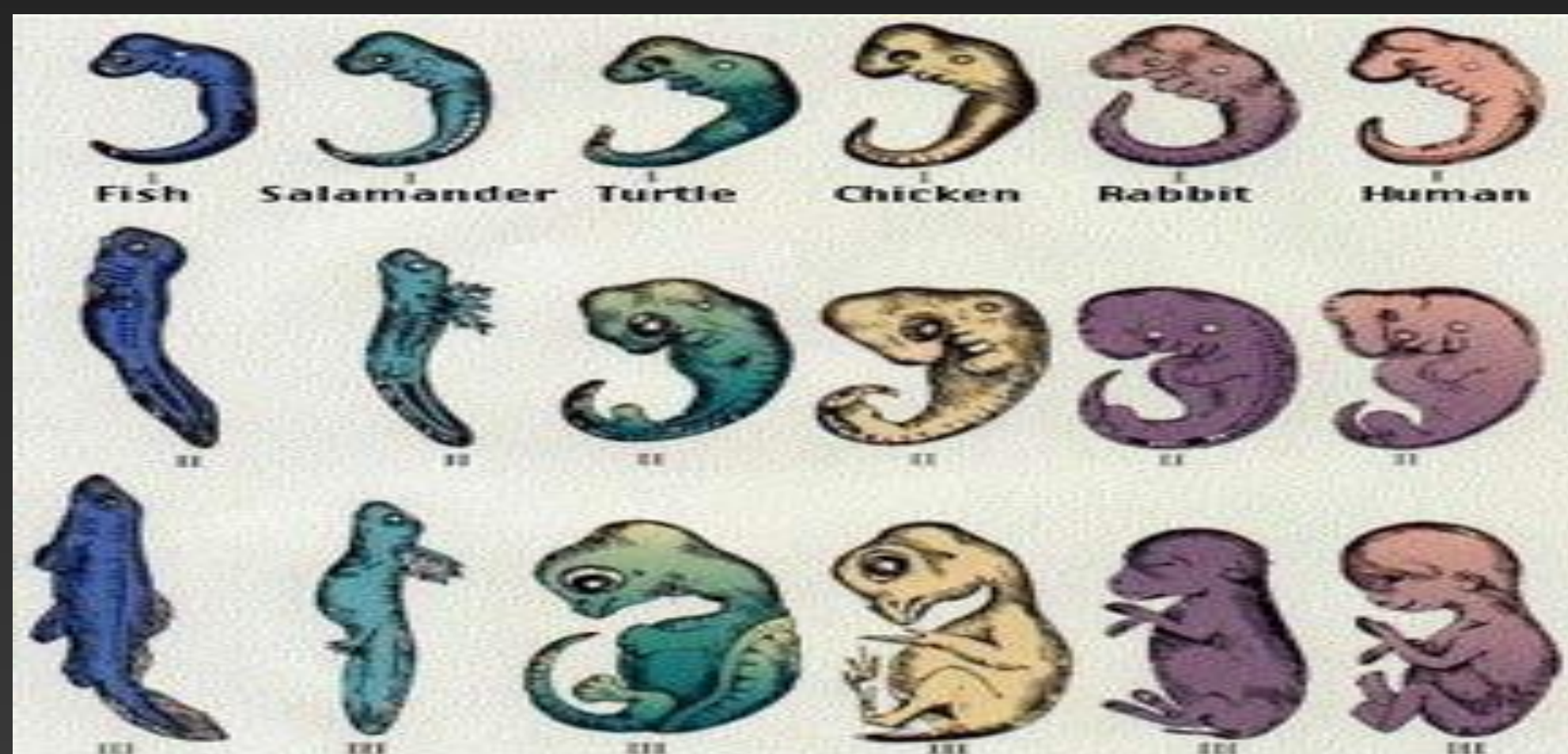




MEDICAL ACADEMY NAMED AFTER S.I GEORGIEVSKY " CFU  
NAMED AFTER V.I VERNADSKIY "  
DEPARTMENT OF MEDICAL BIOLOGY

# the theory of phylembryogenesis- deviation

phylogenesis of phylum chordata nervous system and developmental disorders

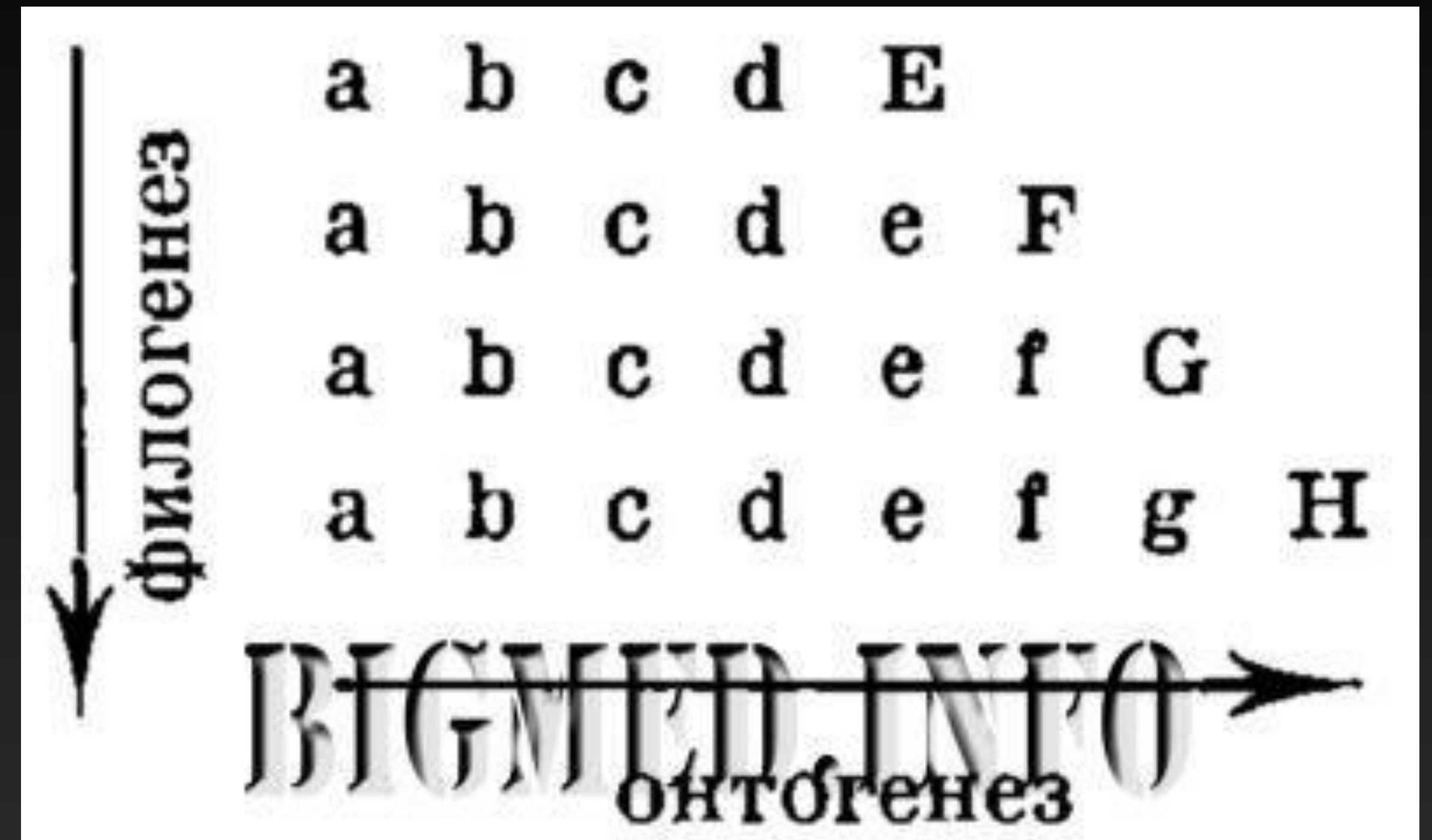


satyam goyal ,  
divya deep  
(192 b) La 1

scientific advisor -svetlana smirnova

# theory of phylembryogenesis-deviation

- a systematic co-ordination of ontogenetic and phylogenetic developments of morphological characters
- deviation is nothing else then a change in the characters then the normal ontogeny
- deviation generally occur in intermediate stages of ontogenesis



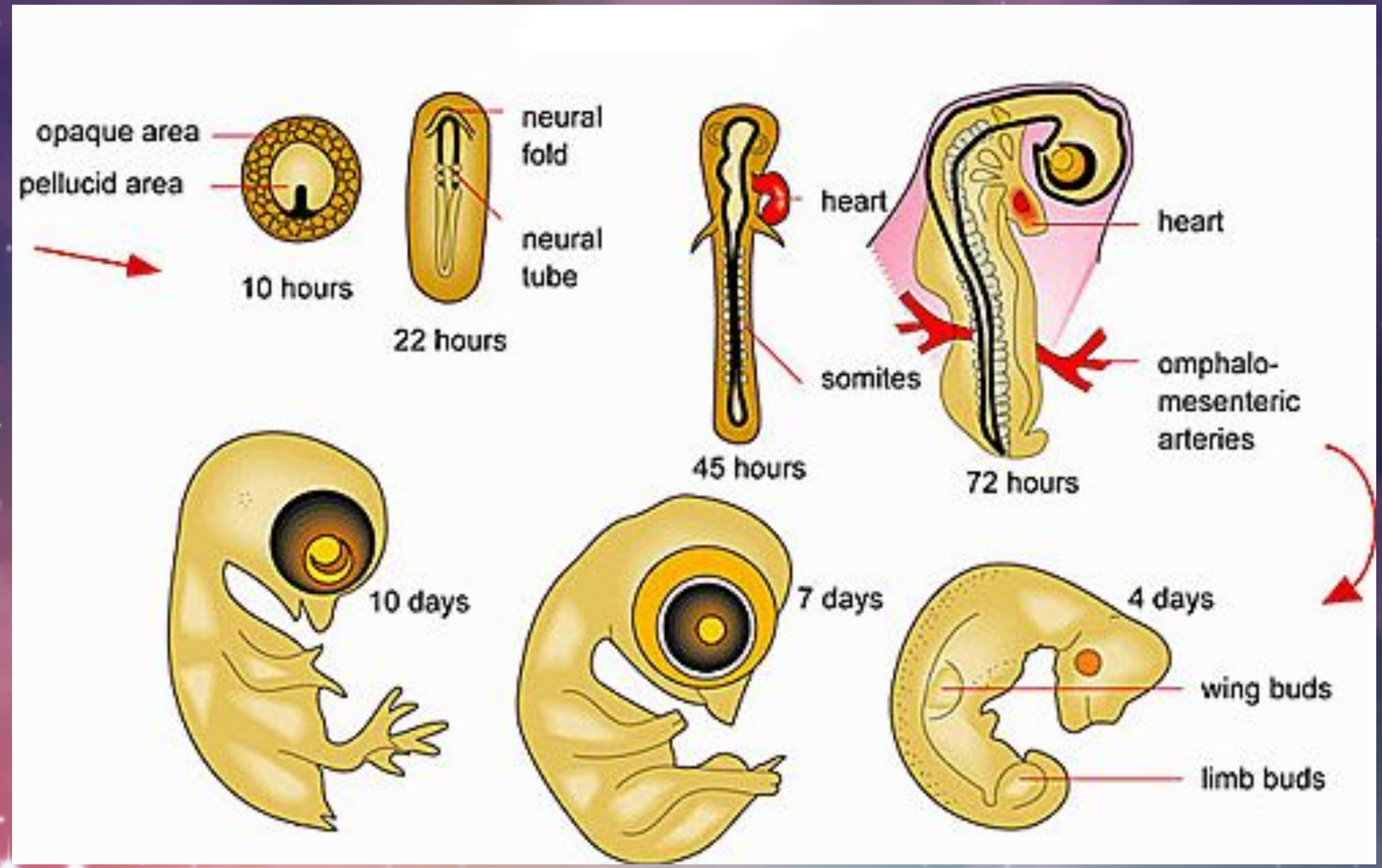
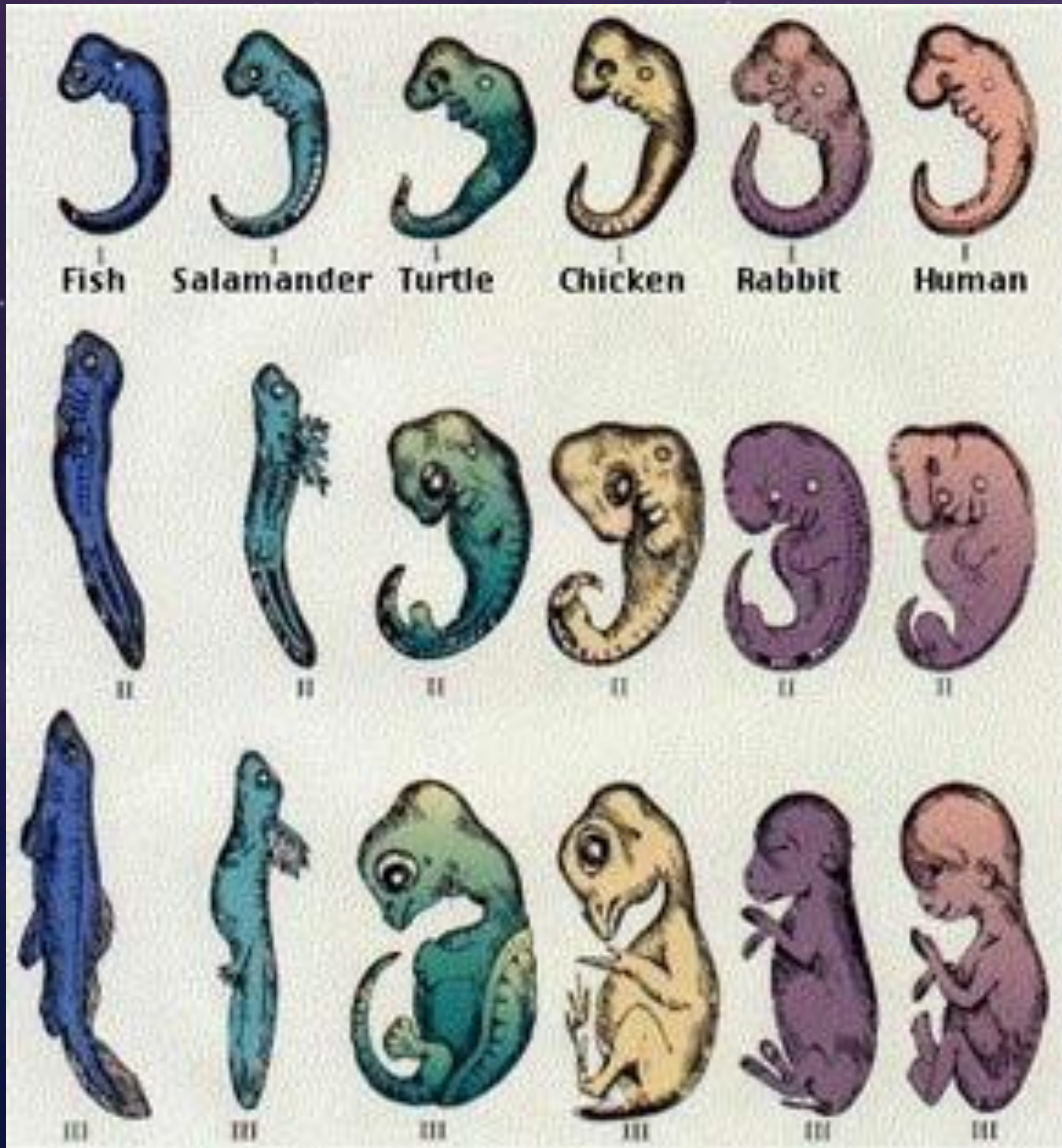
the idea initiated by:-

a theory put forth by Russian palaeontologist Severtsov postulating that phylogenetic changes in organisms are conditioned by ontogenetic alterations in that certain events are added modified added or deleted in the development of an embryo based on the events of ancestral development.

# A.N Severtsov

While a student Severtsov, with P. P. Sushkin, entered a department competition on the organization and taxonomy of the Apoda and was awarded a gold medal. In 1895 Severtsov defended his master's dissertation, "O raxvittii zatylochnoy oblasti nizshikh pozvonochnykh v svyaz: s voprosom o metamerii golovy" ("On the Development of the Occipital area of the Lower Vertebrates in Connection With Metameres of the Head"). For the next three years he worked in the marine biological stations at Banyuls-sur-Mer, Villefranche, and Naples, and in the zoological laboratories at Munich and Kiel. The research done abroad was included in his doctoral dissertation, "Metameria golov elektricheskogo skata" ("Metameres of the Head of the Torpedo Ray"), which he defended in 1898. Severtsov did scientific and administrative work at Dorpat (now Tartu, Estonian S.S.R.), where from 1898 to 1902 he occupied the chair of zoology, then at Kiev (1902–1911), and at Moscow (1911–1930).



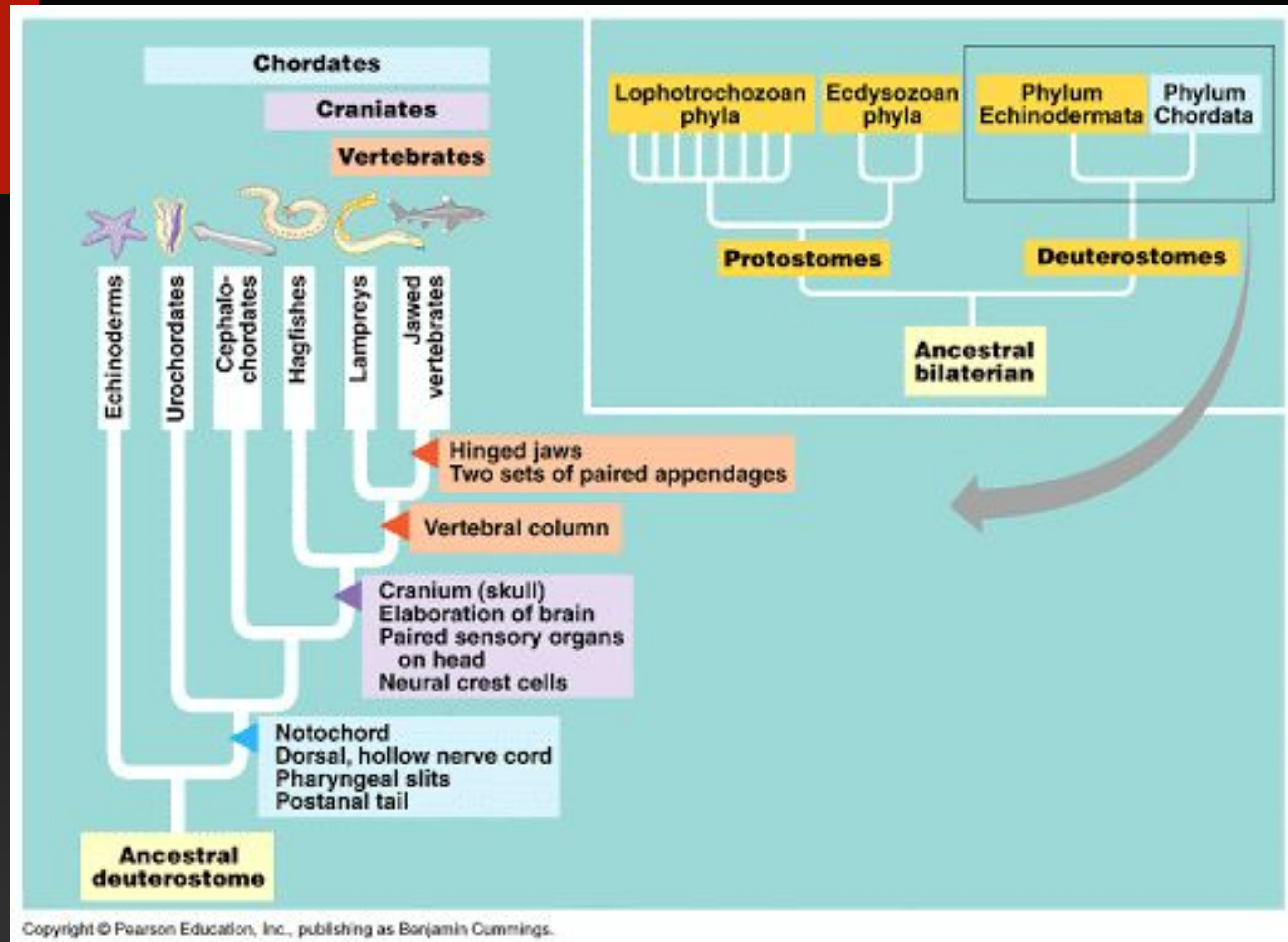


# phylum chordata

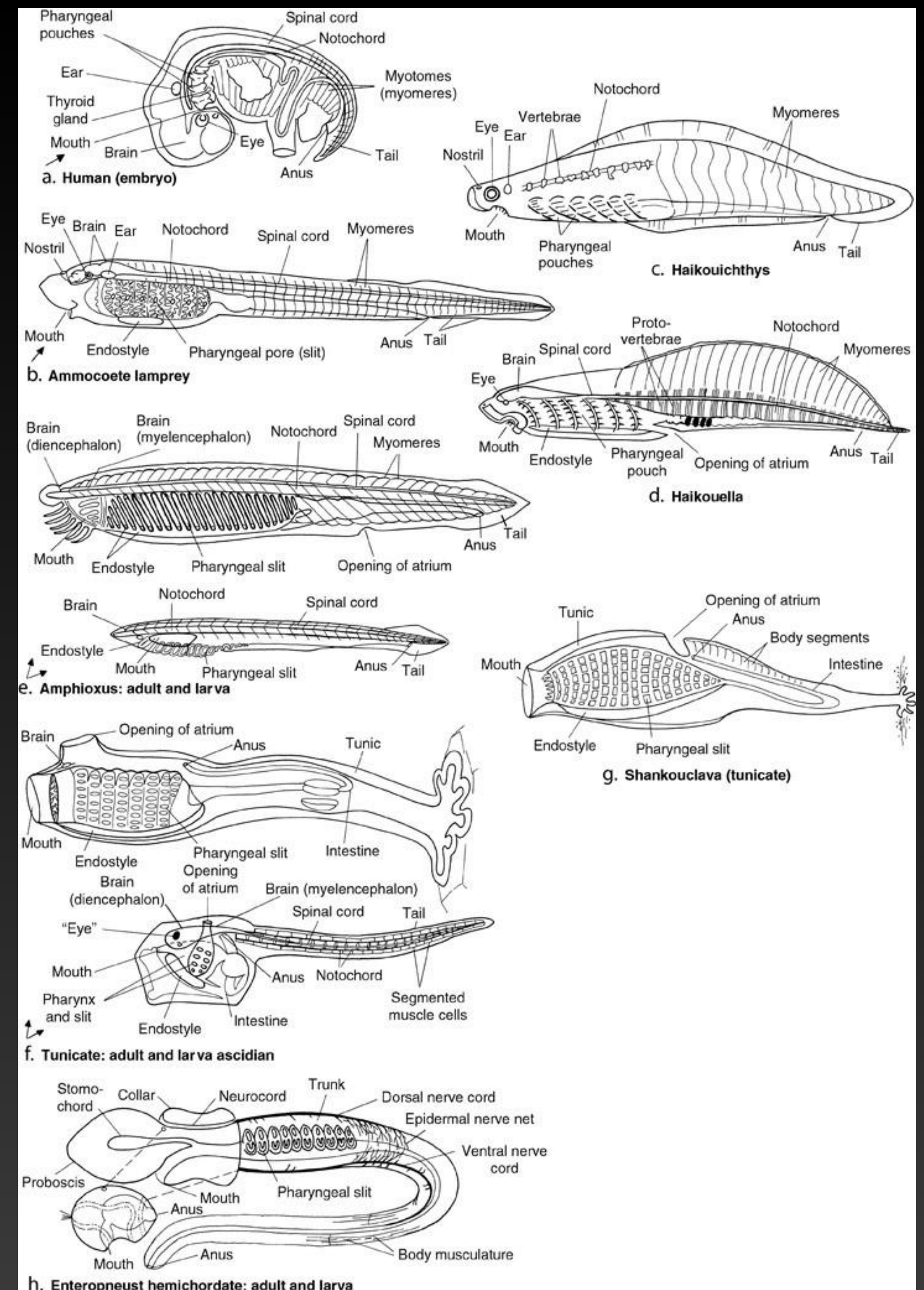
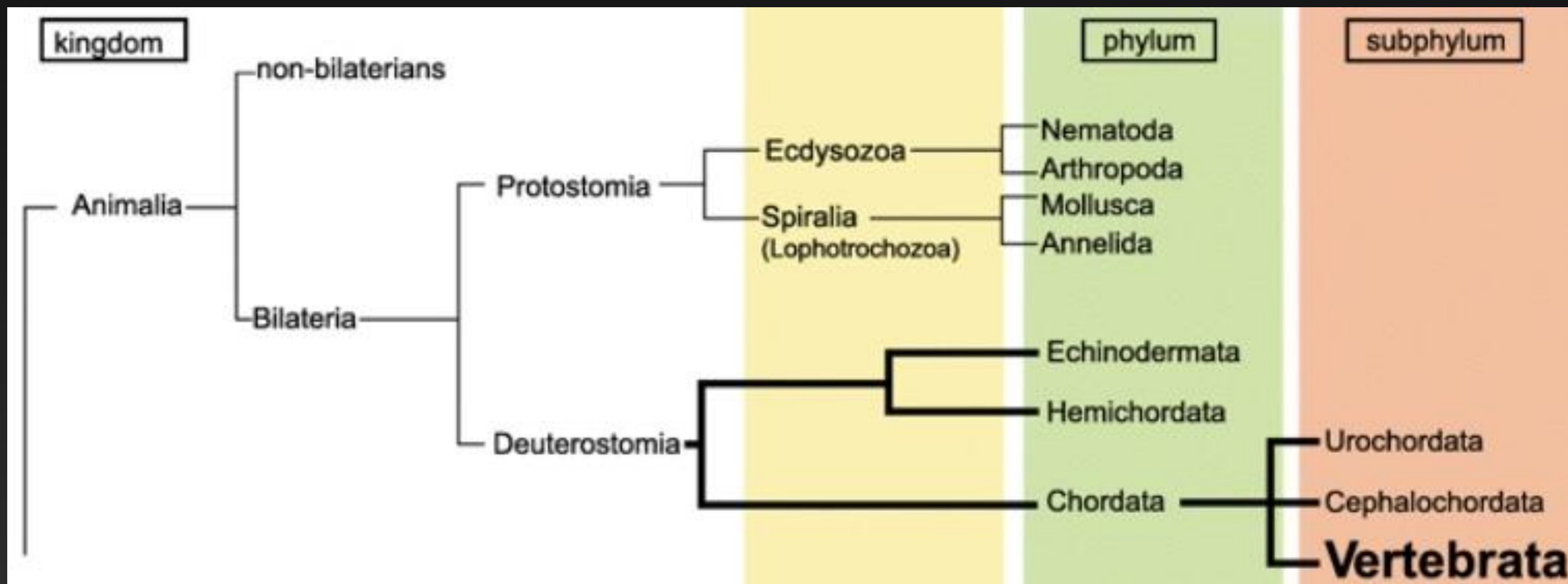
who are classified in chordata phylum

## PHYLUM CHORDATA

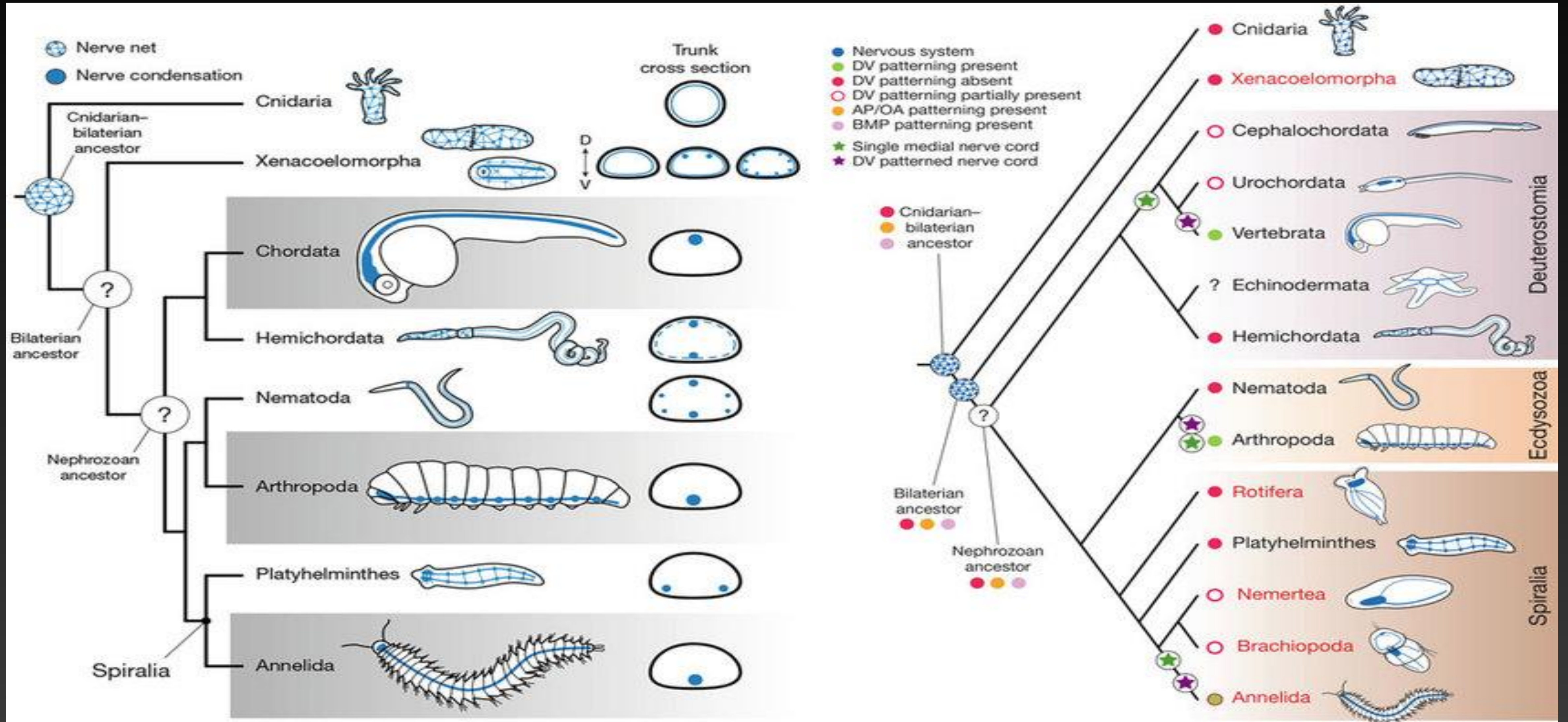
- Dorsal Notochord-long rod that supports the body-becomes the vertebrae in most.
- Dorsal Nerve cord-becomes the central nervous system.
- Pharyngeal gill slits-openings in the throat for feeding & breathing-becomes the Pharynx in humans.
- Tail-forms in embryos and extends past the anus.



# embryo description of vertebrates

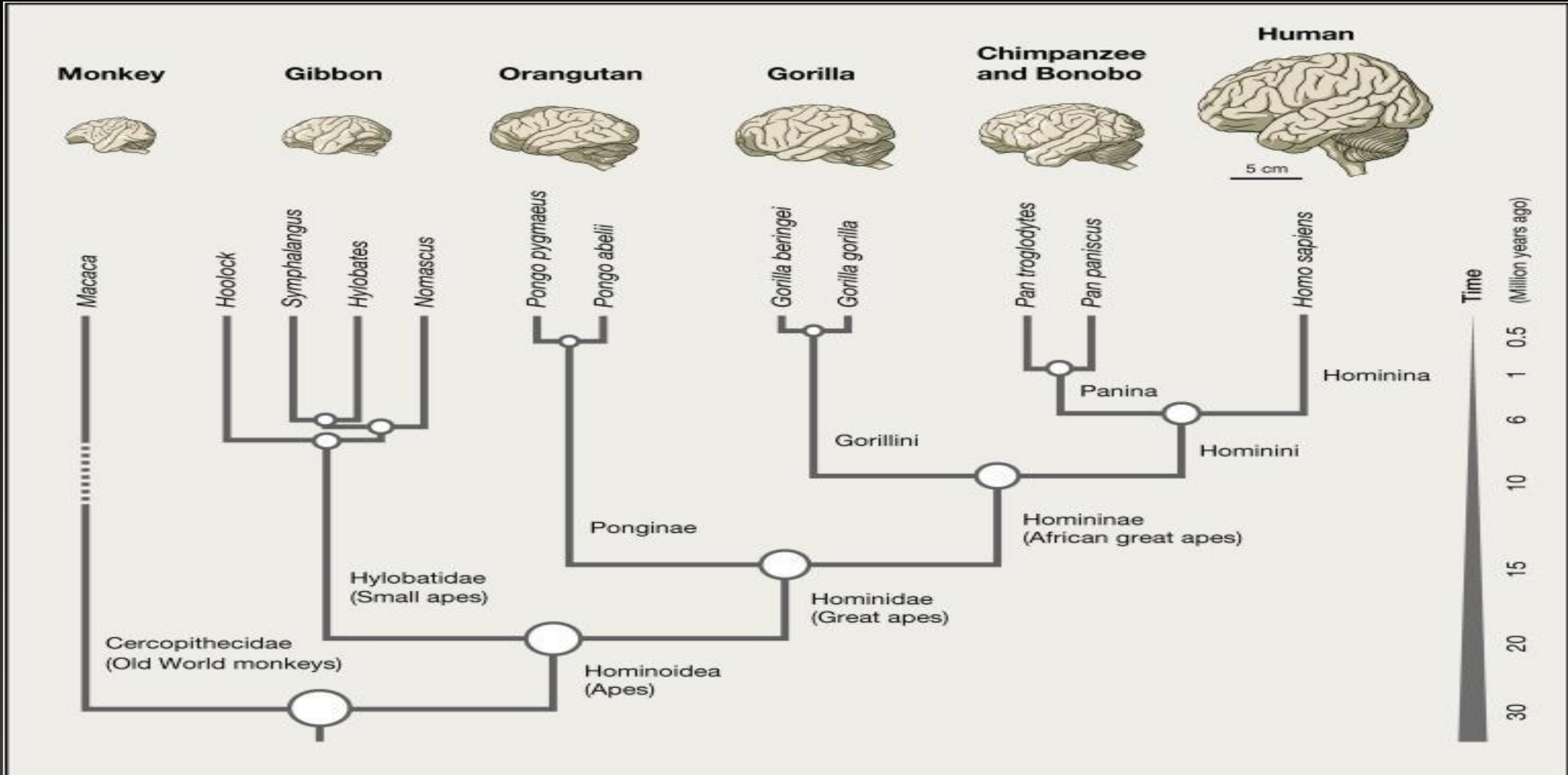


# nervous system of animalia:-

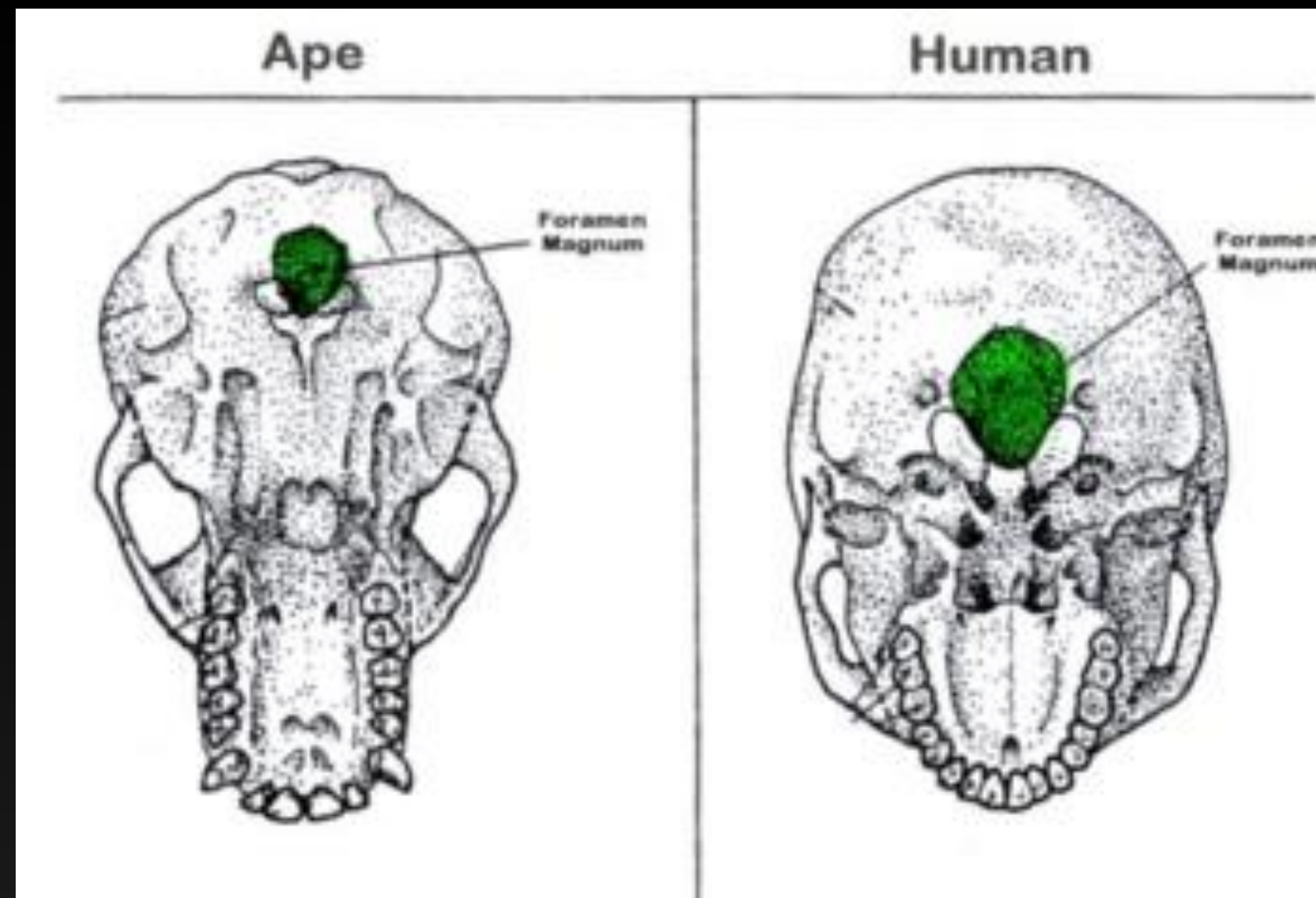




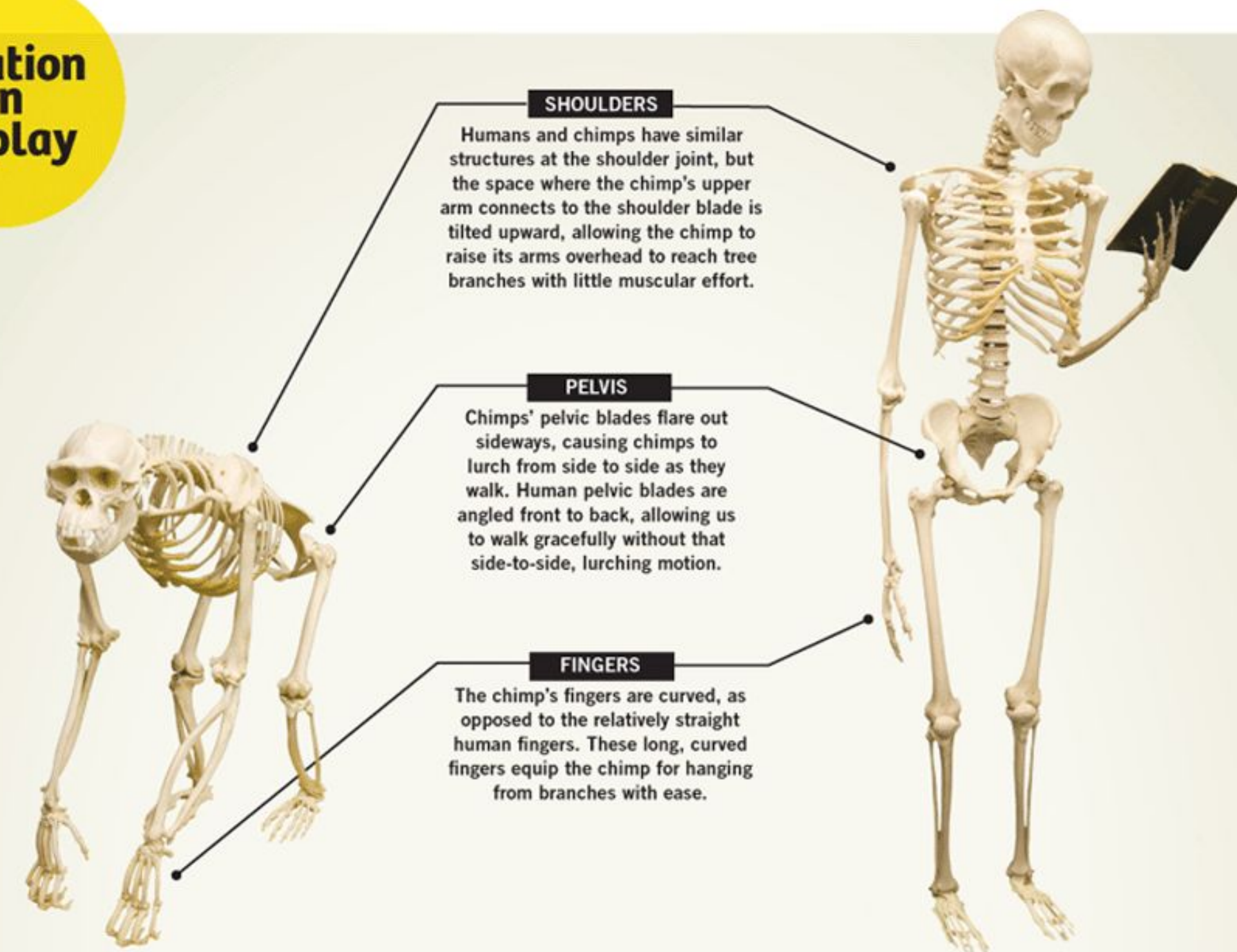
# development of brain in hominidae:-



# Man Vs Apes:-



## Creation on Display



# development of Nervous system

## Development of the Nervous System: The Human Embryo

- Layers of cells in the embryo:
  - Ectoderm forms the nervous systems as well as the epidermis and parts of the eyes and ears
  - Mesoderm forms connective tissue, muscle, blood, blood vessels
  - Endoderm forms the linings of the body
- Throughout the embryonic and fetal period different cell types are created; the process is called *differentiation*.

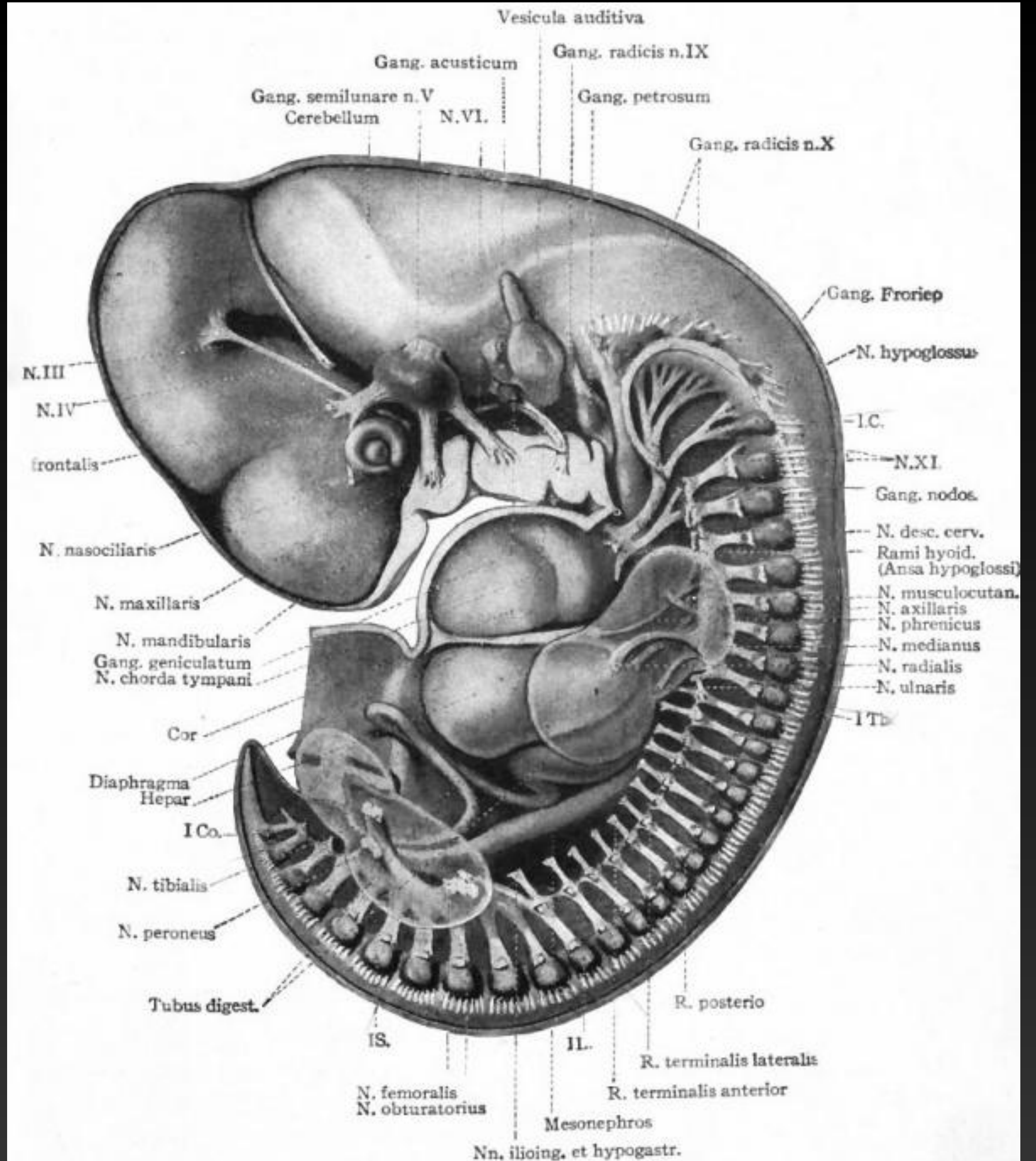
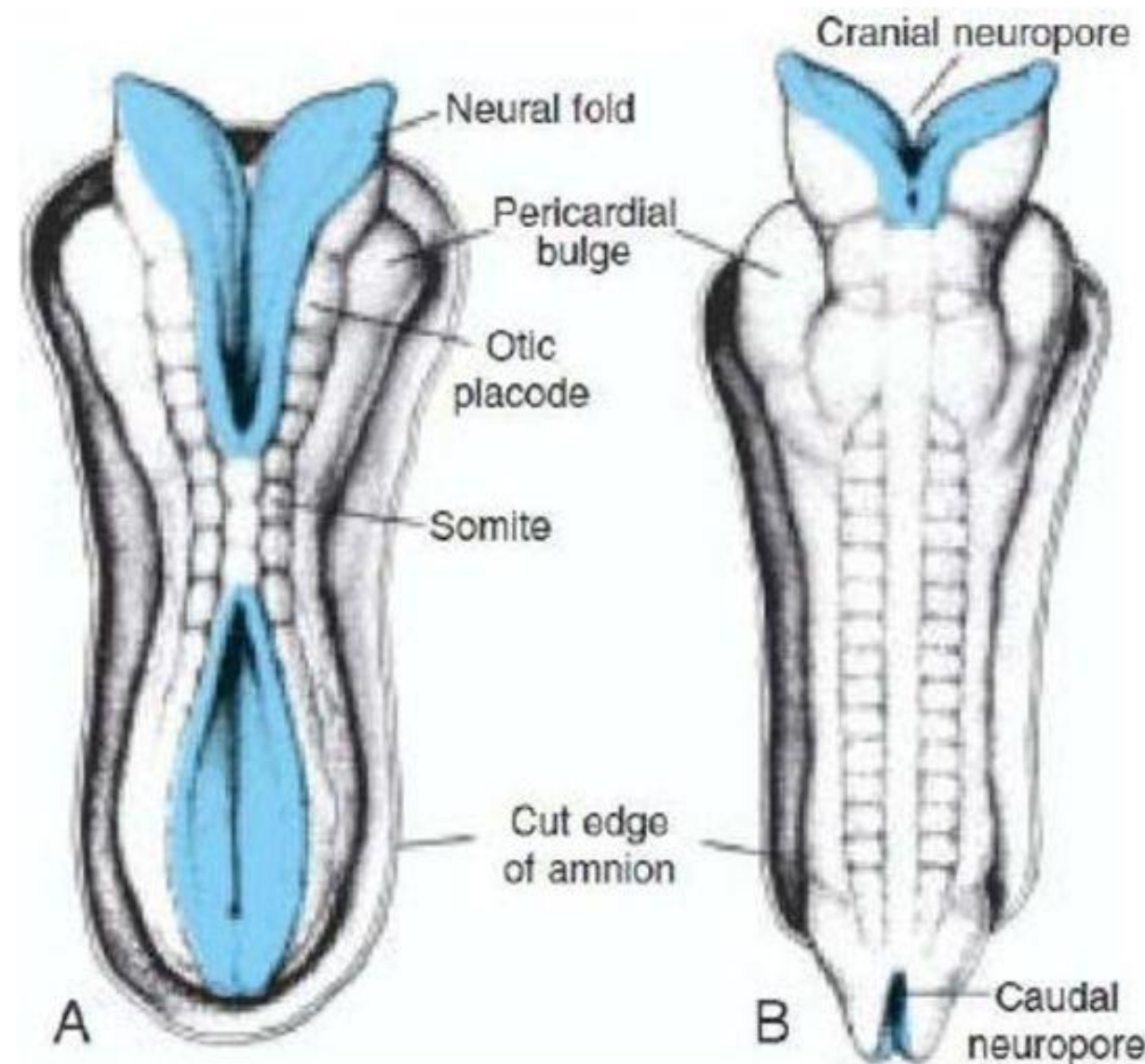


FIG. 397.—Lateral view of a reconstruction of a 10 mm. human embryo, showing the origin and distribution of the peripheral nerves. The ganglionic masses are represented by darker and the fiber bundles by lighter shading. For purposes of orientation the diaphragm and some of the viscera are shown. The arm and leg are represented by transparent masses into the substance of which the nerve branches may be followed. *Streeter*.

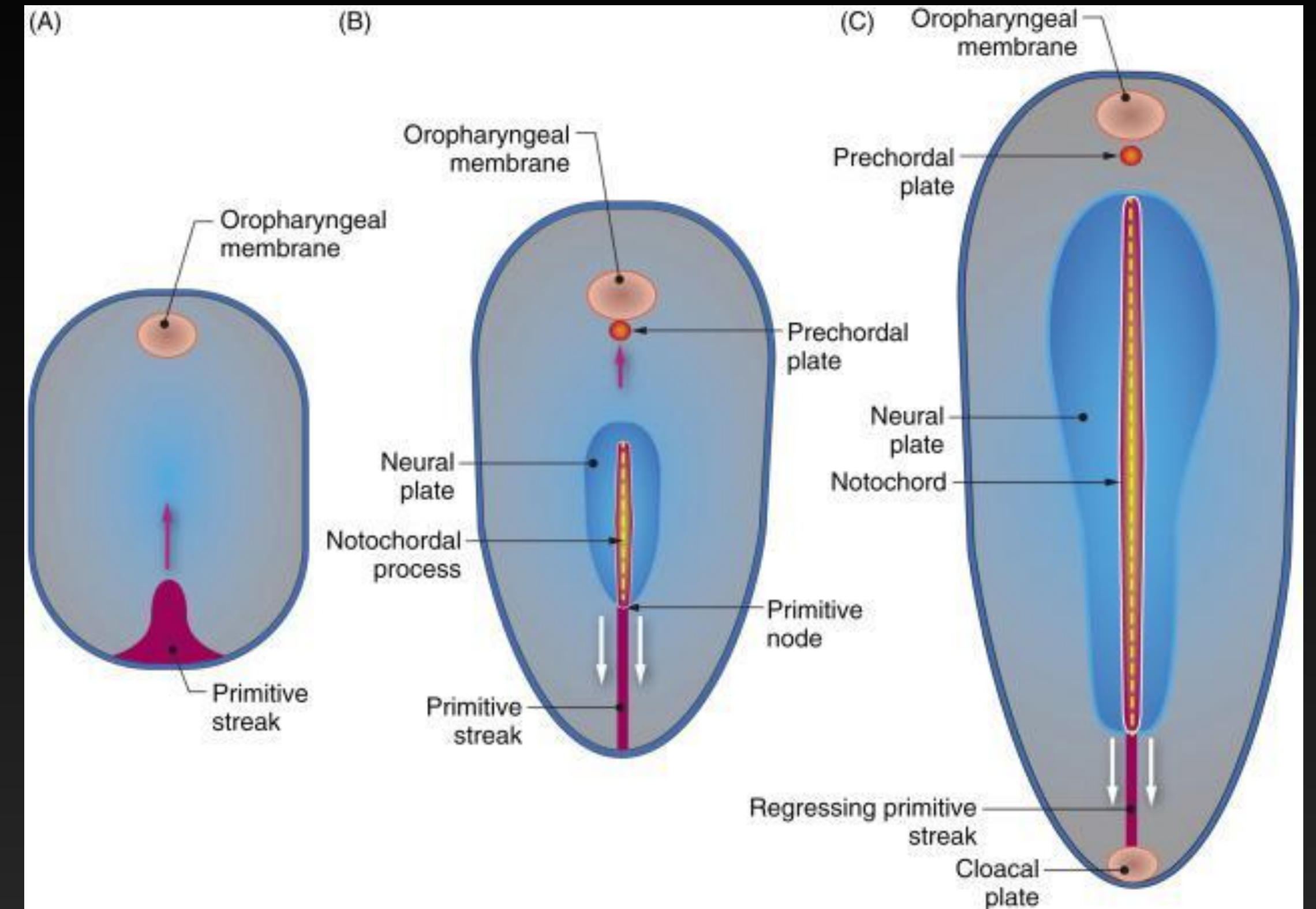
# neural tube formation and development:-

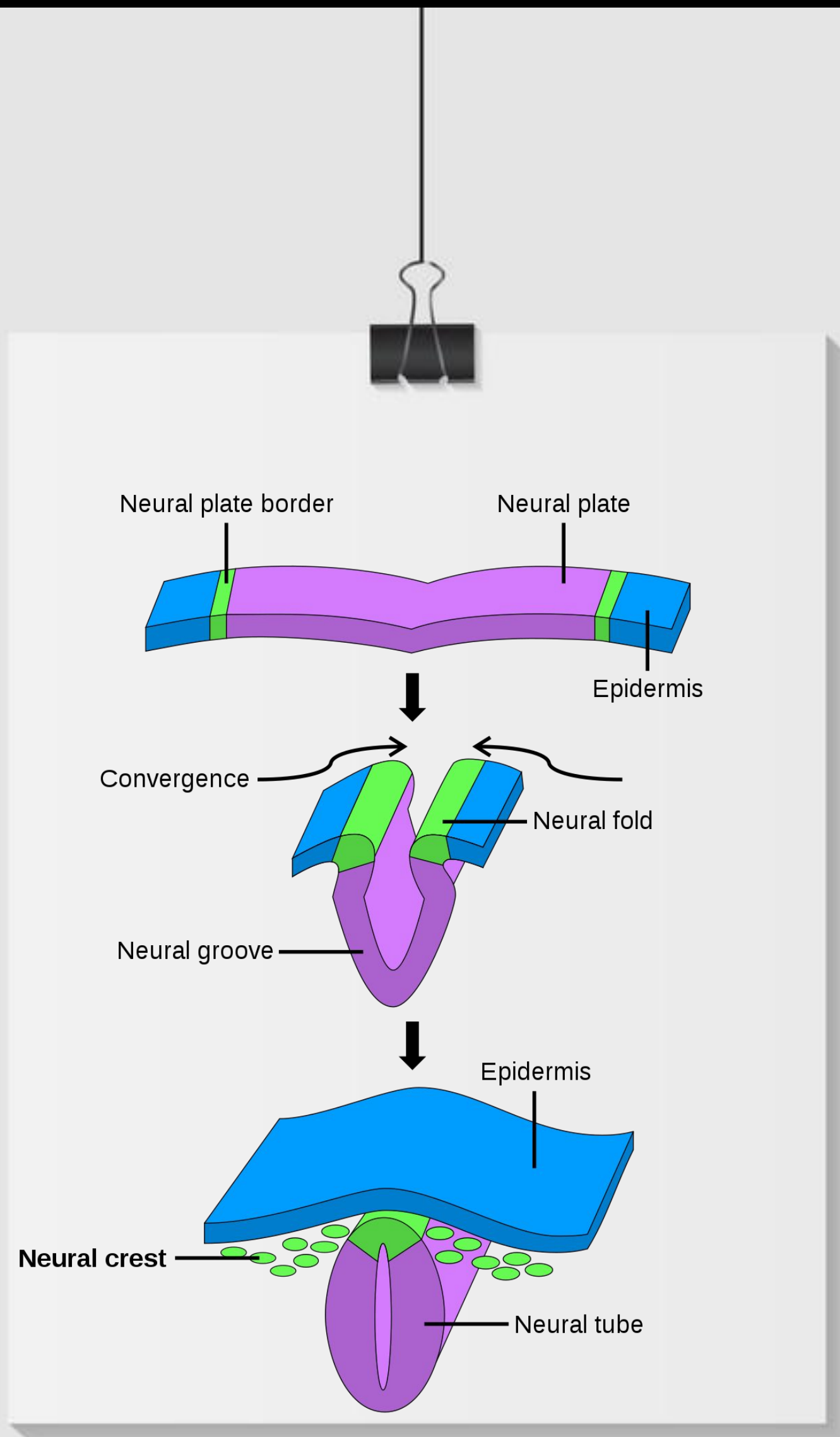
## Dorsal view of a human embryo

**A. Dorsal view of human embryo at approximately day 22. Seven distinct somites are visible on each side of the neural tube.**



**B. Dorsal view of human embryo at approximately day 23. The nervous system is in connection with the amniotic cavity through the cranial and caudal neuropores.**

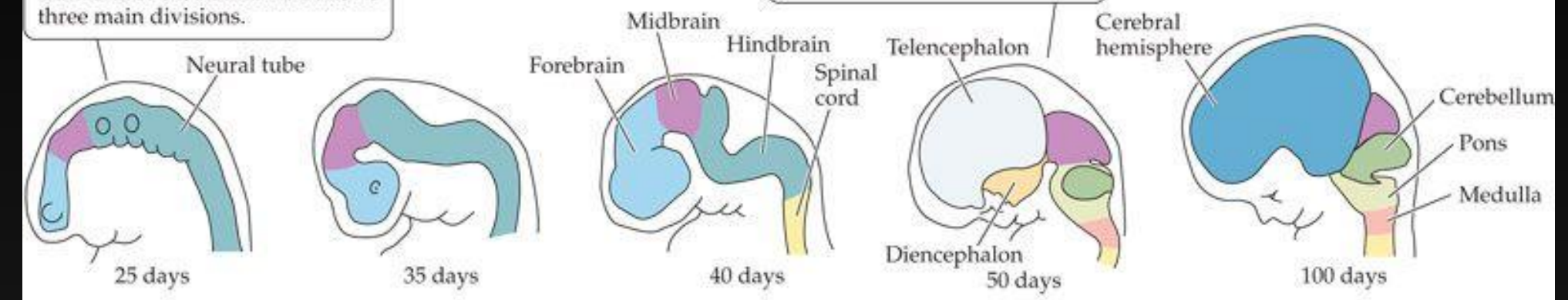




(a) Development of the human brain

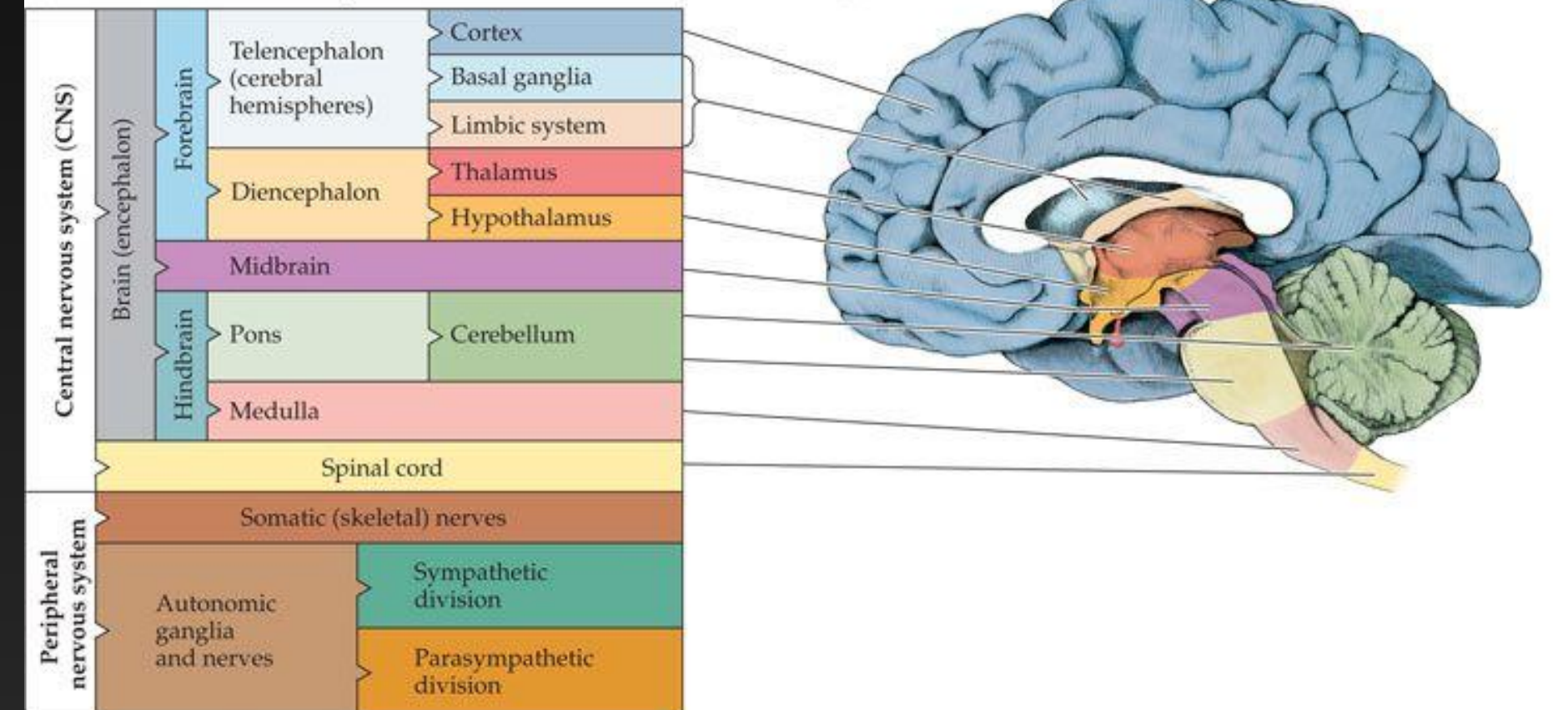
A few weeks after conception, the head end of the neural tube shows three main divisions.

About 50 days after conception, five main divisions of the brain are visible.



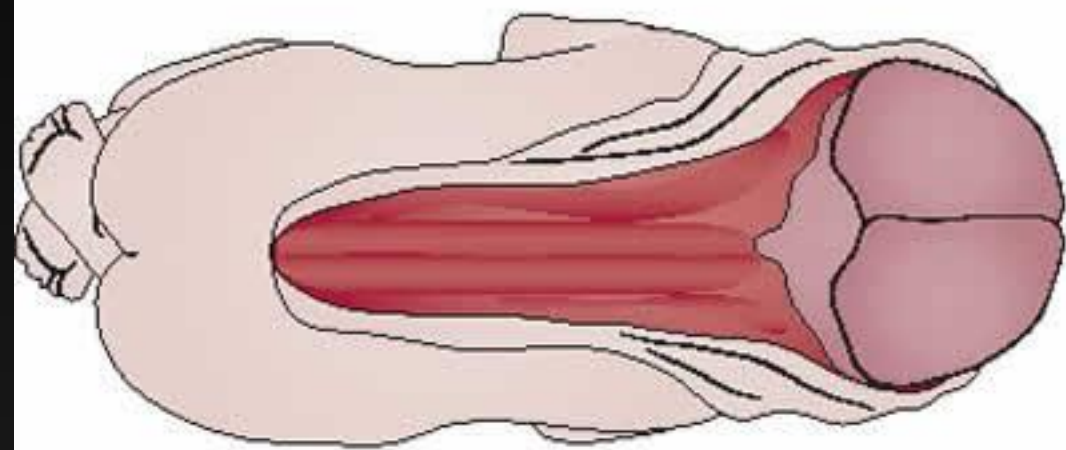
(b) Divisions of the nervous system

(c) Adult brain



THE MIND'S MACHINE, Figure 2.12  
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# anomalies of nervous system in human



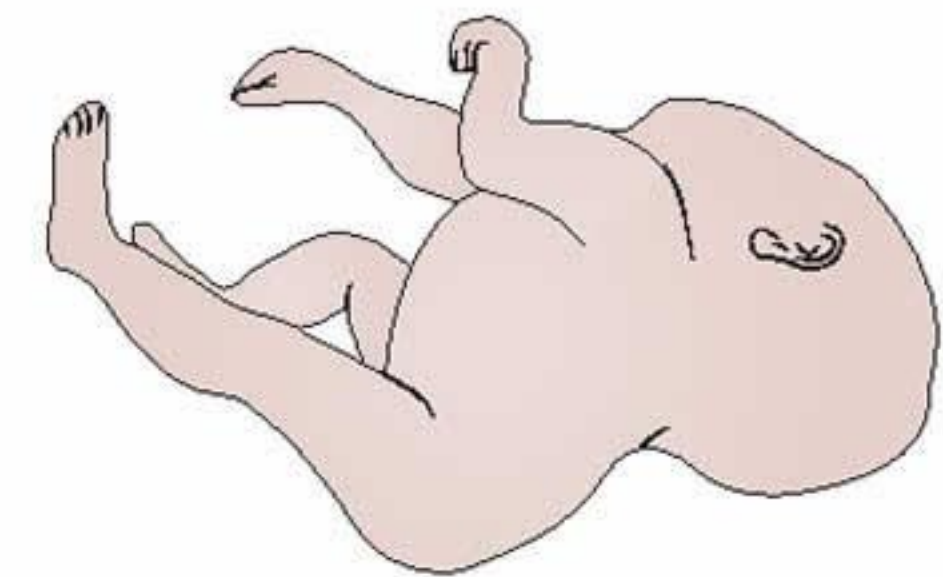
**Craniorachischisis**  
Completely open brain  
and spinal cord



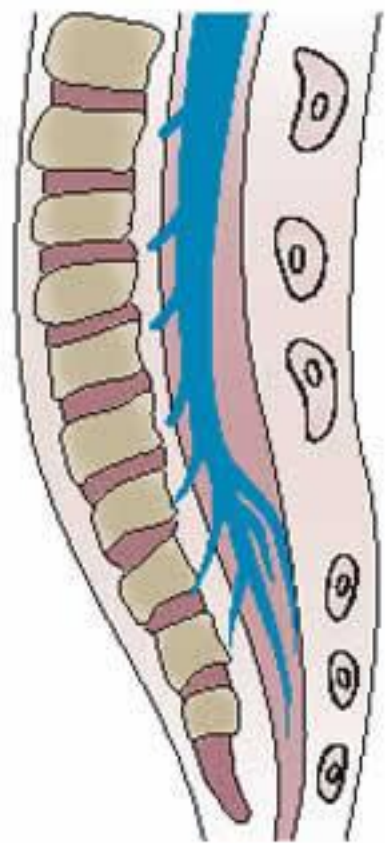
**Anencephaly**  
Open brain and lack  
of skull vault



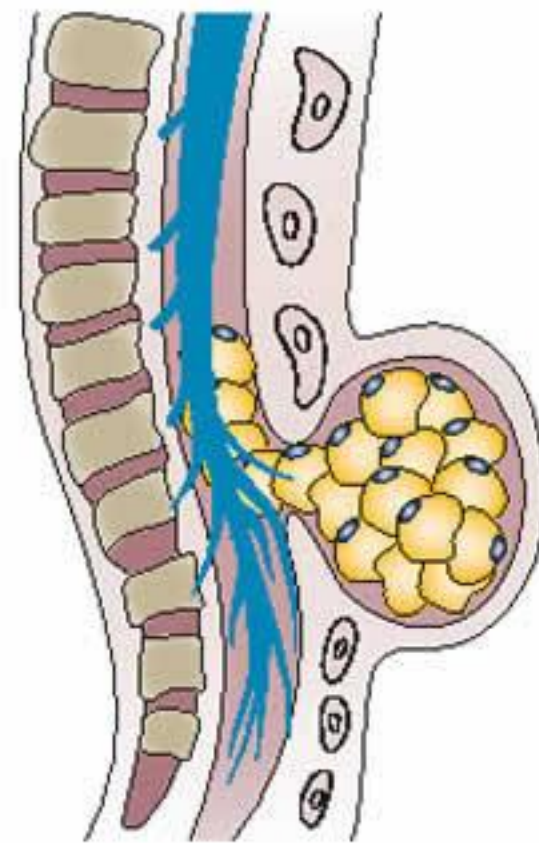
**Encephalocele**  
Herniation of the meninges  
(and brain)



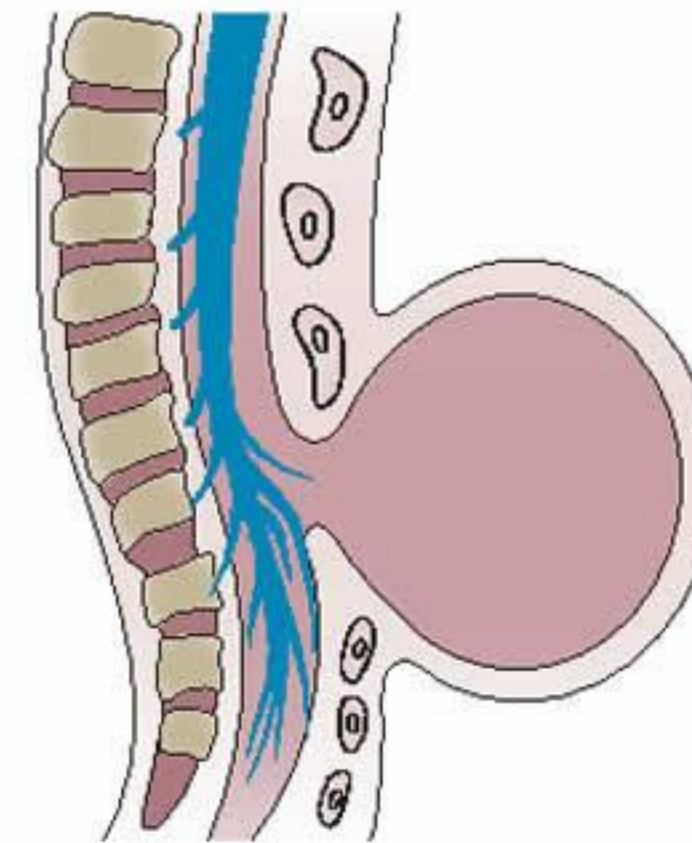
**Iniencephaly**  
Occipital skull and spine defects with  
extreme retroflexion of the head



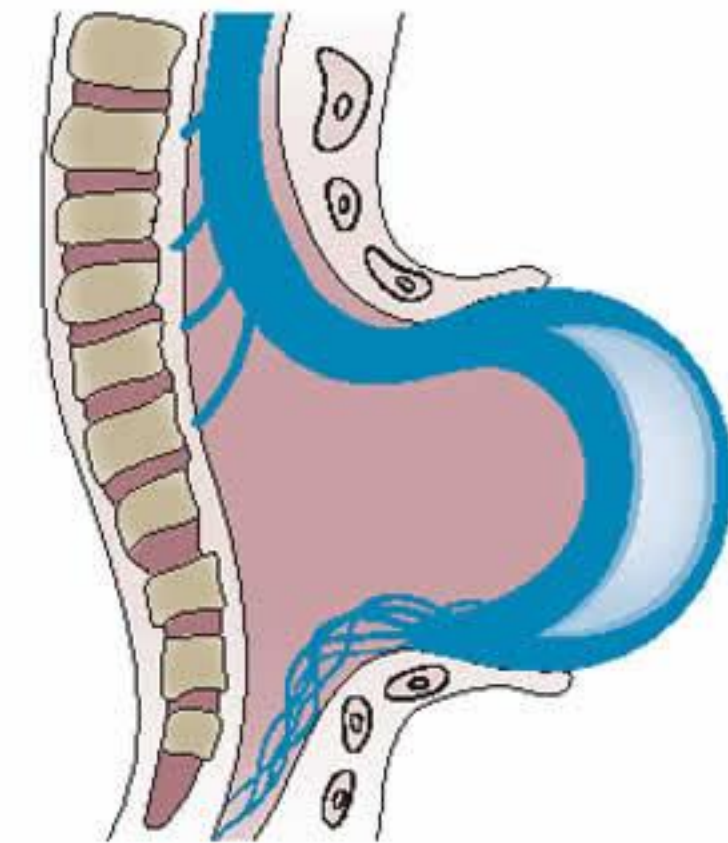
**Spina bifida occulta**  
Closed asymptomatic NTD in which some  
of the vertebrae are not completely closed



**Closed spinal dysraphism**  
Deficiency of at least two vertebral  
arches, here covered with a lipoma



**Meningocele**  
Protrusion of the meninges (filled with CSF)  
through a defect in the skull or spine



**Myelomeningocele**  
Open spinal cord  
(with a meningeal cyst)

# Anencephaly cases:-



# encephalocele cases:-



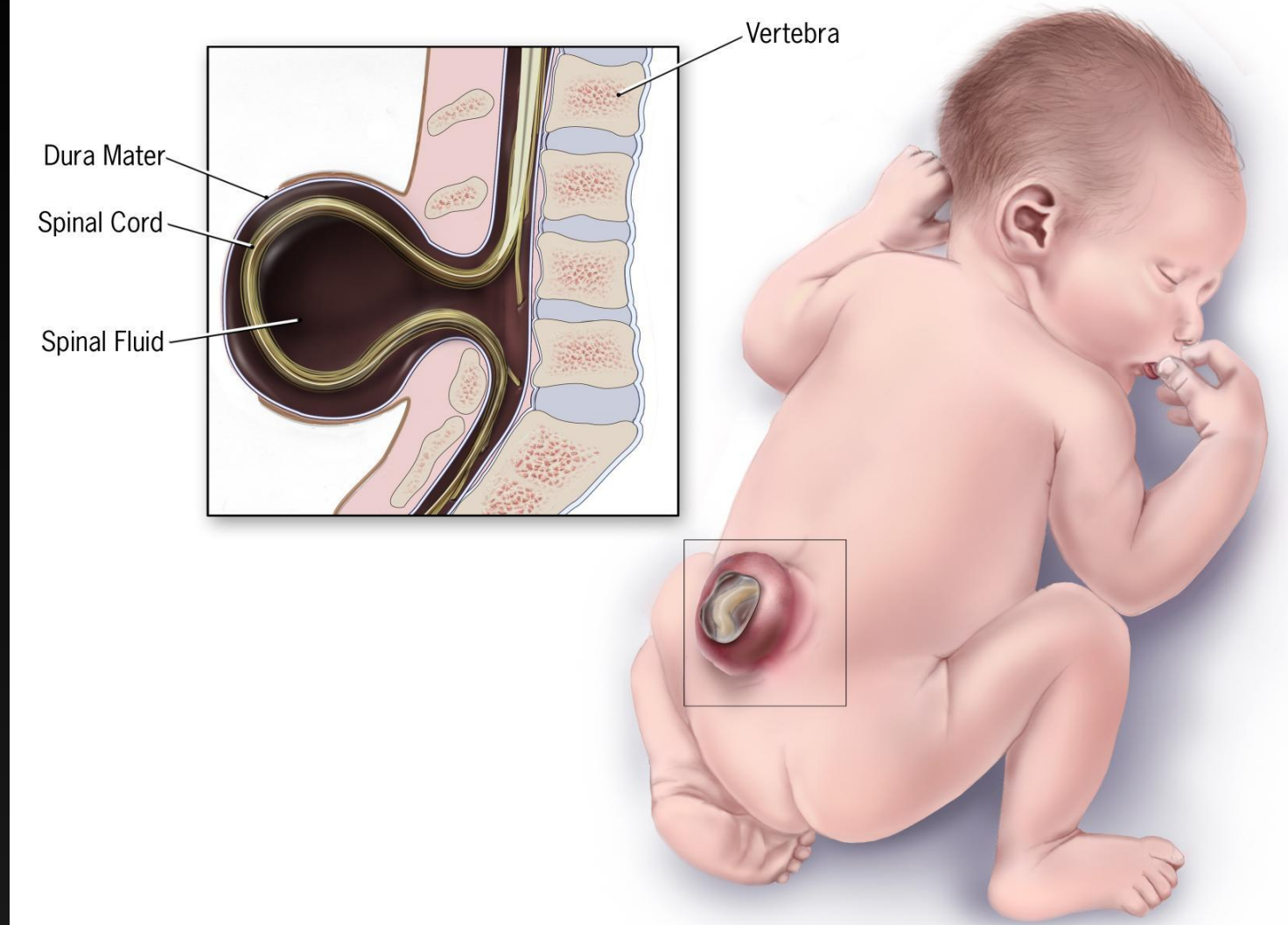
Figure 1: Clinical preoperative photograph of the patient in profile





# spina bifida cases:-

Spina Bifida (Open Defect)



thank you for your attention