

the entire front part of the palatal arch can be moved in a vertical direction, thus assuming the function of the immovable upper jaw.

The mandible is short and deep, with a very thin rudiment of Meckelian cartilage; only a dentary and articular can be distinguished.

The præoperculum (fig. 9, *pr*) consists of a narrow vertical, and similar horizontal limb, both meeting at a right angle. The operculum (*o*) is membranous, rayed, frayed on the edge; the suboperculum (*so*) of similar structure, narrow; the interoperculum (*io*) smooth and firmer, attached to the lower limb of the præoperculum.

Infraorbital bones are absent.

The hyoid and branchial arches do not offer any noteworthy peculiarity, except that the nine slender branchiostegals are crowded together on the epihyal and the cartilaginous end of the ceratohyal, being enclosed in the same membrane as the operculum and suboperculum.

The scapular arch (fig. 10) is very simple, and suspended from the cranium by loose and easily detached ligaments. The clavicle (*cl*) is narrow and curved, the single supraclavicle (*scl*) not much smaller and single. As usual a urohyal (*uh*) is attached to the symphysis of the clavicle. The scapula (*sc*) and coracoid (*co*) form an extremely thin lamina, of which a great portion remains cartilaginous. Basalia minute. Post-clavicle absent.

The centra of the *vertebræ* are deeply biconcave, perforated in the middle, rather short and broad, with deeply pitted outer surface, the abdominal surface of those of the trunk being remarkably flat. The caudal *vertebræ*, whilst retaining their short longitudinal axis, are more and more compressed towards the end of the tail, and those of the extremity of the vertebral column are more elongate, and finally become quite rudimentary.

The articulation of the first vertebra with the skull is not effected merely by a simple circular concavity, but there is a distinct median osseous projection on the upper margin of the centrum of the vertebra, whilst the opposite part on its lower margin recedes further backwards than the lateral portions of the joint.

There are forty-two *vertebræ* in front of the one which supports the first interneural, and forty-nine may be reckoned as belonging to the abdominal portion of the column.

The neural arches of the abdominal *vertebræ* are broad and solid, terminating in short and much depressed neural spines. Posteriorly the neural spines become longer, slender, needle-shaped, and disappear on the rudimentary *vertebræ* at the extremity of the column.

The interneural spines are broad lamellæ, which assume a very oblique position, each being provided with a strong longitudinal ridge, at the top of which the dorsal spine is joined.