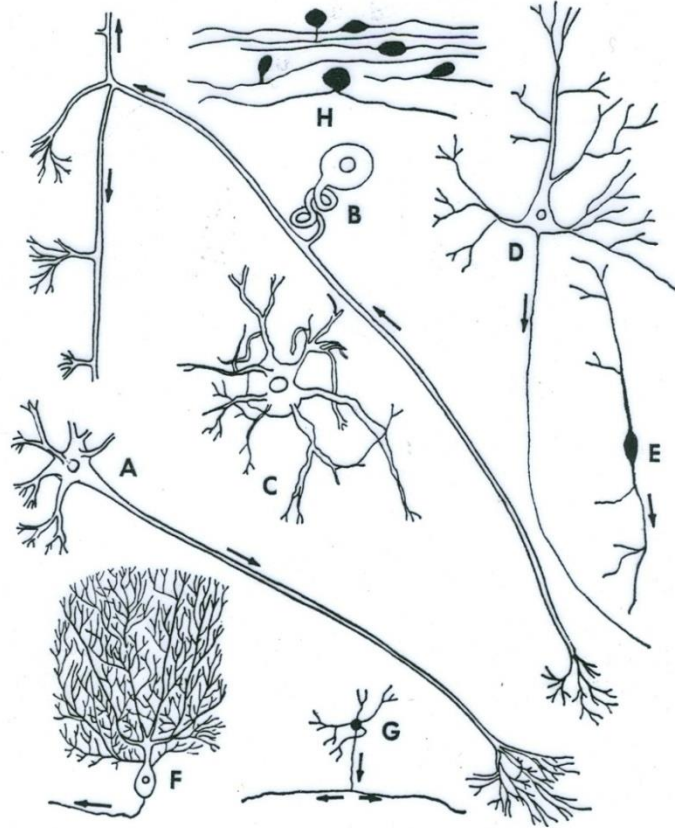


SINIR SİSTEMLİ

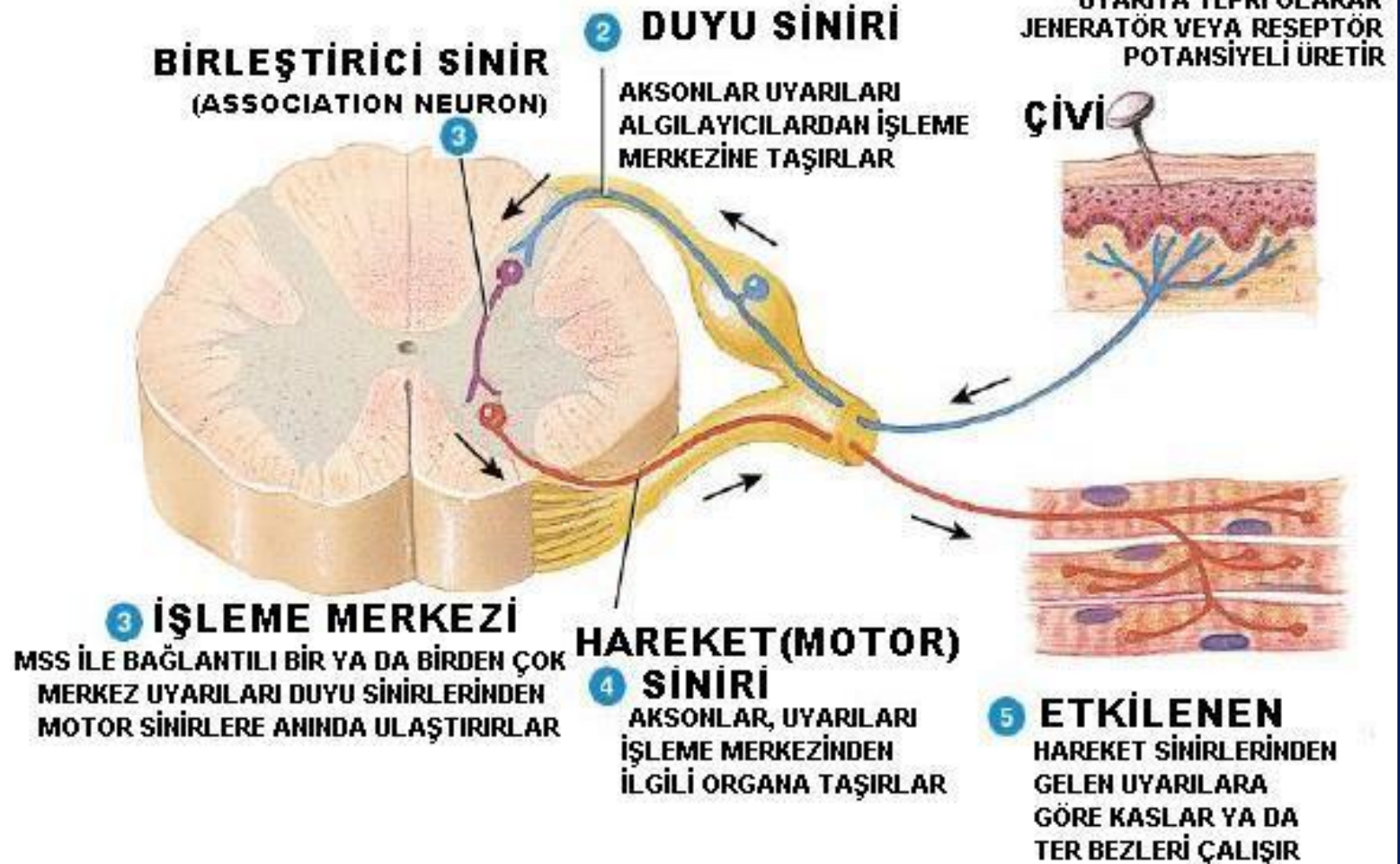
Neuron tipleri



Şekil 12.1. Morfolojik olarak neuron tipleri. **A.** Omurilikte motor hücre gövdesi, **B.** Doğrusal kök ganglion hücresi (duysal), **C.** Sempatik ganglion hücresi, **D** ve **E.** Serebral korteksten piramidal ve horizontal hücreler, **F** ve **G.** Serebellumdan purkinje ve granüler hücreler, **H.** Bir grup embriyonik dorsal kök ganglion hücresi. **A, C, D, F, G.** Multipolar neuronlar, **E.** Bipolar **Unipolar**

REFLEKS YAYI

(UYARILARIN İZLEDİĞİ YOLLAR)



Çevresel uyaranların Hormonlar yoluyla düzenleyici etkisi

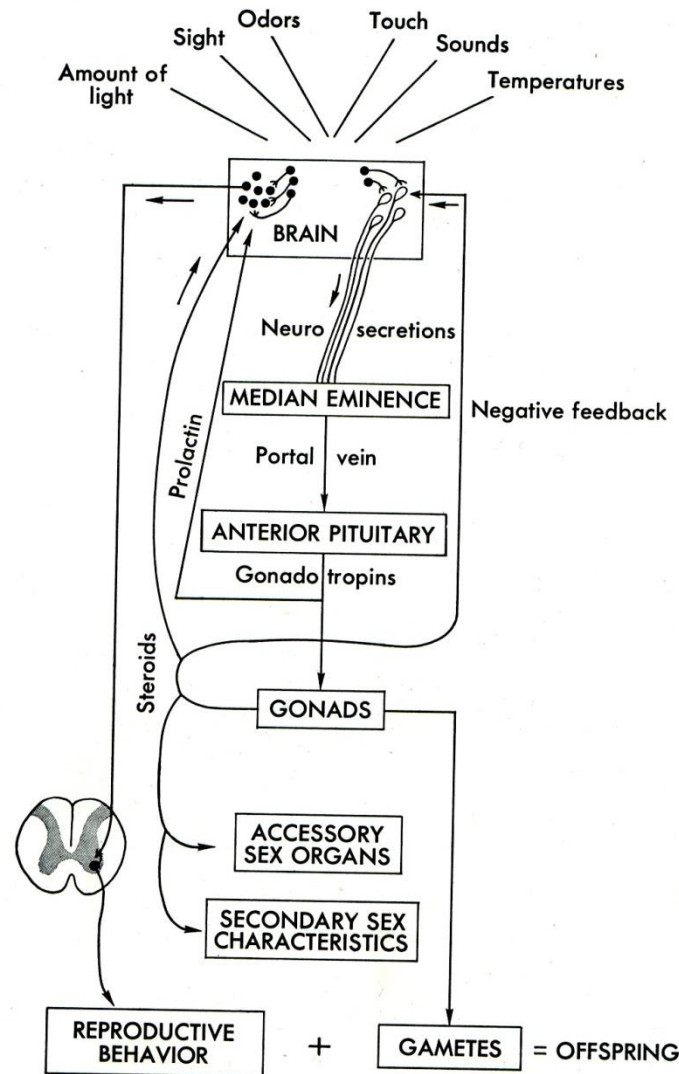
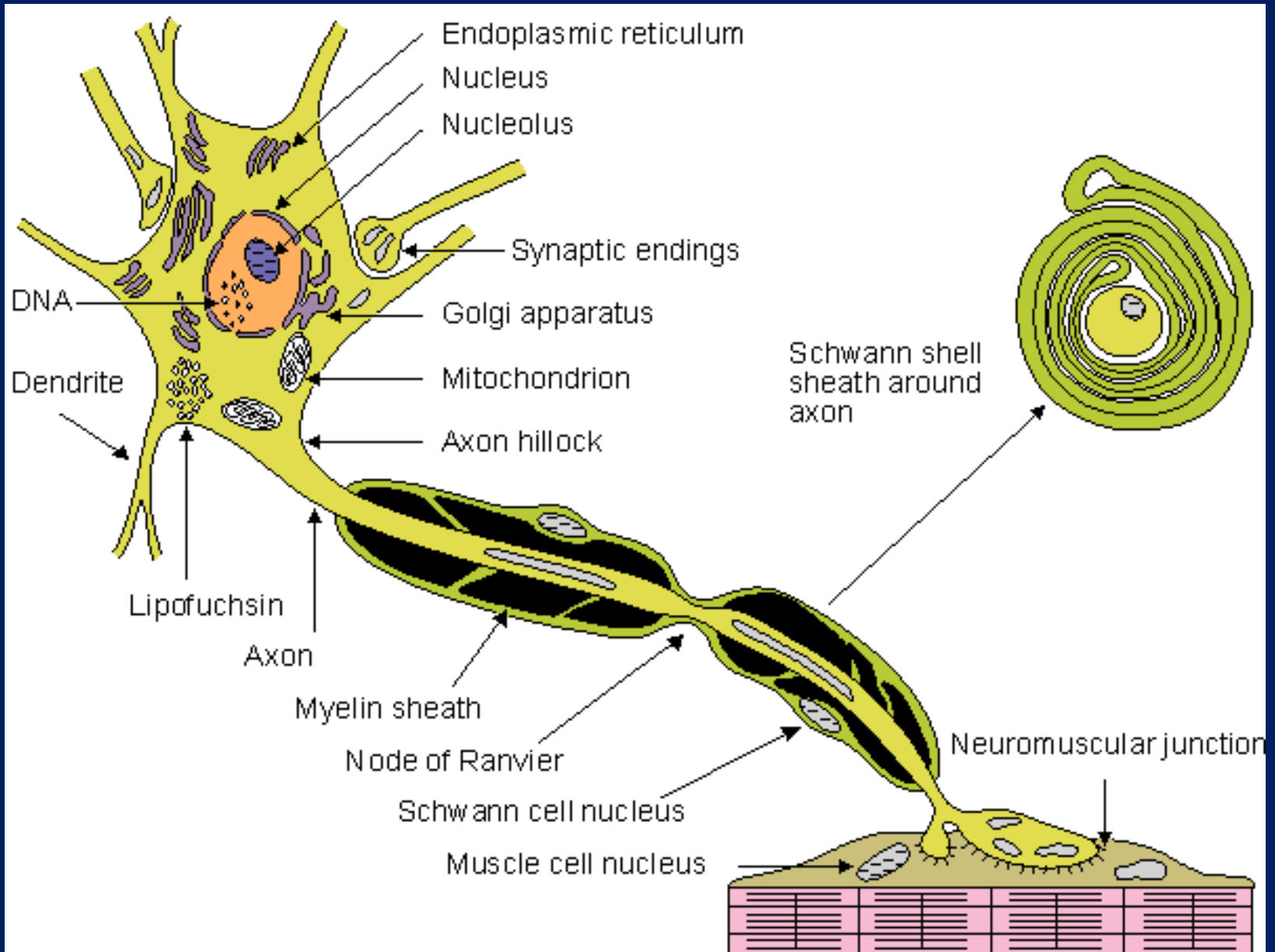
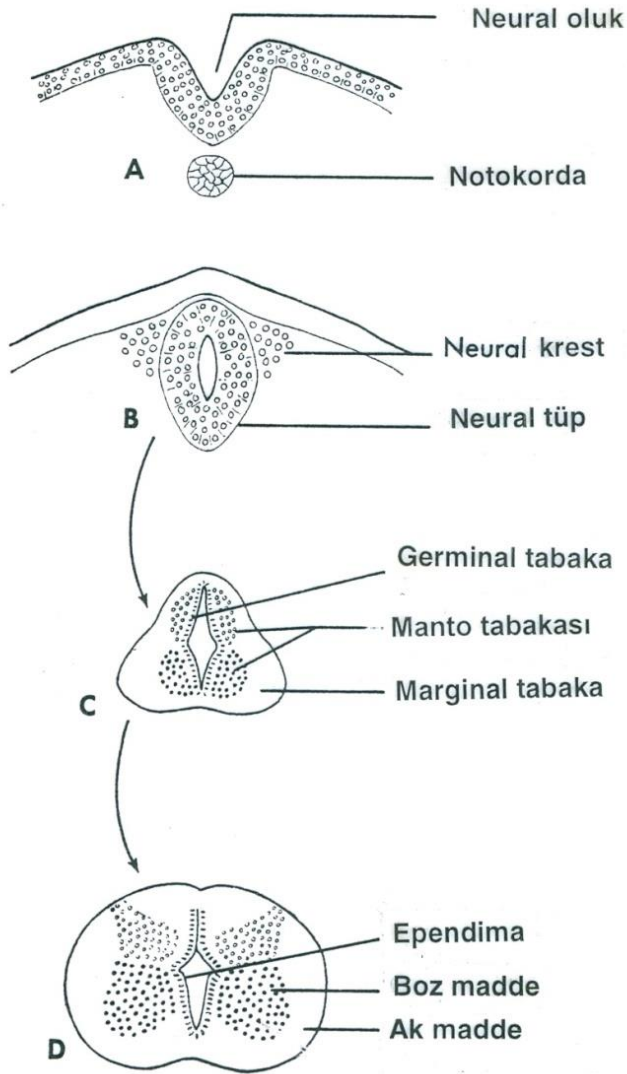


Fig. 17-3. Regulatory effects of the environment via hormones.

Sinir hücresi (Neuron) histolojik yapısı

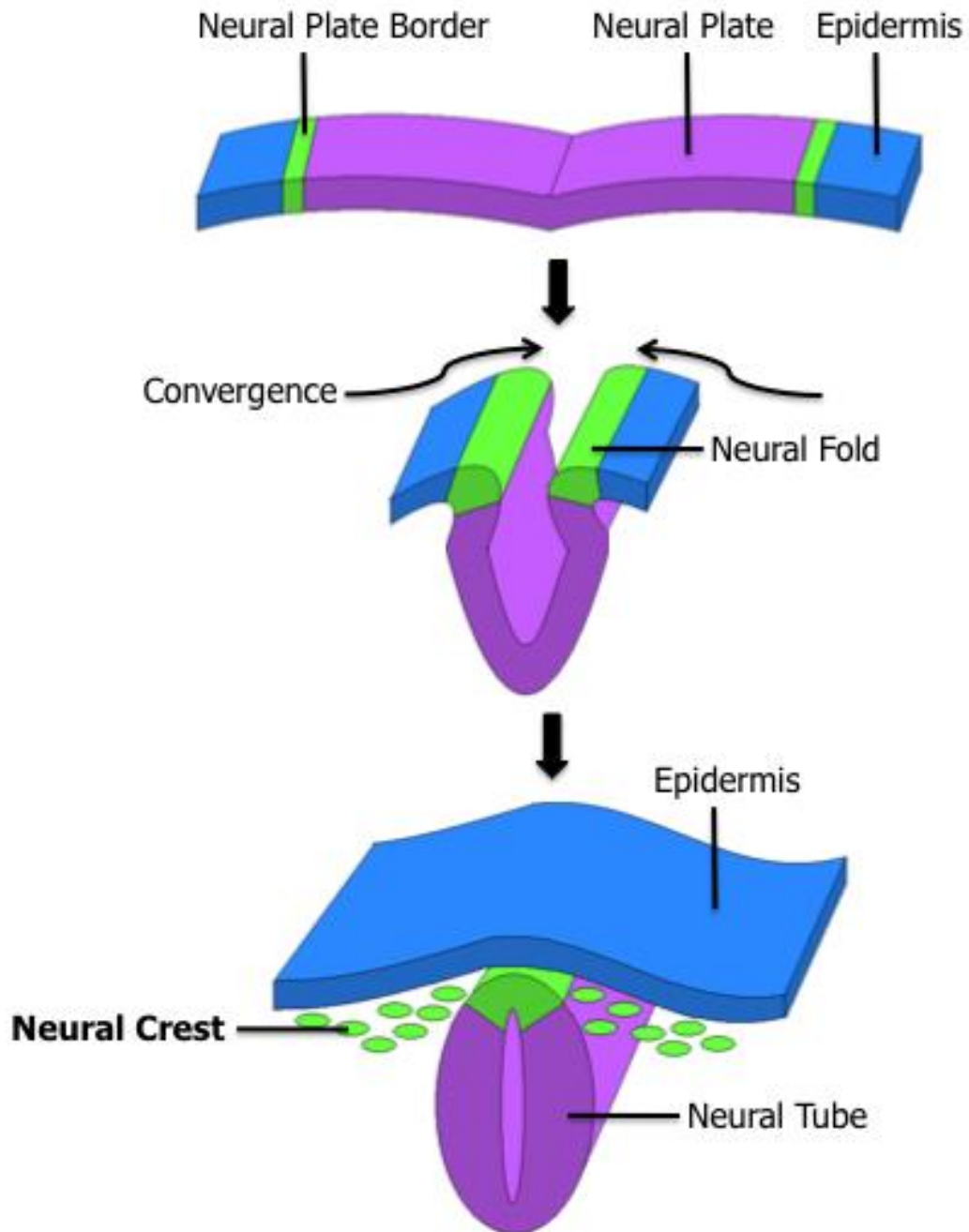


Sinir Sisteminin (Omuriliğin) gelişimi



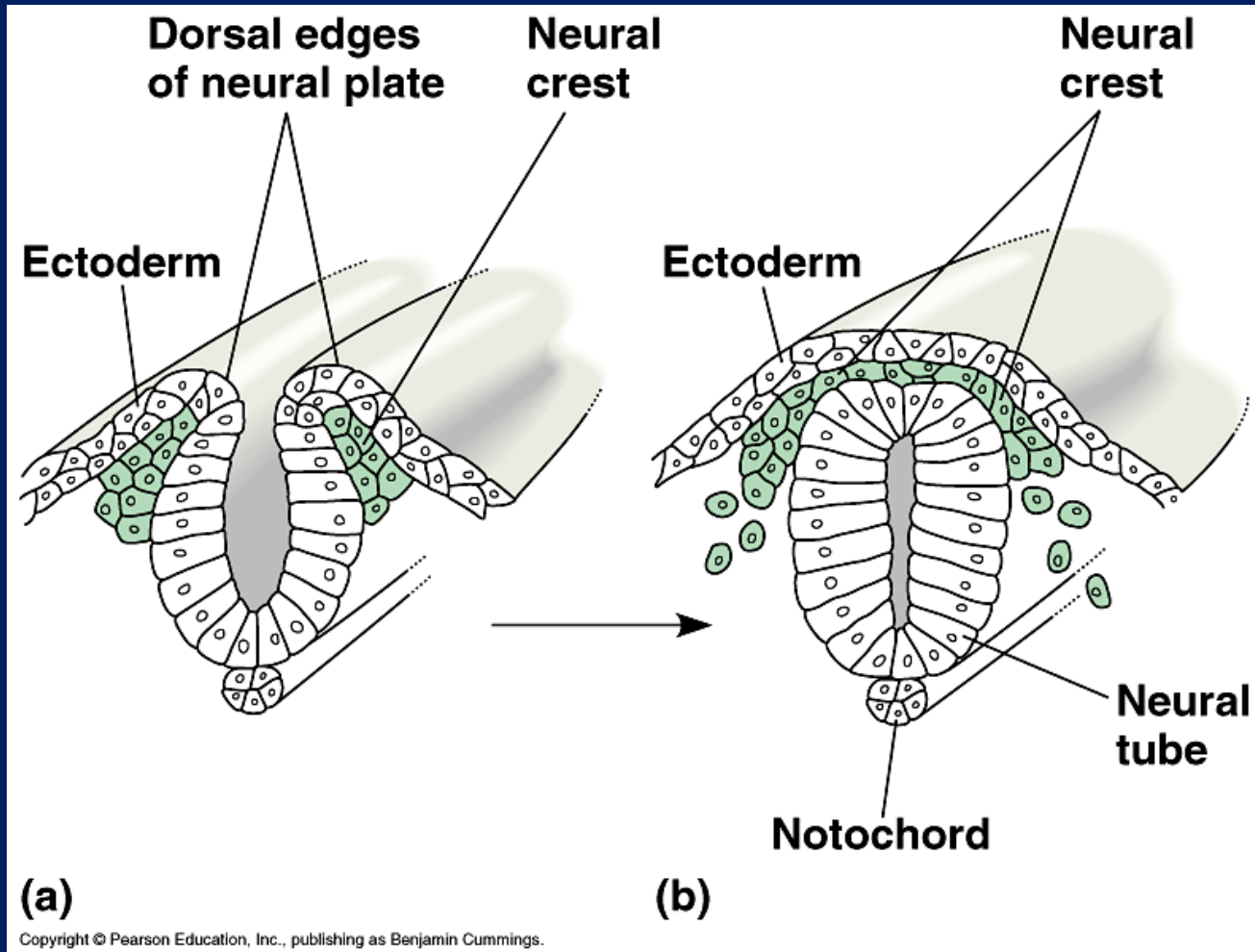
Şekil 12. 3. Omuriliğin embriyogenezi.

Sinir sisteminin gelişimi

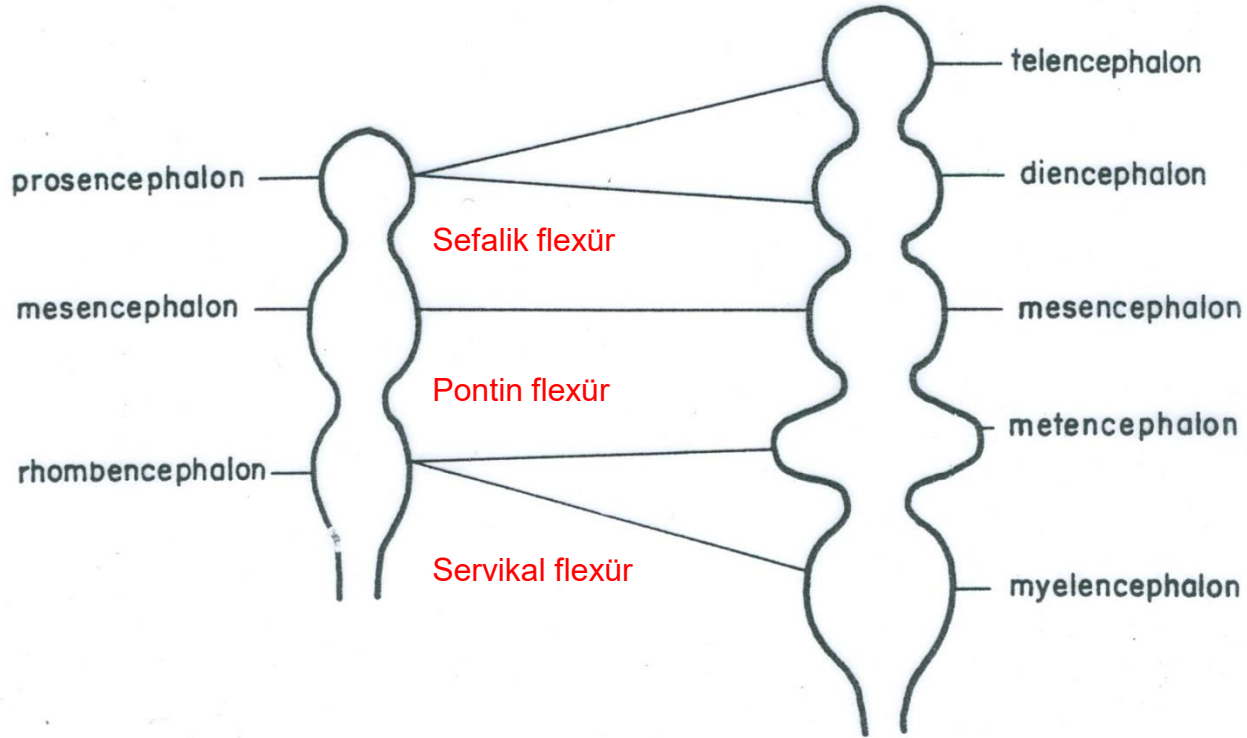


Neural crest hücreleri

Kraniospinal ganglionlar otonom ganglionlar



Neral tüp'ten beyinin bölgesel farklılaşması



Şekil 12.4. Neural tüpün anterior ucunun beyinin bölümleri halinde farklılaşması (şematik).

Kıkırdaklı balıklarda (Köpek balığı) beyin bölümleri

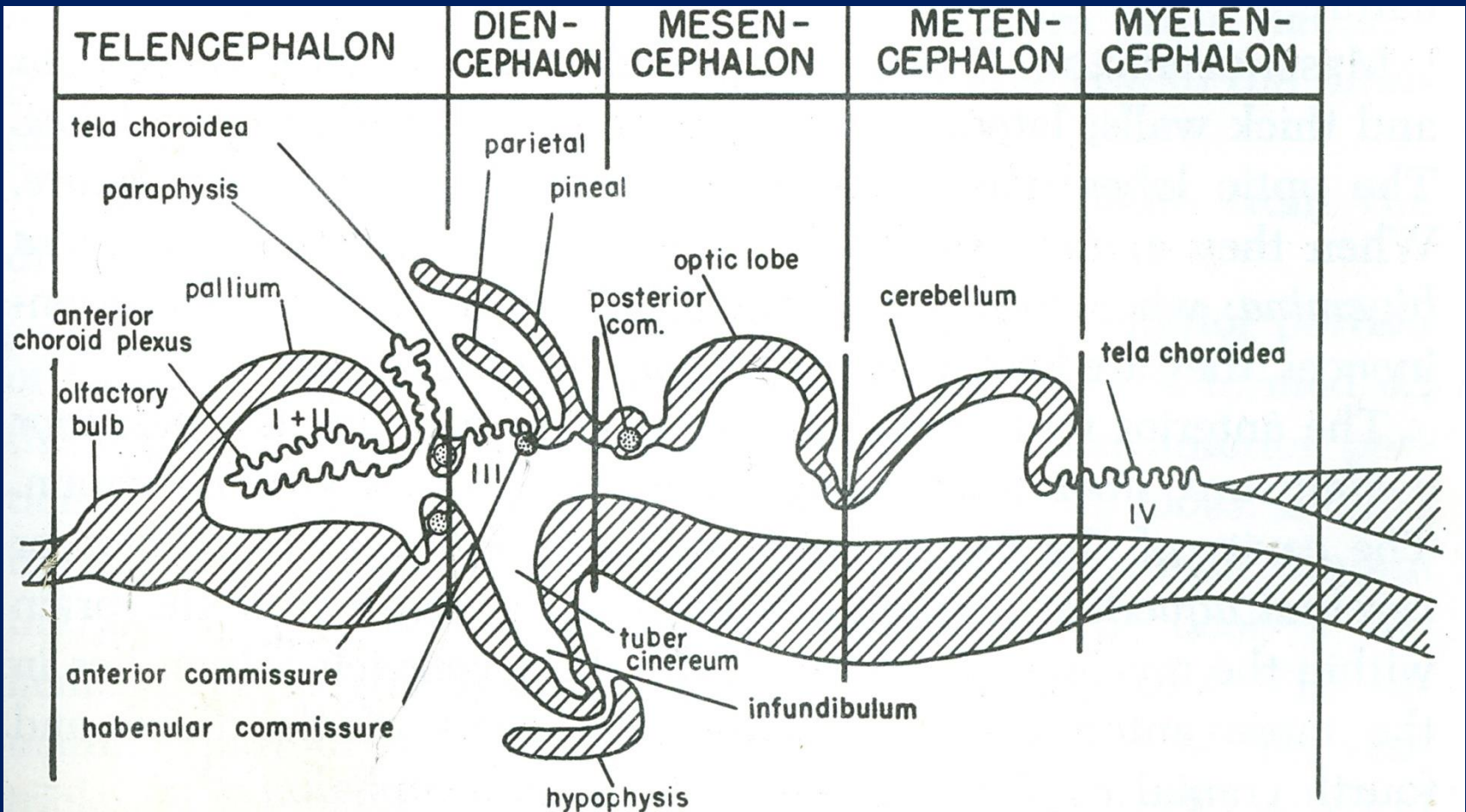
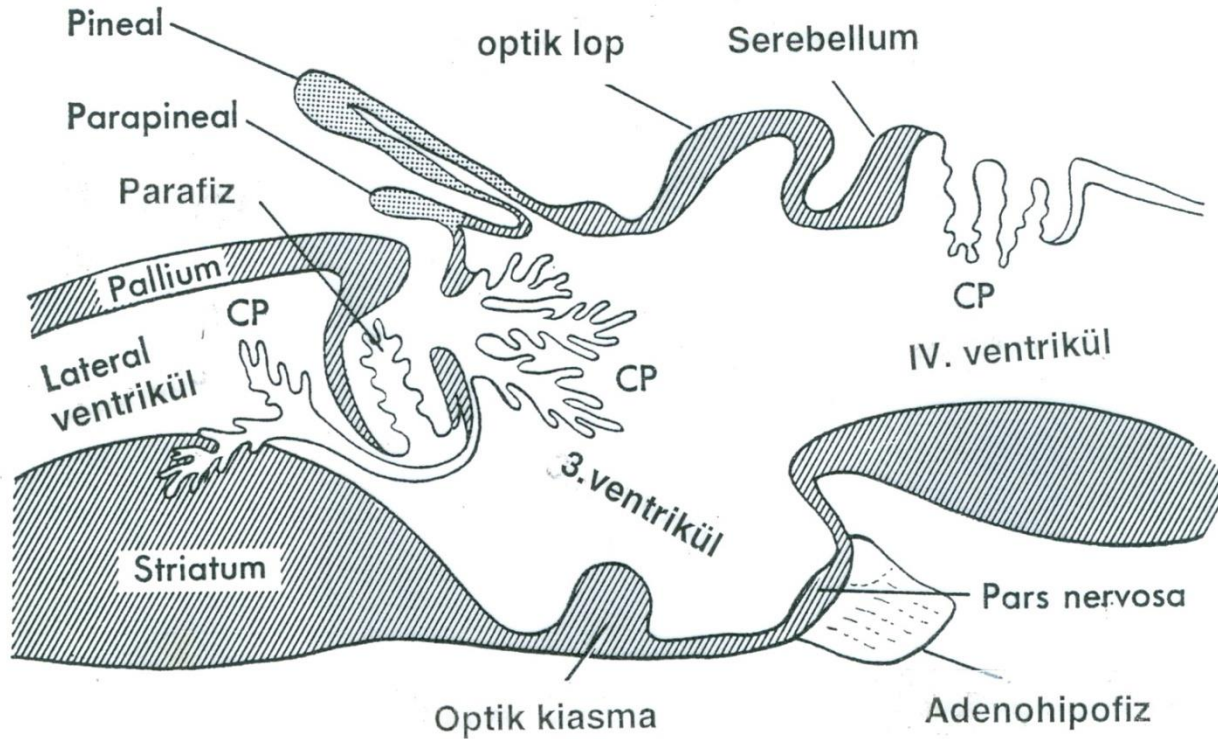


FIG. 13-2. Diagrammatic sagittal section of a shark brain, showing its divisions and structures. (From Adams and Eddy, *Comparative Anatomy*, John Wiley & Sons, 1949, by permission.)

Diencephalon ve ilişkili yapılar

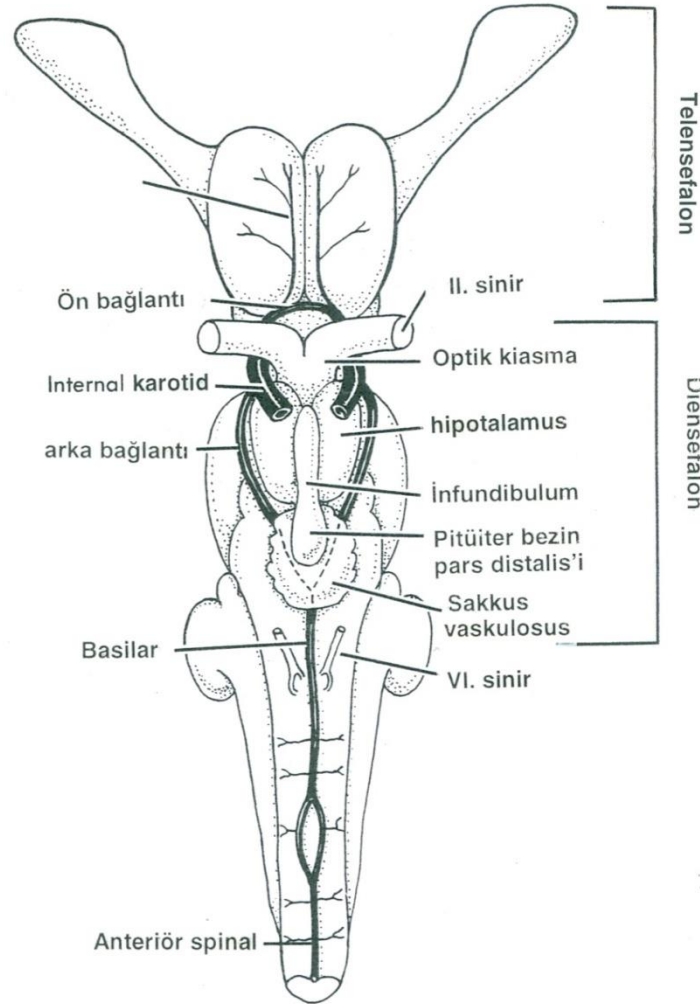


Şekil 12.6. Omurgalı beyinde diensefalon ve bu bölge ile ilişkili alanlar (sagittal kesit). CP. ikinci (lateral), üçüncü ve dördüncü ventriküllerin koroid pleksusları (larval kurbağa beyine dayalı olarak).

Parapineal cisim = Parietal cisim

Pineal cisim = Epifiz

Beynin ventralden görünümü - Köpek balığı



Şekil 12.11. *Squalus beyne* (ventral görünüm).

Hipofiz'in gelişimi

Hypotalamus tabanı (Infundibulum)

Stomodeum tavanı (Ratke cebi)



Oral ektoderm (Ratke cebi)



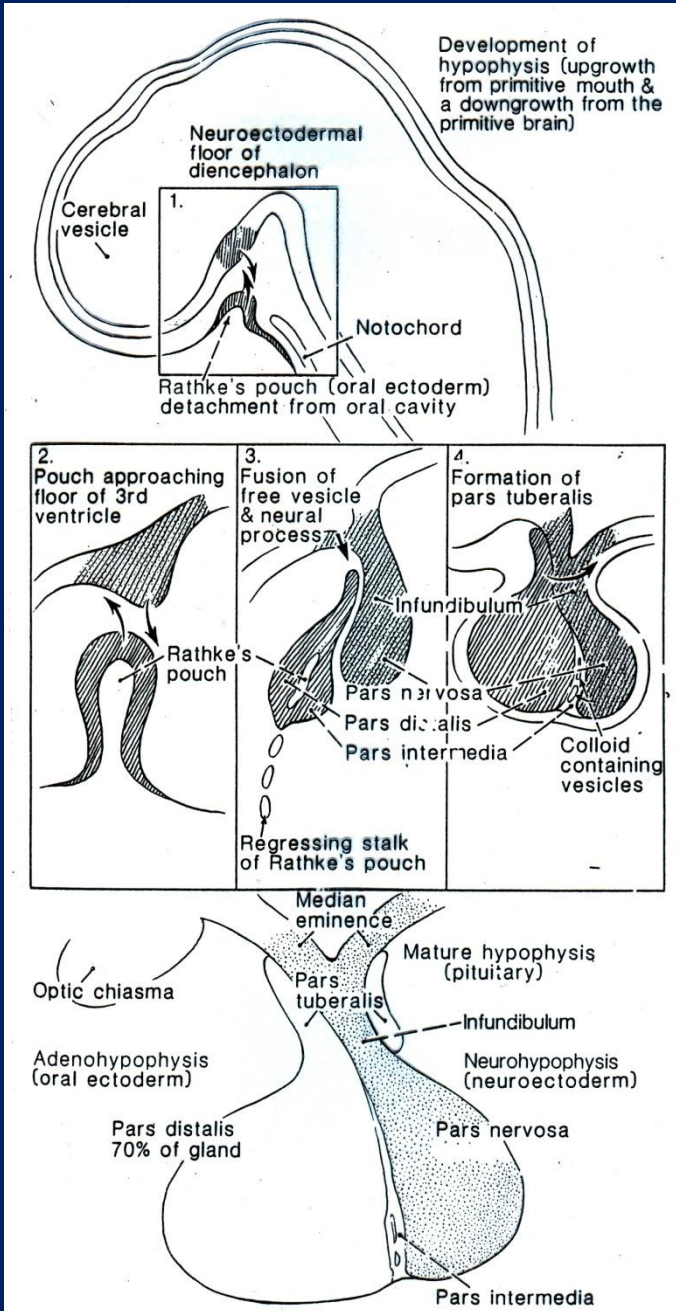
Neural ektoderm (Infundibulum)



HİPOFİZ
(Pütiüter bez)

Adenohipofiz

Neurohipofiz



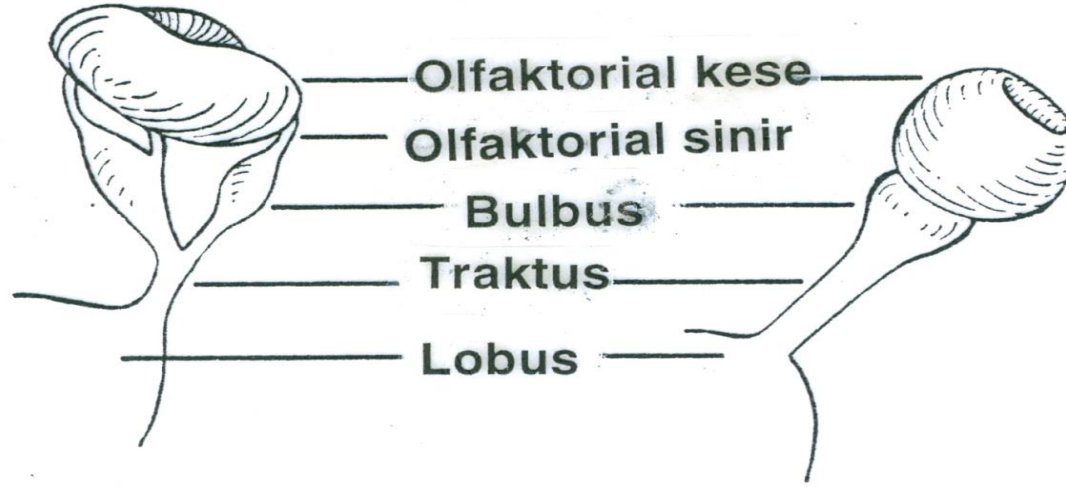
Hipofizin gelişimi

Primitif ağızdan (ratke cebi) yukarı doğru
Primitif beyinden aşağı doğru

Development of the Hypophysis



Telencephalon (Rhinencephalon)



A. SCOLIODON

B. SQUALUS

Şekil 12.13. Köpek balıklarında rhinensefalon. Olfaktorial keseler beynin bir bölümü değildir. Olfaktorial sinir lifleri olfaktorial kese ve olfaktorial bulbusu bağlantılı kılar ve Scoliodon'da ayrı bir sinir oluştururken Squalus'ta oluşturmaz.

Kıkırdaklı balıklarda beyin (Vatoz'da)

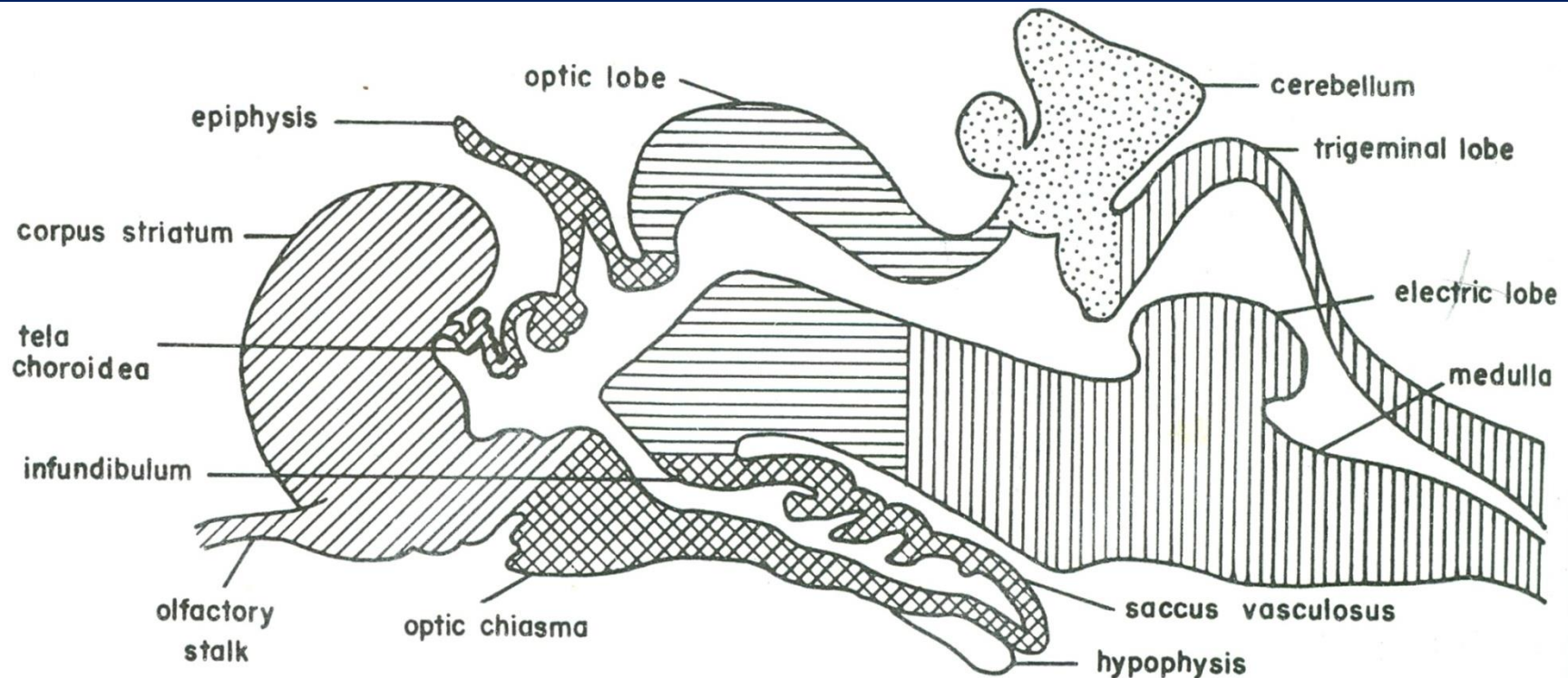


FIG. 13-3. Diagrammatic sagittal section of the brain of a ray. (From Walter and Sayles, *Biology of the Vertebrates*, Macmillan, 1949, by permission.)

Kemikli balıklarda beyin (Sagittal kesit)

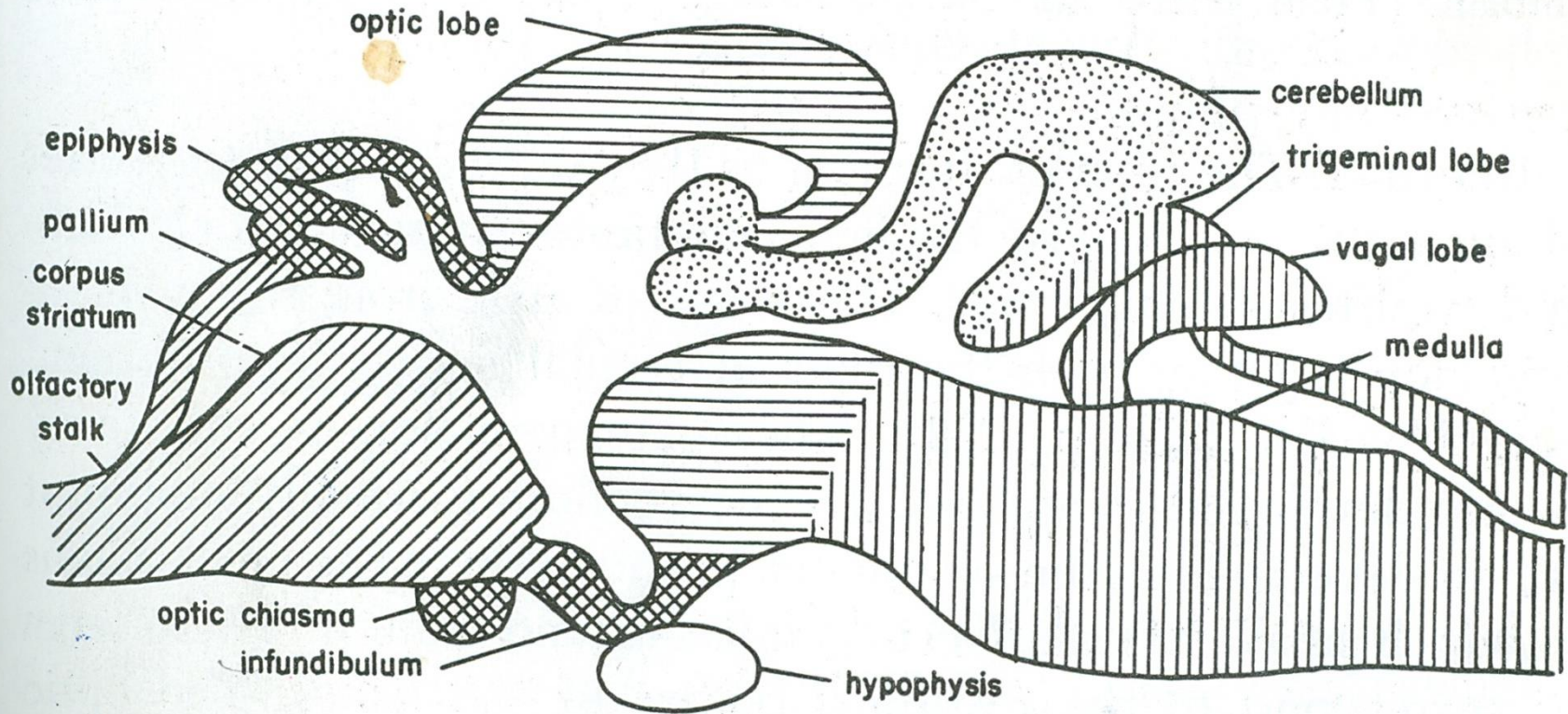


FIG. 13-4. Diagrammatic sagittal section through the brain of a bony fish. (From Walter and Sayles, *Biology of the Vertebrates*, Macmillan, 1949, by permission.)

Amfibilerde Beyin – Sagittal kesit

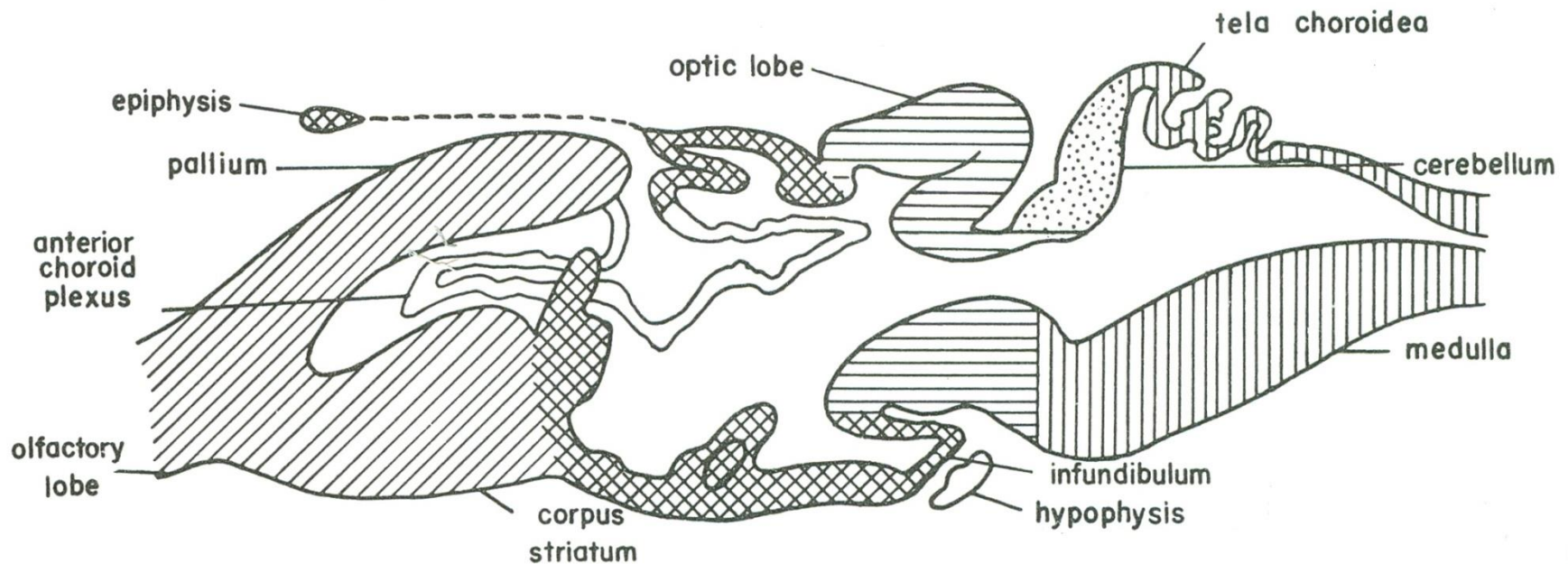


FIG. 13-5. Diagrammatic sagittal section through the brain of an amphibian. (From Walter and Sayles, *Biology of the Vertebrates*, Macmillan, 1949, by permission.)

Reptil'lerde beyin - Sagittal kesit

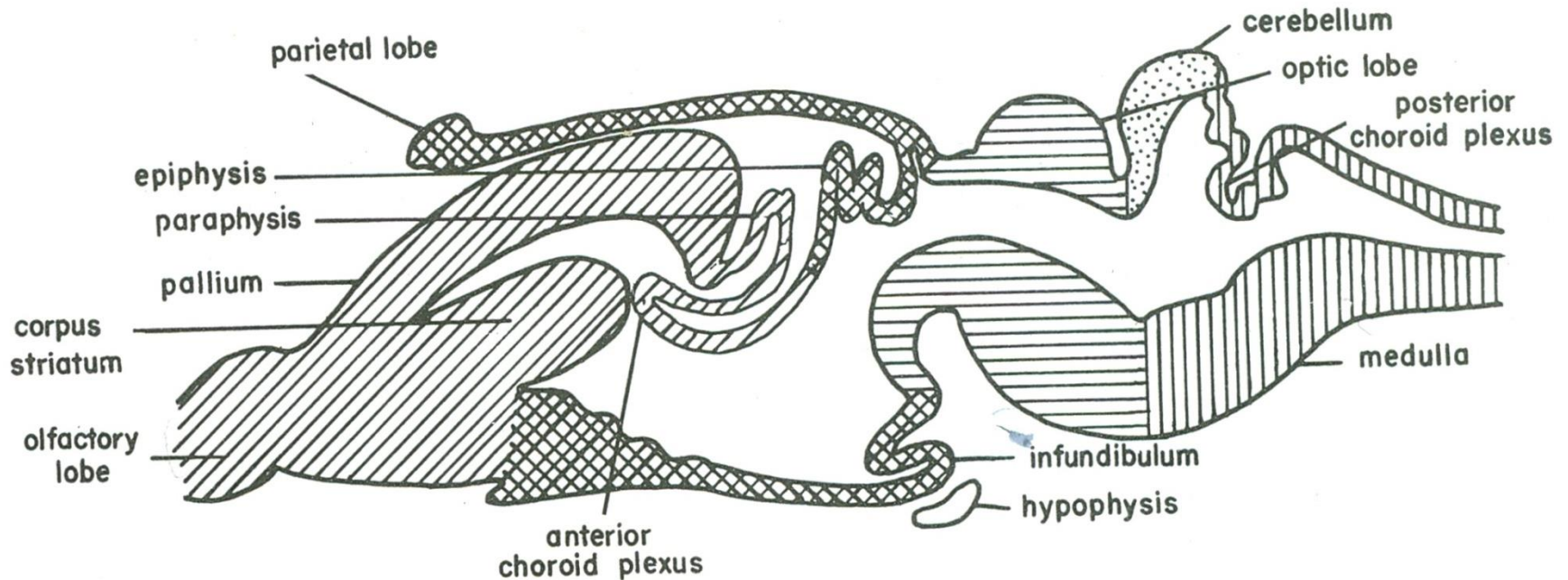


FIG. 13-6. Diagrammatic sagittal section through the brain of a reptile. (From Walter and Sayles, *Biology of the Vertebrates*, Macmillan, 1949, by permission.)

Kuşlarda beyin – Sagittal kesit

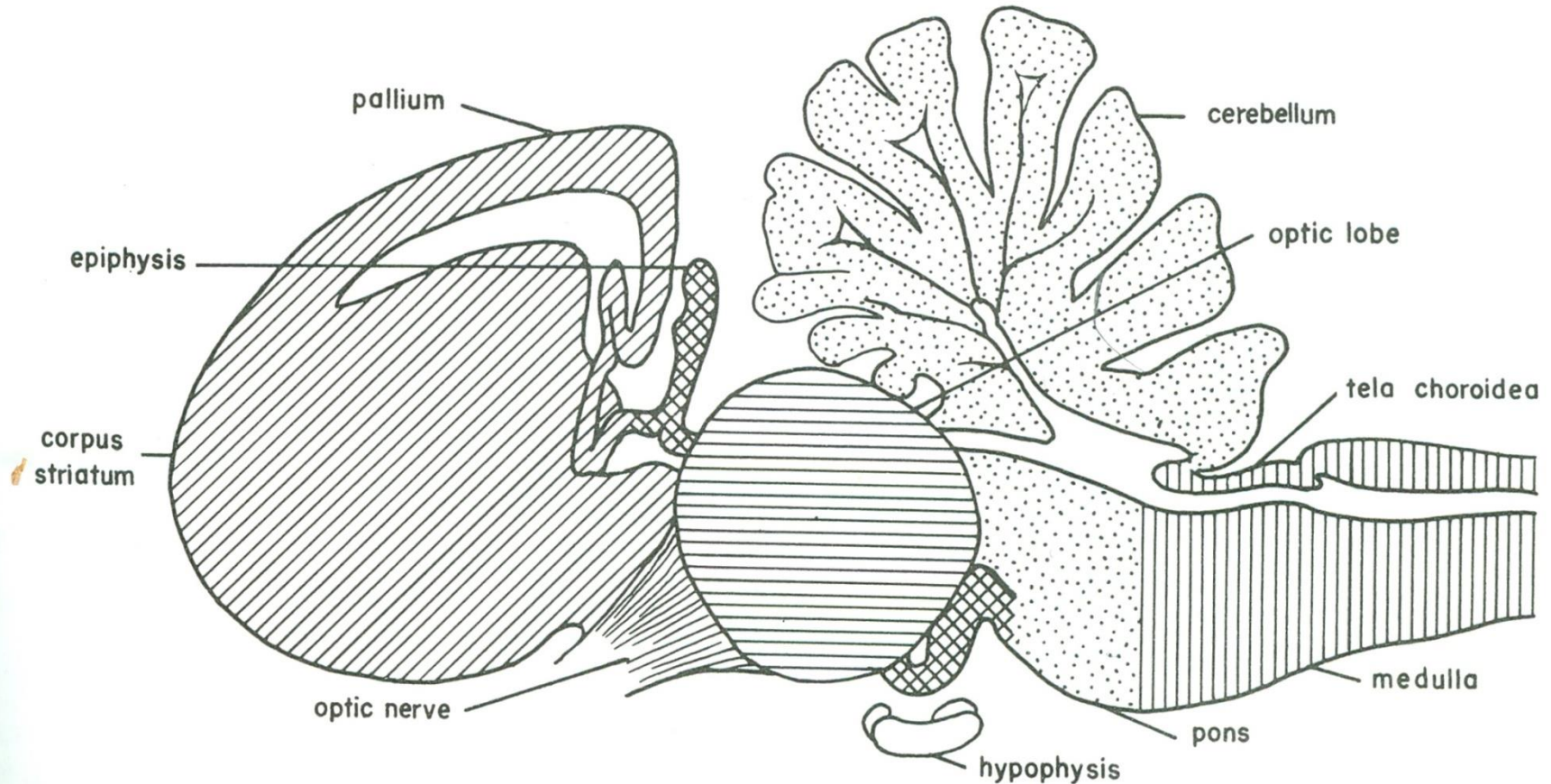


FIG. 13-7. Diagrammatic sagittal section through the brain of a bird.
(From Walter and Sayles, *Biology of the Vertebrates*, Macmillan, 1949,
by permission.)

Memeli'lerde beyin – Sagittal kesit

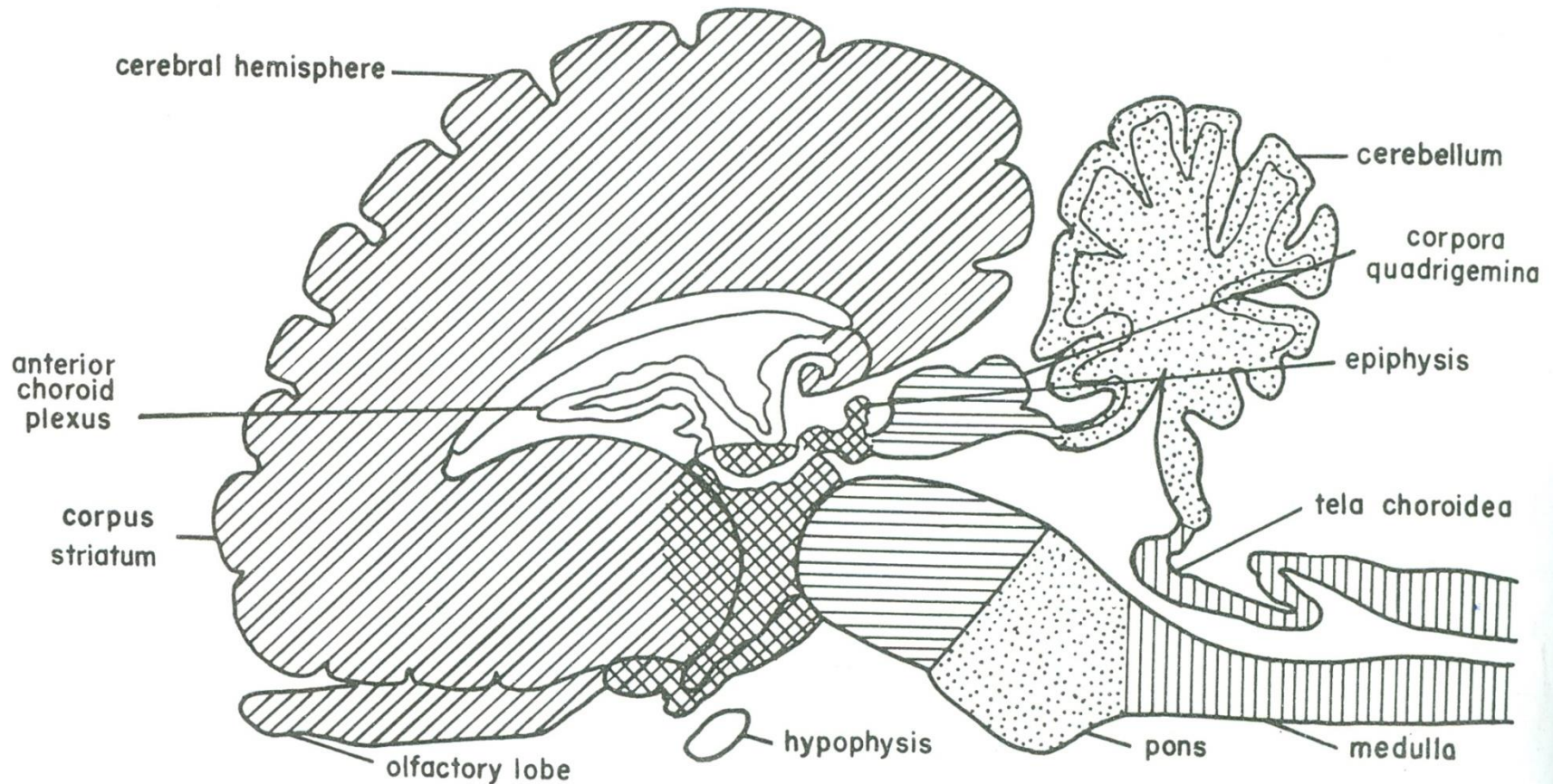
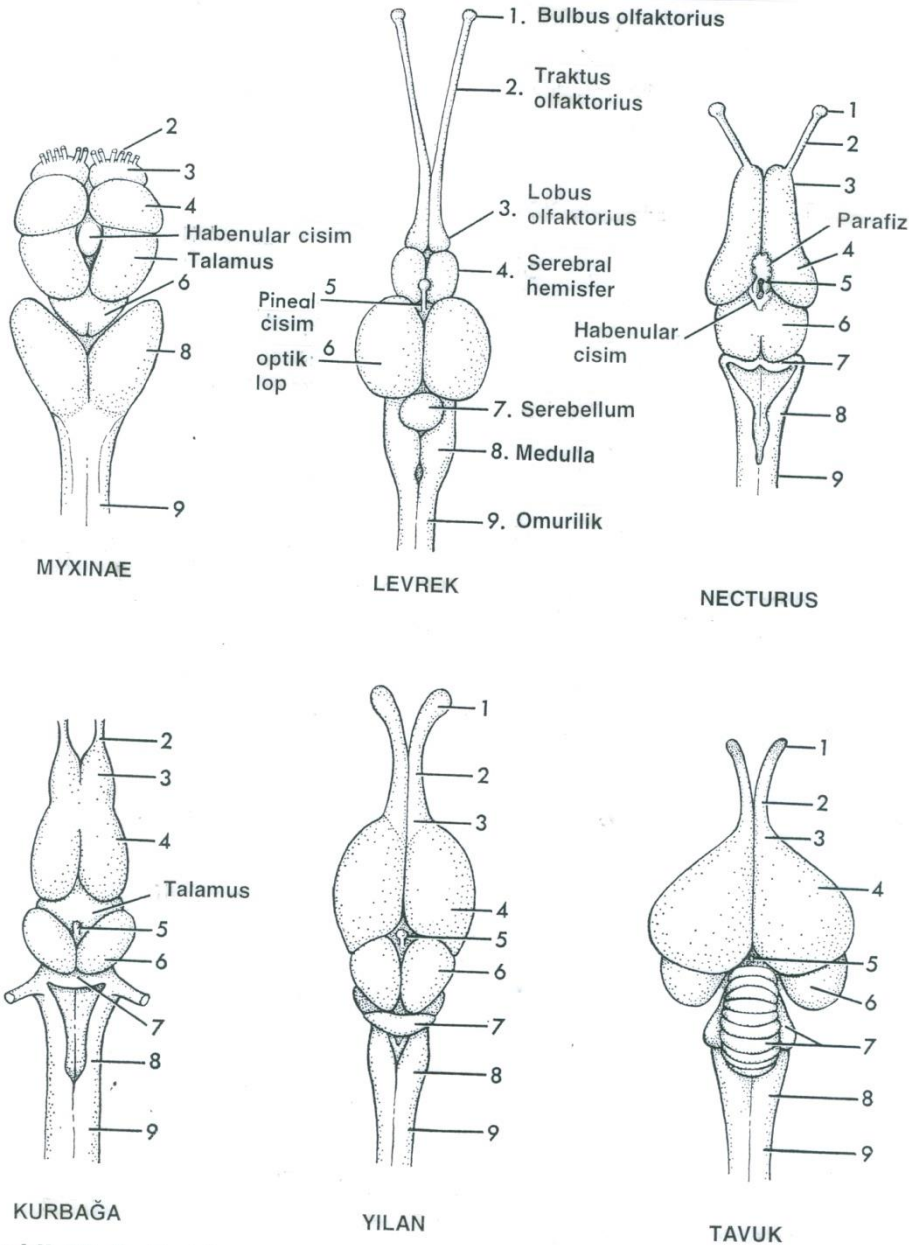
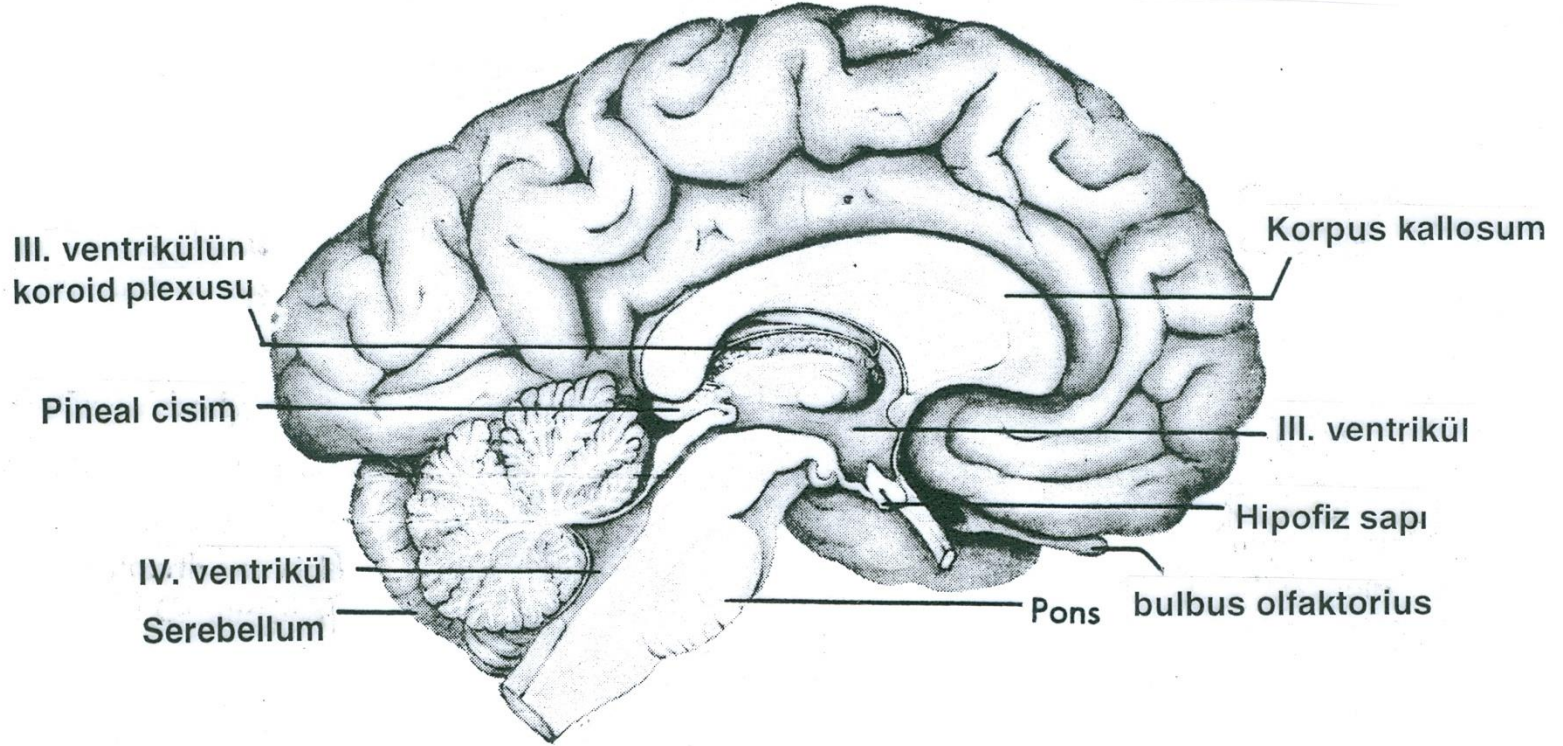


FIG. 13-8. Diagrammatic sagittal section through the brain of a mammal. (From Walter and Sayles, *Biology of the Vertebrates*, Macmillan, 1949, by permission.)

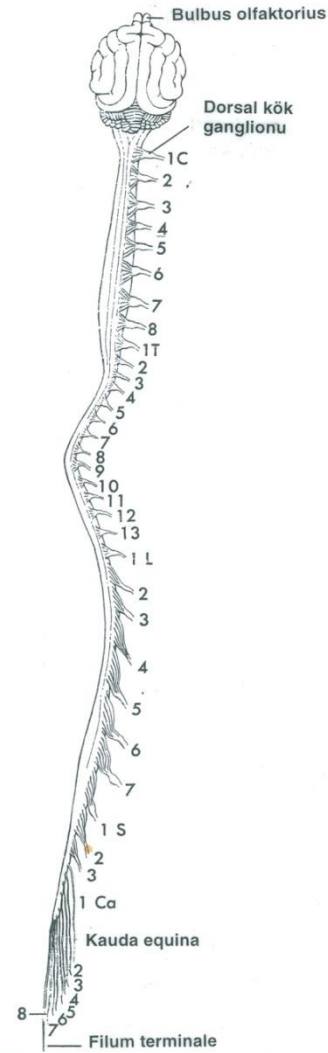
Beynin yapısı



Şekil 12. 5. Farklı omurgalı gruplarında beynin yapısı.



Şekil 12.15. *İnsan beyni (sol yarı sagittal kesit).*



Şekil 12.16. Bir memelide (kedi) beyin ve omurilik). Dura mater çıkartılmıştır. **C.** servikal spinal sinir, **T.** torasik, **L.** lumbar, **S.** sakral, **Ca.** kaudal spinal sinirler. Spinal sinirlerin birçok kökten orijinlendiğine ve omuriliğin servikal ve lumbar bölgelerdeki genişlemelerine dikkat ediniz.

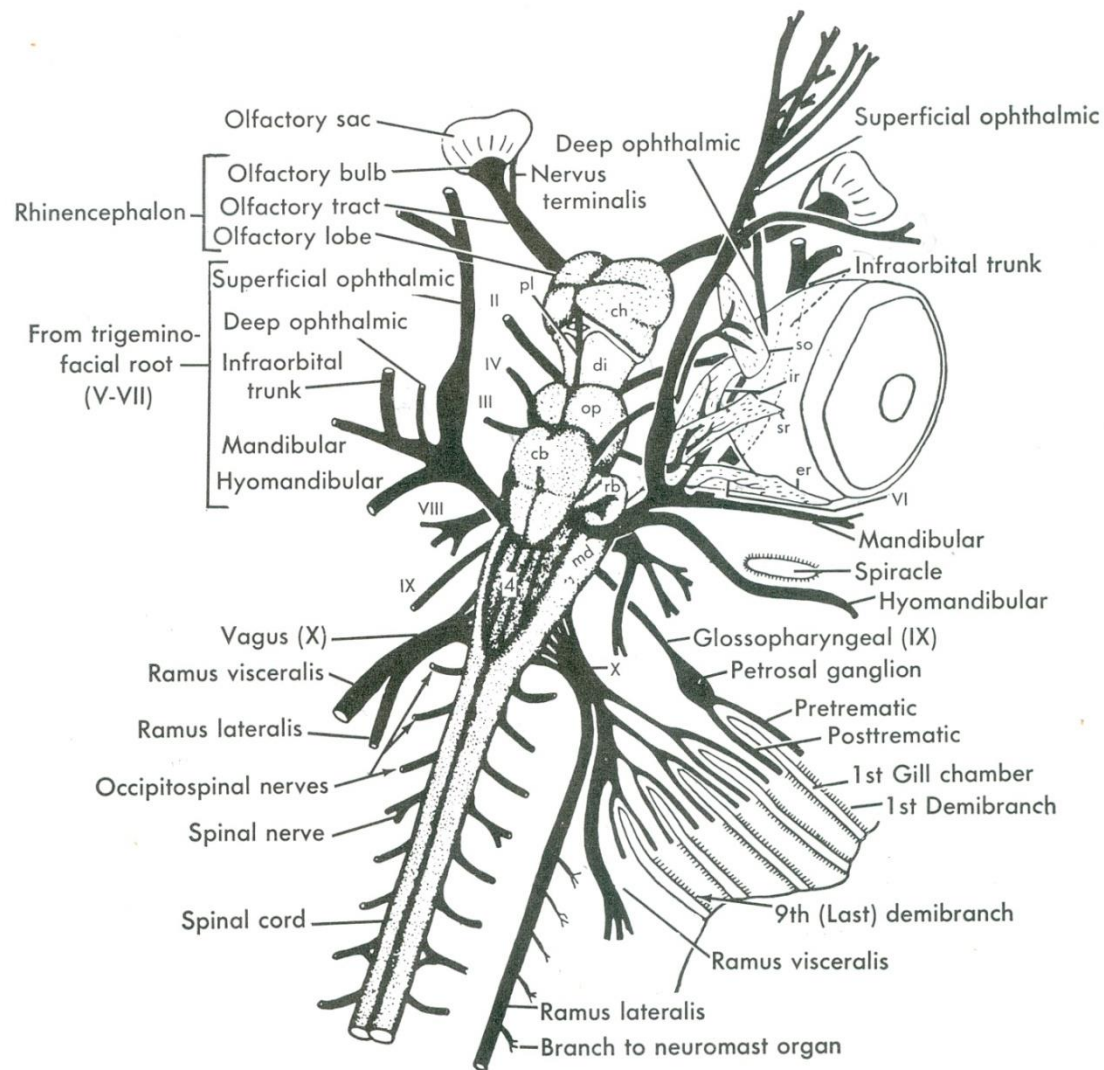


Fig. 15-18. Brain and cranial nerves of *Squalus*. **cb**, Cerebellum; **ch**, cerebral hemisphere; **di**, diencephalon; **er**, external rectus eyeball muscle; **ir**, internal rectus muscle; **md**, medulla; **op**, optic lobe; **pl**, pineal body; **rb**, restiform body; **so**, superior oblique muscle; **sr**, superior rectus muscle; **4**, fourth ventricle, roof removed; **II** to **X**, cranial nerves, pharyngeal branches omitted.

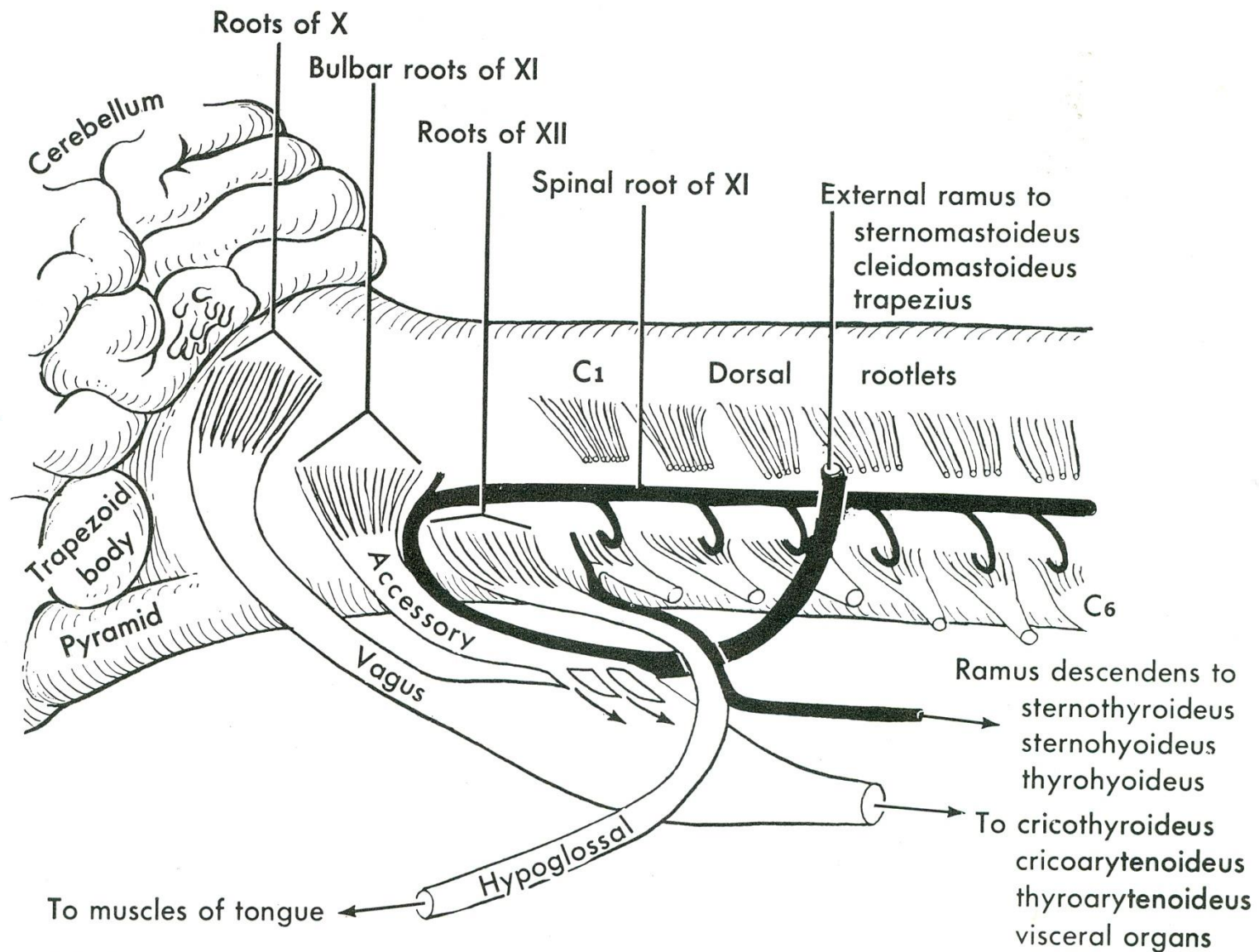
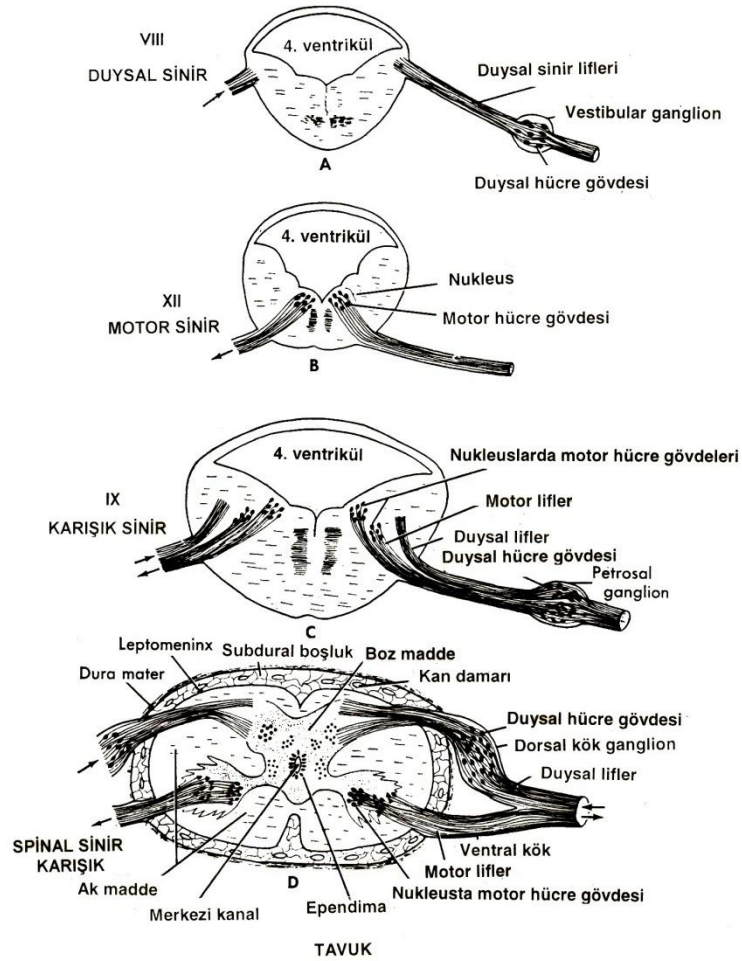


Fig. 15-22. Vagus, spinal accessory, and hypoglossal nerves of a cat. The hypoglossal roots (XII) in the medulla are in series with the ventral roots of the spinal nerves. Components in black are spinal nerve contributions. C₁, Dorsal rootlets of the first cervical spinal nerve; C₆, ventral rootlets of the sixth cervical spinal nerve.



Şekil 12. 2. Duysal, motor ve karışık sinirler. A. Hücre gövdesi ganglionda olan duysal sinir, **B.** Hücre gövdesi nukleusta olan motor sinir, **C.** Karışık sinir, **D.** Omurilikten enine kesitte spinal sinir kökleri (duysal hücre gövdeleri ganglionda, motor hücre gövdeleri omurilikte). Romen rakamlar özel kranial sinirleri göstermektedir.

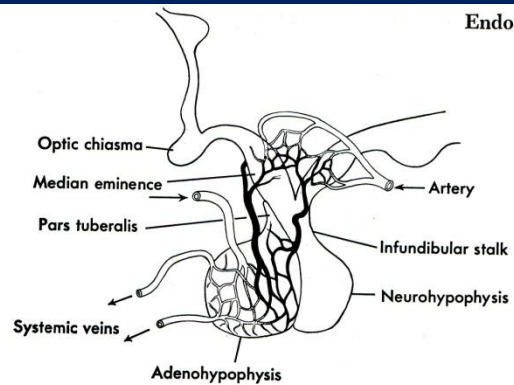


Fig. 17-2. The hypophyseal portal system (black) of mammals, schematic. Arrows indicate direction of blood flow.

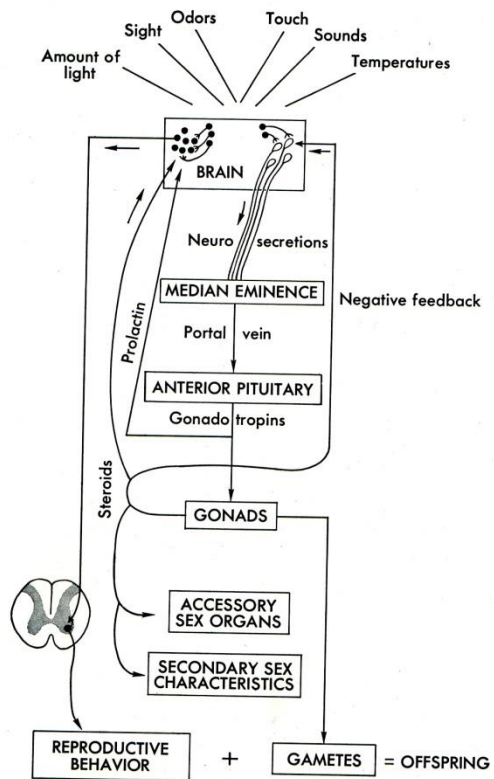


Fig. 17-3. Regulatory effects of the environment via hormones.