

# THE PROPER NAMES OF BDELLOSTOMA OR HEPTATREMA.

BY THEODORE GILL.

*Honorary Associate in Zoology.*

The *Hyperotretes* with seven and six lateral branchial apertures have been generally designated of late years as the genus *Bdellostoma*. This name was proposed by Johannes Müller in 1834. Long before this name was proposed, however, no less than four others, or, including orthographical modifications, eight others, had been proposed for the same type. I have long used *Heptatrema*, but had casually referred to a name (*Homœa*) proposed by Fleming. Mr. Garman, not knowing the original notices of the previous names, felt compelled to assume that *Homœa* was the first published and adopted it. With laudable caution, however, he made the proviso that "unless it can be shown that there was use of the name *Heptatrema* previous to 1822 it will have to give way to *Homœa*." President Jordan and Mr. Snyder had also adopted that name, but the alternative by no means follows. The real history of the nomenclature of the genus, therefore, seems to be urgently demanded and I now give the facts known to me for many years, but not published. Unfortunately the name *Heptatrema* will have to be given up, if the current view that the generic name must be clothed in a Latin garb is strictly adhered to.

## I.

In 1818, Cloquet<sup>1</sup> gave an article on *Cyclostomes*, in which he summed up his conclusions in the following dichotomous table:

### *Famille des Cyclostomes.*

Lèvres	{	tentaculées; trous des deux, ventraux .....	Myxine.
		branchies au nombre de sept, latéraux .....	Eptatrème.
		sans palpes ni tentacules; bouche	{
sans dents .....	Ammocete.		

This is the first notice of *Eptatrème*. No genotype was mentioned.

<sup>1</sup> Dictionnaire des Sciences Naturelles, XII, pp. 301-304.

## II.

In 1819, Cloquet<sup>1</sup> published an article under the caption "*Eptatrème* ou *Eptatrète*" which may well be reproduced *in extenso*.

EPTATRÈME OU EPTATRÈTE (*Ichthyoï*).

M. Duméril a donné ce nom à un genre de poissons de la famille des cyclostomes, et voisin par conséquent des lamproies et des myxines. Il lui assigne les caractères suivant:

*Corps cylindrique, nu, visqueux; bouche tronquée, arrondie; lèvres tentaculées; sept trous latéraux pour les branchies.*

A l'aide de ces notes on distinguera au premier coup d'œil les eptatrèmes des LAMPROIES et des AMMOCÈTES, qui n'ont point les lèvres tentaculées, et des MYXINES, qui n'ont, pour ouvertures des branchies, que deux trous ventraux. (Voyez ces mots et CYCLOSTOMES.)

Le mot eptatrème est grec et signifie qui a sept trous (*ἑπτὰ, septem, et τρήμα, foramen*). M. Duméril avoit d'abord proposé le mot *eptatrète*, qui a la même valeur (*ἑπτακτίς, septies, et τρητός, perforatus*). On ne connoît encore qu'une espèce dans ce genre, c'est

L'EPTATRÈTE DOMBEY, *Eptatretus Dombeyi*, Duméril; le GASTOBRANCHE DOMBEY, Lacépède. Tête arrondie et plus grosse que le corps; quatre barbillons à la lèvre supérieure; dents pointues, comprimées, triangulaires et disposées sur deux rangs circulaires; l'extérieur est composé de vingt-deux de ces dents, et l'intérieur de quatorze seulement; une dent plus longue que les autres et recourbée, placée au milieu du palais; point de traces d'yeux; queue très-courte, arrondie à l'extrémité et terminée par une nageoire qui se réunit à celle de l'anus.

Ces deux nageoires sont les seules que l'animal présente; elles sont très-basses et très-difficiles à distinguer.

M. le comte de Lacépède, le premier, a fait connoître cet animal curieux d'après une peau sèche qui avoit été apportée des mers du Chili par le célèbre voyageur Dombey. Mais il l'avoit placé dans son genre Gastobranchie, à côté de la myxine, et nous avons fait voir, en en exposant les caractères, qu'il en différoit d'une manière notable.

Depuis cette époque, dans un Mémoire lu, le 1<sup>er</sup> Juin 1815, à la Société royale de Londres, Sir Everard Home a donné la description des organes de la respiration de l'eptatrème, d'après un individu rapporté de la mer du Sud par Sir Joseph Banks. Ces organes, dit-il, ressemblent à ceux de la lamproie pour le nombre des ouvertures extérieures et pour celui des sacs branchiaux; mais ils se rapprochent de ceux des myxines, en ce qu'il n'y a aucune apparence de thorax ni de péricarde cartilagineux; les sacs branchiaux eux-mêmes sont des sphéroïdes aplatis, disposés verticalement; leur cavité est petite; leurs parois sont élastiques, et leur orifice intérieur communique directement avec l'œsophage, qui est d'un fort petit calibre, et qui se termine par un repli membraneux lâche et transversal.

L'*Eptatrète* a une narine postérieure et une espèce de luette, une vésicule du fiel, une rangée de glandes volumineuses de chaque côté de l'abdomen, et un intestin soutenu par un mésentère.

Les organes de la génération sont semblables à ceux de la lamproie.

Sir Everard Home pense, dans le Mémoire que nous venons de citer, que cet animal doit faire un genre particulier et distinct de celui des lamproies et des myxines. C'est à une époque où il ne pouvoit connoître le travail de l'auteur anglois, que M. Duméril établissoit à Paris son genre Eptatrème. (H. C.)

<sup>1</sup> Dictionnaire des Sciences Naturelles, XV, pp. 134-136.

The question of nomenclature in this case has been complicated, not only by the diversity of names suggested, but also by the specification or naming of the type of the genus and the statement as to the establishment of the genus by Duméril.

The type was designated as being identical with the "*Gastrobranche Dombey*" of Lacépède. Now, the fish of Lacépède was a dried skin which did not show the branchial apertures (at least they escaped Lacépède's attention), and of course the data as to the number of branchial apertures and their structure could not be derived from that fish, but evidently, as was indeed confessed, were based on the dissections of Sir Everard Home. The species "*Eptatretus Dombeyi* Duméril," of Cloquet was therefore a composite, the description of the dentition having been derived from Lacépède and the rest from Home. The *material part*, however, relative to the number and structure of the branchial apertures and pouches, *was due to Home*. The generic characters, in fact, were entirely derived from Home, and the specific name used was simply the result of a *misidentification*, it having been erroneously assumed that the species of Home was the same as that of Lacépède.

Cloquet's statement that Duméril had established the genus before he could have known of Home's article need not detain us or deter us from arriving at the only legitimate conclusion. Possibly Duméril might have thought or even perceived that there were lateral branchial apertures and given a name, but he could not have been certain of his premises till he had seen Home's work.

It will further appear that the only one of the three names imagined for this genus accompanied by a latin equivalent is *Eptatretus*. Much as I dislike to substitute that name for *Heptatrema* or *Heptatremus*, there is, I suppose, no alternative against it. Although the French equivalent of the latter name was especially framed for it from the Greek, that fact will be regarded by almost all American nomenclators at least insufficient, since it was used in French guise only. Both Duméril and Cloquet evidently intended to use *Eptatremus* but in their senseless maunderings failed to do so.

### III.

In 1822, Fleming,<sup>1</sup> not knowing the work of his predecessors, proposed a new name, adding after "*L. PETROMYZON*," the following:

2. HOMEA. Margin of the mouth bearded.

I have ventured to name this genus in honor of Sir Everard Home, who has so successfully investigated the aerating and reproductive organs of the tribe to which it belongs, and who has pointed out its distinguishing internal characters. The trivial name is due to the late illustrious Banks, by whom the species was brought to this country from the South Seas. *H. Banksii*.

<sup>1</sup>Philosophy of Zoology, II, p. 374.

In a footnote to page 375, he reproduced the following remarks of Sir Everard Home:

In an animal brought from the South Seas by Sir Joseph Banks, intermediate between the lamprey and myxine, but differing so much from both as to form a distinct genus, the respiratory organs resemble those of the lamprey in the number of external openings, and the number of bags; but these organs, and many other parts, differ in the following particulars, in which they agree with those of the myxine. There is no appearance, whatever, of thorax, nor is the pericardium cartilaginous; the bags are flattened spheres placed perpendicularly, their cavities are small, their coats elastic, and the internal orifices communicate directly with the œsophagus, which is small. The œsophagus does not terminate in a valvular slit, but in a loose membranous fold; there are two rows of teeth on each side of the tongue, bent downward, long, and pointed. There is a posterior nostril, and an appearance resembling an uvula. There is a gall bladder, a row of large mucous glands on each side of the belly, and there is a mesentery to the intestine. Phil. Trans. 1815, p. 258, pl. xii, fig. 1.

The first subsequent reference to this name *Homea* was by the present writer in 1894.<sup>1</sup> In connection with comments on Dr. Howard Ayers's views respecting the Bdellostomids and his preference for *Bdellostoma* over *Heptatrema*, because the species of that genus frequently deviate from seven in the number of pairs of gills, it was suggested that the name *Homea* was not open to that objection and, as it was long prior to *Bdellostoma*, might be used by Dr. Ayers and those who shared his views. Mr. Garman, however, has taken up the name for another reason, as already indicated at length.

The history of the genus may be briefed in the following synonymy:

EPTATRETUS.

*Eptatrène* DUMÉRIL fide CLOQUET, Dict. Sc. Nat., XII, 1818, p. 304.

*Eptatrène* or *Eptatrète* DUMÉRIL fide CLOQUET, Dict. Sc. Nat., XV, 1819, p. 134.

*Eptatrétus* DUMÉRIL fide CLOQUET, Dict. Sc. Nat., XV, 1819, p. 135.

*Eptacitrète* DUMÉRIL fide CLOQUET, Dict. Sc. Nat., XV, 1819, p. 135.

*Homea* FLEMING, Phil. Zool., II, 1822, p. 374.

*Les Heptatremes* "DUMÉR." CUVIER, Règne An., n. ed., II, 1829, p. 405.

*Heptatremus* "DUMÉR." M'MURTRIE, Animal Kingdom, II, 1831, p. 298.

*Heptatrema* VOIGT, Thierreich, II, 1832, p. 529.

*Heptatremes*<sup>2</sup> GRIFFITH, Animal Kingdom, X, 1834, p. 621.

*Bdellostoma* MÜLLER, Abhandl. Akad. Wiss. Berlin, 1834.

In accordance with a generally accepted rule, the family name must be altered to accord with the facts. *Eptatretidae* consequently will be the name for the family typified by *Eptatretus*.

<sup>1</sup> American Naturalist, XXVIII, p. 584.

<sup>2</sup> Heptatremes is given as a regular Latin name.