The pedunculated lateral-line organs of Gastrostomus.

The recent discovery of a form of deep-sea fishes closely allied to the Eurypharynx described by M. Vaillant, by the U. S. fish-commission steamer Albatross, has afforded excellent opportunities for a more thorough examination of the external characters presented by the skin of these forms. This species of eurypharyngoid fishes, — the one studied by Professor Theodore Gill and myself, and named by us Gastrostomus Bairdii, — upon closer examination of the region of the lateral line, discloses features which appear to be somewhat remarkable, if not unique, amongst organs of the kind hitherto known.

The lateral line is in its usual position, and begins just behind the head. There is no mucous canal covering the end-organs; but these are isolated in groups of from two to five, standing on the skin in an oblique row at the hind margin of each muscular somite. The groups consist, in fact, of from two to five stalked organs, as shown in fig. 1 in the cut. The stalks are not pigmented at all, except at the tips, where they support a discoidal cup-shaped organ, which is more or less completely pigmented internally. In some instances these end-organs are very distinctly cup-shaped; in others that form is less clearly apparent. The base from which the stalks arise is not so deeply pigmented as the surrounding skin, which is very densely loaded with pigment, and very black. The pigment on the basal disks is, in fact, arranged in a slightly reticular manner: the pigmented layer is continuous with the outer clear sheaths of the stalks; and the medullary portion of the stalk can be seen in some cases to consist mainly of nerve-fibrils, which pass outwards to the cup-like organs at the tip. In a few cases there appears to be a clear space in the centre of the cup-like end-organ, as shown in fig. 2, surrounded by a dense circle of pigmented tissue.

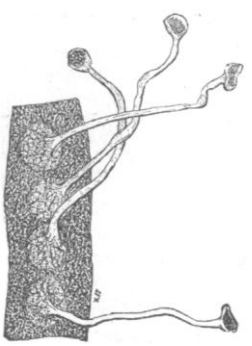

FIG. 1.

The function of these side-organs of Gastrostomus is apparently tactile, or may serve a special purpose at the great depth in which this fish lives. They remind one very forcibly of the rows of comb-like end-organs which have recently been described by F. Leydig on the head of the cave-fish (Amblyopsis spelaeus DeK.); but in this case the stalks are not so robust, and are much more slender, and relatively longer. It may even be that these lateral bands of side-organs of Gastrostomus are phosphorescent at their tips, like the side-organs of scopelids, steroptychids, etc. The lateral bands made up of short oblique rows of these organs, as the fish moves through the water at a depth of five to fifteen hundred fathoms, may possibly become luminous.

Fig. 2.

That they are also sensory in function there can be no doubt, being found in the usual position of the lateral line, as in common fishes, and, like it, probably innervated from the vagus. The stalks are fully a sixteenth of an inch long, and are apparent on the side when the fish is immersed in alcohol or water, and project outwards quite freely, so as to be visible along the sides when the fish is viewed from above. These naked side-organs remind one also somewhat of the naked nerve-hills on the sides of the body of young fishes, such as those of Gadus and Gambusia. In the former the stiff sensory hairs of the nerve-hills project immediately from the surface of the hill into the surrounding water, but in no embryo fishes am I aware that the side-organs are ever pedunculated. In fact, the side-organs of Gastrostomus Bairdii, like the whole of the rest of the organization of the animal, particularly its skull and branchial apparatus, present an extreme phase of specialization.

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RETROSPECT AND PROSPECT.

WITH the present number *Science* enters upon the second year of its existence. The time is an appropriate one, while extending a cordial greeting to its readers, to call their attention to its work and its purposes. That a journal of popular science, with the varied and informal contents appropriate to a weekly publication, would, if judiciously conducted, prove a welcome addition to the list of American periodicals, has long been felt by those most interested in scientific progress; but, when the numberless difficulties in the way of success had to be considered in detail, they were found to be numerous and perplexing. The general scope of the journal was the only feature about which little doubt could be felt. Two quite distinct yet inseparable objects of existence presented themselves: one was to keep the readers of the journal informed of the progress of science in all its branches; the other, to give expression to the well-matured views of scientific men upon all public questions connected with the increase of knowledge, and thus to become, so far as possible, an organ of public opinion upon scientific affairs.

In pursuing the latter object the path of duty was too plain to require discussion. The journal must be the organ of no individual, clique, or party, but must, while preserving entire impartiality, give plain and fearless expression to its convictions upon any question in which the interests of science at large were involved. How far it has fulfilled this requirement is a question to be decided by its readers and patrons, without argument from ourselves.

The question of the contents of the journal in detail was a far more intricate one. Shall its articles be designed exclusively for the specialist, or shall the results it makes known be popularized by the omission of all purely technical nomenclature? Shall they be long and elaborate, or short at the risk of incompleteness? Shall they be strictly and purely scien-