

length, without caudal. The head is much higher than long, its length one-third of the total; eye large, two-fifths of the length of the head. Mouth vertical, snout extremely short. Intermaxillary narrow, and, although it does not entirely form the margin of the upper jaw, it reaches as far as the cleft of the mouth, when the gape is open to its fullest extent. The maxillary is a broad lamelliform bone; the lower two-fifths of its anterior margin remain free from the intermaxillary, and show a very obscure and rudimentary denticulation. The teeth in both jaws are minute, and appear to form anteriorly an extremely narrow band, and laterally a single series; vomerine teeth present, and similar.

The upper part of the head is much compressed, narrow, hollow, and bordered on each side by a serrated ridge. The two ridges slightly converge behind, and are continued as a pair of humeral ridges, which terminate behind in a strong and acute spine. On the side of the head the ridges of the præoperculum are very distinct, the posterior and inferior meeting at a right angle, and the angle being armed with a slender claw-like spine, which points downwards. Also the lower margin of the mandible is finely serrated, and terminates behind in a short and obtuse spine.

Nostrils in front of the upper part of the eye, separated by a very narrow bridge of skin, the posterior being much wider than the anterior.

Branchiostegals five. The gill-membranes overlapping the isthmus free. Gill-rakers rather numerous, closely set, long and slender; pseudobranchiæ present.

The dorsal fin is preceded by a minute forked spine, and composed of eleven soft rays. A well-developed adipose fin, which is about half as long as the rayed dorsal, occupies the middle of the space between dorsal and caudal. Anal fin with fourteen rays. Caudal fin composed of some thirty-five rays, some of which occupy the upper and lower edges of the tail. Pectoral inserted low down on the side, composed of about fourteen very slender rays, and pointing forwards, not backwards. The lower edge of the abdomen is convex and denticulated, the ventrals being inserted in front of the vent, close together, and in a vertical position. None of the scales have been preserved, but to judge from the pouches, which are distinctly visible, they must have been large, and numbering perhaps thirty-two, in a series along the middle of the side.

The luminous organs have reached in this fish an extraordinary degree of development as regards size and number :—

1. A series of six, pearl-coloured, oblong organs runs on each side of the isthmus to the root of the pectoral fin.

2. A series of ten along each side of the ventral edge, from the humeral symphysis to the ventral fin.

3. A series of five, which are rather irregularly arranged, occupies a position higher up the side above the level of the pectoral.

4. Two isolated organs are placed still higher up the side of the trunk, but below the middle line.