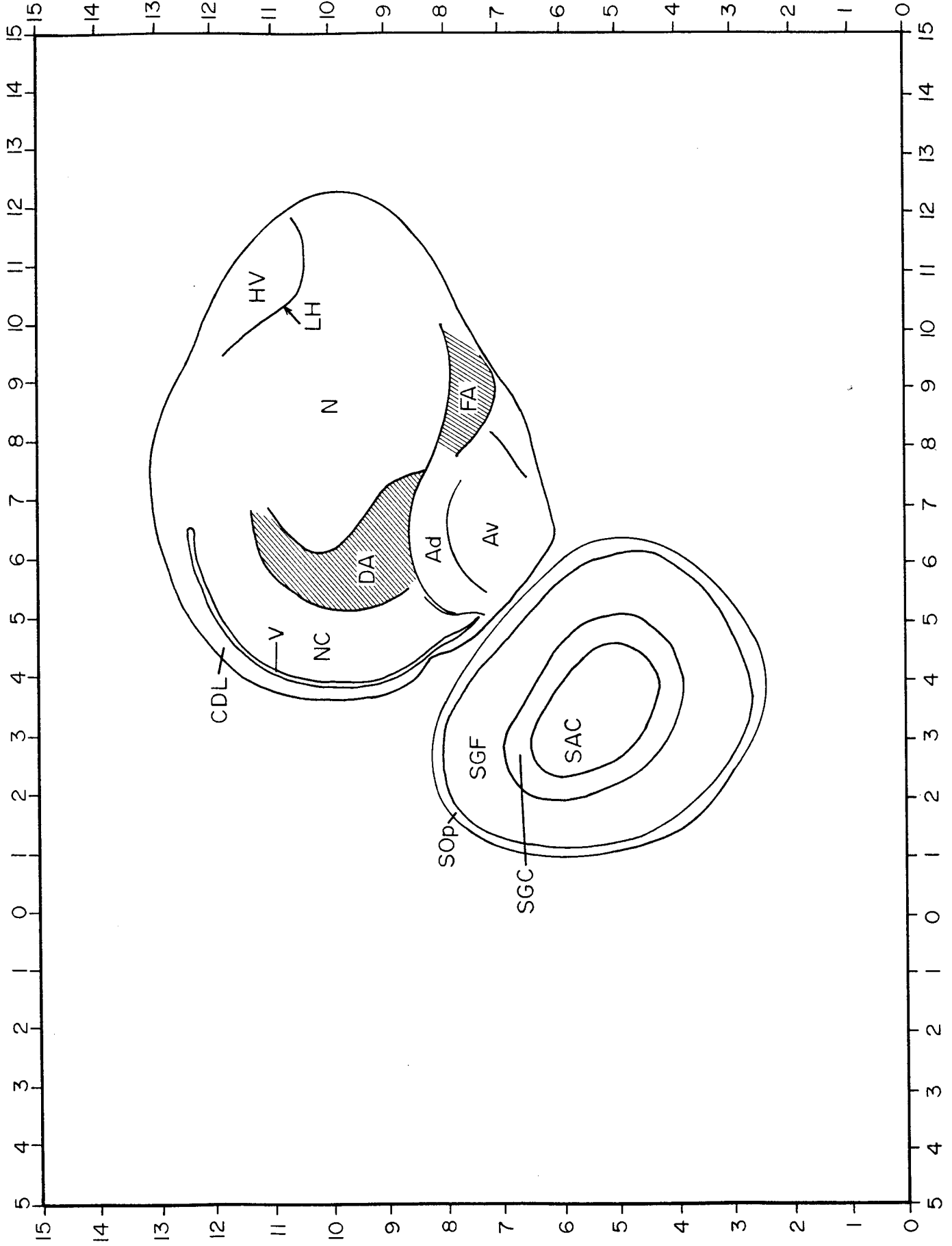
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Tractus archistriatalis dorsalis
Ectostriatum

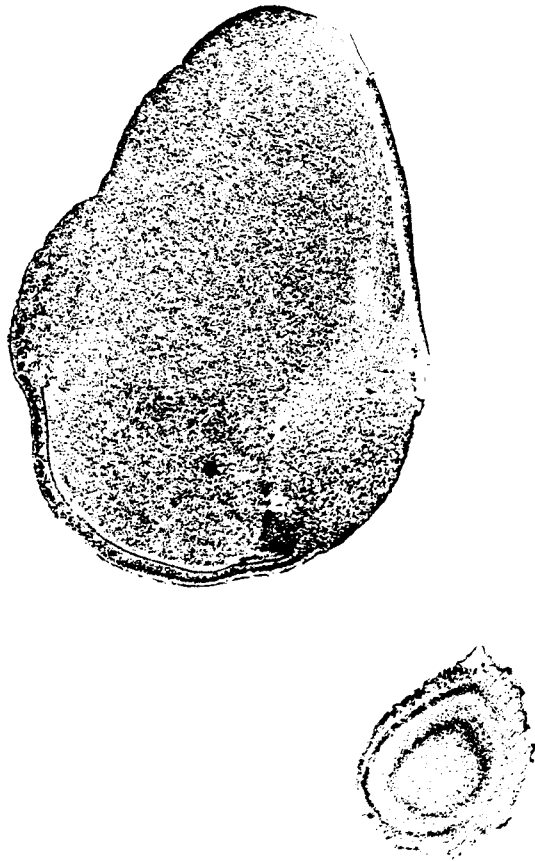
FA
HV
LH
LMD
N
NC
NF

Tractus fronto-archistriatalis
Hyperstriatum ventrale
Lamina hyperstriatica
Lamina medullaris dorsalis
Neostriatum
Neostriatum caudale
Neostriatum frontale

PA
SAC
SGC
SGF
SGP
SOp
V

Paleostriatum augmentatum
Stratum album centrale
Stratum griseum centrale
Stratum griseum et fibrosum superficiale
Substantia grisea et fibrosa periventricularis
Stratum opticum
Ventriculus





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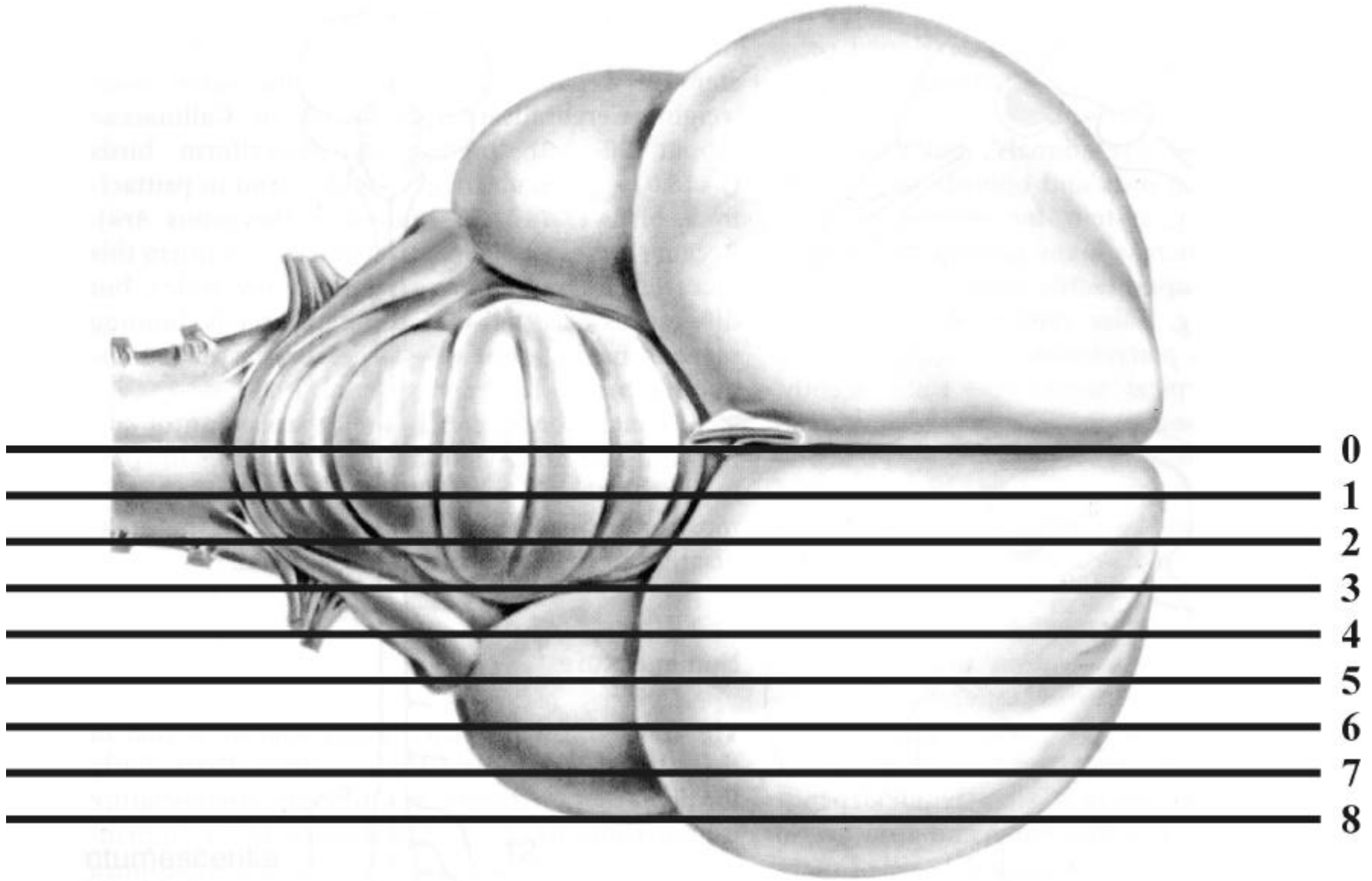
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Archistriatum, pars ventralis
Area corticoidea dorsolateralis
Tractus archistriatalis dorsalis

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HV
LH
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NC

Tractus fronto-archistriatalis
Hyperstriatum ventrale
Lamina hyperstriatica
Neostriatum
Neostriatum caudale

SAC
SGC
SGF
SGP
V

Stratum album centrale
Stratum griseum centrale
Stratum griseum et fibrosum superficiale
Stratum opticum
Ventriculus



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rtumescens
trachialis

