

*mias micripnus*, *Echiostoma barbatum*, *Pachystomias microdon*, *Astronesthes niger*) are isolated and stand upright upon the surface, but are still more distinguished by the lack of a reflector. In others (*Argyropelecus hemigymnus*, *Sternoptyx diaphana*, *Scopelus benoiti*) the organ is provided with a shining reflector composed of needle-shaped or filiform elements. All of the foregoing are sunk in the skin, but in *Xenodermichthys nodulosus* occur simple organs which are provided with a pigmented mantle, and which project beyond the general surface and in some cases become stalked. In *Halosaurus macrocheir* and *H. rostratus* the organs are situated upon the scales of the lateral line and have a spindle shape.

The other main group of organs embrace irregular glands which may be scattered (*Astronesthes niger*), or be found on the under jaw (*Argyropelecus hemigymnus*, *Sternoptyx diaphana*); beneath the operculum (*Halosaurus macrocheir*); on the barbels and fin-rays (*Opostomias micripnus*, *Malacosteus indicus*); or may have a suborbital position, in the latter instance either having (*Echiostoma barbatum*, *Pachystomias microdon*, *Malacosteus indicus*, *Scopelus benoiti*) or lacking a reflector (*Opostomias micripnus*, *Astronesthes niger*).

The histology of these various types is described. All of the ocellar organs have a large blood and nerve supply, as do the sub-orbital organs of the other division. The others are tubular glands. Usually the ocellar organs are innervated from branches of the spinal nerves, but in *Echiostoma barbatum* the suborbital organs receive their nerve supply from a branch of the trigeminus, which suggests a comparison with the electric nerve of the torpedo.

Both Guppy and Willemoes Suhm have witnessed the phosphorescence in *Scopelus*, and the similarity in structure of all these organs renders it probable that all are phosphorescent. Regarding the glandular organs the evidence is less direct, but judging from the analogy of other forms von Lendenfeld regards them as secreting a phosphorescent mucus. In both we have to deal with various modifications of the mucous canal system. Dr. von Lendenfeld states that the parietal organ of *Sphenodon* (*Hatteria*) has no homology with these organs, and that it is not, as has been suggested, a phosphorescent organ.

**EUTHERIA AND PROTOTHERIA.**—In the *AMERICAN NATURALIST* for December, 1887 (vol. xxi., p. 1103), in a notice of "Thomas on Mammalian Dentition," it is "observed that the unnecessary terms *Prototheria* and *Eutheria*, which are generally ascribed to Professor Huxley in England, were really introduced by Professor Gill."

Two quite different propositions were involved by the use of the terms used by Professor Huxley and myself. Professor Huxley



simply substituted my names Prototheria for the Ornithodelphia or Monotremes, and Eutheria for the Monodelphia or Placentalia, introducing a new term—Metatheria—for the Didelphia or Marsupialia. I perfectly concur with the belief that in these senses the terms are unnecessary. But far different was my use of the terms in question, and they were the expressions of a higher generalization. Almost universally the placental mammals had been contrasted with the non-placental. In my "Arrangement of the Families of Mammals" (1872), however, I combined (pp. 45, 46) the Placentals and Marsupials in one category (I.) with the Monotremes, in another (II.) fortifying the contrast by numerous anatomical characters; for these two sections I proposed the names EUTHERIA (I.) and PROTOTHERIA (II.) in the table of "Contents" (pp. v., vi.) of the Arrangement. Subsequently, in "Johnson's New Universal Cyclopædia" (vol. iii., 1877, p. 262), in the long article "Mammals," I adopted the terms in connection with the definitions. It was then revised that "the chief modifications of the class of Mammals are expressed in three types which have been differentiated as sub-classes, viz., Monodelphia, Didelphia, and Ornithodelphia; these are themselves opposable under two categories, EUTHERIA and PROTOTHERIA." Immediately following, the groups so named were defined at length.

In the sense in which the terms Eutheria and Prototheria were used by myself I consider them to be necessary as the verbal expressions of the generalizations formulated, but as used by Professor Huxley the names are simple synonyms of others long before in general use, and consequently "unnecessary."—*Theodore Gill.*

THE MULTITUBERCULATA MONOTREMES.—It is announced in *Nature* (Feb. 16, 1888, p. 383) that Mr. E. B. Poulton has discovered teeth in sections of the jaws of a young *Ornithorhynchus anatinus*, made by Professor W. N. Parker. Three have been found in the upper jaw and two in the lower (the ramus imperfect), in the regions covered by the corneous bodies of the adult. The anterior tooth of the maxilla is "long, narrow and simple, as compared with the others." The other teeth "were broad and large, those of the upper jaw containing two chief cusps in the inner side of the crown, and three or four small cusps on the outer side, while this arrangement was reversed in the lower jaw."

This observation is of the highest importance. The description reads like that of the dentition of the Plagiaulacid genus *Ptilodus*. It renders it extremely probable that the Multituberculata are Monotremata, and not Marsupialia, as has been supposed.—*E. D. Cope.*

ZOOLOGICAL NOTES.—PROTOZOA.—Dr. D. S. Kellicott describes and figures five new species of American Infusoria in the *Microscope* (vii. p. 226). They are *Podophrya inclinata*, *P. flexilis*, *Carchesium granulatum*, and *Opercularia humilis*.