

decomposed. Bill, legs, and tail very much longer, and basal outline of bill of different contour. (Type, *Tantalus ibis* Linn.)

The species belonging to *Pseudotantalus*, besides the type, are, so far as known, the following:

P. leucocephalus (Gm.). India.

P. longuimembris (Swinh.). Southern China.

P. lacteus (Temm.). Java and Sumatra.

SUPPLEMENTARY NOTE ON THE PEDICULATI.

BY THEODORE GILL.

In the proceedings of the United States National Museum for 1878 (v. 1, pp. 215-232), I have given the characteristics of the families, subfamilies, and genera of the Pediculate fishes. The present communication will supplement the article in question by detailing the synonyms of the families and subfamilies. The generic synonyms have been already indicated.

I.

Since the publication of the "Note on the Antennariidæ" (op cit., pp. 221-222), a "new genus" has been added to the family by Dr. A. Günther, which may be distinguished as follows:

TETRABRACHIUM.

= *Tetrabrachium*, Günther, Zool. Challenger, part 6, p. 44, 1880.

Antennariids with the body oblong conic from the head backwards; the skin naked; a compressed cuboidal head; small vertical mouth; dorsal spines (3) isolated and dwarfed, but exerted; second largest, "wide and fringed;" dorsal and anal fins low, long, and free behind; and pectorals with the upper portion ($\frac{1}{2}$ rays) detached from the lower.

Type, *Tetrabrachium ocellatum*, Günther, Zool. Challenger, part 6, p. 45, pl. 19, f. c.

Ocean south of New Guinea (specimen obtained at a depth of 28 fathoms).

All that has been suggested as to this interesting form is what may be implied by the reference to the "Pediculidæ," which, as appears by the "Systematic List" at the end of the volume (p. 78), is simply a misprint for Pediculati. Possibly the nearest ally of the genus is *Histiophryne*, but it appears to be quite an isolated form.

Dr. Lütken (Vidensk. Medd. fra den Naturhist. Foren. Kjøbenhavn, 1879-'80, pp. 67-68) has objected *inter alia* to the generic differentiation of *Corynolophus*, but has not traversed or even met the reasons and arguments in favor thereof submitted by me (Proc. U. S. Nat. Mus., v. 1, p. 230). I therefore need only refer again to my original statement.

The differences alleged to exist between *Himantolophus* and *Corynolophus* are very marked, and if they really *do* exist, as stated, there can be no doubt that the two should be kept apart. I know of no reason, except the singularity and greatness of the differences specified, for doubting the correctness of Reinhardt's observations on *Himantolophus*, and prefer to assume their reliability rather than to discredit them, but at the same time admit the desirability of confirmation. The burden of proof meanwhile lies on those who would keep the forms together, and not on those who would separate them.

Finally, as to the genus *Lophius*, it seems to me that the *L. setigerus* should be generically distinguished from the *L. piscatorius*, notwithstanding the close external resemblance of the two. The two groups may be diagnosed as follows:

LOPHIUS.—Lophiids with vertebræ in considerable number, *i. e.*, 27—31,* and toothed vomer.

Type, *Lophius piscatorius*.

LOPHIOMUS.—Lophiids with vertebræ in diminished number, *i. e.*, about 19, and toothed vomer.

Type, *Lophiomus setigerus*=*Lophius setigerus*, Wahl.

It is surprising that the two have not been differentiated by Dr. Günther, inasmuch as he sometimes considers a difference of one or two vertebræ to be sufficient to distinguish *families*.

II.

PEDICULATI.

Synonyms as family names.

= Brachioptères, *Blainville*, Journ. de Physique, t. 53, p. —, 1816.

= Percoides à pectorales brachiformes, *Curier*, Règne Animal, t. 2, p. 305, 1817.

< Acanthoptérygiens à pectorales pédiculées, *Curier*, Règne Animal, 2 éd., t. 2 p. 249, 1829.

< Lophidæ, *Bonaparte*, Giorn. Accad. di Scienze, v. 52, (Saggio Distrib. Metod. Animali Vertebr. a Sangue Freddo, p. 111), 1832.

< Lofidi, *Bonaparte*, Fauna Italica, fol. 105, 1835.

< Lophiidae, *Bonaparte*, Nuovi Annali delle Sci. Nat., t. 2, p. 130? 1838; t. 4, p. 155,? 1840.

= Lophidæ, *Girard*, Expl. and Surv. for R. R. Route to Pacific Oc., v. 10, p. 133, 1858.

= Pediculati, *Günther*, Cat. Fishes, Brit. Mus., v. 3, p. 173, 1861.

Synonym as subordinal name.

= Pediculati, *Gill*, Can. Nat., n. s., v. 2, p. 246, Aug., 1865.

Synonyms as ordinal names.

? Lofidi, *Rafinesque*, Indice d'Ittiolog. Siciliana, p. 42, 1810.

< Chismopnés, *Duméril*, Zool. Anal., p. 105, 1806.

< Plectognathes, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, pp. 193, 323, 1839.

* 28 is the number of vertebræ in two skeletons of *L. piscatorius* examined by myself.

- = Antennarii, *Bleeker*, Enum. Sp. Piscium Archip. Ind., p. xvi, 1859: Atlas Ich. des Indes Néerland., t. 5, p. 1, 1865.
- = Pediculati, *Cope*, Proc. Am. Assoc. Adv. Sci., v. 20, p. 335, 1872.
- = Pediculati, *Gill*, Arrangement Families Fishes, pp. xli, 2, 1872.
- = Pediculati, *Fitzinger*, Sitzungsber. K. Akad. der Wissensch. (Wien), B. 67, 1. Abth., p. 48, 1873.

This order ("ordo 15") was also isolated by Bleeker as a distinct phalanx ("phalanx 1. *Herpetoichthyes seu Pediculati Cur.*") of the second subseries ("Kanonikodermi") of the second series ("Isopleuri seu Homosomata") of Pectinibranchiate fishes. The use of the term Pediculati in such sense has determined its retention as the ordinal name.

I. ANTENNARIIDÆ.

Synonyms as family names.

- <Chironectidæ, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, p. 195, 1839.
- =Chironectidæ, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, p. 330, 1839.
- =Chironecteoides, *Bleeker*, Enum. Sp. Piscium Archip. Ind., p. xvi, 1859: Atlas Ich. des Indes Néerland., t. 5, p. 4, 1865.
- =Antennarioidæ, *Gill*, Proc. Acad. Nat. Sci. Phila., [v. 15,] pp. 89, 90, 1863.
- <Antennariidæ, *Cope*, Proc. Am. Assoc. Adv. Sci., v. 20, p. 340, 1872.
- =Chironectæ, *Fitzinger*, Sitzungsber. K. Akad. der Wissensch. (Wien), B. 67, 1. Abth., p. 48, 1873.
- >Chaunacidæ, *Lütken*, Vidensk. Selsk. Skr., (5.) v. 11, p. 325, 1878.
- >Antennariidæ, *Lütken*, Vidensk. Selsk. Skr., (5.) v. 11, p. 325, 1878.
- =Antennariidæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 215, 221, 1878.

ANTENNARIINÆ.

Synonyms as sub-family names.

- =Antennariinæ, *Gill*, Cat. Fishes, E. Coast N. A., p. 47, 1861.
- =Antennariinæ, *Gill*, Proc. Acad. Nat. Sci. Phila., [v. 15,] p. 90, 1863.
- <Chironecteiformes, *Bleeker*, Atlas Ich. des Indes Néerland., t. 5, p. 5, 1865.

BRACHIONICHTHYINÆ.

Synonyms as sub-family names.

- =Brachionichthyinæ, *Gill*, Proc. Acad. Nat. Sci. Phila., [v. 15,] p. 90, 1863.
- <Chironecteiformes, *Bleeker*, Atlas Ich. des Indes Néerland., t. 5, p. 5, 1865.

CHAUNACINÆ.

Synonym as sub-family name.

- =Chaunacinæ, *Gill*, Proc. Acad. Nat. Sc. Phil., [v. 15,] p. 90, 1863.
- =Chaunacinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, p. 222, 1878.

Synonym as family name.

- =Chaunacidæ, *Lütken*, Vidensk. Selsk. Skr., (5.) Nat. og Math. Afd., v. 11, p. 325, 1878

II. CERATIIDÆ.

Synonyms as family names.

- =Ceratiidæ, *Gill*, Proc. Acad. Nat. Sc. Phil., [v. 15,] pp. 89, 90, 1863.
- =Ceratiidæ, *Lütken*, Vidensk. Selsk. Skr., (5.) v. 11, p. 325, 1878.
- =Ceratiidæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 215, 216, 227, 1878.
- Chironecteoides subfam., *Bleeker*, 1865.

CERATHINÆ.

Synonymy.

- = Cerathinæ, *Gill*, Cat. Fishes E. Coast N. A., p. 47, 1861.
 = Cerathiaformes, *Bleeker*, Atlas Ich. des Indes Néerland., t. 5, p. 6, 1865.
 = Cerathiinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 217, 227, 1878.

ONEIRODINÆ.

Synonymy.

- = Oneirodinae, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 217, 227, 1878.

HIMANTOLOPHINÆ.

Synonymy.

- = Himantolophinæ, *Gill*, Cat. Fishes E. Coast N. A., p. 47, 1861.
 = Himantolophiformes, *Bleeker*, Atlas Ich. des Indes Néerland., t. 5, p. 6, 1865.
 = Himantolophinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 218, 227, 1878.

ÆGÆONICHTHYINÆ.

Synonymy.

- = Ægæonichthyinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, p. 227, 1878.

MELANOCETINÆ.

Synonymy.

- = Melanocetinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, p. 227, 1878.

III. LOPHIIDÆ.

(See, also, under Pediculati, p. 552.)

Synonymy as family names.

- < Lofidi, *Rafinesque*, Indice d'Ittiolog. Siciliana, p. 42, 1810.
 < Branchimea, *Rafinesque*, Analyse de la Nature, p. —, 1815.
 < Lophides, *Latreille*, Fam. Nat. du Règne Animal, p. 139, 1825.
 < Baudroies, *Risso*, Hist. Nat. de l'Europe Merid., t. 3, p. 101? 1826.
 = Lophidæ, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, p. 195, 1839.
 < Lophidæ, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, p. 330, 1839.
 < Lophoidei, *Bleeker*, Enum. Sp. Piscium Archip. Ind., p. xvi, 1859.
 = Lophioidei, *Bleeker*, Atlas Ich. des Indes Néerland., t. 5, p. 2, 1865.
 = Lophioidæ, *Gill*, Proc. Acad. Nat. Sci. Phila., [v. 15,] pp. 89, 90, 1853.
 < Lophiida, *Cope*, Proc. Am. Assoc. Adv. Sci., v. 20, p. 340, 1872.
 = Lophii, *Fitzinger*, Sitzungsber. K. Akad. der Wissensch. (Wien), B. 67. 1. Abth., p. 48, 1873.
 = Lophioidæ, *Lütken*, Vidensk. Selsk. Skr., (5.) Nat. og Math. Afd., v. 11, p. 325, 1878.
 = Lophiida, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 215, 219, 1878.

LOPHINÆ.

Synonymy as sub-family names.

- < Lophidia, *Rafinesque*, Analyse de la Nature, p. —, 1815.
 < Lophini *Bonaparte*, Fauna Italica, fol. 105, 1835.
 < Lophiina, *Bonaparte*, Nuovi Annali delle Sci. Nat., t. 2, p. 130? 1838; t. 4, p. —? 1840.

- < Lophiinae, *Bonaparte*, Catal. Metod. Pesci Europei, pp. 9, 89, 1846. †
 = Lophiinae, *Bleeker*, Atlas Ich. des Indes Néerland., t. 5, p. 5, 1865.

IV. MALTHEIDÆ.

Synonyms as family names.

- < Chironectidæ, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, p. 195, 1839.
 < Lophidæ, *Swainson*, Nat. Hist. and Class. Fishes, etc., v. 2, p. 330, 1839.
 < Mathæoidei, *Bleeker*, Enum. Sp. Piscium Archip. Ind., p. xvi, 1859.
 > Lophioidei, *Bleeker*, Enum. Sp. Piscium Archip. Ind. p. xvi, 1859.
 < Mathæoidei, *Bleeker*, Atlas Ich. de Indes Néerland., t. 5, p. 3, 1865.
 = Antennarioidæ, *Gill*, Proc. Acad. Nat. Sci. Phila., [v. 15,] pp. 89, 90, 1863.
 < Lophiidæ, *Cope*, Proc. Am. Assoc. Adv. Sci., v. 20, p. 340, 1872.
 > Halienthææ, *Fitzinger*, Sitzungsber. K. Akad. der Wissensch. (Wien). 67, 1. Abth.,
 p. 48, 1873.
 < Malthææ, *Fitzinger*, Sitzungsber. K. Akad. der Wissensch. (Wien), B. 67, 1. Abth.,
 p. 48, 1873.
 = Malthæidæ, *Lütken*, Vidensk. Selsk. Skr., (5,) v. 11, p. 325, 1878.
 = Maltheidæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 215, 219, 231, 1878.

MALTHEINÆ.

Synonyms.

- = Maltheinæ, *Gill*, Cat. Fishes E. Coast N. A., p. 47, 1861.
 = Malthcinæ, *Gill*, Proc. Acad. Nat. Sc., Phil., [v. 15,] p. 90, 1863.
 = Maltheinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, pp. 220, 231, 1878.

HALIEUTÆINÆ.

Synonyms.

- = Halieutæinæ, *Gill*, Proc. Acad. Nat. Sc., Phil., [v. 15,] p. 90, 1863.
 = Halieutæinæ, *Gill*, Proc. U. S. Nat. Mus., v. 1, p. 231, 1878.

III.

In "Descriptions of Some New Species of Pediculati," published in 1863 (Proc. Acad. Nat. Sc. Phila., 1863, pp. 88-92), I have made known, in addition to the *Halieutichthys reticulatus* Poey, four species of *Antennarius*. These have not been re-described under the names then given, but two, originally found in Lower California, have been found elsewhere, and described by Dr. Günther under other names, as has just been recognized by Messrs. Jordan and Gilbert (Proc. U. S. Nat. Mus., v. 5, p. 370). Messrs. Goode and Bean have also recently recognized the two species described as inhabitants of the waters about the Florida Keys, in their "List of the Species of Fishes, recorded as occurring in the Gulf of Mexico" (Proc. U. S. Nat. Mus., v. 5, p. 235, 1882). The present status of the species is therefore as follows:

1. *Antennarius sanguineus* *Gill*, o. c., p. 91 = *Antennarius leopardinus* *Günther*, Proc. Zool. Soc. London, 1864, p. 151.
2. *Antennarius annulatus* *Gill*, o. c., p. 91; *Goode & Bean*, o. c., p. 235 (name only).

3. *Antennarius pleurophthalmus Gill*, o. c., p. 92; *Goode & Bean*, o. c., p. 235 (name only).
 4. *Antennarius strigatus Gill*, o. c., p. 92 = *Antennarius tenuifilis Günther*, *Trans. Zool. Soc. London*, v. —, p. 440, 1869.

The *Halientichthys reticulatus* Poey, it appears, was described as early as 1818, by Dr. Mitchell. The author was acquainted with Dr. Mitchell's paper, but did not think of connecting his description of the new "*Lophius*" with the *Halientichthys*. The species referred to has the following history, and Mr. G. B. Goode first recognized the identity of the two. The history of the species may be epitomized as follows:

Halientichthys aculeatus = *Lophius aculeatus Mitchell*, *Am. Monthly Mag. and Crit. Rev.*, v. 2, p. 325, 1818 = *Halientichthys reticulatus (Poey, MSS.) Gill*, *Proc. Acad. Nat. Sc. Phil.*, 1863, p. 91 = *Halientichthys aculeatus Goode*, *Proc. U. S. Nat. Mus.*, v. 2, p. 109, (with *Bean*) p. 333, 1879; (with *Bean*) v. 3, p. 467, 1881; v. 5, p. 235, 1882.

IV.

References to illustrations of osteology of the Pediculates.

ANTENNARIIDÆ.

BRACHIONICHTHYS HIRSUTUS.

Chironectes punctatus, Cuvier, *Mém. Mus. Hist. Nat.*, t. 3, p. 434, pl. 18, f. 5, 1817.

PTEROPHYRNE HISTRIO.

Chironectes lævigatus, Cuvier, *Mém. Mus. Hist. Nat.*, t. 3, p. 423, pl. 18, f. 4, 1817.

CERATIIDÆ.

CERATIAS HOLBOLLII.

Ceratias Holbolli, Lütken, *Vidensk. Selsk. Skr.*, (5) *Nat. og Math. Afd.*, v. 11, p. 328 (f. 2 = vert. col.), 330 (f. 3 = interspinals), 331 (f. 4 = cran. behind), f. 5 = cr. lat.), 332 (f. 6 = cr. above), 334 (f. 7 = extraer. bones), 337 (f. 8 = sh. girdle). 1878.

LOPHIIDÆ.

LOPHIUS PISCATORIUS.

Lophius piscatorius, Agass., *Récherches Poiss. Foss.*, t. 5, (2) p. 111, pl. M.

Lophius piscatorius, Mettenheimer, *Disq. anat.-comp. membro pisc. pect.* pl. 1, f. 4, (Sh. girdle and base P.), 1847.

Lophius piscatorius, Hollard, *Ann. Sc. Nat.* (5), *Zool. et Pal.*, t. 1, pp. 241-256, passim, pl. 10, f. 1 (op. pieces), 1864.

MALTHEIDÆ.

MALTHE VESPERTILIO.

Lophius histrio! Rosenthal, *Ichthyotom. Tafeln*, pl. 19, f. 2, (Skel) 1822.