The progress toward the recognition of the class of Myzonts or Mar- sipobranchiates is indicated in the following synonymy:

THE CLASS OF MYZONTS, OR MARSIPOBRANCHIATES.

Synonyms as class names.

< Pisces, Arctedi, Genera Piscium, 1738.
× Pisces, Linnaeus, Systema Naturae, ed. x, t. 1, p. 239, 1758; ed. xii, t. 1, p. 419, 1766.*
< Pisces, Gmelin, Linn. Systema Naturae, 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 Branchios- toma < class Leptocardii—in the class.)
= Marsipobranchia, Häckel, Generelle Morphologie der Organismen, B. 2, p. exx, 1866.
= Cyclostoma, Gegenbaur, Grundriss der vergleich. Anat., p. 577, 1870.

Synonyms as subclass names.

< Dermopteri (Owen), Gill, Cat. Fishes E. Coast N. A., p. 24, 1861 (Not Dermopteris, Dumer., q. = Salmonidæ.)

NOTE ON THE BDELLOSTOMIDÆ AND MYXINIDÆ.

BY THEODORE GILL.

In 1872, in my “Arrangement of the Families of Fishes,” I have rec-ognized two families in the order Hyperotreta, and recently have com- municated 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 fam-ily and genera would be regarded as of great systematic value in the

* The genus Myrme was referred to the class Vermes.
† These “classes” are regarded as constituents of a “grade” (“Cyclostoma”) con-trasting with another (Gnathostoma) including all the vertebrates with jaws.
classes of selachians and true fishes, and the only comprehensible reason why they should not be so regarded in the present case is because the species are few in number. Inasmuch, however, as the function of taxonomy is to express morphological truths, and not the quantities under which a given type is manifested, such reasons appear to be very insufficient.

The synonymy of the order Hyperotreta is appended.

**HYPEROTRETA.**

*Synonyms as orders.*


**BDELOSTOMIDÆ.**

*Synonymy.*


Petromyzontidae gen. *Bonaparte*, etc.

Myxinidae gen., *Günther*, *Putnam*, etc.

Hyperotreta with the branchial apertures separate (6–11) and lateral, debouching directly on the sides.

**POLISTOTREMA.**

*Synonymy.*


Gastrobranchus sp., *Lacépède*.

Heptatrema sp., *Cuvier*.

Bdellostoma sp., *Müller*, *Girard*, *Günther*, *Putnam*.

Bdellostomids with an increased number of branchiae (about 10 or 11 on each side) and the base of the tongue between the seventh or eighth pair of gills.

*"It is to be regretted that Duméril's appellation of *Heptatrema*, by referring to a point of organic structure subjected to variations, could not be retained to designate these fishes generically. If that name be restricted to the species provided with seven respiratory apertures, then each species would constitute a genus by itself; that with six of these apertures ought accordingly be called *Hexotrema*; then *Heterotrema* when six are observed on one side and seven on the other; *Heptatrema* when seven; and finally *Polytrema* for the species described farther on.

"Considering, however, the structure of the mouth, both internally and externally, we would not hesitate in uniting them all under the well appropriate name of *Bdellostoma*, suggested by Professor Müller."—*Girard*, op. cit.*
Two species have been indicated, but whether they are really distinct remains to be established. Both are represented in the U. S. Nat. Mus., but the Chilian form is in very poor condition.

**POLISTOTREMA DOMBEYII.**

*Synonymy.*


**POLISTOTREMA STOUTII.**

*Synonymy.*


_Habitat._—California.

"Eleven gill openings on each side; ten teeth on the anterior and nine in the posterior series. 15½ inches long. Eel River, Humboldt County.

"It is rather singular that this fish, which is abundant in Eel River, and is sold for food, and also occurs in this harbor, should hitherto have escaped notice. I believe it to be the only species of its genus hitherto found on the Pacific coast of North America; and it differs from _Bdellostoma polytrema_, a species which occurs along the coast of Chili, both in the number of the gill openings and that of the teeth, _B. polytrema_ having fourteen of the former and twelve of the latter in each series."—Lockington."

A specimen was received, 1866, at the Smithsonian Institution from Dr. Canfield, and on comparison with _B. polytrema_ could not be satisfactorily diagnosed.

**HEPTATREMA.**

*Synonymy.*

= Heptatrema, Duméril éde authors; * (possibly in his "Dissertation sur les Poissons Cyclostomes," which I have not seen.)
= Les Heptatremes, Duméril, Cuvier Règne Animal, 2è éd., t. 2, p. 405, 1829.

*This genus was not proposed in the "Zool. Anal." as Gray and Girard indicated, nor in the 1st ed. of Cuvier’s Règne Animal.
Bdellostomids, with typically 7 (sometimes 6) pairs of branchial apertures and the base of the tongue between the anterior pair of gills.

**MYXINIDÆ.**

*Synonymy.*

= Missinidi, Rafinesque, Indice d’Ittiologia Siciliana, p. 49 (order), 1810.


= Myxinidae, Bonaparte, Cat. Metod. dei Pesci Europei, pp. 9*, 92*, 1846.


= Myxinidae, Günther, Cat. Fishes Brit. Mus., v. 8, p. 510, 1870.

= Myxinidae, Gill, Arrangement Fam. Fishes, p. 25, 1872.


Hyperotretas with the branchial saes (6 pairs) opening by ducts confluent behind into one which opens below on each side of the median line.

**MYXININÆ.**

*Synonyms as subfamily.*


= Myxinii, Bonaparte, Cat. Metod. dei Pesci Europei, p. 92*, 1846.

**MYXINE.**

*Synonymy.*


Gastrobranchus, Bloch, Systema Ichthyologiae, ed. Schneider, p. 534, 1801.


For the most recent and important information respecting the species of this genus, the "Notes on the genus Myxine, by F. W. Putnam" (Proc. Boston Soc. Nat. Hist., v. 16, pp. 127–135, 1874), should be consulted.

*Myxine is referred by Linnaeus to the class Vermes.*