SUMMARY

In the present work the development of the skull of the teleost fish *Ctenopharyngodon idella* is described in six developmental stages (4, 5, 6, 7, 8, 10, total length) and compared with other bony fishes.

The study was based on graphical reconstruction from stained transverse sections through the head region of the studied developmental stages.

The chondrocranium is composed, as in all bony fishes of the neurocranium and viscerocranium. The study of the development of the chondrocranium of *Ctenopharyngodon idella* has shown that the chondral neurocranium of "tropitrabic type".

In the morphological description attention has been given to the shape, position and relative size of the different constituents of the chondral skull during ontogeny. The relation of the chondral skull with the brain and main sensory organs are also considered.

1. The neurocranium is originally represented by two trabeculae cranii, parachordals, and auditory capsules. The auditory capsule arise indpendently. The trabecula cranii appears from the beginning in continuity with the parachordals. All these elements appears in procartilaginous state in 4mm stage.
2. The trabecula communis is formed by the fusion of the trabeculae cranii in the 5 mm larval stage where the neurocranium has chondrified. In 6 mm larval stage, the trabecula communis extends

anteriorly to form the ethmoid plate. The latter extends laterally to form the lamina orbitonasalis in 8 mm larval stage.

3. The paired trabeculae cranii enclose the hypophysial fenestra between them. The trabecula undergoes partially resorption during the development (10 mm stage).
4. The taeniae marginales are discontinuous during ontogeny. They are developed early in 7mm larval stage. At the same stage, an incomplete epiphysial bridge is developed as a finger like process from the taeniae marginales.
5. The lateral commissure is incomplete, and as development proceeds it becomes complete.
6. The parachordal plates arise in continuation with the trabecula cranii they are separated by the notochord in 4 mm larval stage. In 10 mm larval stage, the parachordals fuse together above the notochord forming the prootic bridge.
7. The rostral cartilage and the internasal septum have been noticed in stages of *Ctenopharyngodon idella*.
8. The base of the auditory capsule is connected with the parachordal by a single commissure which is the anterior basicapsular commissure in the 6 mm larval stage. In 7 mm larval stage, the auditory capsule is connected with the parachordal by another commissure which is the posterior basicapsular commissure, lying between the basicapsular fenestra and the vagus foramen. In 10mm larval stage, this fenestra is completely invaded by cartilage, leaving a small foramen for the exit of the glossopharyngeal nerve.
9. The tectum synoticum develops by the dorsal fusion of the auditory capsules in 8mm larval stage. It forms the roof of the neurocranium above brain.

10. The cranial part of the notochord undergoes a marked reduction in length during development.
11. The mandibular arch is composed of the palatoquadrate and Meckel's cartilage, the two elements appear earlier as independent structures.
12. Meckel's cartilage appears at first in a procartilaginous state (5 mm) anteriorly separate from its fellow of the opposite side. At 8 mm larval stage, the two Meckel's cartilages become contacted with each other, the posterior end of each one is differentiated into two processes; retroarticular processes in 6 mm larval stage and coronoid process in 7mm larval stage. The palatoquadrate articulates with Meckel's cartilage between these two processes by means of the apophysis.
13. The palatoquadrate articulates with the ethmoid plate by an ethmopalatine articulation in 7mm stage.
14. The hyoid arch is originally composed of four pieces of cartilage, three of which are located on each side, i.e. the hyosymplectic, interhyal and hypoceratohyal in addition to, the median single basihyal. Such structures are developed as independent structures.
15. There are five branchial arches. The branchial arches I-III are complete, each arch consists of a hypobranchial, ceratobranchial, epibranchial and infrapharyngobranchial. In the fourth branchial arch, the hypobranchial are missing. The fifth branchial arch is represented only by ceratobranchial.
16. The hypobranchials are represented by three cartilaginous structures articulating with the corresponding ceratobranchials; they develop independently from other structures of the branchial arches.

17. The ceratobranchials are the first structures to appear in the branchial arch skeleton as independent structures and in procartilaginous state in the 5 mm larval stage.
18. Two median copulae are developed during ontogeny (anterior & posterior copulae) on which the hypobranchials (I-III) and ceratobranchials (IV & V), articulate respectively. The anterior copula is developed in continuation with the ceratobranchial (I) in the 6 mm larval stage, but the posterior copula is developed as an independent cartilage in the 7 mm larval stage. Posteriorly, the anterior copula overlaps the anterior end of the posterior copula.
19. The epibranchials are represented by four independent epibranchials articulating with the corresponding ceratobranchials and infrapharyngobranchials.
20. The infrapharyngobranchials I-IV make their first appearance in (10mm stage). Laterally, the infrapharyngobranchials I-IV articulates with the corresponding epibranchials. The first infrapharynogbranchial articulates laterally and posteriorly with the first and the second epibranchials, respectively. The second infrapharyngobranchial articulates at its anterior part with the corresponding epibranchial, and at its middle and posterior parts articulates with the third epibranchial. The third infrapharyngobranchial articulate laterally and posteriorly with the third and fourth epibranchials, respectively.