

1868), three specimens having been dredged at "San Diego in ten fathoms' water; they here were yellowish, translucent, with a brown streak near the back."—(*Cooper MSS.*) It may be that this form belongs to the genus *Epigonichthys*.

### BRANCHIOSTOMA.

#### *Synonymy.*

- = Branchiostoma, *Costa*, Cenni Zoologici Napol., p. 49, 1834.  
 = Amphioxus, *Yarrell*, Hist. Brit. Fishes, [1st ed.,] p. 468, 1836.  
 = Branchiostoma, *Günther*, Cat. Fishes Brit. Mus., v. 8, p. 513, 1870.  
*Limax* sp. *Pallas*.

### EPIGONICHTHYS.

#### *Synonymy.*

- = Epigonichthys, *Peters*, Monatsberichte K. Akad. Wissensch. Berlin, 1876, pp. 322-327.

### NOTE ON THE MYZONTS OR MARSIPOBRANCHIATES.

#### BY THEODORE GILL.

Inasmuch as it has been stated by Dr. Günther, in his recent "Guide to the Study of Fishes" (p. 1), that "according to the views generally adopted at present, all those vertebrate animals are referred to the class of fishes" which are below the Amphibians, the following note is added in connection with the succeeding papers.

The heterogeneity of the combination formerly regarded as the class of fishes is now so evident to any one who has familiarized himself with the anatomy of the vertebrates that it is unnecessary to detail the points of difference. Suffice it to state that the differences between the Leptocardians, Marsipobranchiates, and typical Fishes at least are far greater than those between any adjoining classes of terrestrial vertebrates. To still confound them in a single class is therefore a taxonomic falsehood, without any justification from either a scientific or "practical" standpoint. The degree of divergence of the branchiferous vertebrates has been aptly recognized by Hæckel, Gegenbäur, Lankester, etc., in their classifications, by the differentiation of *Amphioxus* from all the other vertebrates and of the Marsipobranchiates from all those thereafter remaining. *Amphioxus* has even been excluded from the true vertebrates by Semper (1874), Hoppe-Seyler (1877), and Balfour\* (1880). In the United States there is not a single active ichthyologist who does not admit at least three classes of branchiferous vertebrates—the Leptocardians, Marsipobranchiates, and Fishes. The remark of Dr. Günther, therefore, finds no illustration in the United States, and the exceptions are conspicuous and brilliant even in England.

\* There is only a nominal difference between the views of Lankester and Balfour, the former enlarging the term Vertebrata to include the Tunicates, and the latter limiting it to exclude *Amphioxus*.

The progress toward the recognition of the class of Myzonts or Marsipobranchiates is indicated in the following synonymy :

THE CLASS OF MYZONTS, OR MARSIPOBRANCHIATES.

*Synonyms as class names.*

- < Pisces, *Artedi*, Genera Piscium, 1738.
- × Pisces, *Linnaeus*, Systema Naturæ, ed. x, t. 1, p. 239, 1758; ed. xii, t. 1, p. 419, 1766.\*
- < Pisces, *Gmelin*, Linn. Systema Naturæ, t. 1, p. 1126, 1788.
- < Ichthyoderes (Ichthyodera), *Geoffroy St. Hilaire, Latreille*, Familles Nat. du Règne Animal, p. 107, 1825.
- < Pisces, *Costa*, Cenni Zoologici Napol., p. 49, 1834. (Includes the genus *Branchiostoma* < class *Leptocardii*—in the class.)
- < Myzontes, *Agassiz*, Contrib. to Nat. Hist. of U. S., v. 1, p. 187, 1857.
- = Marsipobranchia, *Häckel*, Generelle Morphologie der Organismen, B. 2, p. cxx, 1866.
- = Dermopteri, *Cope*, Proc. Acad. Nat. Sci. Phila., [v. 20,] p. 256, 1868.
- = Cyclostoma, *Gegenbaur*, Grundriss der vergleich. Anat., p. 577, 1870.
- = Cyclostomata, *O. Schmidt*, Handbuch der vergleich. Anat., 6. Aufl., p. 259, 1872.
- = Dermopteri, *Cope*, Proc. Am. Assoc. Adv. Sci. 1871, v. 20, p. 320, 1872.
- = Marsipobranchiates, *Gill*, Arrangement Fam. Fishes, pp. ix, 25, 1872.
- = Marsipobranchiata, *Jordan*, Man. Vertebrates Northern U. S., p. 199, 1876.
- = Myzonts (Marsipobranchii), *Wilder*, Proc. Am. Ass. Adv. Sci., v. 24, § B, p. 185, 1876.
- > Hyperotreta, † *Lankester*, Quart. Journ. Micr. Sc., v. 17, p. —, 1877.
- > Hyperoartia, † *Lankester*, Quart. Journ. Micr. Sc., v. 17, p. —, 1877.

*Synonyms as subclass names.*

- = Marsipobranchii, *Bonaparte*, Nuovi Annali delle Sci. Nat., t. 2, p. —, 1838; t. 4, p. 277, 1840.
- = Marsipobranchii, *Müller*, Abhandl. K. Akad. Wiss. zu Berlin, 1844, p. —, 1846.
- < Dermopteri (*Owen*), *Gill*, Cat. Fishes E. Coast N. A., p. 24, 1861 (Not Dermoptères, *Dun.*, q. = Salmonidæ.)
- < Holoecrania, *Huxley*, Proc. Royal Soc. London, v. —, 1874; Ann. and Mag. Nat. Hist., (4.) v. 15, p. 225, 1875.

NOTE ON THE BDELLOSTOMIDÆ AND MYXINIDÆ.

BY THEODORE GILL.

In 1872, in my "Arrangement of the Families of Fishes," I have recognized two families in the order Hyperotreta, and recently have communicated to Professors Jordan and Gilbert a new generic name for the many-gilled species. I herewith give diagnoses of the family and genera. The distinctions in each case, from the nearest allies, are so evident that the groups do not really need justification. Nevertheless, as others have thought differently, it is not superfluous to add that characters analogous to such as have been used to differentiate the family and genera would be regarded as of great systematic value in the

\* The genus *Myxine* was referred to the class Vermes.

† These "classes" are regarded as constituents of a "grade" ("Cyclostoma") contrasting with another (Gnathostoma) including all the vertebrates with jaws.