

In this species luminous organs are more developed than in the other species known, and the evidence that these organs are developed from the muciferous system, at least in the present genus, seems to me undeniable; in fact, the principal series of luminous organs is borne by the scales of the lateral line. It runs along the lower part of the side, from the gill-opening along a great portion of the base of the anal fin, and is separated from the ventral fin by a single series of scales only. The scales of this series are much larger than the others, carrying at the base of their exposed portion a vertical narrow subovate patch of glandular matter, which is covered by but visible through the cuticular pouches which entirely envelop the scales. When divested of the soft surroundings, these scales show a subvertical raised ridge, which divides them into an anterior and a smaller posterior portion, the gland-like substance being deposited on the latter.

The arrangement of the cuticular coverings of the lateral line is not easy to understand, chiefly owing to the lacerated state of the outer covering, the lacerations being most irregular and partly caused after the capture of the specimens, partly, however, an evidently normal condition of the living fish. The artist who drew the figure on Pl. LIX. found it quite impossible to reproduce this covering so as to give a correct idea of its appearance.

The series of large scales of the lateral line is covered in its entire length by a broad membrane of deep black colour, which is thicker at certain intervals, and thinner and more readily torn in the intermediate portions, the thin portions corresponding in position to the luminous organs. This membrane is fixed along its upper margin to the nearest longitudinal series of scales, and has numerous but irregular attachments along its lower margin to the integument protruding between the neighbouring ventral series of scales. Normally a pair of slits, an upper and a lower one, in the membrane corresponds to each of the larger scales. Thus, if we imagine the membrane to be quite intact, a wide canal would exist along the whole series of enlarged scales, the inner wall of which would be formed by the scales (with their investing thin membrane), the outer by the membrane; and the canal would possess two longitudinal series of apertures and slits, an upper and a lower, through which water would be admitted into its interior or through which the mucus secreted would be discharged. The function of the luminous organs would not be impaired by the covering, as it is thin and transparent at regular intervals.

This normal state of things is preserved in various short portions of the lateral line, but at intervals the membrane is ruptured or torn across, generally in its thin parts, between the slits or at some distance from them, leaving a greater or lesser extent of the interior of the canal, and frequently the luminous organ itself uncovered. The lacerated floating margins of the membrane are most irregular in shape and direction.

The accompanying woodcut may assist in rendering this structure intelligible; it represents diagrammatically a longitudinal section made along the median line of four