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STUDIES IN ICHTHYOLOGY.

No. 7.*

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(Plates XI-XV and Figures 1-4.)

Family **DASYATIDAE.**

To the Parliamentary Report of the Marine Department of Queensland for 1902-3, the late Dr. Jas. R. Tosh contributed an appendix[1] which is of importance to students of our marine biology. It is entitled "Notes on the Habits, Development, Etc., of The Common Food Fishes of Moreton Bay," and is illustrated by twelve plates. These depict stingrays, mullets, and various other fishes, and show the development of the eggs of the mullet, bream, blackfish (*Girella*), and others. All the species have been included in the Queensland List,[2] but Tosh left a few without specific names, thus:

Dasyatis sp. The common brown stingray. *Op. cit.*, p. 19, pl. iv, fig. 3.

Heteroscarus sp. (?) *Op. cit.*, p. 20, pl. vi. fig. 3, and

Neopercis sp. *Op. cit.*, p. 20, pl. vii, fig. 4.

The stingray is evidently *Dasyatis fluviorum* Ogilby, though this species is not a true *Dasyatis*[3] as there is a fold, not a keel, below the tail, and would be better regarded as the orthotype of a new genus.

Toshia gen. nov.

Orthotype *Dasyatis fluviorum* Ogilby.[4]

Disc with spines and tubercles, especially on scapular region. Tail elongate, more than twice the length of the disc, with a fold above and below. One or two dorsal spines, but no rays. Seven buccal papillae.

These characters sufficiently distinguish *Toshia* from *Dasyatis* as defined by Garman.[5]

Toshia fluviorum grows to a width of about one foot and, as its name implies, is a river-inhabiting species. The trawlers bring to light from the continental

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* For No. 6, see Records of the Australian Museum, vol. xviii, No. 6, 1932, p. 321.

[1] Appendix No. 7, 1903, pp. 17-24, pls. i-xii. Govt. Printer, Brisbane.

[2] McCulloch and Whitley, Mem. Qld. Mus. viii, 2, 1925, pp. 125-182.

[3] Rafinesque, Ind. itt. Sicil., May, 1810, p. 49 (*fide* Sherborn, Ind. Anim.), Type *D. ujo* Rafinesque= *Raja pastinaca* Linné (*fide* Jordan, Gen. Fish.).

[4] Ogilby, Proc. Roy. Soc. Qld. xxi, 1908, p. 6; figured by McCulloch, Biol. Res. Endeavour iii, 1915, p. 103, pl. xvi, fig. 1.

[5] Garman, Mem. Mus. Comp. Zool. Harv. xxxvi, 1913, p. 375.

shelf of New South Wales and more southern waters a group of much larger stingrays, hitherto wrongly included in *Dasyatis,* which should be generically separated, so I propose

Bathytoshia gen. nov.

Orthotype *Dasyatis thetidis* Waite[6] = *Bathytoshia thetidis.*

Disc about four times as wide as in *Toshia fluviorum.* Nasoral lobes wider than mouth and spiracles diverging more widely posteriorly than in *Toshia.* Tail with a fold below, none above; it is shorter than in *Toshia* and armed with prominent spines. The dorsal spine is more elongate, the body smooth, and the ventrals less covered by the pectorals than in the fluviatile genus.

This genus tentatively includes also *Trygon brevicaudatus* Hutton = *Bathytoshia brevicaudata,* which has been described and figured by McCulloch.[7]

The fish doubtfully regarded by Tosh as *Heteroscarus* was called *Scarus* sp. by McCulloch and Whitley (*loc. cit.,* p. 169), but is evidently the same as that called *Callyodon cyanotaenia* (Bleeker) by Ogilby.[8] Unfortunately, Tosh does not mention colour in his brief description:

"D. 9-10, A. 1/10, L. lat. 25. Not common. Said to attain a large size. Front teeth fused to form two in each jaw. Three large scutes at the base of the tail. A few small specimens were taken in the beginning of May." On comparing Tosh's figure with that in Bleeker's "Atlas Ichthyologique," the Queensland fish is seen to differ in having three rows of scales on its deeper cheeks, fewer fin-rays, and arborescent tubes on the lateral line. As it is apparently unnamed, I propose that it be known as *Scarus toshi,* new species. Type-locality: Southport, Moreton, Bay, Queensland.

The "*Neopercis* sp." is briefly characterised by Tosh, thus:

"D. 5-22, A. 1/18, L. lat. 78. Another of the whiting family. Colour, red, with fairly broad black vertical bands. Usually too small to count as a food fish."

This is evidently the Queensland form[9] of *Chilias nebulosus* (Quoy and Gaimard).

Family **GALAXIIDAE.**

Genus **Galaxias** Cuvier, 1816.

Galaxias oconnori Ogilby.

(Plate xii, fig. 3.)

Galaxias oconnori Ogilby, Mem. Qld. Mus. i, Nov. 27, 1912, p. 33, Lyra, South Queensland.

The accompanying illustration is from a drawing of the type in the Queensland Museum made by the late Dene B. Fry.

Galaxias pseudoscriba McCoy[10] and *Galaxias scottii* Ogilby, 1886 (*a nomen nudum*) = *Austrocobitis attenuatus scriba* (Cuvier and Valenciennes).

Galaxias dissimilis Regan.

(Plate xii, fig. 2.)

Galaxias dissimilis Regan, Proc. Zool. Soc. Lond., 1905, ii, April 5, 1906, p. 383, N.S. Wales(?).

This species, like the last, has not hitherto been figured. The present illustration was made from the type in the British Museum by the author of the species, which may not be congeneric with *oconnori.*

[6] Waite, Austr. Mus Mem. iv, 1899, p 46. Newcastle Bight and Wata Mooli, N.S. Wales.
[7] McCulloch, Biol. Res. Endeavour iii, 1915, p. 102, pl. xv, fig. 1 and pl. xvii, fig. 1.
[8] Ogilby, Mem. Qld. Mus. iii, 1915, p. 135.
[9] McCulloch, Biol. Res. Endeavour ii, 1914, p. 156.
[10] McCoy, Intercol. Exhib. Essays, No. 7, 1866, p. 320 (14 of reprint). Yarra River, Victoria.

Family **MYCTOPHIDAE.**

Genus **Electrona** Goode and Bean, 1895.

Electrona risso salubris, new subspecies.

Electrona rissoi McCulloch, Biol. Res. Endeavour iii, 1915, p. 104. Victoria. Not *Scopelus risso* Cocco, Giorn. Sci. Lett. Sicilia xxvi, 1829, p. 144, Messina (*fide* Sherborn).

A deepsea lantern fish, the type of which was noticed by McCulloch, but his specimen differs from the typical Mediterranean *Scopelus risso* Cocco, 1829, in being larger in size and of slightly different proportions.

D. 14, A. ii, 18, L. lat. 30. Standard length 69 mm. or about 3¼ inches total length. Trawled between Gabo Island and Cape Everard, Victoria. **Austr. Mus.** regd. no. E. 5701.

Myctophum carlsbergi Taning[11] from New Zealand, referred to *Electrona* by its author, has 36 scales on the lateral line and a more elongate form.

Genus **Collettia** Goode and Bean, 1895.

Collettia Goode and Bean, Spec. Bull. U.S. Nat. Mus. ii (Oceanic Ichth), June, 1895, pp. 71 and 88. Orthotype, *Nyctophus rafinesquii* Cocco, N. Ann. Sci. Nat. ii, 1838, p. 180, from the Mediterranean.

The formation of the luminous glands before the eyes distinguishes this genus from *Diaphus*[12] and *Aethoprora.*[13]

Cavelampus subg. nov.

Orthotype, *Æthoprora perspicillata* Ogilby.

Antorbital luminous organ large, divided into a dorso-nasal[14] and suborbital organ. Mouth extending well behind eye. Preopercular border oblique.

Photophores situated below the lateral line, excepting the highest SAO and the POL. 4 Prc., the uppermost below the lateral line. First AO elevated. VLO about midway between lateral line and ventral fins or a little nearer the latter. No luminous scales or patches on caudal peduncle. Ventrals behind the vertical of the dorsal origin. Anal entirely behind dorsal, both fins with an equal number of rays.

Collettia perspicillata (Ogilby).

(Figure 1.)

Æthoprora perspicillata Ogilby, Proc. Linn. Soc., N.S. Wales, xxiii, 1898, p. 36. Lord Howe Island. *Id.* Waite, Rec. Austr. Mus. v, 1904, p. 193, pl. xviii, fig. 1.

Diaphus danae Taning, Vidensk. Medd. Dansk. Foren., xciv, 1932, p. 140, fig. 13. North of New Zealand.

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[11] Taning, Vidensk. Medd. Dansk. nat. Foren., xciv, 1932, p. 126, fig. 1. East of New Zealand.

[12] Eigenmann and Eigenmann Proc. Calif. Acad. Sci. (2) iii, Sept. 1, 1891, p. 3. Orthotype, *D. theta* Eig. and Eig. from California. "Characters of *Myctophum*; phosphorescent spots divided into halves by a medium black line."

[13] Goode and Bean, *Op. cit.* 1895, pp. 71 and 86. Three species:—*Nyctophus metopoclampus* [*Myctophum metopoclampum*] Cocco, *A. lucida* G. and B., and *A. effulgens* G. and B. Logotype, *A. metopoclampa,* selected by Jordan and Evermann, 1896 (where the descriptions of *Collettia* and *Aethoprora* are transposed) and in Zool. Record.

[14] The nomenclature of the luminous organs and photophores follows that of Taning and other modern authors.

The form of the antorbital luminous organs is variable and their limits difficult to define in some specimens. A series in the Australian Museum was labelled under two generic and three specific names, yet all appear to be the same species and *Diaphus danae* is evidently a synonym.

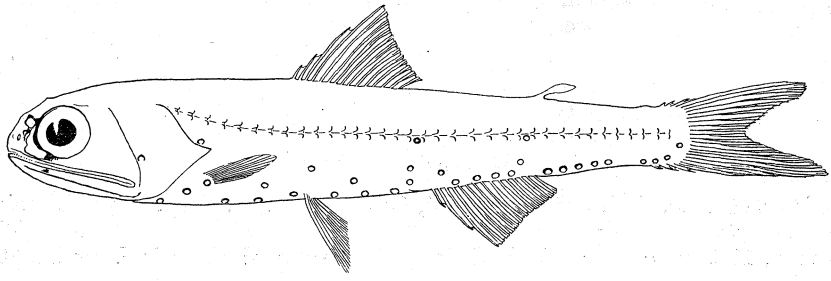

Figure 1.

Collettia (*Cavelampus*) *perspicillata* (Ogilby). A specimen, 67 mm. in standard length, from Lord Howe Island. Austr. Mus. regd. No. IA.5632. G. P. Whitley *del.*

D. 15; A. 15; P. 12; V. 8; C. 19; L. lat. 35.

Head (20 mm.) 3.35, depth at level of pectoral base (12) 5.5 in standard length (67). Snout (4) 5 in head. Eye (6) equal to interorbital (6) and subequal to depth of caudal peduncle.

Head scaly, the operculum ending in a pointed flap. Villiform teeth on jaws, vomer, and palatines. Tongue free. Gillrakers protruding forward into mouth; they are elongate, rugose, and there are 15 of them on the first branchial arch. A small dorso-nasal and a large suborbital luminous organ.

Body elongate, compressed. Most of the scales are missing, but those remaining are thin, cycloid, and highly burnished. 3 Br. photophores; 1 Op; 2 PVO; 1 PLO over opercular flap; 4 PO, diverging widely posteriorly; VLO nearer ventral fin than lateral line; 4 VO, the second pair higher on the sides than the others; 3 SAO in a steeply ascending series, the uppermost remote from the others; 6 AO ant., the anterior and posterior elevated; POL below a lateral line scale; 5 AO post.[15] in a straight line; 4 Prc. the last below the lateral line.

The general appearance of this fish is shown in the diagram and defined for the subgenus. The fourth dorsal ray is longest and the adipose fin is well-developed. The anal and dorsal fins have equal basal lengths and fin-counts.

General colour, in alcohol, brownish with blackish areas at the bases of the dorsal and caudal fins. Photophores shining silvery with black margins. Fins whitish. Head burnished and silvery, yellow on snout, blackish on vertex and interorbital. A brown smudge on each side of the chin below the bluish eyes.

Described and figured from a specimen 3¼ inches in total length or 67 mm. is standard length.

Loc.—Washed up on Blinkenthorpe Beach, Lord Howe Island; collected by Mr. Robert Baxter in 1922. Australian Museum regd. No. I.A. 5632.

[15] Postabdominal (PA) would be a better term for AO post or Postero-AO, *i.e.*, "Postero-antero-anal," photophores.

Six other specimens (Nos. IA. 957-959, 1827, and 2425) from Lord Howe Island are preserved in the Australian Museum. In most the small dorsonasal organ is quite distinct from the suborbital one, but in others it becomes difficult to distinguish the limits of the luminous organs on the front of the head. Young specimens are infuscated with blackish punctulations on the body and the larger specimens have the fins, especially the caudal, similarly dotted.

Genus **Gonichthys** Gistel, 1850.

Alysia Lowe Proc. Zool. Soc., Lond., vii, Oct., 1839, p. 87. Haplotype *A. loricata* Lowe, from Madeira, = *Scopelus cocco* Cocco, Giorn. Sci. Lett. Sicilia, xxvi, 1829, p. 143, *fide* Jordan, Gen. Fish. Preocc. by *Alysia* Latreille, 1804, Hymenoptera.

Gonichthys Gistel, Isis (Munich) (5) 1850, p. 71. Haplotype, *G. loricatus* (Lowe), *fide* Sherborn, Index. Anim. 1801-50, pt. 29, June, 1932, p. 84.

Rhinoscopelus Lütken, Vid. Selsk. Skr. (6) vii, Spolia Atlantica, 1892, p. 242. Type, *Scopelus coccoi* Cocco (*fide* Jordan, Gen. Fish).

In the comparatively few additions and corrections to Sherborn's remarkably accurate and indispensable Index Animalium, there is a reference to *Gonichthys* Gistel, a name which has been overlooked by ichthyologists, and which replaces *Rhinoscopelus* for *Alysia* preocc. The type species, generally called *Rhinoscopelus coccoi,* should now be known as *Gonichthys cocco.*

Genus **Serpa** Cloquet, 1827.

"Serpe" Risso, Ichth. Nice, 1810, p. 356. Purely vernacular name for *Gasteropelecus* spp. Risso, described as *S.* (not *G.*) *microstoma, crocodilus,* and *humbolti,* but correctly indexed.

Macrostoma, Risso. Hist. Nat. Eur. Merid. iii, 1826, p. 447. Haplotype *M. angustidens* Risso, from the Mediterranean. Preoccupied by *Macrostomus* Wiedeman, 1817, Diptera.

Serpa Cloquet, Dict. Sci. Nat. xlviii, 1827, p. 190. Latinisation of "Serpe" Risso, 1810, vernac. Logotype, *S. crocodilus* Cloquet, from Nice, by present designation.

Lampanyctus Bonaparte, Icon. Faune. Ital. (27) 1840 (*fide* Sherborn). Logotype, *Nyctophus bonaparti* Cocco, N. Ann. Sci. Nat. ii, 1838, p. 189.

? *Catablemella* Eigenmann and Eigenmann, Proc. Calif. Acad. Sci. (2) iii, Sept. 1, 1891, p. 24. Orthotype, *Notoscopelus brachychir* Eig. and Eig.. from Cortes Banks, California.

Panyctus Parr. Proc. N. Eng. Zool. Club xi, 1929, p. 57. *Errore pro Lampanyctus.*

Serpe Sherborn, Index Anim. 1801-50 (1930), pp. 1649 and 5903. Latinisation of "Serpe" Risso, 1810, vernac. Logotype, *S. crocodilus,* by present designation.

Most authors use *Lampanyctus* as the name of this genus, but *Macrostoma* and *Serpa* are earlier. *Macrostoma* is preoccupied, so *Serpa* should apparently be used. This name was proposed by Cloquet for the "Serpe" of Risso, including two species, *Scopelus crocodilus* and *S. humbolti* (Risso) Cloquet. I select *Scopelus crocodilus* as the logotype of *Serpa.*

The only Australasian species is *Serpa australis* Taning.[16]

Family **PLOTOSIDAE.**

Exilichthys gen. nov.

Orthotype, *Cnidoglanis nudiceps* Günther.[17]

Occipital region osseous, not covered with loose skin. Head small, depressed, with the gill-membranes not united across isthmus.

Günther's species, though included in McCulloch's Check-List, is not strictly Australian, having been described from the Arafura Sea; the Australian limit was Challenger Station, 188, after which Aru Islands were visited. The type specimen has been figured by Weber and Beaufort.[18]

McCulloch[19] placed this species in *Ostophycephalus* Ogilby,[20] but that generic name is applicable only to the South Australian *O. duriceps* Ogilby which Waite[21] regarded as *Cnidoglanis megastoma* (Richardson), a species with much shorter body, larger head and mouth, and quite different dentition.

Family **SYNGNATHIDAE.**

Genus **Penetopteryx** Lunel, 1881.

Penetopteryx Lunel, Mem. Soc. Phys. List. Nat. Genève, xxvii, 2, 1881, p. 11.

Haplotype, *P. taeniocephalus* Lunel, spelt *Penetopterix* on pl. i, fig. 1. *Id.* Sauvage, Hist. Nat Madagasc. (Grandidier), 1891, p. 508 (*fide* Duncker). *Id.* Duncker, Mitt. Naturh. Mus. (2 Beih.), Wiss. Anstalt., Hamburg, xxix, 1912, p. 235, *et ibid,* xxxii, 1915, p. 101.

A remarkable genus of pipefishes in which the dorsal, anal, and pectoral fins are absent and the caudal is much reduced. It is evidently rare, and is now recorded for the first time from the tropical Pacific Ocean.

Penetopteryx fowleri sp. nov.

C. 9 or 10. Rings 20 + 44 = 64.

Head (6 mm.) 10.5, depth of body (3) 21, in total length (63 mm.).

Eye (1) greater than interorbital and slightly less than length of caudal, half as long as snout (2).

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[16] Taning, Vidensk. Medd. Dansk. nat. Foren xciv, July 19, 1933, p. 145, as *Lampanyctus alatus australis.*
[17] Günther, Rept. Voy. "Challenger," Zool. i, 6, 1880, p. 49.
[18] Weber and Beaufort, Fish Indo-Austr. Archip. ii, 1913, p. 232, fig. 92.
[19] McCulloch, Austr. Mus. Mem. v, 1929, p. 59.
[20] Ogilby, Proc. Linn. Soc. N.S. Wales xxiv, Aug. 8, 1899, p. 155.
[21] Waite, Rec. S. Austr. Mus. ii, 1921, p. 46.

Upper profile of head subhorizontal with a concave dip before the eyes, lower profile oblique. Eyes large and bulbous; mouth minute. No ridges or granules on operculum.

Body elongate, with the ridges not sharp. Dorsal ridges of trunk and tail continuous. Mediolateral ridges of body continuous with inferior ridges of tail. A ventral keel on the body, ceasing at the anus. Broodpouch with full, soft flaps, subcaudal, occupying thirteen rings. Eggs in two rows, partly embedded in the soft integument of the tail. Caudal fin rounded, its base slightly overlapped by the last of the lengthening and tapering tail-rings. The raised areas on the body rings and the shields between them do not form knobs but ridges which, notably on the ventral surface of the body, tend to fuse and give a reticulated appearance.

General colour, in alcohol, brown, with the head yellowish.

Four or five dark-brown bands radiate from the eye across the snout and cheeks, and three of them cross the chin; three others cross the interorbital. An irregularly curved band almost encircles the head behind these, but is asymetrical on the top of the head so that the left side fails to join the right and lies ahead of it. A similar band crosses the opercula and joins its fellow of the other side below the head, but above is interrupted by two short transverse bars. Five longitudinal rows of brown spots, surrounded by lighter margins, on the body from about the fifth to the fifteenth ring. Five or six anterior rings whitish, speckled with black, on the breast. Remainder of body and tail fairly uniform straw-brownish.

Described from the unique holotype, a male about $2\frac{3}{4}$ inches long, collected by Allan R. McCulloch in the New Hebrides. Austr. Mus. regd. no. IA 781.

Differs from *P. taeniocephalus* Lunel from Mauritius in having no granules on operculum or around vent, broodpouch not extending so far back on the tail-rings, and in its colouration, especially on the body, but Lunel's excellent description and figure clearly show that the two species are closely allied. *Apterygocampus epinnulatus* Weber[22] is of much smaller size, has fewer body and tail rings, and quite different colouration, so should probably be retained in the separate genus *Apterygocampus* Weber, 1913.

Named in honour of Mr. Henry Weed Fowler, of Philadelphia, whose "Fishes of Oceania" is indispensable for identifying Pacific species.

Genus **Syngnathus** Linné, 1758.

Subgenus **Parasyngnathus** Duncker, 1915.

Syngnathus (Parasyngnathus) maxweberi sp. nov.

Syngnathus punctatus Weber, Siboga Exp. Fische, May, 1913, p. 113, fig. 36, Sumbawa, East Indies. *Id.* Weber and Beaufort. Fish. Indo-Austr. Archip., iv, 1922, p. 86, fig. 36.

Preoccupied by *S. punctatus* Rafinesque, Ind. itt. Sic., 1810, pp. 37 and 57.

According to Sherborn's Index Animalium, Weber's name is preoccupied by that of Rafinesque, so I rename the species after the eminent Dutch zoologist.

[22] Weber, Siboga-Exped. Fische, May, 1913, p. 116, and *Penetopteryx epinnulatus* Weber and Beaufort, Fish Indo-Austr. Archip. iv, 1922, p. 96, fig. 40. Gisser, west of Ceram.

Dunckerocampus gen. nov.

Acanthognathus Duncker, Mitt. Naturh. Mus. (2 Beih. Jahrb. Wiss. Aust.), Hamburg, xxix, 1911 (1912), p. 228 *et ibid.*, xxxii, 1915, p. 41. Orthotype, *Syngnathus dactyliophorus* Bleeker, 1853. Preoccupied by *Acanthognathus* Mayr, Verh. Zool. Bot. Wien., xxxvii, 1887, p. 578, a genus of Hymenoptera.

The *Zoological Record* shows that *Acanthognathus*, a genus of pipefishes, is preoccupied, so it is renamed as above, the genotype being *Syngnathus dactyliophorus* Bleeker[23] = *Dunckerocampus dactyliophorus*.

Family **BELONIDAE.**

Lewinichthys gen. nov.

Orthotype, *Belone ferox* Günther[24] = The Slender Long Tom (*Lewinichthys ferox*).

Form slender; caudal peduncle as broad as deep. Middle and posterior dorsal rays short and subequal in length; anal fin with twenty-five or twenty-six rays. Length three feet.

Lhotskia gen. nov.

Orthotype, *Belone macleayana* Ogilby[25] = The Stout Long Tom (*Lhotskia macleayana*).

Form deep; caudal peduncle as broad as deep. Anal fin with nineteen to twenty-one rays. Length up to 4½ feet.

Other differences between *Lewinichthys* and *Lhotskia* are very apparent from the excellent illustrations in Stead's Edible Fishes of New South Wales, 1908, pl. x.

The following nomina nuda may be formally designated synonyms of *Tylosurus impotens* Ogilby = *Lhotskia macleayana* (Ogilby):

Belone staigeri Saville-Kent, 1893.

Belone tyranus Saville-Kent, 1893.

Belone vorax Saville-Kent, 1893.

Tylosurus howesi Ogilby, 1907.

Tylosurus thomasonia jacobus Napier, 1928.

Family **SCHEDOPHILIDAE.**

Genus **Hoplocoryphis** Gill, 1862.

Hoplocoryphis Gill, Proc. Acad. Nat. Sci. Philad., 1862, p. 127. Orthotype, *Schedophilus maculatus* Günther.

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[23] Bleeker, Nat. Tijdschr. Ned. Ind. iv, 1853, p. 506, Onrust I., Batavia.
[24] Günther, Cat. Fish. Brit. Mus. vi, 1866, p. 242. Sydney.
[25] Ogilby, Cat. Fish N.S. Wales, 1886, p. 53. N.S. Wales.

Hoplocoryphis physaliarum sp. nov.

(Plate xii, fig. 4.).

Schedophilus maculatus Ogilby, Rec. Austr. Mus. ii, Sept., 1893, p. 68 (Manly Beach, N.S.W.). *Id.* Waite, Proc. Linn. Soc., N.S. Wales (2), ix, Dec., 1894, p. 219 (Maroubra, N.S.W., and Lord Howe Island). *Id.* Waite, Rec. Austr. Mus. v, 1904, p. 163, pl. xx, fig. 1 (Lord Howe Island). *Id.* Waite, Trans. N.Z. Inst. xlii, 1910, p. 375 (Kermadecs). *Id.* Waite, Trans. Roy. Soc. S. Aust., xl, 1916, p. 453 (Norfolk Island, etc.). *Id.* McCulloch Austr. Zool., ii, 2, 1921, p. 43, pl. xvi (N.S. Wales). *Id.* McCulloch, Austr. Mus. Mem., v, 1929, p. 124. Not *Schedophilus maculatus,* Günther, Cat. Fish. Brit. Mus., ii, 1860, p. 412, from China.

Leirus maculatus Ogilby, Mem. Qld. Mus., v, 1916, p. 185 (Moreton Bay, Queensland).

The receipt of a specimen of *"Schedophilus maculatus"* from Maroubra, N.S. Wales, where it was washed ashore amongst many large bluebottles (*Physalia*) on 4th October, 1932, led me to compare the description of the typical and Australian forms.

The latter may be regarded as a distinct species, as it has seven or more spots on base of dorsal fin, and four on that of anal as opposed to four spots on the base of the dorsal fin and three on that of the anal in the Chinese form.

Ogilby's described specimen from Manly, N.S. Wales, is the holotype. My Maroubra specimen has about four double transverse rows of sub-ocelliform dark-blue spots on a silvery ground colour. The spots and general colour-markings are blue in the fresh fish, though described as brown by authors using alcohol specimens.

The accompanying figure is taken from a small example washed up in Long Bay, N.S.W., in 1903.

Family **HOLOCENTHRIDAE.**

In working over some fishes of this family from Australia and Polynesia, I have been led to the conclusion that many of the species of *"Holocentrus"* are not congeneric and would be better separated into further generic and subgeneric groups which would facilitate their recognition in future. The generic name *Holocentrus* was applied by Gronow in 1763 to two non-binomial species. Scopoli[26] was the earliest writer to give the binary name *Holocenthrus* to Gronow's species, although he misspelt Gronow's name and gave no trivial names. I therefore designate *Holocentrus sogo* Bloch, 1790, as the logotype of *Holocenthrus* Scopoli, which is earlier than *Holocentrus* Meuschen or Bloch. Various authors have emended the name to *Holocentrum.* New subgeneric names may be proposed as follows:—

Faremusca nov. Orthotype, *Holcentrum punctatissimum* Cuv. & Val.[27]

Head obtusely pointed. Two or three not very large opercular spines. Anterior spine of preorbital not markedly larger than others. Body not striped but usually densely spotted. Spinous dorsal fin with a median curved band of brown blotches. Less than 50 scales in lateral line.

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[26] Scopoli, Introd. Hist. Nat. 1777, p. 449, No. 250. Based on *Holocentrus* Gronow, Zoophylac, i, 1763, p. 65, non-binomial.

[27] Cuvier and Valenciennes, Hist. Nat. Poiss. iii, April, 1829, p. 215. Strong I. Now *Holocenthrus* (*Faremusca*) *punctatissimus.*

Kutaflammeo nov. Orthotype, *Holocentrum tahiticum* Kner.[28]

Superficially like the genus *Flammeo* Jordan and Evermann[29] (not *Flammea* Fournel, 1836, Aves) from Martinique, but with preorbital strongly toothed. Body elongate, striped. Penultimate anal spine extremely long. Dark bars on fins and a large black blotch on anterior portion of spinous dorsal.

Cephalofarer nov. Orthotype *Holocentrum sicciferum* Cope.[30]

Profile of nape excavated. Nostrils without spines. Three spines on upper part of operculum. About 40 scales on lateral line. Scales along base of spinous dorsal each with a small backwardly-directed spine.

Lack of type-specimens prevents me from determining at present the status of the generic names *Harpage* De Vis, 1884 (not *Harpagus* Vigors, 1824, Aves, or Stephens, 1834, Lepidoptera, and "Harpago" Klein, pre-Linnean); *Neoniphon* Castelnau, 1875, which is apparently allied to *Sargocentron* Fowler, 1904; and *Neomyripristis* Castelnau, 1873. *Howella* Ogilby, 1898, is closely allied to *Rhectogramma* Norman, 1930, and both should apparently be separated from the Holocenthridae in the family Howellidae. The generic name *Farer,* attributed to Forskaal, 1775, is invalid, as Forskaal merely used this Arabic vernacular name for a subdivision of *Sciaena,* and *S. sammara* Forskaal, with eight branchial rays, is not even a typical *"Farer."*

In his Index Animalium, Sherborn quotes *Holocentrus atraria* Meuschen,[31] and this would appear to be the earliest binomial name for the typical *Holocenthrus sogo* Bloch, but I am unable to consult Meuschen's 1778 work. In his index to Gronow's Zoophylacium, Meuschen, in 1781, named Gronow's species, No. 224, *Holocentrus* seu *Perca atraria?* As this is not *Perca atraria* Linné, 1766, from Carolina, *H. sogo* Bloch apparently stands.

Family **REGALECIDAE.**

Genus **Regalecus** Ascanius, 1772.

Regalecus Ascanius, Icones rerum nat., ii, 1772, p. 5. Haplotype, *R. glesne* Ascanius (*fide* Sherborn, Index Animalium). *Id.* Müller, Zool. Dan. Prodr., 1776, pp. xx and 40.

I have not seen the original description of this genus, but Müller describes it as having the head with laminated covering, ventral fins threadlike, with long pectoral cirri, and the anterior rays of the dorsal fin free and rather spine-like. This account is applicable to the Oar-Fish. *Gymnetrus* Bloch, 1795; *Cephalepis* Rafinesque, 1810 (variously spelt by authors); *Xypterus* Rafinesque, 1810; *Epidesmus* Ranzani, 1818; and *Xiphicthus* Swainson, 1839, are all said to be synonyms of *Regalecus,* but lack of literature prevents me from confirming this synonymy. The Oar-Fish is also known as King of the Herrings, hence the scientific name, from *Rex halecum.*

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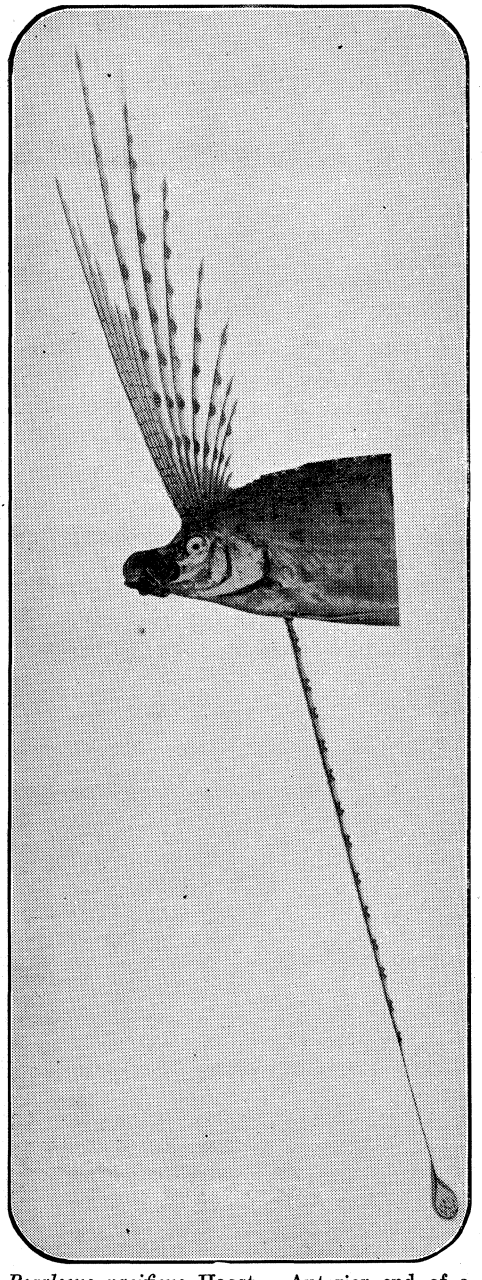
[28] Kner, Sitzb. Akad. Wiss. Wien xxix, 1864, p. 482, and Reise Novara, Fische i, 1865, p. 9, pl. i, fig. 2. Tahiti. Now *Holocenthrus* (*Kutaflammeo*) *tahiticus.*

[29] Jordan and Evermann, Bull. U.S. Nat. Mus. xlvii, Nov., 1898, p. 2871. Orthotype, *Holocentrum marianum* Cuv. and Val.

[30] Cope, Trans. Amer. Philos. Soc. Philad. xiv, 1871, p. 465, *fide* Fowler, Proc. Acad. Nat. Sci. Philad., April 7, 1904, p. 233, fig. 5. Bahamas. Now *Holocenthrus* (*Cephalofarer*) *siccifer.*

[31] Meuschen, Mus. Gronov. 1778, p. 25.



Regalecus pacificus Haast. Anterior end of a specimen, 11 feet 4 inches long, from New Plymouth, New Zealand W. F. Gordon *photo.*

Regalecus pacificus Haast.

(Figure 2.)

Regalecus pacificus Haast, Trans. N.Z. Inst., x, May, 1878, p. 246, pl. vii, New Brighton, New Zealand.

Regalecus argenteus Parker, Trans. N.Z. Inst., xvi, May, 1884, p. 284, pl. xxiii, Moeraki, Otago, New Zealand.

Regalecus masteri De Vis, Proc. Ann. Meet. Roy. Soc. Qld., 1890 (1891), p. 13, *Nomen nudum.*

Regalecus masterii De Vis, Proc. Roy. Soc. Qld., viii, 4, 1892, p. 110, Tweed River District, South Queensland.

The accompanying figure by Mr. W. F. Gordon illustrates the head of an Oar-Fish, which was washed ashore at New Plymouth, New Zealand, in November, 1895. Its length was given as 11 feet 4 inches.

The Oar Fish has been recorded, from specimens which have come to light at rare intervals, from various Australasian localities, but further captures are well worth noting. Various authors have called it by many names: *Regalecus banksi, R. glesne, R. grilli, R. gladius,* and *Gymnetrus* sp., but these refer to the Palaearctic species from which our form has been specifically separated. The earliest Australasian name available is evidently *R. pacificus* Haast, with the synonyms noted above. McCoy gave a splendid figure of this species as *R. banksi* in his Prodromus of the Zoology of Victoria, whilst Waite[32] was the first to record it from New South Wales. His specimen from Shark Beach, Port Jackson, is still in the gallery of the Australian Museum (regd. No. I. 4305). McCulloch noted, in manuscript, two specimens from Manly, New South

[32] Waite, Rec. Austr. Mus. iii, Dec., 1899, p. 163.

Wales, on 10th August, 1915, but these were not preserved. The Museum has recently received another New South Wales specimen (regd. No. IA5545) from Port Kembla, where it was found by Mr. H. Morshell on 27th July 1932, floating on the ocean surface after stormy weather. This specimen is about nine and a half feet long, but is cut in two, and otherwise considerably damaged so that an accurate description of it is not practicable. Nevertheless the record is of interest and gives me an opportunity for remarks upon some taxonomic features associated with the Australasian Ribbon Fish and Oar Fish fauna. *Regalecus pacificus* Haast is now known from off the South of Queensland, New South Wales, Victoria, Tasmania, South Western Australia, New Zealand and the Chatham Islands. Alexander[33] recorded it from Rottnest Island, but, through inadvertence, Western Australia was omitted from its range in McCulloch's 1929 check-list. A further specimen was noted in the local press from northern New South Wales in May, 1933.

The species called *Regalecus glesne pacificus* Wood Jones by Weber and Beaufort[34] is not Haast's Australasian species, but an East Indian one, charmingly described by Professor Wood Jones in his "Unscientific Essays." As his species has a preoccupied name, it may now be called *Regalecus woodjonesi,* sp. nov.

An overlooked synonym of the Palaearctic form of *Regalecus glesne,* called *Gymnetrus banksii* by Cuv. and Val., is *Gymnetrus northumbricus* Timbs,[35] described from Cullercoats, Northumberland, England. An excellent article on this species was given by Couch.[36]

The Indian species named *Gymnetrus hawkeni* by Bloch in 1795 was figured in Russell's Fishes of Vizagapatam, i, 1803, p. 28, pl. xli. Shaw copied the "Russellian Gymnetrus," but Cloquet[37] was the first to name it *Regalecus russelii,* the type of Swainson's genus *Xiphicthis.*

Phillipps[38] has given the generic name *Agrostichthys* to the New Zealand and Stewart Island species, *Regalecus parkeri* Benham,[39] and I consider this a valid genus and species, with the convex head of the Trachipteridae, and an extremely elongate body, quite differently formed from *Regalecus* of similar length.

The skull of *Regalecus* is figured by Gregory (Trans. Amer. Philos. Soc. xxiii, 1933, p. 298, fig. 175).

Family **TRACHIPTERIDAE.**

Genus **Trachipterus** Gouan, 1770.

Trachipterus Gouan, Hist. Pisc. 1770, pp. 104 and 153. *Genus caelebs* based on "Taenia" Artedi, Syn. p. 115, n. 2, etc. Logotype, *Cepola trachyptera* Gmelin (Syst. Nat. (Linn.), ed. 13, 1789, p. 1187, Adriatic Sea), designated by Jordan and Gilbert, Bull. U.S. Nat. Mus. iii, 16, 1882, p. 618. Spelt *Trachyterus* by Bloch and Schneider and *Trachypterus* by Rafinesque and many later authors.

This genus has several nominal synonyms, noted in Jordan's "Genera" and "Classification of Fishes," but some of these may be distinct.

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[33] Alexander, Rec. W.A. Mus., i, 3, 1914, p. 236.
[34] Weber and Beaufort, Fish. Indo-Austr. Archip. v, 1929, p. 92, fig. 23, south of Sumbawa.
[35] Timbs, The Year Book of Facts, 1850, p. 229.
[36] Couch, The Intellectual Observer, ii, August, 1862, pp. 1-8, cold. pl. and 2 text figs.
[37] Cloquet, Dict. Sci. Nat. xlv, 1827, p. 18.
[38] Phillipps, Proc. Zool. Soc. Lond. 1924, ii, p. 232, figs. 1-2.
[39] Benham, Trans. N.Z. Inst. xxxvi, Aug., 1904, p. 198, pl. lx. Deborah Bay, near Port Chalmers, N.Z.

Trachipterus arawatae Clarke.

The Australian Ribbon Fish, as *Trachipterus jacksonensis* (Ramsay), has been previously described and figured in these Studies.[40]

Specimens are in the Australian Museum from several New South Wales localities.

Registered No.	Locality.	Size.	Collector.
A.9114 ...	Manly	6 feet; type.....	Frederick Johnstone.
A.17712 ...	Port Jackson	7 feet	.....
I.1968 ...	,, ,, ...	Three very small	.....
I.9838 ...	Manly	Young	T. Sly, 1909.
IA.4671 ...	Trawled off Port Stephens	,, ...	K. Moller.
L.1530 ...	Middle Harbour	About 1925 mm. Figured by Whitley.	Presented Sept., 1922.

Ogilby in 1898 named a 6-inch specimen from Newcastle *T. j. polystictus.*

This species is recorded from Queensland, New South Wales, Tasmania, Victoria, and New Zealand. From the latter place it has been noticed as *T. taenia, T. trachypterus,* and *T. altivelis,* and the records have been listed by Hamilton.[41] If, as seems likely, *Trachypterus arawatae* Clarke[42] is the young of this species, Clarke's name will take precedence over Ramsay's, which was published about a month later.

Family **LOPHOTIDAE,** auct.

Regilophotes gen. nov.

Orthotype, *Lophotes guntheri* Johnston, 1883.

Ribbon Fishes with the forehead much elevated and sloping forward have been recorded from Tasmania, Victoria, and New Zealand as various species of *Lophotes.* Sherborn, in his "Index Animalium," gives the correct spelling and reference to this genus as *Lophotus* Giorna, Mem. Ac. Sci. Turin, 1805-8 (1809), p. 179. In his "Genera of Fishes," Jordan gives *Lophotes cepedianus* Giorna as the genotype, but Sherborn refers to *Gymnetrus cepedianus* Risso, Ichth. Nice, 1810, p. 146, which suggests that Giorna gave no specific name.

Risso's species is, however, a young *Trachipterus,* so the very distinct Australasian genus evidently requires a new name, as above, whilst the family name may eventually also have to be changed.

Regilophotes guntheri (Johnston).

Lophotes guntheri Johnston, Proc. Roy. Soc. Tasm. 1882 (1883), pp. 142 and 177, Emu Bay district, N.W. Tasmania. *Id.* Whitley, *ibid.* 1928 (1929), p. 50, *Ex.* Johnston MS.

As *Lophotes cepedianus* and *L. fiskii,* this species has been recorded from New Zealand,[43] and Kershaw[44] identified a Victorian specimen as *Lophotes cristatus* Johnson, a Madeiran species, but it is probable that all these records refer to Johnston's *L. guntheri,* of which a topotypical specimen, 3 feet 3 inches long, is in the Australian Museum from Emu Bay, Tasmania (regd. No. B. 5776).

[40] Whitley, Rec. Austr. Mus. xv, 1927, p. 296, pl. xxv, fig. 2.
[41] Hamilton, Trans. N.Z. Inst. xlviii, 1916, p. 370, figs. 1-6.
[42] Clarke, Trans. N.Z. Inst. xiii, April, 1881, p. 197, and fig. Arawata, N.Z.
[43] Waite, Trans. N.Z. Inst. xlvi, 1914, p. 130, pl. iv, fig. 2.
[44] Kershaw, Vict. Nat. xxvi, Oct., 1909, p. 78.

The Ribbon Fishes of Australia and New Zealand are now regarded as belonging to only four species, each the representative of a distinct family. They may be classified by a key based on one given by Phillipps[45] as follows:—

Length 6 to 12 times height; lateral line descending little below midway on side of body; ventrals normally present; eye large; teeth on vomer and both jaws; maxillary plate deeper than long; upper profile of head convex ... ... (TRACHIPTERIDAE) *Trachipterus arawatae.*

Length 12 to 30 times height; lateral line descending to within $\frac{1}{8}$ of height from ventral surface; ventrals represented by a single filament; eye small; teeth wanting; maxillary plate deeper than long; upper profile of head markedly concave... ... ... (REGALECIDAE) *Regalecus pacificus.*

Length over 30 times height; lateral line descending to within $\frac{1}{6}$ of height of body from ventral surface; ventrals, if present, represented by a single filament; eye large; teeth on vomer and lower jaw; maxillary plate longer than deep; upper profile of head convex ... ... (AGROSTICHTHYIDAE) *Agrostichthys parkeri.*

Length about 5 to 8 times height; lateral line traversing middle of sides; ventrals with 5 rays, small; eye large, nearer lower than upper profile; teeth on jaws, but none on vomer; maxillary plate much longer than deep; upper profile of head sloping obliquely forward, overhanging the snout ... (LOPHOTIDAE) *Regilophotes guntheri.*

The Ribbon Fishes of Australia and New Zealand may thus be listed:—

N.Z. species (*fide* Phillips, 1927).	Australian species (*fide* McCulloch, 1929).	Here recognised as—	Vernacular names.
Regalecus pacificus	*Regalecus glesne* ...	*Regalecus pacificus*	Oar Fish or King of the Herrings.
Regalecus argenteus			
Regalecus glesne			
Agrostichthys parkeri	(Not known from Australia.)	*Agrostichthys parkeri.*	Streamer Fish.
Trachipterus trachypterus	*Trachipterus jacksonensis.*	*Trachipterus arawatae.*	Southern Ribbon Fish or Dealfish.
Trachipterus jacksoniensis			
(*Lophotes cepedianus*, including *L. fiskii* Auct. was recorded by Waite but omitted by Phillipps.)	*Lophotes guntheri*...	*Regilophotes guntheri.*	Crested Bandfish or Unicorn Ribbon Fish.
	Lophotes cristatus...		

Family **APOGONIDAE.**

Genus **Adenapogon** McCulloch, 1921.

Neoscopelus Castelnau, Vict. Offic. Rec. Philad. Exhib., 1875, p. 46. Haplotype, *Scopelus* (*Neoscopelus*) *cephalotes* Castelnau, from Adelaide. Name preoccupied by *Neoscopelus* Johnson, 1863, a genus of Myctophid fishes.

Adenapogon McCulloch, Rec. Austr. Mus. xiii, April 12th, 1921, p. 132. Orthotype, *Apogon roseigaster* Ogilby, 1886, from Parramatta River, New South Wales.

[45] Phillipps, Proc. Zool. Soc. Lond. 1924, ii, July, 1924, p. 539.

I had suspected that Castelnau's genus *Neoscopelus* might not have been a Myctophid because no photophores were mentioned in the original description. Dr. A. Vedel Taning, of Copenhagen, has confirmed this by kindly giving me a drawing of the type of *Scopelus* (*Neoscopelus*) *cephalotes* Castelnau in the Paris Museum. This clearly indicates that *Neoscopelus* is an Apogonid fish closely allied to *Adenapogon woodi* McCulloch.[46]

The characters given in McCulloch's key show that this species is quite distinct from *Apogon roseigaster*, the genotype of *Adenapogon*, so I make *A. woodi* the genotype of a new subgenus.

Scopelapogon subg. nov.

Orthotype, *Adenapogon* (*Scopelapogon*) *woodi* McCulloch.

Differs from typical *Adenapogon* in having more slender body, fewer dorsal and anal fin rays, shorter pectorals, and palatines with teeth.

Scopelapogon also replaces *Neoscopelus* Castelnau, preocc.

Adenapogon (Scopelapogon) cephalotes (Castelnau).

(Figure 3.)

Scopelus cephalotes Castelnau, Vict. Offic. Rec. Philad. Exhib., 1875, p. 46, Adelaide. Type in Museum d'Histoire Naturelle, Paris. *Id.* Macleay, Proc. Linn. Soc. N.S. Wales, vi, Sept. 12, 1881, p. 224.

Myctophum cephalotes Waite, Rec. S. Austr. Mus., ii, 1921, p. 45; Fish. S. Austr., 1923, p. 65. *Id.* McCulloch, Austr. Mus. Mem., v, 1929, p. 80.

I am indebted to Dr. A. V. Taning for the accompanying figure of the holotype of this puzzling species, which seems to differ from *A. woodi* in having a narrower maxillary and longer pectoral fins. Written on the drawing are the following data:—"D1 : vi; D2 : i, 8; A., ii, 8; P : 12?; V : 6?; C: 5 + 8 + 8 + 5. Length excl. C. 33 mm. (incl. def. C. 38 mm.)." *Loc.* Adelaide, South Australia (fide Castelnau).

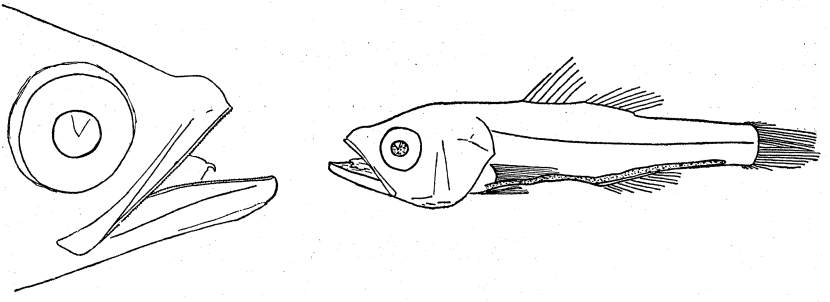

Figure 3.

Adenapogon (*Scopelapogon*) *cephalotes* (Castelnau). Holotype of *Scopelus cephalotes* Castelnau, 33 mm. standard length, from Adelaide, South Australia. Specimen in Museum d'Histoire Naturelle, Paris. Dr. A. V. Taning *del.*

[46] McCulloch, Rec. Austr. Mus. xiii, April 12, 1921, p. 134, pl. xxi, fig. 3. Rose Bay, Port Jackson, N.S.W. Types in Austr. Museum.

Dr. Taning (*in lit.*, Feb., 1933) asks me to mention that Professor L. Roule kindly lent him Castelnau's specimen in the Museum d'Histoire Naturelle, Paris, and that it was deemed necessary to go to me as a specialist of the area in question.

Family **EPINEPHELIDAE.**

Genus **Variola** Swainson, 1839.

Variola louti (Bonnaterre).

Perca louti Bonnaterre, Tabl. Encyl. Meth., Ichth., 1788, p. 133. *Ex* Forskaal, 1775, non-binomial. Red Sea.

Variola louti Fowler and Bean, Bull. U.S. Nat. Mus. 100, x, 1930, p. 203 (references and synonymy).

A fine specimen (No. IA. 5006) was caught at North-west Islet, Queensland, 26th May, 1931, where I made the following colour notes from the fresh fish.

General colour of body and fins rich dark reddish-brown, darkest on the back and becoming reddish-orange on lower part of head and body. Nearly every scale has a dark brownish centre. The ground colour is overlaid by prominent spots of various sizes. Most of them are crimson lake, but some are lilac or purple, and those on the sides of the head and body are milky and each tend to form zig-zag markings. Iris brilliant orange-red; eyelid coloured like rest of head; pupil black with a bright yellow ring shading into the orange-red of the iris.

Posterior dorsal and anal rays, tips of anterior dorsal membranes, and ventral rays bright canary yellow, as are also a crescentic area at the end of the middle caudal rays and a broad margin of each pectoral fin. Interior of mouth white.

New record for Australia.

Family **LETHRINIDAE.**

Genus **Lethrinus** Cuvier, 1829.

Lethrinus perselectus sp. nov.

D. X/9; A., iii/8; P. 13; V. i/5; C. 15. L. Lat. 48. L. tr. 6/1/16.

Head (95 mm.) 3, depth (106) 2.6 in standard length (285). Eye (19) 5, interorbital (25) 3.8, snout (48) nearly 2, preorbital (36) 2.6 in head. Pectoral (85) 3.4, third dorsal spine (30) and depth of caudal peduncle (30) 9.5 in standard length.

Head pointed, its upper profile evenly declivous, the lower jaw the longer. Four or five rows of scales across the operculum, rest of head naked. Mouth extending to vertical of posterior nostrils. A median concavity over the premaxillary processes. Teeth in a single row in each jaw; four canines anteriorly, those of the upper jaw the largest; posterior teeth blunt and peglike, almost molariform. All opercles entire. Temples with weak flutings before the body scales.

Depth of body greater than length of head. Ten or eleven predorsal scales. Lateral line following the well-rounded curve of the back. Exposed surfaces of scales longitudinally grained, the margins irregular in outline. Five rows of scales above lateral line. Third dorsal spine and sixth dorsal ray longest, but not produced. Third anal spine longer than second. Base of soft anal longer than the height of that fin. Low sheaths of small scales on dorsal and anal fins posteriorly. Pectorals and ventrals pointed, the latter reaching vent. Caudal emarginate, its rays all much shorter than head.

Ground colour, when fresh, oyster grey, with rows of milky blue spots which coalesce to form stripes on the flanks. Iris bright yellow with small brown blotches; pupil of eye black. Head greyish, tinged with yellow; white below and dirty whitish on interorbital and occiput. A short lilac-blue stripe before the eye, a long curved oblique similar stripe across the cheek preceded by two shorter ones parallel to it and a small lilac bar on the preopercular angle. Interior of mouth orange. Some light orange along margins of opercles and upper part of maxillary. Dorsal olivaceous, with some suffuse pearly marks proximally and with the distal margin of spines and membranes orange yellow. In the soft dorsal fin the distal yellowish tone encroaches upon the milky basal marks. Anal similar to soft dorsal but with the pearly marks less pronounced. Pectoral hyaline, with a lilac streak along the uppermost ray. Axil plain. Ventrals smoky, with a band of bluish-grey anteriorly. Caudal dirty yellowish, with milk spots near the centre and with the edges of the upper and lower lobes brighter yellow. No black lateral blotch or crossbands on body.

Described from the holotype, a specimen measuring 13 inches in length to end of middle caudal rays. Austr. Mus. regd. No. IA. 5011.

Loc., North-west Islet, Capricorn Group, Queensland; Coll. G. P. Whitley, May, 1931.

This species has been called *Lethrinus opercularis* Cuv. and Val. by authors who have recorded that Cingalese species from Queensland and New South Wales, but the Australian form differs in coloration.

Family **LEIOGNATHIDAE.**

Genus **Equula** Cuvier, 1816.

Equula daura Cuvier.

"Dacer karah" Russell, Fish. Vizag. 1803, p. 51, pl. lxv, in genus *Zeus*. Vizagapatam, India.

Equula daura Cuvier, Règne Anim. ed. 2, ii, April, 1829, p. 212. Based on Russell, pl. 65, Vizagapatam. *Id.* Cantor, Journ. Asiat. Soc. Bengal, xviii, 1850, p. 1132; Cat. Malay. Fish. 1850, p. 150. *Id.* Günther, Cat. Fish. Brit. Mus., ii, 1860, p. 502. *Id.* Day, Fish. Malabar, 1865, p. 105. *Id,* Schmeltz, Mus. Godef. Cat., v, 1874, p. 27. *Id.* Day, Fish. India, 1876, p. 240, pl. lii, fig. 4 (Madras specimen figured).

Equula dacer Cuvier and Valenciennes, Hist. Nat. Poiss., x, Sept., 1835, p. 83. Based on Russell, pl. 65. Vizagapatam. *Id.* Bleeker, Nat. Tijdschr. Ned. Ind., iii, 1852, pp. 53 and 57 (Singapore). *Id.* Bleeker, Act. Soc. Reg. Sci. Ind. Ned., vi, 1859, enumerat., p. 58.

Equula brevirostris Bleeker, Nat. and Geneesk. Arch. Ned. Ind., ii, 1845, p. 518, and Verh. Bat. Gen. xxii, 1849, p. 5; xxiii, 1850, p. 9; and xxiv, 1852, p. 81 (*fide* Weber and Beaufort, Fish. Indo-Austr. Archip., i, 1911). Not *Equula brevirostris* Cuv. and Val., 1835.

Leiognathus daura Jordan and Starks, Ann. Carneg. Mus., xi, 1917, p. 444.

D. viii/16; A. iii/14; L. lat. *circa* 65. Head (29 mm.) 3.4 and depth (49.5) 2 in standard length (99). Second dorsal spine 21 mm. and second anal spine 14 mm. A row of bristle-like teeth in each jaw. Supraorbital smooth. Antorbital spines very small. Lower preopercular margin weakly serrated. Breast and thorax naked. Lateral line complete. A large black blotch on spinous dorsal and a dusky patch on anterior portion of snout.

One specimen (Austr. Mus. regd. no. I. 64) from Madras, India, purchased from Dr. Francis Day.

This species, with more than 60 scales in lateral line, black blotch on dorsal, and smooth supraorbital, may deserve subgeneric differentiation from true *Equula*.

Genus **Secutor** Gistel, 1848.

Secutor ruconius (Hamilton-Buchanan).

Chanda ruconius Hamilton-Buchanan, Fish. Ganges, April, 1822, pp. 106 and 371, pl. xii, fig. 35. Mouth of the Ganges, India. *Id.* Hora, Mem. Ind. Mus., ix, 4, Nov., 1929, p. 86, no. 73.

Equula ruconius Cuvier, Règne Anim. ed. 2, ii, April, 1829, p. 212. *Id.* Cuvier and Valenciennes, Hist. Nat. Poiss., x, Sept., 1835, p. 79. *Id.* Bleeker, Verh. Bat. Genootsch., xxv, 1853, Faun. Beng. Hindostan, p. 96 (Hooghly River, Calcutta), and as *E. ruconii* in synonymy. *Id.* Day, Rept. Freshw. Fish. India and Burma, 1873, p. cclii (large rivers of lower Bengal and Burma). *Id.* Day, Fish. India, 1876, pp. 238 and 242, pl. li, c, fig. 4 (Madras specimen figured). Not *Equula ruconius* Day, Proc. Zool. Soc., Lond., 1869, p. 302, which is probably *Equula coma* Cuvier.

Chanda (*Ambassis*) *ruconius* McClelland, Calc. Journ. Nat. Hist., no. 8, 1842, p. 586; and as *Ambassis ruconius* on p. 574.

Equula interrupta Cuvier and Valenciennes, Hist. Nat. Poiss., x, Sept., 1835, p. 102. No locality (probably Pondicherry, India). *Id.* Günther, Cat. Fish. Brit. Mus., ii, 1860, p. 505 (not Australian record which is perhaps *Secutor profundus*). *Id.* Kner, Novara Exped. Zool., i, Fische, 1865, p. 169 (Java). *Id.* Pohl, Mus. Godef. Cat., ix, May, 1884, p. 32 (E. Indies). *Id.* Weber, Fische Siboga Exped., 1913, p. 269.

Equula ruconia Jordan and Seale, Bull. U.S. Bur. Fish., xxvi, 1907, p. 15 (Philippine Is.).

Leiognathus interruptus Bleeker, Ned. Tijdschr. Dierk., ii, 1865, p. 286 (Amboina).

Deveximentum ruconius Fowler, Copeia 58, 1918, p. 63 (Philippine Is.).

A specimen of this species in the Australian Museum (no. B. 8134) was purchased from Dr. Francis Day and came from Madras, India. It is 52 mm. in standard length or 2½ inches in total length and differs from the type of *Secutor profundus* (De Vis) as follows:—

Head (14.5 mm.) 3.5 and depth (32) 1.6 in length from tip of snout to hypural joint (52). Eye (6) equal to interorbital (6) and much greater than snout (3.5) and postorbital portion of head (4.8). Second dorsal spine (8) 1.8,

and second anal spine (6) 2.4 in head. Anterior nostrils very small, almost slit-like; posterior nostrils much enlarged, pyriform. Lower preopercular margin with more serrations. Supraorbital strongly serrated. Teeth minute, erect. Lower caudal lobe longer than upper and subequal to head in length. A black blotch on dorsal, an oblique black streak bordering the anterior margin of the cheek, and a series of vertical greyish bars, some of them dumb-bell shaped or broken up into spots, on upper part of sides. This specimen differs at sight from De Vis' species in being more evenly oval in outline, in having larger eye, and in the form of the nostrils; apparently it also differs in coloration.

Whilst this specimen agrees with Day's account in the "Fishes of India" it is not so deep as the fish figured in Hamilton-Buchanan's work, the text of which is not available to me, and it seems possible that two allied species may have been confused under the name *ruconius*. The solution of this problem I would prefer to leave to the Indian ichthyologists.

A Madras specimen of *Secutor insidiator,* compared with the specimen of *S. ruconius* noted above, has slenderer body, smaller nostrils, lateral line extending to below posterior dorsal rays, and a black blotch on spinous dorsal fin.

Australian specimens identified as *Equula interrupta* Cuv. and Val. may be *Secutor profundus* (De Vis) or a subspecies thereof.

Family **ETELIDAE.**

Ulapiscis gen. nov.

Orthotype, *Ulapiscis kennedyi,* sp. nov.

Head rather pointed, with chin in advance of snout and eyes large. Nape scarcely keeled and occipital crest not intruding upon the interorbital space which is flat with scarcely noticeable ridges. Cranium solid, not cavernous. Cheeks, opercles, and temples scaly; the broad preopercular margin and rest of head naked. No opercular spines or serrations. Venules on preopercular margin and preorbital. Maxillary not very broad, naked, without distinct supplemental bone, largely sheathed by preorbital, and reaching backward to below middle of eye. Teeth villiform, in narrow bands on jaws, absent from vomer and palatines, but forming a prominent patch on each side above and below the pharynx, where the teeth are largest. No canines. Tongue toothless, bluntly rounded, and but a short distance in advance of the first of the sixteen long narrow gill-rakers on the anterior branchial arch. Seven branchiostegal rays, the membranes united in advance of the anteriorly bifurcated isthmus.

Depth one-third of standard length; body fusiform, covered with cycloid scales which extend onto caudal rays and bases of pectoral rays but leave the other fins naked. Lateral line continuous, with 70 or more scales, almost parallel to curve of back and ceasing on middle of caudal fin. Scales above lateral line parallel with it and in horizontal rows below.

Dorsals united without notch, the first of ten spines, the third of which is longest; last dorsal ray much produced. Anal with three spines and a produced posterior ray. Pectorals somewhat shorter than head, reaching vertical of vent but not of anal origin. Ventrals shorter than pectorals, but, like them, pointed. Caudal forked, the lobes subequal and not filiform. Coloration plain.

This new genus comes nearest to *Ulaula* in Jordan, Evermann, Tanaka's key,[47] but differs in having toothless palate, shorter pectorals, fewer scales and gill-rakers and deeper body.

[47] Jordan, Evermann, and Tanaka, Proc. Calif. Acad. Sci. (4) xvi, 1927, p. 666.

Ulapiscis kennedyi sp. nov.

(Plate xi, fig. 2.)

Br. 7. D. x/11; A. iii/8; P. 16; V. i/5; C. 15. L. lat. *circa* 70. L. tr. 8/1/18.

Head (84 mm.) 3.1, depth (86) 3 in standard length (265) Eye (23), interorbital (26), snout (27) and depth of caudal peduncle (25) subequal and from 3 to 3.6 in head. Preorbital (6) 3.8, and topmost gillraker of lower part of first arch (15) 1.5 in eye. Pectoral, 71.5 mm.; ventral, 49; and lower caudal lobe, 79.

General characters as described for the genus.

Colour in alcohol, dull greyish, with the borders of the scales russet and naked parts of head dark brown. Dorsal fins brownish grey with some yellowish near the bases of the spines. Anal yellow with a brown base. Pectorals and ventrals largely yellowish. No conspicuous colour-markings.

Described and figured from the unique holotype of the species, a specimen 265 mm. in standard length or 1 foot 1½ inches from chin to vertical of caudal tips. Australian Museum regd. No. IA. 5534.

Loc.—Ellice Islands, Oceania.

Named in honour of Mr. Donald G. Kennedy, who collected this and many other species of fishes and other animals in the Ellice Group for the Australian Museum.

Family **AMPHACANTHIDAE.**

Genus **Lo** Seale, 1906.

Lo Seale, Occas. Pap. Bern. Bish. Mus., iv, 1 (Regd. Aust. Mus. Nov. 7), 1906, p. 71, Orthotype, "*Siganus vulpinus* Günther." *Id.* Jordan and Seale, Bull. U.S. Bur. Fish., xxv, 1905 (Dec. 15, 1906), p. 360, Orthotype, *Amphacanthus vulpinus* Schlegel and Müller.

Lo vulpinus (Schlegel and Müller).

Amphacanthus vulpinus Schlegel and Müller, Verhand. Nat. Ges. Nederl. overz. bezitt., Zool. (Pisces), 1844, p. 12, Seas of the Moluccas and of Celebes. *Id.* Schlegel, Bijds. tot. d. Dierk, i., 1852, p. 38 (*fide* Carus and Engelmann). *Id.* Weber, Fische Siboga Exped., 1913, p. 330 (East Indies and New Guinea).

Teuthis tubulosa Gray, Cat. Fish. coll. Gronow Brit. Mus. (pref. Feb. 12), 1854, p. 142, "Habitat in Mari Indico" Type in British Museum.

Teuthis vulpina Günther, Cat. Fish. Brit. Mus., iii, July, 1861, p. 324; Journ. Mus. Godeff, ii (Fische d. Südsee, i), 1873, p. 91 (Solomon and Pelew Islands).

Lo vulpinus Seale, Occas. Pap. Bern. Bish. Mus., iv, 1, 1906, p. 71, fig. 19; Jordan and Seale, Bull. U.S. Bur. Fish., xxv, 1906, p. 361, fig. 67 (Alu, Solomon Is.). *Id.* Herre and Montalban, Philip. Journ. Sci., xxxv, 2, 1928, p. 182, pl. vi (Philippine Islands).

? *Lo unimaculatus* Evermann and Seale, Bull. U.S. Bur. Fish. xxvi, 1906 (January 11, 1907), p. 98, fig. 19, Bacon, Philippines.

Siganus vulpinus Fowler and Bean, Bull. U.S. Nat. Mus. 100, viii, 1929, p. 332 (East Indies and Philippines—ref. and syn.).

This genus and species may now be added to the Australian List, as my colleague, Mr. Frank A. McNeill, collected two fine specimens at Hayman Island, Queensland, in January, 1933. Austr. Mus. regd. nos. IA. 5657-5658.

Lo unimaculatus from the Philippines has a more slender body and a black lateral spot, and may be a distinct species.

Family **LUTJANIDAE.**

Genus **Caesio** Lacépède, 1802.

Caesio chrysozonus translimitanus, subsp. nov.

Caesio chrysozona Cuvier and Valenciennes, Hist. Nat. Poiss., vi., Sept., 1830, p. 440. *Ex* Kuhl and van Hasselt MS. East Indies.

Caesio chrysozonus Fowler, Bull. U.S. Nat. Mus. 100, xi., 1931, p. 212 (refs. and syn.).

This species was recorded from Moreton Bay by Ogilby, but it may now be added to the New South Wales list, as I have received through Mr. D. G. Stead a drawing and description of a fish caught at Byron Bay which is readily identified as *C. chrysozona,* though it differs from the original type in coloration and is evidently subspecifically distinct. The Queensland and New South Wales form may therefore be named *Caesio chrysozonus translimitanus.* The description of the Byron Bay specimen reads:

> About 12 inches long. Thick body, resembling Mackerel, with two golden stripes along each side about $\frac{3}{8}$ inch wide, the dorsal bands joining on commencement of dorsal fin and at caudal fin. A small black streak down each side running from opercle to fork of tail. Small mouth, and teeth small and close. Large eyes with red rings, also head, gills, and tail lobe tinted red; end of tail lobes black. Back bluish with silvery tint on belly. Small diamond scales.—W. B. Jackson, Byron Bay, May 18, 1914.

Specimens of this species are in the Australian Museum from Holbourne Island, off Port Denison (E. H. Rainford) and between 17 deg. and 19 deg. S. Lat., Queensland (W. E. J. Paradice). Also from Pitt Bay (A. Goldie) and Port Moresby (E. J. Cairn), in Papua. The type of the subspecies is the Moreton Bay specimen recorded by Ogilby.

Family **KURTIDAE.**

Genus **Kurtus** Bloch, 1786.

Kurtus Bloch, Nat. ausl. Fische, ii., 1786, p. 121; Ichtyologie, iii, 5, 1787, p. 98. Haplotype *K. indicus* Bloch, spelt *Kyrtus indicus* on pl. clxix.

Bossus Wilkes, Encycl. Londin., Jan. 7, 1799, plate of *Kyrtus indicus* Bloch, genotype by present designation.

Cyrtus Agassiz, Nomencl. Zool., 1846, Index Univ., p. 115. Emend. pro *Kurtus* and *Kyrtus* Bloch. Preoccupied by *Cyrtus* Latreille, 1796, Diptera = *Curtus* Dumeril, 1823; not *Curtos* Motschulsky, 1845 = *Cyrtus* Agassiz, 1846, Coleoptera.

Curtus Sherborn, Index. Anim. 1902, p. 507. Emend. Pro. *Kurtus* and *Kyrtus* Bloch. Preoccupied by *Curtus* Dumeril, 1823, Diptera, *vide supra.*

The "Encyclopaedia Londinensis," published in 24 volumes between 1796 and 1829, is a rare work in which some new names have been given to fishes, apparently by John Wilkes, whose species do not seem to have been recorded or recognised.

I have only seen one or two extracts from this Encyclopaedia, so am only now able to record a few synonyms, but hope that some ichthologist more favourably situated may later collect the fish names and establish their true status. The new names I have noted are as follows. Owing to the obscure manner of their introduction, they have found no place in Sherborn's "Index Animalium."

(1) *Bossus* Wilkes, 1799, is a synonym of *Kurtus* Bloch, 1786, as noticed above.
(2) *Chaetodon trivinculum* Wilkes, Encycl. Lond., Sept. 21, 1800, p. 67, Chaetodon, pl., iii, fig. 1, is a synonym of *Platax pinnatus* (Linné).
(3) *Chaetodon perca* Wilkes, *ibid,* p. 67, pl. iii, fig. 2, equals *Tetradrachmum aruanum* (Linné).

The type locality of these species is East Indies, though Arabia is included in their range.

Whilst on the subject of Encyclopaedias, I may state that, like Sherborn, I have searched in vain for the genus *Thunnus* South in the Encycl. Metropolitana, 1845; the name *Thunnus* was used by Oken[48] in 1836 as an alternative for *Thynnus*. I therefore use *Albacora* Jordan, 1888, as the generic name for the tunny.

Family **SARDIDAE.**

Genus **Germo** Jordan, 1888.

Orcynus Cuvier, Règne Anim., ii, "1817," = Dec., 1816, p. 314. Logotype, *Scomber germo,* Lacépède, selected by Jordan, 1888. Misspelt *Orycnus* by Gill, Proc. Acad. Nat. Sci. Philad., 1862, p. 238, who did not intend it as a new generic name. Preoccupied by *Orcynus* Rafinesque, 1815, another genus of fishes = *Scomberoides* Lacépède.

Germo Jordan, Proc. Acad. Nat. Sci. Philad., August 7, 1888, p. 180, Tautotype, *Scomber germo* Lacépède.

Orcynus was published in 1816 so that Jordan and Gilbert's[49] selection of *Scomber thynnus* Linné as the genotype of *Orcynus* Cuvier, 1829, is invalid, as that species was not mentioned in the original 1816 definition.

Germo germon steadi, new subspecies.

(Plate xi, fig. 1.)

Scomber germon Lacépède, Hist. Nat. Poiss., ii, 1800, p. 598, and iii, 1802, p. 1, as *S. germo.* 27° S. Lat., 103° W. long., Pacific Ocean.

Thynnus pacificus Cuvier and Valenciennes, Hist. Nat. Poiss., viii, "1831" = Jan., 1832, p. 133, based on *Scomber germon* Lacépède, Pacific Ocean.

Germo germo Stead, Proc. Linn. Soc. N.S. Wales, xxxi, 1906, p. 496; Add. Fish-Fauna, N.S.W. (Fish Dept., N.S.W.), 1907, p. 20; Ed. Fish, N.S.W., 1908, p. 95 (Port Macquarie, N.S.W.). ? *Id.* Jordan and Evermann, Occas. Pap. Calif. Acad. Sci., xii, 1926, p. 16, pl. iii, fig. 1. *Id.* Griffin, Tr. N.Z. Inst., lviii, 1927, p. 140, pl. xii, fig. 4 (Bay of Islands, etc., N.Z.).

Germo germon Waite, Rec. Canterb. Mus., ii, 1913, p. 19 (Turanganui River, New Zealand). *Id.* Thomson, N.Z. Journ. Sci. Tech., i, 1918, p. 6, fig. 3 (Cook Strait, N.Z.). *Id.* Phillipps, *ibid.,* iv, 1921, pp. 118 and 124. *Id.* Phillipps and Hodgkinson, *ibid.,* v, 1922, p. 93 (Auckland; 200 lb.).

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[48] Oken, Allgem. Naturg. x, 6, 1836, p. 193.
[49] Jordan and Gilbert. Bull. U.S. Nat. Mus. iii, 16, 1882, p. 428.

Thunnus germo McCulloch, Austr. Zool., ii, 1922, p. 105. *Id.* Kishinouye Journ. Coll. Agric. univ., Tokyo, viii, 1923, p. 434, figs. 20, 46, and 52.

The late A. R. McCulloch made the following notes upon a specimen examined by us jointly:—

"A specimen, approximately 965 mm. long from the tip of the snout to the end of the middle caudal rays, received from the Technological Museum, Sydney, 3rd April, 1925.

"Being eviscerated and severely cut about, it could not be cast, but the skin is preserved.

"This differs so greatly in many details from Jordan and Evermann's description,[50] and the original figure of Schlegel's in 'Fauna Japonica' that I cannot satisfactorily identify it as *Germo germo*. The maxillary reaches a little further than the vertical of the anterior margin of the eye, the membranous edges of the preoperculum and upper operculum are not denticulate; and the vomer is apparently toothless; the pectoral is very much longer than as described by J. and E., and figured by Schlegel,[51] reaching far beyond the origin of the anal to a vertical beyond the second dorsal finlet (it is 435 mm. long and therefore half a head-length longer than the head). There are some slight differences in the fin-counts (but it must be noted that J. and E. described seven anal finlets, but figured eight). The anal is $2\frac{1}{2}$ in the head instead of 3.

"The colour has entirely gone, except in the finlets, which are bright yellow with black, sub-marginal lines and white borders. Flesh very red. Thirteen dorsal spines. Measurements:

"Total length, from tip of snout to end of middle caudal rays—approximately 960 mm. Head, from tip of snout to hinder margin of operculum, 270. Pectoral fin, 435; eye, 54; snout, from *ocular* margin, 88; anterior dorsal ray, 120; interspace between first dorsal spine and second dorsal fin, approx. 253.

"Body deep, and sub-cylindrical, but too much damaged to measure.

"Anal, 111 mm.; ventral, 95; depth of caudal peduncle, 23; breadth of caudal peduncle, 31."

Lacépède mentions 8 or 9 finlets above and below in a series of over 20 specimens observed by Commerson, having D. xiv/12; A. 12; P. 35; V. 7; C. 30.

The Australian form has the following characters:—

D. xiii /14 + 8 finlets; A. 12 ? + 8 ? finlets (damaged); P. 35; V.i/5; C. about 17 + 18; L. lat. circa 200.

Head naked, crudely striated behind eye. Opercles entire. Interorbital roundly convex. Maxillary reaching to vertical of the anterior ocular margin. The eye is pyriform, narrowest anteriorly. A single series of small, spaced, pointed teeth in each jaw. Tongue rounded, free anteriorly. Most of the gill-arches and viscera have been removed, but there are 14 flattened gillrakers, rugose on their inner margins, on the lower limb of one branchial arch. Pseudobranchiae present.

Body with small imbricate scales which are largest on the scapular region and disappear before the pectoral base and behind the gill-opening. Very fine scales extend over the anal and soft dorsal fins. The last dorsal ray is smaller

[50] Jordan and Evermann, Bull. U.S. Fish. Comm. xxiii, July 29, 1905, p. 174, fig. 66.
[51] Temminck and Schlegel, Fauna Japon. Poiss. 1844, p. 97, pl. 1, as *Thynnus sibi*, a species with short pectorals from Japan.

than those preceding it and the first finlet is smaller than the others. Pectorals straplike, extending to about the vertical of the second dorsal finlet. Ventrals with the innermost rays somewhat telescoped. Caudal widely forked, its median rays strongly compressed and shielded by a scaly sheath. Caudal peduncle depressed, with a keel on each side.

Colour, in formalin, dark grey above, greenish on the scales, and brown on sides of head and thorax. Spinous dorsal and pectorals dusky. Soft dorsal, anal, and caudal greenish, with lighter margins. Broad light margins contrast with an inframarginal dusky area on the ventral fins and the dorsal and anal finlets.

Described and figured from the holotype of the subspecies, a specimen 38 inches long, from New South Wales. Austr. Mus. regd. No. IA. 2457.

The head and fins of another specimen are also preserved from Port Macquarie, N.S. Wales. Regd. No. IA 47. This is the specimen recorded by Mr. David G. Stead, after whom the subspecies is named, and who has been instrumental in presenting to the Museum several large and valuable collections.

Loc.—New South Wales, where it attains a length of 4 feet.

The vernacular name of this fish is the Longfinned Albacore. It may be of historical interest to recall that Allan Cunningham[52] mentioned "Albicore" [? this species] from north-western Australia, February 21, 1818, and a small striped tunny[53] is called Albacore from the Gulf of Papua in de Prado's MS., 1606. Albicores were seen when Cook[54] was passing through Whitsunday Passage, Queensland, in which State the name albacore is now gaining favour for the Turrum (*Turrum emburyi*).

Family **ISTIOPHORIDAE.**

Genus **Istiophorus** Lacépède, 1802.

Istiophorus ludibundus sp. nov.

Istiophorus gladius McCulloch, Rec. Austr. Mus., xiii, 4, April 12, 1921, p. 137, pl. xxiv, fig. 1. Port Stephens, N.S. Wales.

A sailfish from New South Wales was described and figured by McCulloch as *Istiophorus gladius* (Broussonet), but that name is apparently an invention of ichthyologists, as according to Sherborn (*in lit.*) Broussonet described a species of sailfish in the genus *Scomber* without giving it a trivial name. I am unfortunately unable to consult Broussonet's work,[55] but *Histiophorus indicus* Cuvier and Valenciennes[56] is based on Broussonet's fish, which is said to have been noted by Banks in "La mer des Indes," so may be regarded as the typical form. I have, however, discovered no mention of a sailfish in Hooker's edition (1896) of Banks' Journal, or in the original MS. of Banks in the Mitchell Library, Sydney, but his type may have come from Sumatra.

On comparing McCulloch's account and figure with those of Cuvier and Valenciennes, sufficient differences are noticeable to justify the renaming of the Australian fish, which has the following distinguishing characters.

D. 46/7; A. 12/6; P. 18; V. i/2.

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[52] Lee, Early Explorers in Australia, 1925, p. 332.
[53] Stevens, New Light on the Discovery of Australia (Hakluyt Soc. (2) lxiv), 1930, p. 159.
[54] Hist. Rec. N.S. Wales 1, 1893, pp. 126, 199 and 257.
[55] Broussonet, Mem. Acad. Sci. 1786 or 1788, p. 484, pl. x. La mer des Indes (Banks).
[56] Cuvier and Valenciennes, Hist. Nat. Poiss. viii, 1831, Jan., 1832, p. 293, pl. ccxxix.

Height more than 9 in total length. Head about 3½ in same. Lower jaw about half the length of the upper which is 5 in length. Elevation of dorsal fin over pectorals equal to height of body. No triangular light mark on base of dorsal.

Istiophorus ludibundus also appears to differ in being of smaller size and having more numerous scales and less extensive pectoral, ventral, and anal fins.

Family **TRICHIURIDAE.**

Assurger gen. nov.

Orthotype, *Evoxymetopon anzac* Alexander[57] = *Assurger alexanderi* nom. emend., as Anzac is not permissible.

Body extremely elongate, its height 28 in total length. Head 12 in same. More than one hundred dorsal rays, the first apparently not produced. Upper profile of head oblique, but not so steep as in true *Evoxymetopon*,[58] which has body 12 or 13 in total length and head about 8, besides large eye and fewer dorsal rays.

Family **APLODACTYLIDAE.**

Genus **Crinodus** Gill, 1862.

Crinodus Gill, Proc. Acad. Nat. Sci. Philad., xiv, May, 1862, pp. 110 and 112. Haplotype *Haplodactylus lophodon* Günther.

Parhaplodactylus Thominot, Bull Soc. Philom. (7), vii, 1883, p. 140. Logotype, *Haplodactylus lophodon* Günther (*fide* Jordan, Gen. Fish., iv, Aug. 15, 1920, p. 426).

Differs from *Aplodactylus* in having no vomerine teeth, and five instead of six branchiostegals. Gill's definition includes uniserial mandibular teeth but these are really biserial as in *Aplodactylus*. This genus is monotypic, *Crinodus lophodon* being allied to, but not congeneric with *Haplodactylus schauinslandii* Steindachner from New Zealand and *H. etheridgii* Ogilby from Lord Howe Island.

Crinodus lophodon (Günther).

(Plate xiv, fig. 2.)

Haplodactylus lophodon Günther, Cat. Fish. Brit. Mus., i, pref., May 5, 1859, p. 435. Sydney, N.S. Wales. Type in British Museum. *Id.* Ogilby Cat. Fish., N.S.W., 1886, p. 18.

Aplodactylus lophodon Castelnau, Proc. Linn. Soc., N.S. Wales, iii, May, 1879, p. 350. *Id.* Stead, Ed. Fish., N.S.W., 1908, p. 72.

Aplodactylus obscurus Castelnau, Proc. Linn. Soc., N.S. Wales, iii, May, 1879, pp. 350 and 374. Sydney Markets.

Haplodactylus obscurus and *lophodon* Tenison-Woods, Fish. Fisher, N.S.W., 1882, p. 39.

(?) *Parhaplodactylus marmoratus* Thominot, Bull. Soc. Philom. (7), vii, 1883, p. 140, Australia (*fide* Zool. Rec.). Not seen.

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[57] Alexander, Journ. Proc. Roy. Soc. W. Austr. ii, June, 1917, pp. xi and 104, pl. vii. Fremantle Western Australia.

[58] Gill, Proc. Acad. Nat. Sci. Philad, xv, 1863, pp. 225 and 228. *Ex* Poey MS. Orthotype, *E. taeniatus* Gill. from Cuba.

Parhaplodactylus lophodon Thominot, Bull. Soc. Philom. (7), vii, 1883, p. 140 (*fide* Zool Rec.).

Crinodus lophodon Gill, Proc. Acad. Nat. Sci. Philad., xiv, May, 1862, p. 112, *ex* Günther. *Id.* McCulloch, Austr. Zool, ii, 3, 1922, p. 93; Austr. Mus. Mem., v, 1929, p. 256.

This species, known as the Rock Cale or Cockatoo Fish, is common in New South Wales, but has not previously been figured. McCulloch noted in manuscript that "Castelnau relied chiefly upon the number of simple pectoral rays—seven instead of six—to distinguish his species (*obscurus*), but I find six right and seven left simple rays in the same specimen." Ramsay MS., notes:

> ". . . The general color is black or bluish-black with ashy-white mottlings. In some specimens, the mottlings form ashy bars. The fins are spotted with ashy. The simple pectoral rays vary in number from 6 to 8—both fins have not always the same number—but usually 6 on one side, 7 or 8 on the other. It is not a plentiful species, but specimens may be occasionally obtained throughout the months of August to December in the Sydney Markets."
>
> Length, 18 inches.

The accompanying figure has been prepared from a fine specimen, 174 mm. in standard length, caught near Coogee, New South Wales, by Mr. F. A. McNeill. D. xvi/21; A. ii/7; P. 14 (6 simple); V. i/5; C. 7 + 6 = 13. Austr. Mus. regd. No. IA. 726.

Family **AMPHIPRIONIDAE.**

Genus **Amphiprion** Bloch and Schneider, 1801.

Amphiprion verweyi sp. nov.

A species of the group of *A. melanopus* and *A. mccullochi* found amongst sea-anemones on the Great Barrier Reef, Queensland, and differing in coloration.

Dorsal, pectoral and caudal fins orange (light yellowish in spirit); ventral and anal fins black. Opercular band usually extending to the dorsal surface of the neck, where it joins its fellow before the dorsal fin; it sometimes terminates a little below that point. Caudal fin truncate posteriorly, its lobes rounded.

The holotype was collected by me in an anemone at North-west Islet, Capricorn Group, Queensland, on May 25, 1931, when the colours were noted as—

> "General colour of body dark brown, almost blackish, but becoming lighter on head, especially around chin. Ventrals and anal also very dark brown. Dorsals, caudal, and pectoral rich orange. Band on posterior part of head brilliant silvery, with a broad margin of bright peacock bluish-green. Iris dark brown; pupil dark, dull bluish."

Besides this specimen, there are many paratypes in the Australian Museum from Masthead Island, Green Island, and other Queensland localities.

Named in honour of Dr. J. Verwey, who has studied the association of *Amphiprion* and the sea-anemones in the Bay of Batavia.

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[59] Whitley, Mem. Qld. Mus. ix, 3, 1929, pp. 210-213 and 232-234.

Genus **Phalerebus** Whitley, 1929.

Phalerebus Whitley Mem. Qld. Mus., ix, 1929, p. 216. Orthotype, *Prochilus akallopisos* Bleeker.

Phalerebus akallopisos (Bleeker).

Amphiprion akallopisos Bleeker, Nat. Tijdschr. Ned. Ind., iv, 1853, p. 281, Priaman.

Prochilus akallopisos Bleeker, Natuurk. Verh. Holl. Maatsch. Wetensch. (3) ii, 6, 1877, pp. 22 and 35; Atlas Ichth., ix, 1877, pl. cccc, fig. 3 (East Indies).

Two specimens (IA. 5552-3) from Soraken, Bougainville Group, Solomon Islands, from Taronga Park Aquarium.

Family **LABRIDAE.**

Genus **Pseudolabrus** Bleeker, 1862.

Labroides Richardson, Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 426. Haplotype *L. asellinus* Richardson *ex* Solander MS. *Nomen nudum.* Not *Labroides* Bleeker, 1851, another genus of fishes.

Pseudolabrus Bleeker, Proc. Zool. Soc. Lond., 1861 (April 7, 1862), p. 413 (6 of reprint). *Id.* Bleeker, Versl. Akad. Amsterdam, xiii, 1862, p. 101. Orthotype, *Labrus rubiginosus* Temminck and Schlegel, 1845 (preocc. by Risso 1826) = *Labrus japonicus* Houttuyn, 1782; *fide* Jordan, Gen. Fish.

The New Zealand species of this genus were reviewed by Waite in 1911 but, as several early works on Neozelanic ichthyology are still not accessible to workers in that Dominion, I have revised the synonymy and nomenclature of two of the best known species hereunder. They are not strictly referable to *Pseudolabrus* and may be separated as

Lunolabrus subg. nov.

Orthotype, *Labrus miles* Bloch and Schneider, 1801.

This subgenus is readily distinguished from *Pseudolabrus* by the comparatively larger scales, which are in less than thirty transverse rows on the body. Cheek-scales in five or more rows. Profile of head convex. Three anal spines. In the type-species, the caudal is markedly lunate, not rounded as in *Pseudolabrus,* s. str.

Pseudolabrus (Lunolabrus) miles (Bloch and Schneider).

Labrus miles Bloch and Schneider, Syst. Ichth., 1801, p. 264. New Zealand (Cook).

Labrus coccineus Bloch and Schneider, Syst. Ichth., 1801, p. 264. *Ex* Forster MS. New Zealand. In synonymy, but *miles* has line-priority. *Id.* Forster. Descr. Anim. (ed. Lichtenstein), 1844, p. 131. South Island of New Zealand.

Julis rubiginosus Richardson, Trav. N. Zeal. (Dieffenbach), ii, Jan., 1843, p. 218, and Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 425. *Ex Sparus rubiginosus.* Solander MS. Mattaruhow and Cape Kidnappers, New Zealand. *Id.* Bleeker. Verh. Akad. Amsterd., ii, 1855, p. 13. Not *Labrus rubiginosus* Risso, 1826, or Temminck and Schlegel, 1845.

Julis miles Richardson, Trav. N. Zeal. (Dieffenbach), ii, Jan., 1843, p. 218, and Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (late 1843), p. 24. *Ex Labrus coccineus* Forster MS. and *L. miles* Bloch and Schneider.

Julis prasiophthalmus Richardson, Trav. N. Zeal. (Dieffenbach), ii, Jan., 1843, p. 218. *Nomen nudum ex Sparus prasiophthalmus* Solander MS. N.Z.

Sparus prasiophthalmus Richardson, Trav. N. Zeal. (Dieffenbach), ii, Jan., 1843, p. 218, and Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (late 1843), p. 24. *Ex* Solander MS. New Zealand. "Has six obscure bands," etc.

Julis rubecula Richardson, Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 423. *Ex Sparus rubecula* Solander MS. Ship Cove, Queen Charlotte Sound and Cape Kidnappers, New Zealand. *Id.* Bleeker, Verh. Akad. Amsterd., ii, 1855, p. 13. "New Holland" = New Zealand.

Sparus rubecula var. *pallidior* Richardson, Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 424. *Ex* Solander MS. Cape Kidnappers, New Zealand.

Iulis miles Forster, Descr. Anim. (ed. Lichtenstein), 1844, p. 420. *Ex* Gray MS.

Labrichthys psittacula (non Richardson) and *rubiginosus* Hutton, Cat. Fish. N. Zeal., 1872, p. 43. Cook Strait, N.Z.

Labrichthys roseipunctata Hutton, Trans. N. Zeal. Inst., xii, May, 1880, p. 455. Dunedin, New Zealand. A small specimen with six longitudinal bands of yellowish pink; recalls *prasiophthalmus, supra.*

Pseudolabrus cossyphoides Steindachner, Denkschr. Akad. Wiss. Wein, lxx, 1901, p. 503, pl. ii, fig. 1, New Zealand. A specimen of 24.5 cm.

Pseudolabrus coccineus Waite, Rec. Canterb. Mus. i, 3, June, 1911, p. 224, pl. xlvi.

Pseudolabrus miles McCulloch, Rec. Austr. Mus., xiii, 1921, p. 136 (refs.). *Id.* Phillipps, N. Zeal. Journ. Sci. Tech., iv, 1921, pp. 116 and 124 (spawning and occurrence).

Labrichthys miles Rendahl, Saertryk Vidensk. Medd. Dansk. Foren, lxxxi, 1925, p. 3.

Julis rubecula, Sparus rubecula pallidior, and *Pseudolabrus cossyphoides,* which have been generally overlooked, should be added to the synonymy of this species. *Julis* or *Sparus prasiophthalmus* is apparently another synonym; it was briefly noticed as having six obscure bands, thereby recalling *roseipunctata.*

The Australian forms of this species have received the names *Labrus psittaculus* Richardson, 1840, and *Labrichthys mortonii* Johnston, 1885, from Tasmania, and *Labrichthys rubicunda* Macleay, 1881, from West Australia.

Pseudolabrus (Lunolabrus) celidotus (Bloch and Schneider).

Labrus celidotus Bloch and Schneider, Syst. Ichth. 1801, p. 265. *Ex* Forster MS. New Zealand (Cook). *Id.* Forster, Descr. Anim. (ed. Lichtenstein), 1844, p. 133. South Island of New Zealand. *Id.* Richardson, Zool. Voy. Erebus and Terror, Fish. 1846, p. 53, pl. xxxi, figs. 1-5.

Labrus poecilopleura Cuvier and Valenciennes, Hist. Nat. Poiss., xiii, "1839" = Dec. 1838, p. 95. New Zealand (Lesson and Garnot). *Id.* Jouan. Mem. Soc. Imp. Nat. Cherbourg, xiv, 1869, pp. 84 and 87.

Julis notatus Richardson, Trav. N. Zeal. (Dieffenbach), ii, Jan., 1843, p. 218. *Nomen nudum ex Sparus notatus* Solander MS. *Id.* Richardson, Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 425. Tolaga Bay, New Zealand. *Id.* Richardson, Zool. Erebus and Terror, Fish., 1846, p. 53.

Julis celidotus Richardson, Trav. N. Zeal. (Dieffenbach), ii, Jan., 1843, p. 218; Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (late 1843), p. 24.

Sparus stellatus Richardson, Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 426; Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (late 1843), p. 24. Totaeranue Cove [= Ship Cove, Queen Charlotte Sound] and Tolaga Bay, New Zealand. *Nomen nudum ex* Solander MS.

Labroides asellinus Richardson, Ann. Mag. Nat. Hist., xi, June 1, 1843, p. 426; Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (late 1843), p. 24. Totaeranue Cove and Tolaga Bay, New Zealand. *Nomen nudum* ex Solander MS.

Iulis celidotus Forster, Descr. Anim. (ed. Lichtenstein), 1844, p. 420. *Ex* Gray MS., New Zealand.

Labrichthys celidota Hutton, Cat. Fish. N. Zeal., 1872, p. 42. *Id.* Günther, Ann. Mag. Nat. Hist. (4), xvii, 1876, p. 398.

Pseudolabrus celidotus Waite, Rec. Canterb. Mus., i, 3, 1911, p. 224. *Id.* McCulloch, Rec. Austr. Mus., xiii, 1921, p. 136. *Id.* Phillipps, N. Zeal. Journ. Sci. Tech., iv, 3, 1921, p. 117 (spawning and occurrence).

Sparus stellatus and *Labroides asellinus* may be added to the synonymy of *Labrus celidotus*, as no descriptions or figures of these nominal forms have been published from Solander's manuscripts in England for the enlightenment of antipodean ichthyologists. The fishes upon which these names were based, being the first collected by white men in New Zealand, are of some historical interest, and it is unfortunate that Richardson should unwittingly have caused some confusion by supplying so many names for them in several almost contemporaneous publications which are now difficult to obtain.

Family **ELEOTRIDAE.**

Subfamily **Oxymetopontinae.**

Gignimentum gen. nov.

Orthotype, *Gignimentum penicillum*, sp. nov.

Form elongate; head acute, unarmed, with the mouth oblique and the lower jaw produced beyond the upper. No bony crests, barbels, or fringes on head. First dorsal fin with six spines. Soft dorsal and anal with less than fifteen rays. Ventral fins entirely separate, the rays i/4. Scales in about sixty transverse series on the body, cycloid anteriorly and ctenoid posteriorly; a few week scales on sides of head. About fifteen predorsal scales.

This generic definition is based on a specimen, described below, which was labelled "Oxymetopontinae" in the Museum collection but which differs from the Oxymetopontine genera, *Oxymetopon* Bleeker,[60] *Ptereleotris* Gill,[61] *Vireosa* Jordan

[60] Bleeker, Nat. Tijdschr. Ned. Ind. xxii, late 1860, pp. 249 and 258. Orthotype, *O. typus* Bleeker from "Timor-kupang in mari."

[61] Gill, Proc. Acad. Nat. Sci. Philad. 1863, p. 271, Orthotype, *Eleotris microlepis* Bleeker.

and Snyder[62] and *Orthostomus* Kner[63] = *Stomogobius* Whitley[64] in having much fewer dorsal rays. *Parioglossus* Regan[65] is distinguished by the form of the head and the naked breast. The elongate form, large ctenoid scales on the posterior part of the body, lack of barbels, and rounded caudal fin are noteworthy characters of *Gignimentum*.

Gignimentum penicillum sp. nov.

(Figure 4.)

D. vi/13; A. 13; P. 16; V. i/4; C. 14 branched rays. Sc. *circa* 60. About 15 predorsal scales. L. tr. 22 anteriorly, 9 on caudal peduncle.

Head, exclusive of lower jaw (6 mm.) 4.4, depth (4) subequal to greatest breadth and 6.6 in standard length (26.5). Eye (1.5) greater than interorbital (1) and slightly longer than snout, 4.3 in the maximum length of the head (6.5).

Head wedge-shaped, somewhat depressed, the lower jaw much in advance of the upper. Eyes fairly large, close to the jaws. Opercles entire. Some cycloid scales on cheeks and opercles. Gill-membranes united across isthmus. Seven branchiostegals. A row of mucous pores around the preopercular margin joins a series which passes over the top of the cheeks to the interorbital rows, which unite to form a median backwardly directed tube between the eyes. Four large nostrils, each protected by a flap. Mouth large, maxillary extending to below hinder half of eye. Several rows of distinct small canines in each jaw. Tongue somewhat spatuliform; notched anteriorly and raised posteriorly. Vomer toothless. Chin sulcate, without barbels. Cranium naked and smooth.

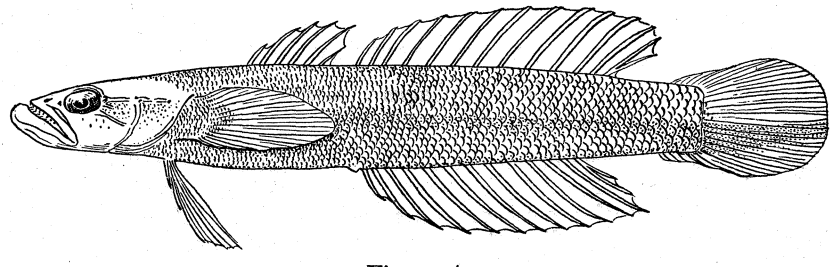

Figure 4.

Gignimentum penicillum Whitley. Holotype, 26.5 mm. standard length, from the New Hebrides. Austr. Mus. regd. No. IA.833. G. P. Whitley *del.*

Body elongate, rounded, covered with weak scales which extend on to breast, pectoral bases and temples, but not on the rays of the fins. They are small and cycloid anteriorly and enlarged and ctenoid towards the caudal peduncle. A genital papilla.

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[62] Jordan and Snyder, Proc. U.S. Nat. Mus. xxiv, 1901, p. 38. Orthotype, *V. hanae*. J. and S. from off the coast of Japan.

[63] Kner, Sitzb. Akad. Wiss. Wien lviii, 1868, p. 29. Type, *O. amblyopinus* Kner. Preocc. by *Orthostoma* Ehrenberg, 1831, and *Orthostomum* Grube, 1840, Coelenterata.

[64] Whitley, Austr. Zool. vi, 1931, p. 334. Orthotype, *Orthostomus amblyopinus* Kner.

[65] Regan, Trans. Linn. Soc. Lond. (2), xv, Sept., 1912, p. 302. Haplotype, *P. taeniatus* Regan, from Aldabra, Indian Ocean.

Pectorals and ventrals rather long, in advance of the origin of the first dorsal which is separate from the second, whose origin is just opposite the vent. Last dorsal and anal rays divided. Caudal rounded, much shorter than head and a little shorter than pectorals. Ventrals entirely separate, each with five rays, the first unbranched and the penultimate longest.

General colour after long preservation in alcohol, fairly uniform brownish, the eyes blue. A dark brown oblique bar crossing the lower half of the caudal fin, is broadest on the bases of the rays, and tapers towards the tips of the median rays as in some species of the scaleless genus *Hetereleotris*.

Described and figured from the unique holotype of the species, a specimen 26.5 mm. in standard length or 1¼ inches overall. In superficial facies, this fish rather recalls the Trichonotidae.

Loc.—New Hebrides; collected by A. R. McCulloch. Austr. Mus. regd. No. IA. 833. The exact habitat is not recorded, but is perhaps Vila Harbour, where McCulloch collected fishes and other marine animals at night when they were attracted by the glare of the lights of H.M.S. "Pegasus."

Genus **Ptereleotris** Gill, 1863.

Ptereleotris playfairi sp. nov.

Eleotris microlepis Playfair, Fish., Zanzibar, 1866, p. 75, pl. ix, fig. 5. Zanzibar. Not *E. microlepis* Bleeker, Nat. Tijdschr. Ned. Ind., xi, 1856, p. 102, from Banda, East Indies.

D. vi/i, 27; A. i, 26-27. This species is distinguished by the form of the first dorsal fin, lower soft dorsal and anal fins, deep body and more truncate caudal fin from *Ptereleotris microlepis*. an Australian specimen of which was figured by McCulloch and Ogilby.[66]

Family **GOBIIDAE.**

Obtortiophagus gen. nov.

Orthotype, *Obtortiophagus koumansi,* sp. nov.

Head rounded, subcylindrical posteriorly, with minute papillae in rows on slightly raised ridges. Eyes sloping towards one another, separated by a narrow interorbital. No tentacles, crest, or spines on head nor barbels on the chin. No fleshy lobes on shoulder girdle. Snout broadly rounded; jaws subequal. Tongue rounded convexly. Bands of canine teeth in jaws; none on lips. Maxilla normal, not produced to preoperculum. Gill opening extending to below the level of the preoperculum, which is unarmed. No pit above opercle. Body opaque, robust, compressed, deep anteriorly, covered with ctenoid scales, which lose their toothed edges as they approach the nape and breast. Less than 50 transverse rows of scales between operculum and caudal fin. Pectoral base and anterior half of breast naked. Head naked, the body scales becoming slightly smaller and finally vanishing on nape at about the level of the preoperculum.

First dorsal with six slender spines, separate from the second, which, like the anal fin, is quite distinct from the lanceolate caudal. Upper pectoral rays not free. Ventrals infundibuliform, not adnate, the fifth rays longest. Coloration ornate, mostly brownish in spots or indistinct bands of varying tones, and with prominent blackish blotches on the sides.

[66] McCulloch and Ogilby, Rec. Austr. Mus. xii, 1919, p. 258, pl. xxxvii, fig. 1.

Though the united ventrals indicate this genus as Gobiid, it superficially resembles the Eleotrid genera *Amblygobius, Gergobius,* and *Calleleotris,* but has differently formed fins and larger scales. It is apparently nearer that perplexing group of gobies centred around *Callogobius, Doryptena, Gunnamatta,* and *Oxyurichthys,* which are made to appear vastly different from one another and closer to unrelated genera by the dichotomous keys so much in vogue. The shape of the head, teeth, and cycloid scales appear to distinguish *Macgregorella.* From the other genera *Obtortiophagus* may be easily distinguished by the combined characters defined above, and, though it approaches *Oxyurichthys,* has not the median naked ridge or crest on the nape and lacks the more elongate form of that genus. The Gobioid genera have recently been reviewed by Koumans, but it seems that many more new generic names will have to be proposd for various Indo-Pacific, Japanese, and Australian species before the group can be phylogenetically arranged in a natural classification. Zoogeographical distribution and ecological environment appear to play a large part in modifying the structure of these interesting little fishes which are found in shallow and deep water, salt and fresh, burrowing in mud or challenging currents, sheltering in coral, or even leaving the water altogether.

Obtortiophagus koumansi sp. nov.

(Plate xi, fig. 3.)

D. vi/11; A. 10; P. 17; V. 5; C. 13 branched rays. L. lat. 47, 11 to 13 longitudinal rows of body-scales between soft dorsal and anal on each side.

Head (15 mm.) 3.3, depth (12) 4.1 in standard length (50). Caudal peduncle (6) 2.1 in length of caudal, measured from hypural joint (13). Eye (3) equal to snout and 5 in head.

Head rounded, somewhat bulbous. Eyes superior, separated by a narrow interorbital depression. Temples naked. Scales behind head smaller than those on body. Mouth large, oblique, extending to below posterior half of eye. Jaws subequal, each with bands of small caniniform teeth. Vomer prominent but toothless. Tongue with a convex free margin, not notched. A row of well-marked papillae on each side of chin. Head crossed by several subvertical and subhorizontal ridges each bearing a row of small mucigerous papillae. Anterior nostrils with a broad flap, posterior ones subcircular with a raised anterior ridge.

Body elevated anteriorly and compressed, covered with strongly ctenoid scales. Vent large; a rather prominent genital papilla. Dorsal spines slender and somewhat produced, the longest (12.5 mm.) subequal to depth of body below it. There is no ventral spine, and the caudal is broadly lanceolate. Upper pectoral rays short and weak, but not separated from the others or silk-like; the longest pectoral rays are shorter than the head.

Remains of small crustacea and two minute gastropod shells, identified by Mr. Tom Iredale as *Obtortio* and *Bittium,* in the intestines.

General colour, in alcohol, light-brown, the dorsal and caudal fins yellowish. Face grey; eye bluish. A dark-brown horseshoe-shaped mark at origin of dorsal. Sides of head with dark brown spots which become larger inferiorly and form four dark bands across the throat. Base of pectoral with brown spots, formed from congregations of smaller groups of chromatophores, like those on the sides of the head. A dusky bar behind preoperculum. Sides crossed by four broad ill-defined bands of brown. A large black ocellus, edged with white, is

overlain by the pectoral fin; this is followed by three smaller dark brown spots along the middle of each side of the body, alternating with indistinct white marks, but not forming ocelli. Lower part of sides with about three irregular sub-horizontal rows of spaced milky spots. Breast and thorax whitish, crossed by four or five dark brown bands which meet below.

Dorsal fins yellowish, speckled with brown. Caudal yellowish, with a wash of brown on the lowermost rays. Ventrals and anal brownish, with ill-defined white blotches. Pectorals hyaline.

Described and figured from the holotype, 50 mm. in standard length or about 2¼ inches in total length. Austr. Mus. regd. No. IA. 2027.

Loc.—Hayman Island, Whitsunday Group, Queensland; collected in 1924 by Mr. E. H. Rainford, of Bowen.

At first I thought that this species might be *Gobius nigroocellatus* Günther[67] from Bowen, but Günther's description disagrees in so many respects that I have no option but to rename my specimen, especially as I have been unable to discover anything resembling it in literature.

Named in honour of Dr. Frederick Petrus Koumans, of Leiden, Holland, in appreciation of his "A Preliminary Revision of the Genera of the Gobioid Fishes with United Ventral Fins," published in 1931.

Whilst on the subject of gobies, I would remark upon a few Australian species. Authors have overlooked the fact that Palacky[68] recorded *Gobius cyclopterus* Cuv. and Val.[69] from Australia. The exact generic position of this fish is uncertain.

Gobiosoma guttulatum Macleay[70] is a *Scartelaos* near *S. viridis* (Ham.-Buch.), but *Gobius viridis* is preoccupied, according to Sherborn's Index Animalium, by *G. viridis* Otto.[71] The Australian form may be called *Scartelaos macrophthalmus* (Castelnau), a synonym according to McCulloch.[72] Waite[73] recorded this species from Western Australia.

Ellogobius, new genus.

Orthotype, *Gobius stigmaticus* De Vis[74] = *Ellogobius stigmaticus.*

The generic name, *Mugilogobius,* has been employed for two species of Australian Gobies which are not referable to that genus as nowadays restricted. Smitt[75] named *"Mugilogobius* n. subg. from India and Japan" as a *subgenus caelebs* of *Gobius.* Jordan's "Genera of Fishes" informs us that the logotype is *Ctenogobius abei* Jordan and Snyder.[76] It needs but a glance at the figure of Jordan and Snyder's species to show that the Australian *"Mugilogobius"* are very dissimilar, especially in form of body and fins and squamation, so a new name as above is necessary.

Vaimosa Jordan and Seale,[77] from mountain brooks of the South Sea Islands, is also distinct.

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[67] Günther, Journ. Mus. Godef. i, 2, 1873, p. 101. Bowen, Queensland.
[68] Palacky, Australien, 1861, p. 69.
[69] Cuvier and Valenciennes, Hist. Nat. Poiss. xii, March, 1837, p. 59. Carteret Harbour, New Ireland. *Id.* Fowler, Mem. Bish. Mus. x, 1928, p. 405.
[70] Macleay, Proc. Linn. Soc. N.S. Wales ii, June, 1878, p. 357, pl. ix, fig. 6. Port Darwin.
[71] Otto, Conspect. anim. i, 1821, p. 7.
[72] McCulloch, Austr. Mus. Mem. v, 1929, p. 381.
[73] Waite, Rec. Austr. Mus. iv, 1902, p. 194.
[74] De Vis, Proc. Linn. Soc. N.S. Wales ix, Nov. 29, 1884, p. 686. Moreton Bay, Queensland.
[75] Smitt, Ofv. Akad. Forh. lvi, 1899, p. 552.
[76] Jordan and Snyder, Proc. U.S. Nat. Mus. xxiv, 1901, p. 55, fig. 5. Japan.
[77] Jordan and Seale, Bull. Bur. Fish. Wash. xxv, 1906, p. 395, Orthotype, *V. fontinalis,* J. and S. from Samoa.

Whether *Gobius stigmaticus* De Vis, which has been figured as *Mugilogobius devisi* by McCulloch and Ogilby,[78] is strictly congeneric with the second Australian species, *Mugilogobius galwayi* McCulloch and Waite[79] is also open to question, the disparity in squamation, size of eye, and other details leading me to consider them as distinct subgenera. For the latter species I therefore propose the new subgeneric name *Lizagobius,* so that our species may now be known as *Ellogobius* (*Ellogobius*) *stigmaticus* (De Vis) from Queensland and New South Wales and *Ellogobius* (*Lizagobius*) *galwayi* (McCulloch and Waite) from South Australia.

Family **BLENNIIDAE.**

Atrosalarias gen. nov.

Orthotype, *Salarias phaiosoma* Bleeker.

Allied to *Salarias,* but with deep, short body and the posterior rays of dorsal, anal, and caudal fins very long. Upper lip crenulated, canines vestigial, reduced to a small internal tooth on each side of the mandible. A small tentacle over each eye; no other tentacles or cirrhi. Dorsal fin not notched, its rays increasing in height backwards. Twenty or more dorsal and anal rays. Anterior anal rays produced beyond the fin-membranes.

Colouration largely uniform dark brown, though pectorals and caudal may be yellowish.

Atrosalarias phaiosoma (Bleeker).

Salarias phaiosoma Bleeker, Nat. Tijdschr. Ned Ind., viii, 1855, p. 317. Batu Archipelago.

The Australian species hitherto known as *Salarias fuscus* Rüppell[80] should now be called *Atrosalarias phaiosoma.* Rüppell describes and figures his species as having D. 30; A. 20; P. 16; V. 2; C. 12, short and rounded. Posterior dorsal and anal rays not much longer than others; three anterior anal rays produced beyond membrane. Minute tentacles over eye only. Depth 3 in s.l.; head 4. Colour brown except pectorals, caudal peduncle and fin.

The Australian and Pacific form has been figured as *Salarias fuscus* by Günther[81] with D. 30; A. 21; P. 11; V. 2; C. 11, long and pointed. Posterior dorsal and anal rays very long; about seven anal rays produced beyond membrane. Ocular tentacle larger. Tail dark. Depth more than 3 in s.l.; head nearly $4\frac{1}{2}$.

The Australian Museum has specimens of the *phaiosoma* form from Sind and the New Hebrides, and from Queensland, including McCulloch and McNeill's specimens.

Blennius (Queriblennius) gaudichaudi subg. et sp. nov.

Blennius punctatus Quoy and Gaimard. Voy. Uran. Physic. (1824), p. 250. Baie des Chiens-Marins = Shark Bay, W. Australia. Preoccupied by *B. punctatus* Fabricius, F. Groen (1780), p. 153, *fide* Sherborn.

Under the preoccupied name *Blennius punctatus,* Quoy and Gaimard described a Blenny from Western Australia which has not since been recognised and was somehow omitted from the Australian Check-List.

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[78] McCulloch and Ogilby, Rec. Austr. Mus. xii, 1919, p. 223, pl. xxxvi, fig. 2. Moreton Bay, Queensland.
[79] McCulloch and Waite, Rec. S. Austr. Mus. i, May 24, 1918, p. 50, pl. iii, fig. 1. South Australia.
[80] Rüppell, Neue Wirbelth. Abyssin. Fische, 1838, p. 135, pl. xxxii, fig. 2. Massowah, Red Sea.
[81] Günther, Journ. Mus. Godef. xiii (Fische Südsee vii), 1877, p. 202, pl. cxvi, fig. c. Vavau.

Günther[82] doubtfully associated the species with the Atlantic *B. fucorum,* out I have no record of the species in more recent literature. As Quoy and Gaimard's description does not apply to any Blenny known to me, it is necessary to propose a new name for their species and add it to the Australian list. I therefore call it *gaudichaudi* after the energetic collector who worked with Quoy and Gaimard and made beautiful paintings of, amongst other animals, the species of Salpa from the waters around Sydney.

Family **SCORPAENIDAE.**

Vadesuma gen. nov.

Orthotype, *Paracentropogon scorpio* Ogilby[83] = *Vadesuma scorpio.*

The type-species has been associated with *Liocranium* Ogilby = *Abcichthys* Whitley[84] by authors, but differs in being much more elongate and having the diameter of the eye much less than width of interorbital space and gillrakers of first branchial arch long, slender and flattened. McCulloch[85] has described and figured it as *Liocranium scorpio* from Ogilby's holotype.

The true *Abcichthys* is allied to *Synderina* Jordan and Starks,[86] but, like this new genus, differs from it in having the lower pectoral rays simple and only four ventral rays.

Genus **Paracentropogon** Bleeker, 1876.

Paracentropogon vespa livingstonei subsp. nov.

(Plate xiii, fig. 1.)

D. xiv/8; A. iii/5. P. 10. V. i/4; C. 9. L. lat. 20.
Head (24 mm.) 2.5, depth (21) nearly 3 in standard length (60).
Eye (6) 4, interorbital (4.5) 5.3, snout (7.5) 3.2 in head.

General colour brownish, marbled with darker tones. A prominent silvery blotch on body over lateral line and a dusky mark between fifth and eighth dorsal spines. Most of anterior and posterior portions of ventrals light yellow.

Described from the holotype of the subspecies, 60 mm. in standard length or 3 inches in total length. Austr. Mus. regd. no. IA. 4236.

Loc.—North-western Australia; dredged, between Broome and Cape Bossutt, by Mr. A. A. Livingstone, after whom I have pleasure in naming the subspecies.

Closely allied to the eastern *Paracentopogon vespa* Ogilby,[87] which has been described and figured by McCulloch,[88] but differing in the intensity and disposition of its colour markings.

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[82] Günther, Cat. Fish. Brit. Mus. iii, 1861, p. 217.
[83] Ogilby, New Fish. Queensland Coast, December 20, 1910, p. 115, off Cape Capricorn, etc. Queensland.
[84] Whitley, Rec. Austr. Mus. xv, April 6, 1927, p. 304, Orthotype, *Liocranium praepositum* Ogilby.
[85] McCulloch, Mem. Queensland Mus. vii, 1921, p. 175, pl. xi, fig. 1.
[86] Jordan and Starks, Proc. Cal. Acad. Sci. 1901, p. 381, and Proc. U.S. Nat. Mus. xxvii, 1904, p. 164. Orthotype, *S. yamanokami* J. and S.
[87] Ogilby, New Fish. Queensland Coast, December 20, 1910, p. 116. Platypus Bay, Queensland.
[88] McCulloch, Mem. Queensland Mus. vii, 1921, p. 173, pl. x, fig. 2.

Subfamily **Pteroinae.**

Genus **Pterois** Schinz, 1822

Pterois antennata (Bloch).

Scorpaena antennata Bloch, Nat. ausl. Fische, iii, 1787, p. 21, pl. clxxxv, Amboina.

Pterois antennata Schinz, Thierreich (Cuvier), ii, 1822, p. 464.

Pseudomonopterus (*Pterois*) *antennatus* Bleeker, Atlas Ichth., ix, 1877, pl. ccccxiii, fig. 5.

One specimen (No. IA. 4126), collected by Mr. A. A. Livingstone, and three (IA. 5559-5561), presented by Mr. R. Bourne, are in the Australian Museum from Broome, Western Australia. They agree better with Bleeker's figure than with Bloch's, but cannot be specifically separated from either. The genotype of *Pterois* was designated *Scorpaena volitans* auct. by Guichenot,[89] and the present species is apparently congeneric. Fowler[90] gives an extended description and references to literature of *Pterois antennata* and Günther[91] regards *P. russelii* Bennett, 1831, from Sumatra and *P. geniserra* Cuv. and Val., 1829, from Ava [Burma] as synonyms of this species.

New record for Australia.

Family **PLATYCEPHALIDAE.**

Levanaora gen. nov.

Orthotype, *Platycephalus isacanthus* Cuvier and Valenciennes.[92]

Head-ridges not denticulated, except on posterior border of orbit. No tentacle over the eye, which is much shorter than snout.

Cranium with but a few, not numerous, irradiations. Two subequal preopercular spines. No antrorse spine.

Lateral line without prominent spines.

Anterior spine of dorsal fin long and slender. No dark blotch on first dorsal, which is brown-spotted like the second. Caudal truncate.

The type-species, *Levanaora isacanthus,* has been recorded from North Australia, New Guinea, and the East Indies.

I take this opportunity of recording *Platycephalus coronarius* Palacky[93] as a synonym of *Thysanophrys cirronasus* (Richardson).

Genus **Suggrundus** Whitley, 1930.

Suggrundus Whitley, Mem. Qld. Mus., x, 1930, p. 26, Orthotype, *Platycephalus rudis* Günther.

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[89] Guichenot, Dict. pittor. Hist. Nat. viii, 1839, p. 390.
[90] Fowler, Mem. Bishop Mus. x, 1928, p. 292.
[91] Günther, Cat. Fish. Brit. Mus. ii, 1860, p. 124.
[92] Cuvier and Valenciennes, Hist. Nat. Poiss. iv, Nov., 1829, p. 246. Waigiou and Buru, East Indies (Lesson and Garnot). Types in Paris Museum. *Id.* Cuvier, Règne Anim. (disciples' ed.), 1836, pl. xxii, fig. 3. *Id.* Sauvage, Bull. Nouv. Arch. Mus. Paris ix, 1873, p. 55, pl. vii, figs. 1-1a.
[93] Palacky, Austr. 1861, p. 156. Australia.

Suggrundus tuberculatus suggrundus subsp. nov.

Insidiator tuberculatus McCulloch, Biol. Res. Endeav., ii, 1914, pp. 138 and 142, pl. xxix and text-fig. 10, Platypus Bay, Queensland.

McCulloch's specimens are labelled *suggrundus* in the "Endeavour" collection. This manuscript name is available for the Queensland form which has much larger eyes and shorter first dorsal spine than the typical Indian *Platycephalus tuberculatus* Cuv. and Val., 1829. Holotype No. E. 2888 on deposit in Australian Museum. Lateral line smooth posteriorly.

Family **PERISTEDIONTIDAE.**

Genus **Peristedion** Lacépède, 1802.

Peristedion Lacépède Hist. Nat. Poiss, iii, 1802, p. 368. Logotype, *P. malarmat* Lacépède = *Trigla cataphracta* Linné, 1758, selected by Jordan and Gilbert, Bull. U.S. Nat. Mus., iii, 16, 1882, p. 732.

Octonus Rafinesque, Ind. Ittiol. Sicil., May, 1810, pp. 29 and 54, Haplotype, *Octonus olosteon* Raf. = *Trigla cataphracta* Linné.

Peristethion Oken, Lehrb. Naturg., iii, 2, 1816, p. 113 (*fide* Sherborn). Also spelt *Peristhedion* Oken, Allgem. Naturg., x, 6, 1836, p. 180. Errore pro *Peristedion* Lac.

Peristethium Minding, Lehrb. Naturg. Fische, 1832, p. 104 (*fide* Sherborn).

Peristethidium Agassiz, Nomencl. Zool., 1846, Index Univ., p. 280. Emend. pro *Peristedion* Lac. Type *P. malarmat* Lac. = *Trigla cataphracta* Linné.

Peristethus Kaup, Arch. Naturg. (Wiegmann), xxiv, 1, 1858, pp. 332 and 336; Proc. Zool. Soc. Lond., 1859 (Jan.-May, 1859), p. 103. Emend pro *Peristedion* Lac. and *Peristethidium* Agassiz. Type *P. malarmat* Lacépède = *Trigla cataphracta* Linné.

Polycantichthys Kaup, Arch. Naturg. (Wiegmann), xxxix, 1, 1873, p. 82. Haplotype [*Peristethus*] *orientalis* = *Peristedion orientale,* Temminck and Schlegel, Fauna Japon. Pisc. 1843, p. 37, pl. xiv, (a), figs. 1-2, from Japan.

Satyrichthys Kaup, Arch. Naturg. (Wiegmann), xxxix. 1, 1873, p. 82. Haplotype, *Peristethus rieffeli* Kaup, Proc. Zool. Soc. Lond., 1859, p. 106, pl. viii, fig. 3, from China.

Peristedium Jordan and Gilbert, Bull. U.S. Nat. Mus., iii, 16, 1882, p. 732. Emend pro *Peristedion* Lac. Orthotype *Trigla cataphracta* Gmelin [= Linné].

In his paper "Ueber die Familie Triglidae nebst einigen Worten über die Classification," J. J. Kaup (*loc. cit.,* 1873, pp. 71-94) proposed a number of new generic names, some of which have been unaccountably ignored. Apart from *Ablabys* (p. 80), a new genus of Apistinae, the novelties are Trigloid fishes.

Mastigophorus is introduced (p. 82) for [*Dactylopterus*] *orientalis, macracanthus,* and *chirophthalmus.*

I select *D. orientalis* Cuv. and Val. as genotype, but *Mastigophorus* will not replace *Dactyloptena* Jordan and Richardson, 1908, as the name is preoccupied by *Mastigophorus* Poey 1832, a genus of *Lepidoptera.*

Polycantichthys and *Satyrichthys* (*vide supra*) are further separations from *Peristedion* and deserve generic rank; they have been quite overlooked by ichthyologists.

Kaup also proposed *Sagenocephalus* (p. 83) for *Prionotus carolinus* and *japonicus* Bleeker. I select the latter species as genotype, as *Trigla carolina* Linné is the type of *Merulinus* Jordan and Evermann = *Triscurrichthys* Whitley, 1931.

On p. 83 also, *Dinichythys* is proposed by Kaup for the species with short pectoral fins, *horrens* and *binotatus*; *Prionotus horrens* Richardson may be designated genotype. Newberry's famous fossil genus *Dinichthys* of the same year may preoccupy Kaup's name.

Panichthys subg. nov.

Orthotype, *Peristedion picturatum* McCulloch.

Australian representatives of the genus *Peristedion, sensu lato,* differ from the genotype, *Trigla cataphracta* Linné, in lacking the spiny ridge over the eyes and the longitudinal bony ridge between the eyes and the trenchant preopercular keel. The more anterior of the two pairs of abdominal scutes are comparatively slenderer and longer in typical *Peristedion* than in Australian examples.

Peristedion (Panichthys) picturatum McCulloch.

Peristedion picturatum McCulloch, Biol. Res. Endeavour v, June 8, 1926, p. 212, pl. lvi, east of Flinders Island, Bass Strait; 70-100 fathoms.

The unique holotype of this species, a specimen 159 mm. long, is on deposit in the Australian Museum. Mr. G. W. Ling, of Sydney, recently presented what I thought was a second specimen of this species from New South Wales, but comparison with the type showed remarkable differences which entitle the northern specimen to subspecific separation, thus—

Peristedion (Panichthys) picturatum lingi subsp. nov.

The New South Wales specimen differs from McCulloch's holotype in being more than twice as large and in having the anterior cornua converging towards one another, barbels less finely cirrhate, and in lacking the very striking black markings on the fins. Further, the New South Wales specimen possesses prominent preopercular spines, as long as the eye; these spines are lacking in McCulloch's holotype but may have been broken off when it was caught. There are two pairs of preocular spines, one near each nostril, and one median spine on the forehead in the larger specimen which are not developed in the holotype. Total length 13 inches.

General colour, when fresh, pink, with olive edges to scutes and some greenish-brown spots on anterior dorsal fin. The pectorals are pink with dense greyish reticulations. Pupil of eye, dark blue; iris with smoky, greyish and pearly tints.

Named in honour of Mr. George William Ling, who secured the specimen when on the trawler "Durraween."

Loc.—S.E. by E. from South Head of Sydney Harbour; 85-90 fathoms, 5 April, 1933. Holotype of subspecies, Aust. Mus. regd. No. IA. 5690. A novel addition to the fish-fauna of New South Wales. A second specimen from the same locality has dark margins to dorsal fins and brown reticulations over the head. Paratype, IA. 5810; pres. A. Ward.

The recent extension of trawling operations into depths of 110 fathoms in waters east of Sydney has brought to light several specimens of hitherto almost unique fishes. Captain K. Moller recently secured *Lepidopus lex, Chaunax endeavouri,* and *Quinquarius hendecacanthus* there, the last-named constituting a new record for New South Wales (Austr. Mus. regd. Nos. IA. 5807-8), and Mr. Alec. Ward has brought to light a spiny dogfish, *Oxynotus bruniensis,* another addition to the New South Wales list; Austr. Mus. regd. No. IA. 5811. In a depth of 130 fathoms, about 30 miles east of Sydney, Captain Moller obtained a specimen of *Centriscops obliquus* Waite (No. IA. 5814), new to the State, and some novelties which it is hoped will be described in detail later.

Family **APLOACTIDAE.**

Scorpaenoid fishes with the dorsal fin originating above or slightly before the eye. Bones of the head with knob-like prominences. Scales absent, the skin being covered with velvety villi. No palatine teeth. Vomer toothed. Gill membranes free (except in *Bathyaploactis* gen. nov.). No slit behind last gill. No free pectoral rays. Less than four ventral rays, the innermost not adnate. Anal spines absent, or indistinct. Caudal rounded.

As the family contains but a few genera, a brief revision of them is here offered. These are evidently derived from a Scorpaenoid stock and genera such as *Erisphex* and *Cocotropus* are intermediate. The Synancejidae are not very distantly related.

Genus **Aploactis** Temminck and Schlegel, 1843.

Aploactis Temminck and Schlegel, Fauna Japon, Poiss. 1843, p. 51, pl. xxii, figs. 3-4. *Genus caelebs.* Logotype. *Synanceia* (*Aploactis*) *aspera* Richardson, 1845, based on *A.*sp. T. & Schl. *Id.* Richardson Rept. 15th meet. Brit. Assn. Adv. Sci., 1845 (late 1846), p. 212. *Id.* Gunther, Cat. Fish. Brit. Mus., ii, 1860, p. 142. *Id.* Bleeker, Versl. Aka. Amsterdam (2), ix, 1876, p. 300 (*fide* Weber and Beaufort, 1911). *Id.* Jordan and Starks, Proc. U.S. Nat. Mus., xxvii, Jan. 22, 1904, p. 171. *Id.* McCulloch, Proc. Linn. Soc. N.S. Wales, xl, 2, 1915, p. 272.

Haploactis Agassiz, Nomencl. Zool. 1846, Index Univ., p. 172. Emendation for *Aploactis* Temminck and Schlegel. Logotype, *Synanceia* (*Aploactis*) *aspera* Rich. by present designation. *Id.* Van der Hoeven, Handb. Zool. (ed. Clark), ii, 1858, p. 184. Haplotype *H. cottoides* v. d. Hoeven = *Aploactis aspera* (Richardson).

Aploactus Kaup, Archiv. Nat. (Wiegmann), xxiv, 1, 1858, p. 331.

A continuous bony ridge across the cheek. Mouth large, oblique. Snout short. No palatine teeth. Body very elongated. Dorsal fin originating over posterior half of eye, deeply notched, the anterior three spines separate. No anal spines. V.i, 2.

Aploactis aspera (Richardson).

Aploactis Temminck and Schlegel, Fauna Japon. Poiss, 1843, p. 51, xxii, figs. 3-4, no specific name. Japan.

Synanceia (*Aploactis*) *aspera* Richardson, Zool. Voy. Sulphur i, Fishes, 1845, p. 72. Based on Temminck and Schlegel. Seas of Japan.

Aploactis aspera Richardson Rept. 15th meet Brit. Assn. Adv. Sci., 1845 (1846), p. 212 (gives refs. to Tilesius and Pallas, etc.). *Id.* Bleeker, Verh. Bat. Gen. xxv, 1853, Japan, p. 29 and Act. Soc. Reg. Sci. Ind. Ned. vi, 1859, p. 246. *Id.* Gunther, Cat. Fish. Brit. Mus. ii, 1860, p. 142. *Id.* Bleeker, Ned. Tijdschr. Dierk. iv, 1873, p. 141 (China), and Versl. Akad. Amsterd. (2) ix, 1876, p. 300 *et ibid.* xviii, 1879, p. 12 (*fide* Weber and Beaufort, 1911). *Id.* Steindachner and Döderlein, Fische Japans iv, 1884, p. 197 (Kagoshima, Japan). *Id.* Jordan and Starks, Proc. U.S. Nat. Mus xxvii, Jan. 22, 1904, p. 171, fig. 20 (Nagasaki, Japan). *Id.* Jordan, Tanaka, and Snyder, Journ. Coll. Sci. Imp. Univ. Tokyo, xxxiii, 1913, p. 252, fig. 187. *Id.* Jordan and Thompson, Mem. Carneg. Mus., vi, 4, Sept., 1914, p. 276, fig. 45 (Misaki). *Id.* Chu, Biol. Bull. St. John's Univ., i, Jan., 1931, p. 146, No. 1201.

Haploactis cottoides Van der Hoeven, Handb. Zool. (ed. Clark), ii, 1858, p. 184, based on *Aploactis* sp. Temminck and Schlegel. *Id.* Weber and Beaufort, Fish Indo-Austr. Arch, i, 1911, p. 203.

A small Japanese specimen (A. 8391) in Austr. Mus.. Jordan and Starks give the length as up to 95 mm. Range, China and Japan.

Genus **Aploactisoma** Castlenau, 1872.

Aploactisoma Castelnau, Proc. Zool. Acclim. Soc. Vict. i, July 15, 1872, p. 244, *et ibid.* ii, 1873, p. 63 Haplotype, *A. schomburgki* Castelnau. *Id.* Bleeker, Vers. Akad. Amsterdam (2) ix, 1876, p. 300 (*fide* Weber and Beaufort).

Haploactisoma O'Shaugnessy, Zool. Rec. 1873 (1875), p. 110. Emendation.

Haplotype A. *schomburgki* Castelnau.

Distinguished from *Aploactis* by its cephalic architecture, cheek crossed by a series of knobs, longer snout and small mouth. First five dorsal spines with broad membranes forming a differentiated but not separate fin anteriorly, originating over anterior half of eye. Body elongate.

Aploactisoma milesii (Richardson).

Aploactis milesii Richardson, Proc. Zool. Soc. Lond. Nov. 12, 1850, p. 60, Pisces, pl. i, figs. 1-2. King George's Sound, Western Australia *Id.* Bleeker, Verh. Akad. Amsterd. ii, 1855, p. 8. *Id.* Günther, Cat. Fish. Brit. Mus. ii, 1860, p. 142. *Id.* Woodward, W. Austr. Year Book 1900-1 (1902), p. 271. *Id.* Regan, Ann. Mag. Nat. Hist. (8) xi, Feb. 1, 1913, p. 175. (Skull more depressed than in Scorpaenidae and ribs absent. Vertebrae 13 + 18 = 31.) *Id.* McCulloch, Proc. Linn. Soc. N.S. Wales xl, 2, 1915, p. 272. *Id.* Waite, Rec. S. Austr. Mus. ii, 1, 1921, p. 168, fig. 274; Fishes S. Austr. 1923, p. 193 and fig. *Id.* McCulloch, Austr. Mus. Mem. v, 1929, p. 397.

Aploactisoma schomburgki Castelnau, Proc. Zool. Acclim. Soc. Vict. i, 1872, p. 244, *et ibid.* ii, 1873, p. 64. St. Vincent's Gulf, South Australia. Type (?) in Australian Museum (see McCulloch *loc. cit.* 1915).

Aploactis schomburghii Macleay, Proc. Linn. Soc. N.S. Wales v, 3, Feb., 1881, p. 441, South Australia (Castelnau).

This Western and South Australian species grows to five inches in length. The prevailing tone of spirit specimens is brown, with indistinct darker spots and marblings of purple and whitish, with the anterior dorsal fin dusky. The villi are fine and pointed, and the form is more elongate than that of the eastern form. Type (?) of *A. schomburgki* and Western Australian specimens in Australian Museum examined.

Aploactisoma milesii horrenda subsp. nov.

(Plate xiii, fig. 3.)

Aploactis milesii Macleay, Proc. Linn. Soc. N.S. Wales v, 3 Feb., 1881, p. 440 (Port Jackson). *Id.* Waite, Mem. Nat. Club N.S. Wales, 1904, p. 48. *Id.* McCulloch, Proc. Linn. Soc. N.S. Wales xl, 2, 1915, p. 272 (Port Jackson specimen). *Id* McCulloch, Austr. Zool. ii, 3, 1922, p. 118 (not figure). *Id.* Whitley, Rec. Austr. Mus. xviii, 1931, p. 119. Not *Aploactis milesii* Richardson.

Haploactis milesii Ogilby Cat. Fish N.S. Wales, 1886, p. 22. Emendation.

Body deeper than in true *A. milesii,* and covered with blunt papillose villi, Size larger, up to nearly 7 inches. Anterior dorsal spines much elevated. Colour more uniform and darker brownish than in *milesii.*

New South Wales: Holotype (No. IA. 4723) and several paratypes from Port Jackson in the Australian Museum. Mr. M. Ward collected one in Port Franklin, Victoria (No. IA. 5832), a new record for that State.

Genus **Paraploactis** Bleeker, 1864.

Paraploactis Bleeker, Nederl. Tijdschr. Dierk ii, 1864, p. 168. Haplotype *P. trachyderma* Bleeker.

Snout and face longer than in *Aploactisoma* and more deeply and elaborately sculptured; interorbital sunken to form a roughly triangular area, the base of the triangle being towards the dorsal fin, not away from it as in *Aploactisoma.*

No teeth on vomer or palatines. Dorsal originating over middle or posterior half of eye, twice notched. Profile of head steep. Eye small. Body deep anteriorly.

Bleeker remarks that this genus "se distingue . . . par l'absence de dents vomeriennes ou palatines et par l'armature de son sousorbitaire antérieur mobile à la façon des Apistus . . . par ces cinq rayons des branchies, par les protrubérances obtuses du préopercule, par une forme très-différente de la partie antérieure de la dorsale épineuse et par les deux rayons mous de la ventrale. . . ."

Paraploactis trachyderma Bleeker.

(Plate xii, fig. 5.)

Paraploactis trachyderma Bleeker, Nederl. Tijdschr. Dierk., ii, 1864, p. 169. Australia. *Id.* Bleeker, Versl. Akad. Amsterdam (2), ix, 1876, p. 300 (*fide* Weber and Beaufort, 1911). *Id.* McCulloch, Proc. Linn. Soc. N.S. Wales, xl, 2, 1915, p. 272 (Moreton Bay, Queensland). *Id.* McCulloch, Austr. Mus. Mem. v, 1929, p. 397.

Aploactis lichen De Vis, Proc. Linn. Soc. N.S.W., ix, 3, Nov. 29, 1884, p. 461, Dunwich, Moreton Bay, Queensland. Holotype, No. I. 11/75 in Queensland Museum.

As this distinctive species has not hitherto been figured, I reproduce here a sketch of De Vis' type made by McCulloch. Two specimens in Australian Museum from Moreton Bay, Queensland (No. I. 12514 and I. 7738) received from the Amateur Fishermen's Association of Queensland.

Range.—Queensland. The exact locality of Bleeker's type is unknown to me.

Erosa australiensis Borodin[94] is perhaps this species, although Dr. Borodin informs me (*in lit.*) "my *Erosa australiensis* has a different fin-formula D. xv, 9, A. ii, 7, P. 15. There is difference in the depth of the body (3½ and 3) and in the size of the head (3 and 2¾)."

Genus **Sthenopus** Richardson, 1848.

Sthenopus Richardson, Zool. Voy. Samarang, i, Fish., 1848, p. 10, Haplotype, *S. mollis* Richardson from the Sea of China.

Trichopleura Kaup. Archiv. Nat. (Wiegmann), xxiv, 1, 1858, pp. 331 and 338, New name for *Sthenopus* Richardson, 1848. Haplotype, *Sthenopus mollis* Richardson. (?)Preoccupied by *Trichopleurus* Motchoulsky, Bull. Soc. Nat. Moscou, 1845, a genus of Coleoptera, *fide* Scudder, Nomencl. Zool., 1882, p. 341.

Three separate anterior dorsal spines, the first in advance of the eye. Body deep. Lateral line with prominent processes.

Günther stated that *Sthenopus* was preoccupied, but *Sthenopis* Packard, 1863, Insecta, is the only generic name I have been able to find like it. In his Index Animalium Sherborn gives 1843 as the date of publication of *Sthenopus,* but this should be 1848; Sherborn was unable to find any publication of the name *Trichopleurus* before 1850, so neither *Sthenopus* nor *Trichopleura* appear to be preoccupied as has been supposed.

Sthenopus mollis Richardson.

Sthenopus mollis Richardson, Zool. Voy. Samarang i, Fish 1848, p. 10, pl. ii, figs. 6-7. Sea of China. Holotype in British Museum. *Id.* Bleeker, Versl. Akad. Amsterdam (2) ix, 1876, p. 299 (*fide* Weber and Beaufort, 1911).

Trichopleura mollis Kaup, Arch. Naturg. (Wiegmann) xxiv, 1, 1858, p. 338. On Richardson. *Id.* Günther, Cat. Fish Brit. Mus. ii, 1860, p. 143 (type). *Id.* Bleeker, Nederl. Tijdschr. Dierk. iv, 1873, p. 141 (*fide* Weber and Beaufort, 1911). *Id.* Chu, Biol. Bull. St. John's Univ. i, Jan., 1931, p. 146, No. 1202.

Range, China.

Aniculerosa gen. nov.

Orthotype, *Aniculerosa taprobanensis* sp. nov.

First four dorsal spines short, forming a separate fin which originates over the anterior half of the eye. Body deep. Profile of head steep. Eye small. Nearest *Paraploactis* and *Sthenopus* but differing notably in the insertion and extent of the anterior dorsal fin.

Aniculerosa taprobanensis sp. nov

Aplcactis aspersa (sic) Johnstone, Rept. Pearl Oyster Fisher. Gulf Manaar (Herdman), ii, Suppl. Rept. xv, pp. 202 and 219. South of Adam's Bridge, Ceylon. Not *Synanceia* (*Aploactis*) *aspera* Richardson, 1845.

Johnstone described and figured from Ceylon a species of Aploactid fish quite unlike the typical form of Temminck and Schlegel, as it has height 3½ instead of about 5 in total length, much smaller eyes and different armature of head.

The dorsal originates over the anterior half of the eye and the first four spines form a separate fin. The ventrals appear much reduced.

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[94] Borodin. Bull. Vanderbilt Mar. Mus. i, 3, 1932, p. 90, pl. ii. Queensland.

Insopiscis gen. nov.

Orthotype, *Cocotropus altipinnis* Waite[95] = *Insopiscis altipinnis.*
D.v/viii/10; A.ii/8.

Five anterior dorsal spines long, pungent, differentiated but not separated by a notch from the others; the first originates slightly before anterior ocular margin.

Depth of body about one-third total length.

Cocotropus altipinnis Waite was described from Lord Howe Island and has been listed therefrom as a Scorpaenid fish. Its true classification, however, is apparently nearer the Aploactidae, although it retains the Scorpaenoid anal spines and it is deserving of generic separation. The genus *Cocotropus* Kaup[96] was based on *Corythobatus echinatus* Cantor[97], but comparison of Cantor's plate with Waite's shows marked differences in the armature of the head, elevation of the body and colour markings.

Coccotropus obbesi Weber[98] also appears to require a new generic name, as even the pleaders for one-letter differences in spelling can surely not justify the separation of *Cocotropus* and *Coccotropus.* I therefore propose for it the name—

Membracidichthys gen. nov.

Orthotype, *Coccotropus obbesi* Weber=*Membracidichthys obbesi.*

Three anterior dorsal spines, elevated and forming a distinct but not separated fin, originating over middle of eye. Pectorals short and rounded. Body elongate. L.lat. 11. D.3/10/11; A.8. The complex armature of the head is also distinctive and is well shown in Weber's figure.

Bathyaploactinae subfam. nov.

Differs from true Aploactidae in having the gill-slits narrowed to a small opening near the opercular tip.

Bathyaploactis gen. nov.

Orthotype, *Bathyaploactis curtisensis,* sp. nov.

Head armed with long, knob-like preorbital and preopercular spines. Interorbital sunken, the trench widest where the premaxillary processes lie. Four barbels. Gill-openings reduced to a small aperture near the opercular flap. Villiform teeth on jaws and vomer, but apparently none on palatines. Eyes large. Nostrils with flaps. Body deep, compressed, scaleless, provided with spaced villi, and weak spines along the lateral line.

Dorsal twice notched, originating over middle of eye, the anterior seven spines forming a distinct fin which is not separate from the other spines and rays. Other fins rounded and with simple rays. Ventral with three rays, the last not adnate.

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[95] Waite, Rec. Austr. Mus. v, 1, April 14, 1903, p. 41, pl. v, fig. 2. Lord Howe Island. Holotype in Australian Museum.
[96] Kaup, Arch. Nat. (Wiegmann) xxiv, 1, 1858, p. 333.
[97] Cantor, Journ. Asiat. Soc. Bengal xviii, 1850, p. 1027, pl. xiii; Cat. Malay Fish, 1850, p. 45, pl. xiii, Penang.
[98] Weber, Siboga Exped. lvii, Fische, May, 1913, p. 503, fig. 104.

Bathyaploactis curtisensis sp. nov.

(Plate xiv, fig. 1.)

D. vii/vii/8. A. 11. P. 11. V. 3. C. 12, L. lat. 10. Head (15 mm.) 2.9, depth (16.5), 2.7 in standard length (44). Eye (3) slightly greater than interorbital, and 5 in head. Other characters as in generic definition and as figured. Colour, in alcohol, brownish, with darker markings, forming a complicated variegation which is most strongly marked on the fins. Some dark-brown bars with well-marked margins around the bluish eye.

Described from the holotype, 44 mm. in standard length or 2¼ inches in total length. Australian Museum regd. no. I. 10723.

Locs.—Off Gatcombe Head, Port Curtis, Qld. (Dr. R. Pulleine), Holotype, No. I. 10723. Port Curtis (M. Ward and W. Boardman). Paratype, No. IA. 4210. Bowen, Qld. (E. H. Rainford)—figured specimen, no. IA. 1307. Albany Passage, Qld. (M. Ward), Paratype, No. IA. 3741.

Bathyaploactis curtisensis ornatissimus subsp. nov.

(Plate xiii, fig. 2.)

From Western Australia comes a well-marked subspecies in which the colouration is very strongly marked and of different pattern as the accompanying figures show. This may be named *ornatissimus,* the holotype being Austr. Mus. No. IA. 4234, a specimen 54 mm. in standard length, dredged in North Western Australia by Mr. A. A. Livingstone. A smaller paratype (IA. 4235) from the same place is also preserved.

Family **ANTENNARIIDAE.**

Genus **Antennarius** Cuvier, 1816.

"Antennarius" Lacépède, Hist. Nat. Poiss., i, 1798, p. 323. *Ex* Commerson MS. Non-binomial. Opinion 24 of the Internat. Comm. Zool. Nomencl. validated this name, but this was suspended by Opinion 89.

Chironectes Rafinesque, Analyse, 1815, p. 92. *Nomen nudum* (*fide* Sherborn). Preocc. by *Chironectes* Illiger, 1811, a genus of mammals.

Antennarius Cuvier, Règne Anim., ii, "1817" = Dec., 1816, p. 310. *Ex* Commerson MS. Logotype, *Antennarius chironectes* Commerson (*i.e., Lophius chironectes* Cuvier), selected by Bleeker, Atlas Ichth., v, 1865, p. 5. Variants: *Antennaria* Bory, Dict. Class. d'Hist. Nat., i, 1822, p. 411, and *Artennarius* Garthe, Zool. Tab., 1837, Knorpelfische (*fide* Sherborn).

Chironectes Cuvier, Mem. Mus. Hist. Nat. (Paris), iii, Oct., 1817, p. 418. Tautotype, *Antennarius chironectes* Commerson, non-binom. = *Lophius chironectes* Cuvier. Variants: *Chironectus* Swainson, 1839, and *Cheironectes* Lowe, 1839. Preocc. by *Chironectes* Illiger, 1811, a genus of mammals, spelt *Cheironectes* by Gray, 1827.

Batrachopus Goldfuss, Handb. Zool., ii, 1820, p. 110. Substitute for *Chironectes,* preocc. (*fide* Jordan, Gen. Fish.).

Capellaria Gistel, Nat. Thierr., 1848, p. viii. Substitute for *Chironectes* Cuvier, *et auctt., non* Illiger. Type, *Lophius chironectes* Cuvier.

Batrachops Jordan, Gen. Fish., i, 1917, p. 114. *Errore pro Batrachopus* Goldfuss. Orthotype, *"Lophius commersonianus* Lacépède" (*sic*). Preoccupied by *Batrachops* Heckel, 1840, and Bibron, 1855, two other genera of Pisces.

The genotype of *Antennarius* and its synonyms is the "Lophie chironecte" of Lacépède[99]=*Lophius chironectes* Cuvier, 1816, which was first called by its proper name, *Antennarius chironectes,* by Schinz.[100] This species was originally described as being reddish with black spots and having D. 14, A. 7, P. 8, V. 5 or 6, C. 10 or 11. From Western Australia I have received a distinct Angler Fish which, now that the status of *Antennarius* has been established, is described below as a new genus and species. The generic name *Histrio* Fischer[101] obviously applies to *Lophius histrio* Linné, a very different species, although, apparently through a transposed line or some error, Fischer described the body as depressed instead of compressed.

Lophiocharon gen. nov.

Orthotype, *Lophiocharon broomensis* sp. nov.

First dorsal spine filamentous, second and third thick, very spiny, and united to one another and the soft dorsal by broad membranes. Body very deep, compressed, very spiny, without flaps or warts. Soft dorsal and anal broadly rounded, distinct from caudal. Three or four rows of slender, backwardly directed canines on jaws and palatines and pharyngeals. None on vomer. Premaxillary steeply oblique. Eye small. General colouration blackish with lichen-like markings.

There may have been an appendage to the illicium, but, if so, it has become broken off my specimen.

Lophiocharon broomensis sp. nov.

(Plate xv, fig. 1.)

D. i, i, i, 13; A. 8; P. 9; V. 5; C. 10.

Form compressed and very deep, the depth of the body (77 mm.) 1.2 in the standard length (93). Head high. Eye small (5). Preorbital overhanging premaxillary superiorly. A sunken area each side of second dorsal spine. Illicium (20 mm.) subequal to third dorsal spine but much longer than second (12). Fins broadly rounded. Head, body and fins with prominent bidentate or tridentate spines which are particularly large on the second and third dorsal spines. Gill opening subequal to eye and situated below pectoral base. Ventral fins very short and broad. Other characters as defined for the genus.

General colour dark-brown to black, relieved in places by irregular white lichen-like patches which are fairly symmetrically disposed. The largest is formed by the fusion of two white spots on either side of the first dorsal ray. The tips of the dorsal spines are white and there are flecks of the same colour on each side of their bases and on the sides of the head. A large white patch around the ends of the maxillaries and mandibles and others along the sides of the body and on the caudal fin.

Described and figured from the holotype of the species 93 mm. in standard length or nearly 5 inches overall. Austr. Mus. reg. No. IA 5562.

Loc.—Broome, Western Australia. Presented by Mr. R. Bourne, 1932.

[99] Lacépède, Hist. Nat. Poiss. i, 1798, pp. 302 and 325, pl. xiv, fig. 2. No loc. [probably Mauritius].
[100] Schinz, Das. Thierreich (Cuvier) ii, 1822, p. 501.
[101] Fischer, Zoognosia ed. 3, i, 1813, pp. 70 and 78.

This new species may be allied to *Chironectes subrotundatus* Castelnau,[102] which is described as follows:—

> Body high; upper profile circular; lower one very convex; height contained one and two-thirds in the total length without the caudal; skin covered with rough asperities; tentacle of the snout terminated by a short linear filament; the two isolated dorsal spines about equal and very thick; they are covered with asperities: all the fins are immaculate; the body is of a light yellowish grey, having a double series of ocellated rounded spots extending on each side of the body; some of the ocellated spots are also visible on the belly; an irregular whitish ring on the base of the tail; no cutaneous tentacles on the body. The specimen is only two inches long, from Port Walcott, and was sent to me by Mr. Bostock.

The coloration, subequal dorsal spines, less depth, and smaller size indicate that Castelnau's species is distinct.

Family **OSTRACIIDAE.**

Paracanthostracion gen. nov.

Orthotype, *Ostracion lindsayi* Phillipps.[103]

Anterior profile of head oblique. Diameter of eye not much shorter than snout. Interorbital markedly concave. Carapace quadrangular, with a slight dorsal ridge. A forwardly directed spine before each eye. A large median spine on the back and a large backwardly directed spine on the lateral edge to each side of the anal fin. Dorsal extremity of carapace anterior to the ventral extremity. Scutes hexagonal, very rugose towards the posterior end of the carapace and on the head. Body marked with irregular streaks and spots; cheeks with spots, tending to form short streaks.

This generic definition has been drawn up from the holotype of *Paracanthostracion lindsayi*, kindly lent to me by Mr. W. J. Phillipps. My new genus is near *Acanthostracion* Bleeker,[104] the genotype of which, *Ostracion quadricornis* Linné[105] was designated in the Atlas Ichthyologique. Willughby's figure[106] of the type of Linné's species shows a fish with the back much more elevated and without a median spine and with the upper extremity of carapace posterior to the lower. The shape of the carapace and form and disposition of the spines distinguish *Paracanthostracion* from all the other genera of boxfishes.

Paracanthostracion lindsayi levior subsp. nov.

Lord Howe Island specimens in the Australian Museum are closely comparable with Phillipps' type but have the snout more concave in profile, fewer rugosities on the scutes, ridge behind dorsal spine conspicuous and serrated and eye comparatively larger and body very slightly deeper. These may be subspecifically named, the holotype being registered No. I. 5184. *P. lindsayi* and this subspecies both differ from the congeneric *P. pentacanthus* (Bleeker) as figured in the Atlas Ichthyologique in having the scutes smooth on the back and sides of the body, eye larger and set more obliquely, and anal spines more finely tapering.

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[102] Castelnau, Vict. Offic. Rec. Philad. Exhib. Dec. 1875, p. 25. Port Walcott, W. Australia.
[103] Phillipps, N. Zeal. Journ. Sci. Tech. xiii, 4, 1932, p. 233, fig. 4. Otago, New Zealand. Holotype in Dominion Museum, Wellington, examined.
[104] Bleeker, Ned. Tijdsch. Dierk. ii, 1865, p. 301 *et ibid.* iii, 1866, p. 27; Atlas Ichth. v, 1865, p. 28.
[105] Linné, Syst. Nat. ed. 10, 1758, p. 331. *Ex* Artedi gen. 56, syn. 85. India.
[106] Willughby, Hist. Pisc. 1686, append. p. 20, pl. J. 14.

Family **TETRAODONTIDAE.**

Genus **Pleuranacanthus** Bleeker, 1865.

Pleuranacanthus Bleeker, Atlas Ichth., v., 1865, p. 65, Haplotype, *P. argentatus* Bleeker, a Museum name in synonymy of *Tetraodon argenteus* Lacépède.

Eyes united to skin of head. Nostrils in the form of low perforated papillæ. Gill openings without spurs or papillæ. Body elongate, tetragonal, with spines on the belly and smaller ones on back. Lateral line system well marked. Dorsal and anal fins pointed. Caudal peduncle depressed, the caudal fin lunate. Coloration dull olivaceous above, with dark spots, and with a silvery band along the flanks.

The genera of pufferfishes have been much confused owing to the linking up of different species by apparently intermediate forms. For the present species, *sceleratus,* distinguished by the above characters, Bleeker's name may be revived.

Many authors attribute numerous generic names to Bibron, 1855, referring to a paper[107] entitled "Note sur un travail inédit de Bibron relatif aux Poissons Plectognathes Gymnodontes (Diodons et Tétrodons); par M. le docteur Aug. Duméril. . . ."

Such names, quoted *ex* Bibron MS., are all vernaculars, though latinized later by Hollard, Bleeker, and others, but most of them are preoccupied. The genera *Apsicephalus, Promecocephalus,* and *Lagocephalus* of authors are nearest *Pleuranacanthus,* but a critical comparison of their genotypes with *Tetraodon argenteus* Lacépède is desirable, as discrepancies in degrees of smoothness, details of fin-formulae, colouration, and shape are apparent from descriptions.

Pleuranacanthus sceleratus (Gmelin).

Tetrodon sceleratus Gmelin, Syst. Nat. (Linné) ed. 13, i, 1789, p. 1,444. Based on Forster, it. i. p. 403. Habitat in oceano americano et pacifico. = New Caledonia. *Id.* Forster, Descr. Anim. (ed. Lichtenstein), 1844, p. 254. Spruce-Tree Isle, New Caledonia; poisonous.

? *Tetrodon argenteus* Lacépède Ann. Mus. Hist. Nat. (Paris), iv, May, 1804, p. 211, pl. lviii, fig. 2 (Vernac. on p. 203). West Coast of New Holland. Based on a drawing by Stanislas Levilain, one of Baudin's naturalists.

Pleuranacanthus argentatus Bleeker, Atl. Ichth., v, 1865, p. 65. No. loc. Name in Paris Museum.

Tetraodon tetragonus Waite, Rec. S. Austr. Mus., ii, April 23, 1921, p. 195, fig. 325 [Errore pro *T. sceleratus* which Gmelin described as *T. tetragonus, capite maximo*].

Sphoeroides sceleratus Fowler, Mem. Bish. Mus., x, 1928, p. 467.

D.12; A.11; P.17. Head (120 mm.) 3.3, depth (65) 7.3 in length to base of caudal (405), eye (39) 3, interorbital (52) 2.3, gill opening (33) 3.6, length of pectoral (44) 2.7, depth of caudal peduncle (13) 9.2 in head.

General form elongate coffin-shaped, quadrilateral, tapering posteriorly. Upper lip the longer but covered at the sides by the lower lip. Two teeth in each jaw forming a beak. Nostrils nearer eye than end of snout; each is a sunken oval papilla with two separate pinprick-like perforations. Eye completely united to its surrounding skin. Gill opening obliquely crescentic, without spurs or papillae.

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[107] Duméril, Rev. Mag. Zool. (2) vii, 1855, pp. 274-282.

Body smooth laterally and posteriorly. Throat and belly with spaced spines. Vertex and sides of head and dorsal surface of body in advance of dorsal fin with bristle-like spines. Lateral line system prominent. A line encircles each eye, curving laterally to miss each nostril, before which an oblique line converges towards its fellow over the snout. A quadrangular area is enclosed on each side of the occiput, after which the lateral line continues along the back, diverging on each side of the dorsal fin, to finish at the base of the tail just above the strong centre-lateral ridge which extends from the chin. Anus in advance of anal fin. Dorsal and anal fins opposite, pointed. The dorsal originates about half-way between the vertical of the gill-openings and the caudal root. Upper pectoral rays longest. Caudal crescentic, the upper lobe longer than the lower.

General colour in formalin, greyish above and whitish below. A broad irregular band of silver along each side well above the ventro-lateral ridge. The dorsal surface is prominently marked with spaced, round, black spots; fins yellowish, eye bluish; inside of gill-opening blackish.

Described from a specimen nearly 18½ inches in maximum length.

Loc. Lord Howe Island; R. E. Baxter, 1920. Australian Museum regd. No. I.A. 126.

New record for Lord Howe Island.

Family **DIODONTIDAE.**

Genus **Diodon** Linné, 1758.

Diodon armillatus sp. nov.

(Plate xii, fig. 1, and plate xv, figs. 2-3.)

D.15; A.13; P.22; C.8.

Form ovate, normally broader than high, the caudal peduncle compressed and tapering. Breadth of head greater than its length or height. Anterior profile gibbous over the eyes, which are prominent, and slightly excavate on the snout. Upper jaw rather pointed and overhanging the lower, which is flatter. Lips plicate. Mouth not extending to level of nostrils, which are elevated, broad, and flap-like with the summit closed over the two olfactory openings. Eyes large, without free margins, 2 in snout and 5 in head, their diameter somewhat less than length of gill opening. A prominent rounded spur before the gillflange. Head and body armed with strong, three-rooted, movable spines which are longest behind the pectorals and shortest on the posterior part of the body. They do not extend in advance of a curved line between the eyes and on a level with the nostrils, and leave the face and chin entirely bare. About 7 interocular, 3 postocular, and 17 dorsal and preanal rows of spines. No nasal spines. There are 4 spines above the caudal peduncle and one on each side of it, a pair behind the anal fin and a median one posteriorly below the caudal peduncle, which is otherwise bare behind the dorsal and anal fins.

Dorsal originating slightly in advance of anal and smaller than that fin. Pectoral broad with the uppermost rays longest and the lowermost longer than the median rays. Caudal fin longer than the others and, like the dorsal and anal, rounded.

Colour, after preservation in formalin, greyish brown above and white below, the fins and spines yellowish. Back and sides of head and body with numerous small round brown spots, largest behind the pectorals, which do not extend on to face or belly.

Fins plain except the top of the dorsal and the entire caudal which is spotted with brown. A broad brownish band extends across the chin at the base of the anterior ventral spines. It is apparently continued as a fuscous area to each gill-opening.

Described from the holotype of the species, nearly 270 mm. in standard length, from North-west Islet, Queensland; coll. G. P. Whitley, December, 1925. Austr. Mus. regd. No. IA. 2585.

A larger paratype, nearly 15 inches long, collected by A. A. Livingstone and W. Boardman from the same locality, has the face, anterior margins of fins and many of the spines spotted with brown. Regd. No. IA. 4776.

The collar-like band on the chin is a diagnostic character of this species, which also differs from its congeners in having stronger spines, not notably produced on top of head. The spots of the body are larger than those of *Diodon holacanthus* Linné, and there are no large lateral spots or blotches as in other species of the genus.

Family **RANZANIIDAE.**

Genus **Ranzania** Nardo, 1840.

Ranzania Nardo, Atti i Riun. Sci. Ital. ed. 2, 1840, p. 165. Orthotype, *R. typus* Nardo (*fide* Sherborn, Index Anim.) or Ann. Sci. Reg. Lombard Venet, v, 1839, pp. 10 and 105. Orthotype, *Tetrodon truncatus,* Retzius (*fide* Jordan, Gen. Fish., ii, 1919, p. 196).

? *Pallasia* Nardo, Ann. Sci. Lombard. Veneto, x, 1840, p. 112. Tautotype, *P. pallasi* Nardo (*fide* Jordan, Gen. Fish.). Preoccupied by *Pallasia* Robineau-Desvoidy, 1830, Diptera and *Pallasius* Leach, 1814, Crustacea.

Molacanthus Swainson, Nat. Hist. Class. Fish. Amphib. Rept., ii, July, 1839, pp. 195 and 329. Haplotype, *M. pallasii,* Swainson, based on "Pall. Spec. Zool. pl. 4."

Centaurus Kaup., Archiv. f. Naturg. (Wiegmann), xxi, 1, 1855, p. 221. Haplotype, *Ostracion boops* Richardson.

According to Jordan's Genera of Fishes (ii, 1919, p. 196), *Tympanomium* Ranzani (type, *T. planci* Ranzani) is a synonym of *Mola,* yet Jordan and Evermann included *Mola planci* Nardo in the synonymy of *Ranzania truncata.* This suggests that *Ranzania* may be a synonym of *Timpanomium* Ranzani, 1839 (spelt thus in Sherborn), but *Tympanium* (sic) Ranzani, as described by Troschel,[108] with *Mola altera* Planci = *Tympanium planci* Ranzani as type, is evidently a *Mola.* The genus *Ozodura,* which is also only known to me from Troschel's resumé, appears to differ from *Ranzania* in fin-formulae.

Ranzania laevis (Pennant).

—— [Kircher], Rer. Hist. Nat. (ed. Bonnani and Battara), 1773, app. pl. i, upper fig.

Ostracion laevis Pennant, Brit. Zool., iii, 1776, ed. 4, p. 129, pl. xix, fig. 54. Plymouth, England. Not ref. to Gronow in synonymy. For a note on this edition of Pennant, see Iredale, Proc. Malac. Soc. xv, 1922, p. 80.

[108] Troschel, Archiv. f. Naturg. (Wiegmann), vii, 2, 1841, p. 141.

? *Ostracion mola* Meuschen, Zoophyl. Gronov., 1781, Index, no. 185. Apparently a composite species. Not *Tetraodon mola* Linné, 1758.

Tetrodon truncatus Retzius, K. Vet. Ac. Nya. Handl., vi, 1785, p. 121 (*fide* Sherborn). Brazil (*fide* Jordan, Evermann, and Clark, 1930, p. 504). *Id.* Gmelin, Syst. Nat. (Linné), ed. 13, i, 3, 1789, p. 1448. Mediterranean and European Seas. *Ex* Planc. Prompt. Hamb.; Monti act. Bonon; and Brit. Zool.

Balistes truncatus Pennant, Outlines of Globe i, 1798, p. 213. Ceylon.

Orthagoriscus oblongus Bloch and Schneider, Syst. Ichth., 1801, p. 511, pl. xcvii. *Ex* Pennant, Brit. Zool.

Cephalus varius Shaw, Gen. Zool., v, 2, 1804, p. 439. Indian Seas (Commerson).

Cephalus oblongus Shaw, Gen. Zool., v, 2, 1804, p. 439, pl. 176. No loc. [Europe]. *Id.* Turton, Brit. Fauna, 1807, p. 116.

Cephalus elongatus Risso, Hist. Nat. Europe Merid., iii, 1826, p. 173. Villefranche.

? *Mola planci* Nardo, Isis, xx (6), June, 1827, p. 477; Giorn. Fisica (2) x, 1827, p. 104 (*fide* Sherborn); or Bull. Sci. Nat. (Ferussac), xiii, 1828, p. 437 (*fide* Jordan and Evermann, 1898).

Orthagoriscus truncatus Fleming, Hist. Brit. Anim., 1828, p. 175. *Ex "Tetrodon trun.* Don. Brit. Fishes," etc. English coast. *Id.* Day, Fish. Gt. Brit. Ire., ii, 1884, p. 276, pl. cxlix.

Cephalus cocherani Traill, Mem. Werner. Nat. Hist. Soc., vi, Jan., 1832, p. 381 (*fide* Sherborn).

Molacanthus pallasii Swainson, Nat. Hist. Class. Fish. Amphib. Rept., ii, July, 1839, p. 329. Based on Pallas, Spicilegia Zool., which I have not seen.

Orthragoriscus elegans and *battarae* Ranzani, N. Comm. Ac. Sci. Inst. Bonon, iii, 1839, Dispositio (*fide* Day, and Sherborn).

? *Timpanomium planci* Ranzani, N. Comm. Ac. Sci. Inst. Bonon, iii, 1839, Dispositio.

Ranzania typus Nardo, Atti i Riun. Sci. Ital., ed. 2, 1840, p. 165 (*fide* Sherborn).

Ranzania truncata Nardo, Ann. Sci. Regn. Lombard. Venet., x, 1840, p. 105 (*fide* Day), and of most authors.

? *Tympanomium planci* Ranzani, Mem. Stor. Nat., ii, 1844, Diss. Fam. Molarum, Tab. (*fide* Sherborn).

Ostracion boops Richardson, Zool. Voy. Erebus and Terror. Fish., 1845, p. 52, pl. xxx, figs. 18-21. South Atlantic; tow-netted.

Orthagoriscus planci and *oblongus* Bonaparte, Cat. met. Pesci, Eur., 1848, p. 88.

Orthragoriscus lunaris Gray, Cat. Fish. coll. Gronow Brit. Mus. 1854, p. 165. *Ex* Gronow MS. Mediterranean.

Ranzania makua Jenkins, Proc. Calif. Acad. Sci. (2) v, Oct. 31, 1895, p. 779, with coloured frontispiece, Pearl Harbour, Hawaii, and of authors. *Id.* McCulloch, Abstr. Proc. Linn. Soc. N.S. Wales, June 29, 1910, p. ii (W.A.).

Cephalus cochranei Sherborn, Index. Anim. 1801-50, January, 1925, p. 1382. Emendation for *C. cocherani* Traill, 1832.

Ranzania laevis Whitley, Vict. Nat. xlix, 1933, p. 211, figs. 6 and 7 (Victoria, Mauritius, etc.).

The oblong Sunfish has been recorded from the Mediterranean Sea, British Isles and Atlantic Ocean, Martinique, Bermudas, and Brazil. This is apparently the range of the typical form, which was called *Ostracion laevis* by Pennant

several years before Retzius' name, *Tetrodon truncatus*. Thus the form usually called *Ranzania truncata* must now be *R. laevis*. A second species, or form of *R. laevis*, from California, Hawaii, the Philippines, and Japan, has been named *Ranzania makua*. A third comes from Mauritius and the Cape Seas, whilst, in a brief note, McCulloch recorded *Ranzania makua* from West Australia in 1910. The Mauritius form was named *varius* by Shaw, but the Australian is nameless.

Whilst in Melbourne in 1928 I noticed a specimen of this sunfish on exhibition in the National Museum, Melbourne (No. 45586), labelled Portland Bay, Victoria, which I placed on record in 1933.

The oblong sunfish is evidently a pelagic fish, which is doubtless drifted over large expanses of ocean by the currents and is thus rarely encounted from continental shorelines. All sunfishes are known to undergo great changes in form with growth,[109] whilst the bright colours of the present species appear to change after death. Nevertheless, it may be possible to differentiate several species or subspecies from geographical regions, in which case the Australian form, if new, would require a new name.

Amongst the manuscripts of the late E. P. Ramsay, I find the following description of an Australian Museum specimen:—

"Dec. 17th, 1884. The Museum has just received from Mr. Robillard, of Mauritius, a small specimen of *Orthagoriscus truncatus*.

"D.19 to 20; A.19 to 20; C.19; Pect. 13. Total length of skin, 19.5 inches. Height of body between the D. and A. fins, 8 inches; ditto across the tip of the pectorals, 11.5 inches. Dorsal fin, 7 inches. Anal, 6. Caudal, 8 x 1.8. Length of pectoral, 4.8; width, 1.2. Eye opening, 1.3, its diameter in the length of the snout is $2\frac{1}{2}$ times; the mouth is on a level with the snout. Radiating from the eye are three pairs of parallel narrow dark lines. On the snout a little nearer to the mouth than to the eye is another similar pair; between the pectorals and the eyes, and above the fin on the back are irregular dark markings of various shapes. The sides, belly, and the space between the pectorals and snout are silvery. Both sides are not marked alike: on one the parallel bands are curved downwards to the belly and the silvery patches behind the eye are sprinkled over with blackish oblong or round spots, or enclose irregular blotches. There are indications of curved bars on the sides of the belly to near the vent."

Amongst some fish drawings belonging to the late A. R. McCulloch, I find a rough painting of a *Ranzania*, unfortunately without data, unless the pencilled remark on the back, "Aneiteum. Tasi—the chief of the island," indicates a New Hebridean origin. The general colour is dark blue on the back, becoming lighter on the sides and belly and crossed by lighter bars with dark edges which are oblique anteriorly and vertical posteriorly and mingle with dark blue spots towards the ventral surface. Two broad transverse bars of rich brown join the dorsal and anal fins, which are blue, and the anterior portion of the tail and some spots on the hinder part of the body are light green. The eye and some of the tops of the oblique bars are red, and there is a wedge-shaped light blue area behind the head and pointing towards the back. In this painting the bars do not radiate from the eye as in Ramsay's specimen.

[109] Schmidt, Medd. Hav. Kjob. Ser. Fisk vi, 6, 1921, pp. 1-13, pl. i and text figs., and Nature, March 17, 1921, p. 76, figs. 2-5.

Mr. L. Glauert, of the Western Australian Museum, Perth, has kindly drawn my attention to a note on *Ranzania* in the *West Australian* of 14th April, 1928, in which it is stated:

> "On Tuesday last, on the Middleton Beach at Albany, large numbers of the exceedingly rare oblong sunfish were to be seen in a shoal. About fifty of the fish were lying stranded on the beach, and one of them was despatched by Mr. T. W. Knight, of Albany, to the W.A. Museum, where it was recognised as being, in technical language, *Ranzania truncata,* the third specimen of its kind ever taken in Australia. The two previous specimens also come from Albany. . . .
>
> "Owing to the flattened condition of the body, the fish, which is 24 inches long, 11 inches high, and 4 inches in thickness, very likely, is able to swim at a very great speed."

Mr. Glauert adds: "After a cast had been prepared this specimen was passed to the Australian Museum as an exchange. It is evidently the fish which McCulloch received from Middleton Beach, Albany."

EXPLANATION OF PLATES.

PLATE XI.

Fig. 1.—*Germo germon steadi* Whitley. Holotype of subspecies, 38 inches long, from New South Wales. Austr. Mus. regd. No. IA.2457.

Fig. 2.—*Ulapiscis kennedyi* Whitley. Holotype, 265 mm. standard length, from Ellice Islands, Oceania. Austr. Mus. regd. No. IA.5534.

Fig. 3.—*Obtortiophagus koumansi* Whitley. Holotype, 50 mm. standard length, from Hayman Island, Queensland. Austr. Mus. regd. No. IA.2027.

PLATE XII.

Fig. 1.—*Diodon armillatus* Whitley. A dermal spine from the holotype, figured on plate xv.

Fig. 2.—*Galaxias dissimilis* Regan. Holotype, 75 mm. long, from (?) New South Wales, in the British Museum.

Fig. 3.—*Galaxias oconnori* Ogilby. Holotype, 77 mm. long, from Lyra, Queensland. Qld. Mus, regd. No. I.421.

Fig. 4.—*Hoplocoryphis physaliarum* Whitley. A small specimen from Long Bay, New South Wales.

Fig. 5.—*Paraploactis trachyderma* Bleeker. Holotype of *Aploactis lichen* De Vis. Queensland Mus. regd. No. I.11/75.

PLATE XIII.

Fig. 1.—*Paracentropogon vespa livingstonei* Whitley. Holotype of subspecies, 60 mm. standard length, from North-western Australia. Austr. Mus. regd. No. IA.4236.

Fig. 2.—*Bathyaploactis curtisensis ornatissimus* Whitley. Holotype of subspecies, 54 mm. standard length, from North-western Australia. Austr. Mus. regd. No. IA.4234.

Fig. 3.—*Aploactisoma milesii horrenda* Whitley. A specimen from New South Wales.

PLATE XIV.

Fig. 1.—*Bathyaploactis curtisensis curtisensis* Whitley. A paratype from Bowen, Queensland. Austr. Mus. regd. No. IA.1307.

Fig. 2.—*Crinodus lophodon* (Günther). A specimen, 174 mm. standard length, from Coogee, New South Wales. Austr. Mus. regd. No. IA.726.

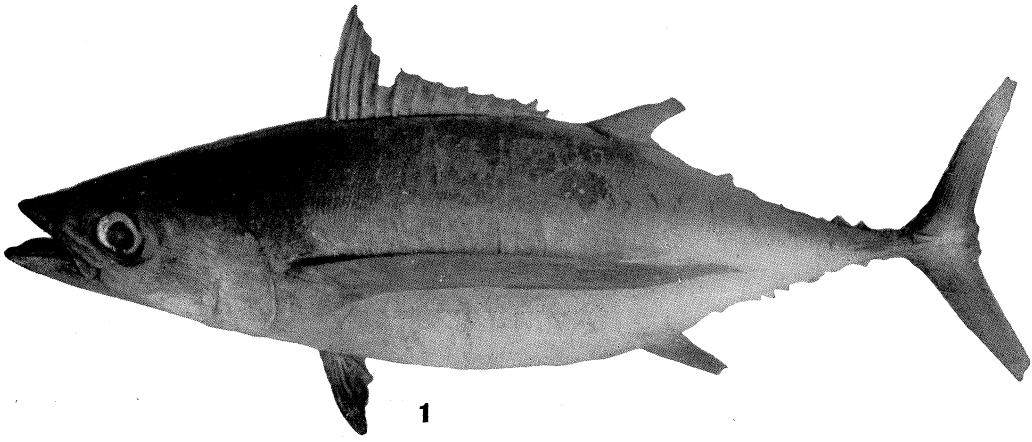
PLATE XV.

Fig. 1.—*Lophiocharon broomensis* Whitley. Holotype, 93 mm. standard length, from Broome, Western Australia. Austr. Mus. regd. No. IA.5562.

Fig. 2.—*Diodon armillatus* Whitley. Lateral view of the Holotype, nearly 270 mm. standard length, from North-west Islet, Queensland. Austr. Mus. regd. No. IA.2585. There is some unavoidable foreshortening of the anterior end, due to the marked convexity of the specimen.

Fig. 3.—*Diodon armillatus* Whitley. Front view of holotype, figured also on pl. xii, fig. 1, and pl. xv, fig. 2.

Sydney: Alfred James Kent, I.S.O., Government Printer—1933.



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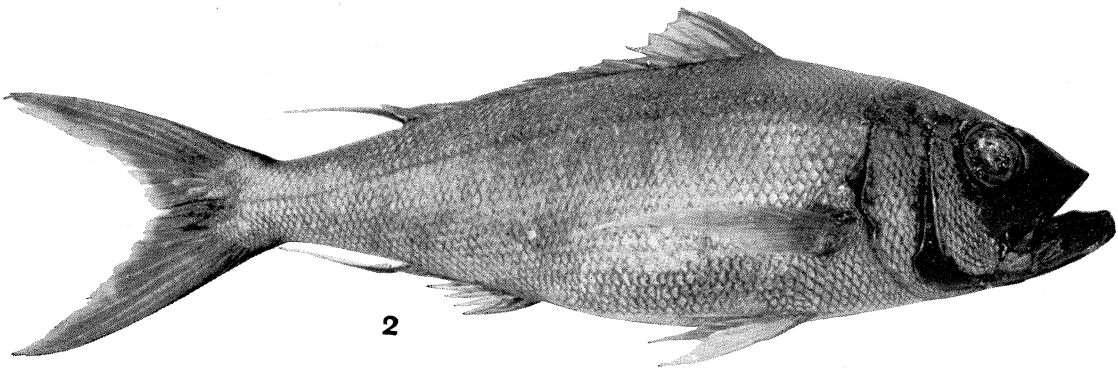

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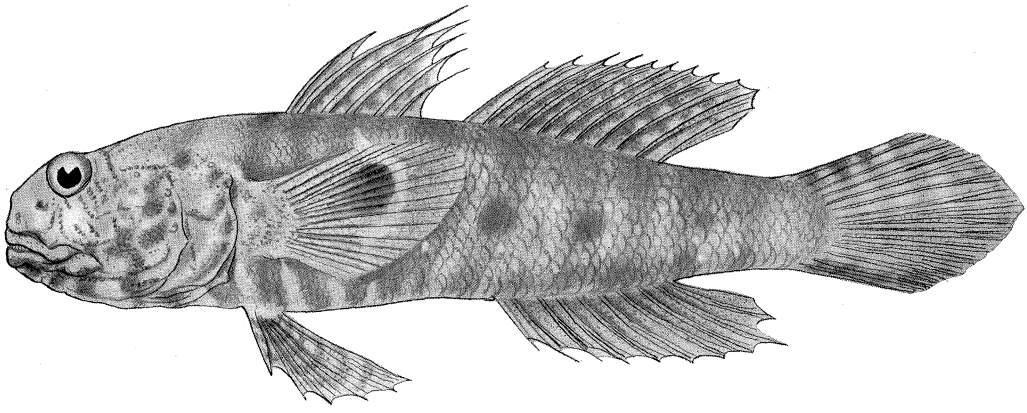

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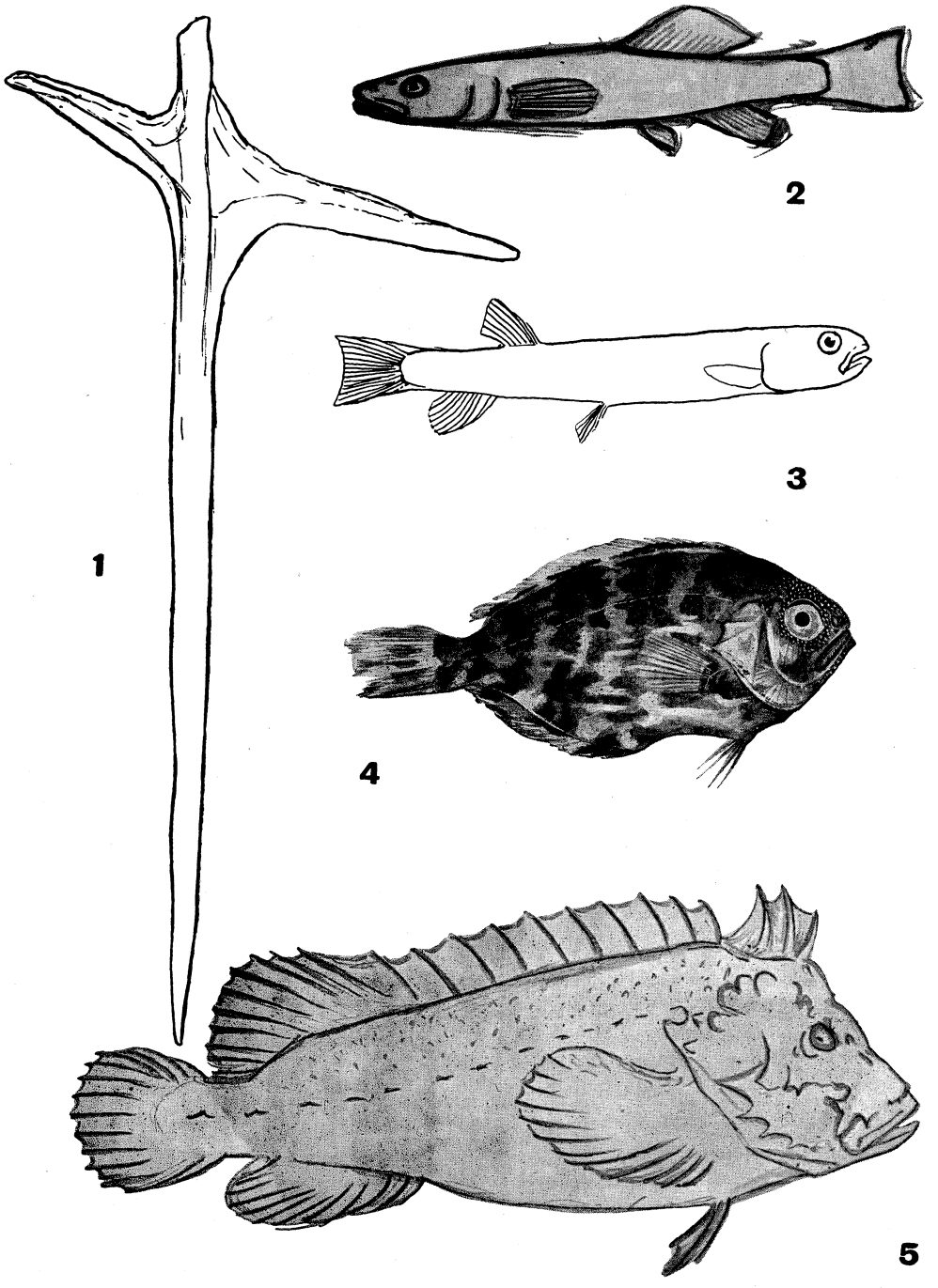
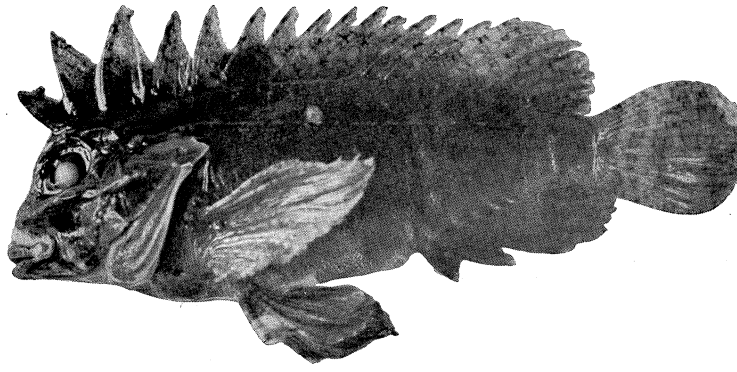
G. C. CLUTTON (1-2), photo.
JOYCE K. ALLAN (3), del.



JOYCE K. ALLAN (1), C. TATE REGAN (2), DENE B. FRY (3), and A. R. MCCULLOCH, (4-5), del.



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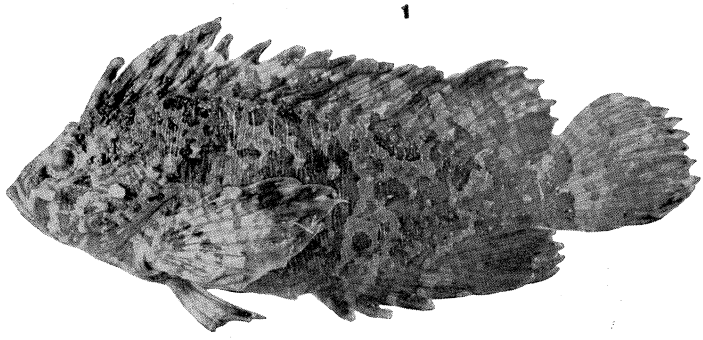

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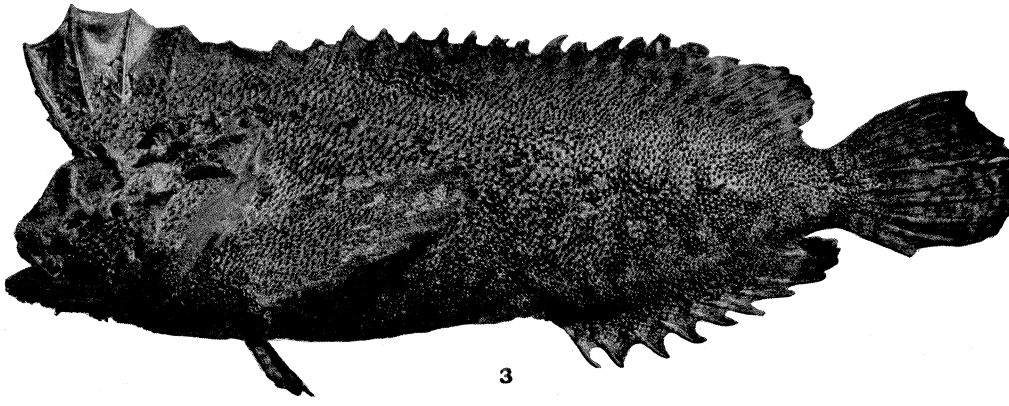

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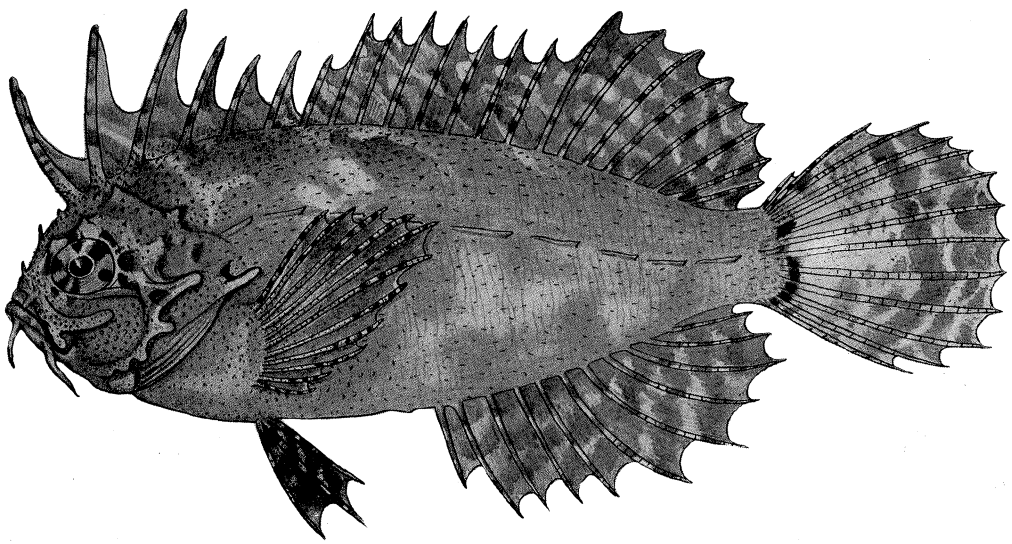
G. C. CLUTTON (1-2), T. C. ROUGHLEY (3), photo.



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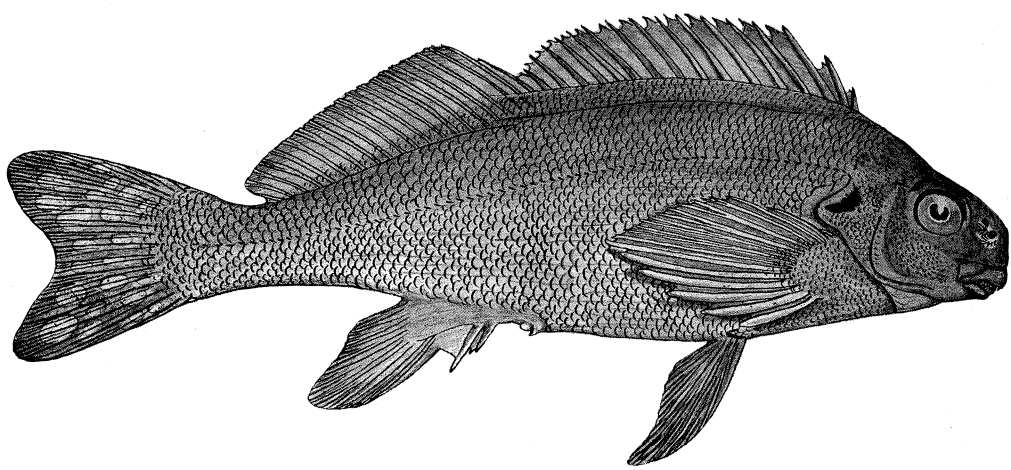

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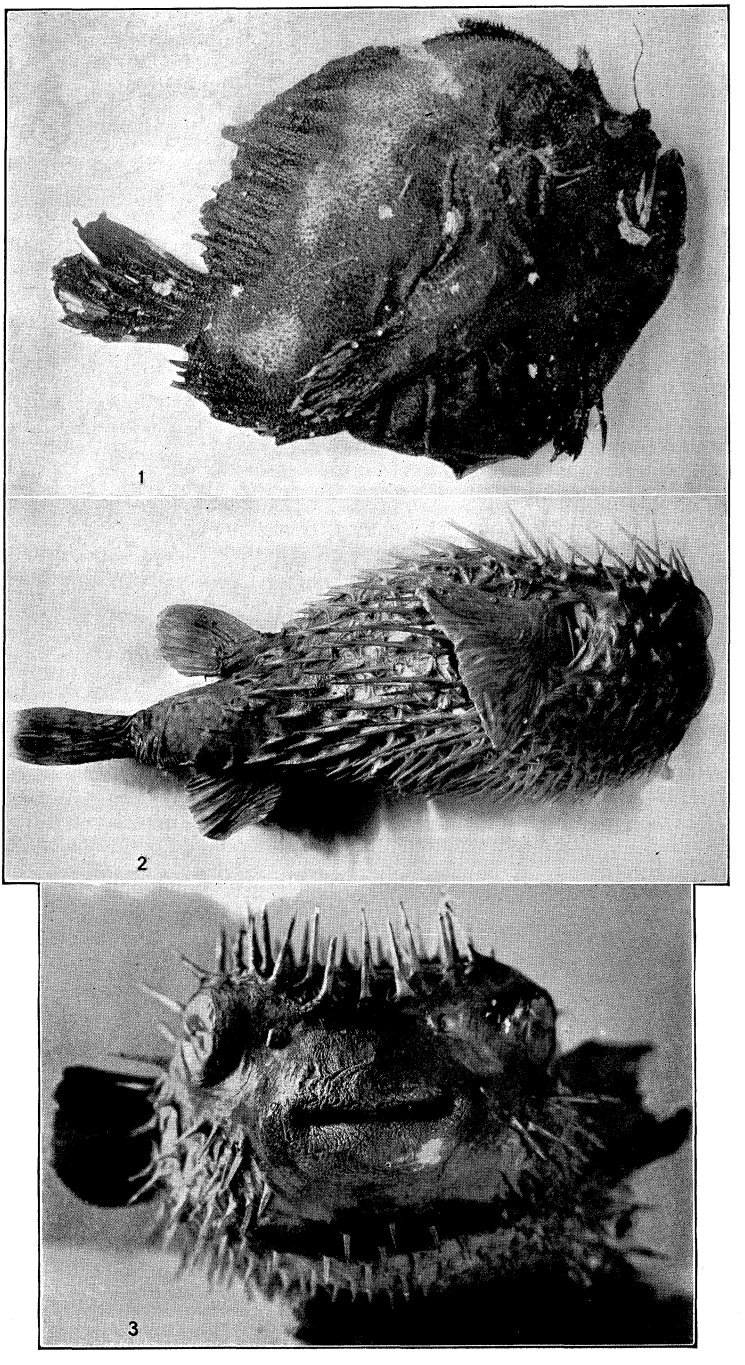
G. P. WHITLEY, del.



G. C. CLUTTON, photo.