

NOTE ON THE LEPTOCARDIANS.

BY THEODORE GILL.

To complete the series of notes on the nomenclature, etc., of the inferior vertebrates, I add the synonyms of the class Leptocardii and its subordinate terms.

THE CLASS LEPTOCARDIANS.

Synonyms as class names.

- = Myelozoa (*Is. Geoffroy St. Hilaire*), *Bonaparte*, Comptes Rendus hebdomadaires Acad. Sci., t. 43, p. 1022, 1856.
- = Acrania*, *Häckel*, Generelle Morphologie der Organismen, B. 2, p. cxix, 1866.
- = Leptocardia, *O. Schmidt*, Handbuch der Vergl. Anat., 6. aufl., p. 259, 1872.
- = Leptocardia, *Cope*, Proc. Acad. Nat. Sci. Phila., [v. 20], p. 256?, 1868.
- = Leptocardii, *Gill*, Arrangement Fam. Fishes, pp. ix, 25, 1872.

Synonyms as subclass names.

- = Leptocardii, *Müller*, Abhandl. K. Akad. Wiss. zu Berlin, 1844, p. —, 1846.
- = Entomocrania, *Huxley*, Proc. Zool. Soc. London for 1876, p. 58, 1876.

THE ORDER AMPHIOXI.

Synonyms as ordinal names.

- = Amphioxi, *Bonaparte*, Catalogo Metodico dei Pesci Europei, pp. 9*, 92*, 1846.
- = Cirrostomi, *Owen*, Anatomy of Vertebrates, v. 1, p. 9, 1866.

BRANCHIOSTOMIDÆ.

Synonyms as family names.

- = Amphioxidæ, *Gray*, Synopsis of the Brit. Mus., p. 150, 1842.
- = Amphioxini, *Müller*, Abhandl. K. Akad. Wiss. zu Berlin, 1844, p. 198, 1846.
- = Branchiostomidæ, *Bonaparte*, Catalogo Metodico dei Pesci Europei, pp. 9*, 92*, 1846.
- = Cirrostomi, *Owen*, Anatomy of Vertebrates, pt. 1, p. 9, 1846.
- = Amphioxidæ, *Gray*, List Specimens Fish in Brit. Mus., pt. 1, p. 149, 1851.
- = Amphioxoidei, *Bleeker*, Enum. Sp. Piscium Archipel. Indico, p. xxxiii, 1859.
- = Branchiostomoidæ, *Gill*, Cat. Fishes E. Coast N. Amer., p. 63, 1860.
- = Cirrhostomi, *Günther*, Cat. Fishes Brit. Mus., v. 8, p. 513, 1870.

A representative of this family (apparently *Branchiostoma lanceolata*) has been found on the coast of the United States, on the Atlantic side, as high north as the Chesapeake Bay, and on the Pacific Coast a species also occurs (*Branchiostoma*, *Cooper*, Nat. Wealth Cal. by Cronise, p. 498,

* The "class" Acrania is coequal with the "subphylum" Leptocardia of Häckel ("Erstes subphylum der Wirbelthiere: LEPTOCARDIA, Röhrenhezzen [=] Einzige classe der Leptocardier: ACRANIA Schüdellose").

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*.