

STUDIES IN ICHTHYOLOGY.

No. 9*.

By

GILBERT P. WHITLEY,

Ichthyologist, Australian Museum.

(Plate xviii, texts-figs. 1-11.)

Family **GONOSTOMATIDAE.**

Sub-family **Gonostomatinae.**

Narooma, gen. nov.

Orthotype, *Narooma benefica*, sp. nov.

The reduced number of anal rays (12 instead of usually more than 20) is the main feature which separates this genus from all the others in the family. *Gonostoma raoulensis* Waite 1910 is apparently congeneric.

Narooma benefica, sp. nov.

D. 8 (+?); A. 12.

Head (9 mm.) 3.3, depth (6) 5 in standard length (30). Eye (3) 3, interorbital (2) 4.5, upper jaw (6.5) 1.3 in head.

Photophore formula: $\frac{0}{6} + \frac{12}{16} + \frac{10}{9} + \frac{0}{13}$ on body.

General facies of *Gonostoma raoulensis* Waite¹.

A row of fine, unequal teeth on jaws and roof of mouth. Gill-rakers slender and numerous. A large photophore below eye and another before it. Suborbital not enlarged. Four photophores between maxilla and operculum. Six photophores along chin under gill-flap. A photophore at the mandibular symphysis. Two rows of photophores along lower part of body, and a single row on tail. Upper row ceasing over vent, lower row continuous with the series on the tail.

Body moderately elongate, compressed, covered with deciduous cycloid scales.

Dorsal originating well in advance of anal, but behind origin of ventrals. Apparently no adipose dorsal fin. Caudal forked.

General colour (in alcohol) silvery, becoming brown on caudal peduncle and along back. A dark blotch on each scale on the back, the blotches forming spaced spots as the chromatophores descend lower on the sides towards the caudal peduncle. Photophores bluish-black and yellowish. Eye bluish. Fins white.

Described from the holotype of the species, a specimen, 30 mm. in standard length or nearly 1½ inches overall.

Locality.—Found washed up on a beach near Narooma, southern New South Wales, in September, 1930, by G. P. Whitley. Possibly it had been brought up from deep water by the trawlers in the vicinity of Montague Island and was later cast ashore, where it was slightly attacked by beach crustacea. (Australian Museum regd. No. IA. 4647.)

* For No. 8, see Records of The Australian Museum, Vol. xix, No. 2, 1934, p. 153.

¹ Waite.—Trans. N.Z. Inst. xlii, 1910, p. 373, pl. xxxv, fig. 7: Raou I., Kermadec Group.

Family **TACHYSURIDAE.**Genus **Cinetodus** Ogilby, 1898.*Cinetodus* Ogilby, Proc. Linn. Soc. N. S. Wales, xxiii, 1, 1898, p. 32. Orthotype, *Arius froggatti* Ramsay and Ogilby.**Cinetodus froggatti** (Ramsay and Ogilby).

(Figure 1.)

Arius froggatti Ramsay and Ogilby, Proc. Linn. Soc. N. S. Wales (2), 1, May 25, 1886, p. 14. Strickland River, New Guinea; coll. W. W. Froggatt, Roy. Geogr. Soc. Exped. 1885. Type in Austr. Mus., regd. No. B.9936. *Id.* Weber, Nova Guinea ix, 1913, pp. 536 and 608. *Id.* Weber and Beaufort, Fish Indo-Austr. Archip. ii, 1913, pp. 276 and 307.*Cinetodus froggatti* Ogilby, Proc. Linn. Soc. N. S. Wales, xxiii, 1, 1898, p. 32.*Tachysurus froggatti* Fowler, Mem. Bishop Mus. x, 1928, p. 62, *et ibid.* xi, 1934, p. 391.

Although it has been well described, a figure of this species has long been a desideratum, and the accompanying illustration has been prepared from the still unique holotype.

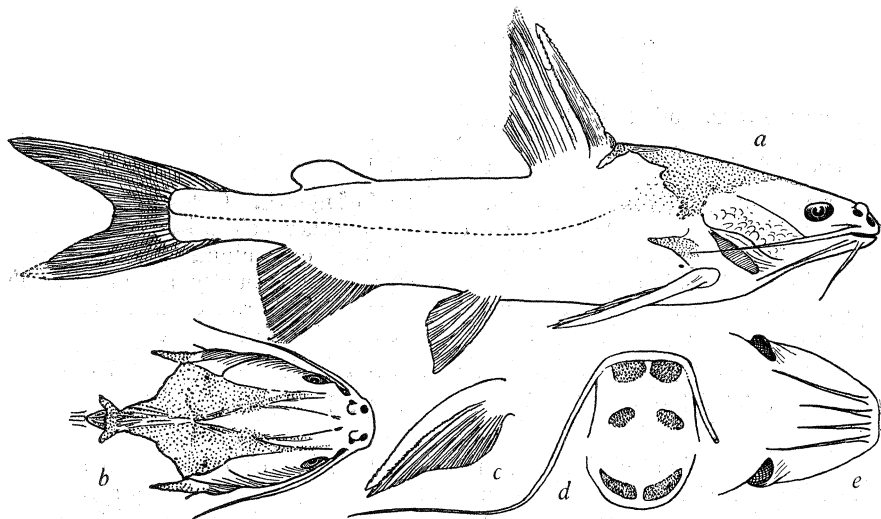


Figure 1.

Cinetodus froggatti (Ramsay and Ogilby). Holotype, 245 mm. in standard length, from the Strickland River, New Guinea. Austr. Mus. regd. No. B. 9936. (a) lateral view; (b) dorsal view of head; (c) pectoral fin; (d) dentition; (e) ventral view of head. Gilbert Whitley, *del.*Family **LEPTOCEPHALIDAE.**Subfamily **Scalanagoinae**, nov.

Conger eels with the lateral line sending off numerous vertical branches upwards and downwards.

Scalanago, gen. nov.

Orthotype, *Scalanago lateralis*, sp. nov.

A remarkable genus of conger eels found washed up on an ocean beach near Sydney in association with examples of the Little Conger, identified by authors as *Congermuraena*², this new form was first noticed by the late A. R. McCulloch, who did not name or describe it, but made the following manuscript note:—

"*Leptocephalidae*. Gen. et sp. ? Three specimens, 3 $\frac{3}{4}$ –5 $\frac{1}{2}$ inches long, from Bondi Beach, have the general appearance of *Congermuraena*, but differ markedly in having an elaborate exposed mucigerous system by which they can be immediately recognized. There is no trace of any such system in *Congermuraena*, though I have carefully compared many specimens of similar size; they have a series of open pores which are wanting in the new form. The snout is also somewhat shorter than in *Congermuraena*, but the dentition and all other characters appear very similar. These three specimens were found stranded together with *Congermuraena*."

The present writer has searched the local beaches regularly for about twelve years, but has obtained only the Little Conger (*Congermuraena*), which is apparently common on the continental shelf and is cast ashore after storms, and has not succeeded in finding the new form, which is now described.

Head conic, the upper jaw projecting beyond the lower. Skin soft and naked and crossed by prominent mucus canals. Two large canals follow the opercular margin and others trespass on the upper part of the eye, which is very large and covered with skin, which conceals the narrow interorbital. There is a median bony crest above the snout and before the eyes, and others near the posterior nostrils, but these are covered with skin also. The anterior nostrils are rather tube-like and rest between the upper lip and the lower part of the snout; they are narrowly separated from the exposed premaxillary teeth: the posterior nostrils are low-rimmed orifices just before the eyes. The upper lip has three well-developed labial bones which support its lateral membranous ridges like the ribs of an umbrella. This lip is separated from the teeth by a flat intermediate area and is without an upturned flange. The maxillary reaches to below middle of eye. Bands of close-set, conic teeth in each jaw, largest anteriorly, not forming a cutting edge, and none of them molariform. The large premaxillary teeth are external to the mouth, on the lower surface of the snout, but there is no median ridge or pocket, nor are there pores in front of them. A band of teeth, some of which are larger than the others, extends along the vomer and tapers posteriorly; these vomerine teeth are separated from the premaxillary ones by the confluent maxillary series. No palatine teeth. Tongue rounded, finely papillate, and joined to floor of mouth by a median connection. The preopercular and opercular bones and seven branchiostegal rays are visible through the skin. No jugostegalia³. Gill-openings well separated, situated just before pectorals, their length much less than eye-diameter, and their margins directed downwards and backwards.

Body elongate, naked, rounded anteriorly and compressed posteriorly; the tail is much longer than the head and body, and the trunk is notably longer than the head. The lateral line originates over the preoperculum and runs continuously, not as a series of pores, almost to the tip of the tail. Along its course it gives off long upward and downward branches, giving a somewhat ladder-like appearance. The

² Actually, the genus *Congermuraena* Kaup (Archiv. Naturg. xxii, 1, 1856, p. 71) has no standing, because Bleeker selected *Muraena balearica* Delaroche as the genotype. This action made *Congermuraena* a synonym of *Ariosoma* Swainson (Nat. Hist. Class. Fish. Amphib. Rept. 1, Oct., 1838, p. 220) with the same type. The Australasian *Congermuraena habenata* (Richardson) is not congeneric and will, I understand, be renamed in a paper being prepared by my colleague, Mr. L. T. Griffin, of Auckland.

³ Parr.—Copeia, 1930, No. 3, p. 71, fig. 2.

anterior downward branches meet their fellows across the breast and the first four or five converge towards the isthmus, but on the tail and along the back the branches of the lateral line do not meet medially.

Dorsal fin commencing a little behind the head, over the middle of the pectoral fin; it is highest over the middle of the body. Anal fin originating well within the anterior half of the fish, and, like the dorsal, joined to a very small caudal fin. Pectorals finely pointed, longer than upper jaw.

Scalanago lateralis, sp. nov.

(Figure 2.)

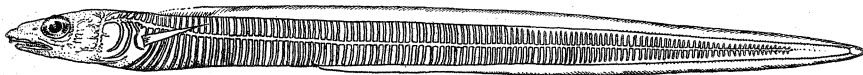


Figure 2.

Scalanago lateralis Whitley. Holotype, 140 mm. long, from Bondi, N.S. Wales. Austr. Mus. regd. No. IA. 5891. G. P. Whitley, *del.*

BR. 7. D. over 180, but slightly damaged and with the rays invested with skin which makes counting difficult. A. over 150. P. 13. C. 8. L. lat. with 116 branches on body, the posterior ones being very small.

Head (21 mm.) nearly 7, greatest depth (9) 15.5 in total length (140). Eye (5) 4.2, snout (6) 3.5, interorbital (2) 10.5, upper jaw (7.5) 2.8, pectoral (10) 2.1 in head. Distance from snout to vent (51) 2.7, from vent to tip of tail (88) 1.5, from snout to dorsal origin (24) 5.9 in total length.

General characters as defined for the genus.

Colour (in alcohol) uniform straw-yellowish. Probably silvery or whitish in life; certainly not black or dusky. Eyes silvery and bluish. Edges of fins dark brownish.

Described from the holotype of the species, the largest of three specimens, 90, 95, and 140 mm. long, or about 5½ inches in total length.

Locality.—Bondi Beach, near Sydney, New South Wales; cast ashore after storm in January, 1922. Collected and presented by Messrs. William Barnes and R. Hawkins. Austr. Mus. regd. Nos. IA.5891 (holotype) and 590 (paratypes). Also some "old collection" specimens from Maroubra, New South Wales.

The two paratypes show that the fins are colourless at first and later become infuscated, and their pectorals are not so attenuated as those of the type. The skin of the head is very adipose and conceals the bony ridges, and the general denseness of the integument is probably correlated with the elaborate lateral line system. The paratypes have 115 to 118 downward branches of the lateral line on the body. In other particulars, they agree with the holotype.

Dissection of a paratype shows that there are seven branchiostegal rays. The gill-rakers are vestigial, numbering about 8 large plus 8 small knobs on the lower part of the first branchial arch. No pseudobranchiae. Heart situated close behind gills. No subdermal scutes. Last caudal vertebra not much expanded. The vertebrae roughly correspond to the branches of the lateral line. Peritoneum dark coppery interiorly; stomach very dark brown.

Subfamily **Leptocephalinae.****Nesocongrus**, gen. nov.

Orthotype, *Conger muraena howensis* McCulloch and Waite⁴ = *Nesocongrus howensis*.

Head with large pores. Anterior nostril separated from the mouth by the lip somewhat as in *Leptocephalus labiatus* (Castelnau). The dentition has been figured elsewhere⁵ and consists of acicular teeth on jaws and both cardiform and molariform teeth on the vomer.

Lateral line normal. Dorsal fin originating over the operculum, and thus much farther forward than is usual in the family Leptocephalidae.

Forskalicthys, gen. nov.

Orthotype, *Conger cinereus* Rüppell⁶ = *Forskalicthys cinereus*.

Differs from *Conger* = *Leptocephalus* in having the mouth reaching beyond the eye, in the position of the gill-openings, and in having the dorsal fin high and conspicuously bordered with black, also the body is more slender. The Red Sea genotype may now be known as *Forskalicthys cinereus*, but it is noteworthy that Australian specimens agree better with the form called *Conger noordzieki* by Bleeker.

North Queensland specimens have the dorsal commencing above middle of pectoral. Length from tip of snout to vent just about half the length from vent to tip of tail, even in the young. Maxilla extending to below hinder margin of eye, thus agreeing with the text but not the figure in Bleeker's "Atlas." Eye large, about $1\frac{1}{2}$ in snout. Head more than half length of trunk. Coloration dark above and light below. A dark streak extends obliquely downwards along upper margin of lips. Dorsal and anal with broad blackish borders.

Family **NETTASTOMATIDAE.**Genus **Chlopsis** Rafinesque, 1810.**Dietrichthys**, subg. nov.

Orthotype, *Chlopsis (Dietrichthys) finitimus*, sp. nov.

A very attenuated eel, with the head acutely tapering, the upper jaw being the longer and overhung by the snout. Mouth large, extending beyond eye, and with very numerous canines and a series of vomerine fangs. Eye small. Nostrils lateral. Gill-openings small, lateral. Opercular elements well-developed but entirely covered by integument. No jugostegalia.

Head and trunk subequal in length. Body elongate, naked. Tail over three times the length of the rest of the fish.

No pectoral or ventral fins. Dorsal and anal long and low, confluent with the reduced caudal fin.

Coloration plain, the fins with dark margins posteriorly.

Named in honour of Frau Amalie Dietrich, who collected natural history specimens in the Bowen and other districts for the Godeffroy Museum, Hamburg.

⁴ McCulloch and Waite.—Trans. Roy. Soc. S. Austr., xl, 1916, p. 438, pl. xl, fig. 2: Lord Howe Island.

⁵ Whitley.—Austr. Mus. Mag., iv, 3, July, 1930, p. 92, fig.

⁶ Rüppell.—Atlas zu Rüppell, Reise (Senckenb. Nat. Ges.), Fische, 1830–1, p. 115, pl. xxix, fig. 1: Red Sea.

Chlopsis (Dietrichthys) finitimus, sp. nov.

(Figures 3 and 3A.)

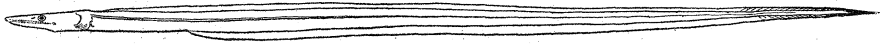


Figure 3.

Chlopsis (Dietrichthys) finitimus Whitley. Holotype, 363 mm. long, from Whitsunday Passage, Queensland. Austr. Mus. regd. No. IA. 924. G. P. Whitley del.



Figure 3A.

Chlopsis (Dietrichthys) finitimus Whitley. Dentition of holotype. G. P. Whitley del.

Head (35 mm.) 10.3, depth of body (*circa* 7) nearly 52, and distance from snout to vent (76) 4.7 in total length (363).

Eye (*circa* 4) nearly 9, interorbital (2) 17.5, snout (13.5) 2.5, and length of caudal fin (4.5) 7.7 in head.

Head bulbous posteriorly and acutely tapering anteriorly. Anterior nostrils inconspicuous, on sides of the snout, which overhangs the mouth; posterior nostrils forming an oblique slit near each eye. Rictus extending well beyond the rather small eye. Bands of erect canines in each jaw, some of them larger than the others. A depressible intermaxillary tooth. A row of about eight fangs along the vomer, flanked by a row of small teeth on each side. Two converging rows of teeth between the maxillary series posteriorly.

General characters as defined for the subgenus. Lateral line a continuous series of thick tubes extending along the elongate body, which is fairly robust anteriorly (though the specimen is slightly shrunken) and ribbonlike posteriorly. No pectorals. Dorsal and anal rays very numerous and fairly long. Caudal fin reduced, its rays long.

General colour (in alcohol) uniform straw-brownish. Some infuscations along the snout; a black area on the ends of the dorsal and anal fins and covering the caudal.

Described and figured from the unique holotype of the species, a specimen 363 mm. or 14½ inches long. It was collected several years ago in the Whitsunday Passage, Queensland, by Mr. E. H. Rainford, but its exact station is not known; possibly it was a straggler from deep water. Australian Museum regd. No. IA. 924.

This new species seems allied to *Chlopsis fierasfer* Jordan and Snyder⁷ from Japan, but differs in proportions as well as in having the rictus extending farther behind the eyes.

⁷ Jordan and Snyder.—Proc. U.S. Nat. Mus., xxiii, 1901, p. 860, fig. 10: Wakanoura, Japan.

Family **ECHELIDAE**.Genus **Muraenichthys** Bleeker, 1864.**Muraenichthys iredalei** Whitley.

(Figure 4.)

Muraenichthys iredalei Whitley, Rec. Austr. Mus. xvi, Oct. 7, 1927, p. 5, fig. 1.
Michaelmas Cay, North Queensland. Holotype (IA. 2743) in Austr. Mus.

A small eel, 48 mm. long, is determinable as this species. The head is about one-twelfth and the depth about one-twenty-eighth of the length. The form is elongate and subcylindrical, with the vent well within the anterior half of the fish. The exact points of origin of the reduced dorsal and anal fins are difficult to trace, but the dorsal begins behind the vertical of the anal origin. No pectorals. Caudal fairly well developed.

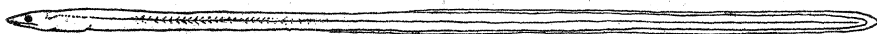


Figure 4.

Muraenichthys iredalei Whitley. Immature example, 48 mm. long, from Murray Island, Queensland. Austr. Mus. regd. No. IA. 6304. G. P. Whitley *del.*

General colour (in alcohol) yellowish, the eyes blue; a few blackish dots along the anterior portion of the lateral line.

Locality—Murray Island, Torres Strait, Queensland. Collected by C. Hedley and A. R. McCulloch. Austr. Mus. regd. No. IA. 6304.

Family **MURAENIDAE**.Genus **Polyuranodon** Kaup, 1856.

Polyuranodon Kaup, Arch. Naturg. (Wiegmann) xxii, 1, 1856, p. 65. Haplo-type, *P. kuhli* Kaup = *Muraena polyuranodon* Bleeker.

A genus of fluviatile or estuarine eels, distinguished from *Gymnothorax* by the more numerous rows of teeth, the reduced anal fin, more elongate habit, and striking coloration.

Polyuranodon polyuranodon (Bleeker).

Muraena polyuranodon Bleeker, Nat. Tijdschr. Ned. Ind. v, 1853, pp. 234 & 248. Ceram, East Indies. Type in British Museum. *Id.* Günther, Journ. Mus. Godef. ix, 17, 1910, p. 421 (Ovalau, Fiji—freshwater).

Polyuranodon kuhli Kaup, Arch. Naturg. (Wiegmann) xxii, 1, 1856, p. 65, and as *P. kuhlii* in Cat. Apod. Fish. 1856, p. 96. New name for *Muraena polyuranodon* Bleeker.

Gymnothorax polyuranodon Bleeker, Atlas. Ichth. iv, 1864, p. 89, pl. clxxiv, fig. 2.

Lycodontis polyuranodon Fowler, Mem. Bish. Mus. x, 1928, p. 54.

Head, about 50 mm. long. Gape, 15. Eye, 3. Interorbital, 4-5. Snout, 7. Gill-opening, 4. Depth of body, about 24. Distance from snout to vent, 315 mm.; from vent to tip of tail, 270.

Form very elongate and compressed. Snout bluntly rounded; profile of head concave over eyes and bulging over nape. Throat without grooves, rounded like the rest of the ventral surface of the body. Anterior nostrils large and tubiform, posterior ones small rimless openings above the anterior margins of the small eyes. Well developed canines are present around each jaw, largest in front of upper jaw. Some hinged depressible fangs on vomer anteriorly and some smaller fangs forming inner rows of maxillary teeth. The lower lip appears to protrude beyond the upper.

The fins are enveloped in adipose tissue and do not extend so far forward as in the example figured by Bleeker. Only the dorsal is well developed, originating well before the vent and some distance behind the head; the anal fin is reduced to a low fold on the posterior part of the tail.

Colour in alcohol, yellowish cream, conspicuously marked with large irregular blackish blotches, densest over the flanks, and more spaced on the belly. The blotches are frequently fused and, though not arranged in regular rows, tend to form longitudinal blackish stripes on the head behind the mouth.

Described from a specimen, 585 mm. or about two feet long, newly added to the Australian Museum collection (registered No. IA.6083).

Locality.—Collected in freshwater rivers in densely wooded country at Buin, south Bougainville Island, about 10 miles from the coast, in April-May, 1934, by Rev. Father J. B. Poncelet, S.M., of the Catholic Mission at Buin. Collector's No. 24. Native name, *peperoka*.

Two others have since been received from the same locality and collector, Sept.-Oct., 1934. Austr. Mus. regd. Nos. IA.6354-55. They were caught with the following species of freshwater fishes:—

Native Name.	Scientific Name.
Pogubu or Tugu... ..	<i>Culius niger</i> .
Lubau	<i>Glossogobius</i> sp. (aff. <i>giuris</i>).
Tobi	<i>Paradules marginatus</i> .
Maramo	<i>Anguilla megastoma</i> .
Tugu	<i>Ophiocara</i> sp. (aff. <i>aporos</i>).
Okorobi	<i>Dules rupestris</i> .

Bougainville Island is situated between New Guinea and the main Solomon Islands, so this record adds one more definite locality for the species, which has been listed from the East Indies, New Guinea, Philippine Is., Ebon I. (Marshall Group), and Fiji.

Family HOLOCENTHRIDAE.

Genus *Holotrachys* Günther, 1873.

***Holotrachys carneus* (Ramsay & Ogilby)=*humilis* (Kner & Steindachner).**

Myripristis carneus Ramsay & Ogilby, Proc. Linn. Soc. N. S. Wales (2) i, 1886, p. 474. Admiralty Islands, South Pacific. *Id.* Jordan & Seale, Bull. U.S. Bur. Fish. xxv, 1906, p. 222. *Id.* Fowler, Mem. Bish. Mus. x, 1928, p. 109, *et ibid.* xi, 6, 1934, p. 396.

The holotype of *Myripristis carneus* is preserved in the Australian Museum and agrees so well with Günther's figure of *M. (Holotrachys) lima*⁸ that it seems unnecessary to publish another illustration, the only differences observed being the

⁸ Günther.—Journ. Mus. Godeff., ix (Fische Südsee iv), 1873, p. 93, pl. lxiii, fig. A.

slightly fewer scales on the lateral line and the rather less pointed snout in Ramsay & Ogilby's example. The original *Myripristis lima* Cuvier & Valenciennes⁹ came from Mauritius and is evidently very like the present form, only differing in having more numerous transverse rows of scales and the head and depth about one-third of the total length. Jordan & Seale's figure¹⁰ called *Holotrachys lima* is apparently not that species, nor is it *carneus*, as it shows less rugose suborbitals and maxillaries, a very deep body, and only three anal spines. Jordan & Seale made *Harpage* De Vis¹¹ a synonym of *Holotrachys*, but the type of *carneus* differs from De Vis' description in having seven instead of five branchiostegal rays and the head less than one-third total length. Kner & Steindachner's description of *Myripristis humilis*¹² agrees with *carneus*, which is thus a synonym thereof.

Family STROMATEIDAE.

Genus *Stromateus* Linné, 1758 ?

Stromateus? *maculatus* Forster.

Stromateus? *maculatus* Forster, Die Neuesten Reisen nach der Botany Bay i, 1794, Tagebuch . . . von John White, pp. 131-132, No. 7. Based on "A Fish of New South Wales" J. Stockdale, Voy. Gov. Phillip to Botany Bay, ed. 1, 1789, p. 282, pl. 1; ed. 2, 1790, p. 171, pl. —, New South Wales. Not *Stromateus maculatus* Cuv. and Val., Hist. Nat. Poiss. ix, 1833, p. 399.

The "fish of New South Wales" figured by Daniel Butler (who came to Australia in 1788) and engraved in *The Voyage of Governor Phillip to Botany Bay*, 1789, has always puzzled me. The sketch is a rough one, and the identity of the species seemed a matter of little importance until I found that Forster gave it a name in 1794. I am still unable to say what the fish is. It may be an ally of *Platycephalus*, *Seriolella*, or perhaps a young *Coryphæna*.

Several other new names for Australian fishes were proposed by Forster (*op. cit.*), but have escaped notice, even in Sherborn's *Index Animalium*. All of them are synonyms of earlier named species. Thus *Squalus superciliosus* = *Heterodontus portusjacksoni*; *Lophius nigricans* = *Pseudobatrachus dubius*; and *Gasterosteus serratus* = *Enoplosus armatus*.

As *Stromateus maculatus* Cuv. and Val. is preoccupied, it may be renamed *Stromateus advectitius*, sp. nov. Its bibliography has been given by Evermann and Radcliffe¹³.

Family BELONIDAE.

Djulungius, gen. nov.

Orthotype, *Belone melanotus* Bleeker.

Cheeks scaly; operculum naked. Intermaxillaries but slightly swollen. Gill-rakers obsolete. Body robust. Dorsal and anal fins long and almost opposite. Caudal peduncle not very strongly depressed and with only a small keel, formed by the lateral line, on each side. Caudal fin strongly forked.

⁹ Cuvier and Valenciennes.—Hist. Nat. Poiss., vii, April, 1831, p. 493: Isle-de-France.

¹⁰ Jordan and Seale.—Bull. U.S. Bur. Fish., xxv, 1906, p. 222, fig. 25.

¹¹ De Vis.—Proc. Linn. Soc. N. S. Wal. s, viii, 1884, p. 447: Haplotype, *H. rosea*, South Seas.

¹² Kner and Steindachner.—Sitzb. Akad. Wiss. Wien, liv, 1, 1866, p. 357, pl. i, fig. 1: Samoa.

¹³ Evermann and Radcliffe.—Bull. U.S. Nat. Mus., xcv, 1917, p. 64.

Djulungius melanotus (Bleeker).

Belone melanotus Bleeker, Nat. Tijdschr. Ned. Ind. i, 1850, p. 94. Batavia.

Mastacembelus melanotus Bleeker, Atlas Ichth. vi, 1871, p. 47, pl. cclvi, fig. 2, as *M. choram* (non *Belone choram* Rüppell, 1837).

Tylosurus melanotus Weber & Beaufort, Fish. Indo-Austr. Archip. iv, 1922, p. 127, fig. 47.

Br. 15. D. ii/24; A. ii/21; P. i/11; V. i/5; C. 13. L. lat 125+149 *circa*.

Eye, 21 mm. Upper jaw, at least 140 mm. from eye (tip missing). Head, 207 mm. to end of lower jaw. Interorbital, 26. Postorbital, 43. Depth of body at origin of ventrals, 50. Distance from tip of lower jaw to ventral origin, 440, added to distance from ventral origin to end of middle caudal rays, 290, gives 730 mm. as total length (2 ft. 5 in.), though this is approximate as specimen is curled and hardened in preservative.

Teeth erect, with a well developed series outside the large ones in each jaw. No vomerine teeth. Nostrils large, papillated. Top of head naked, with fine smooth striae. Cheeks and temples scaly. Maxillary hidden by preorbital. Gill-rakers obsolete.

Body elongate, compressed, rather robust, covered with scales which do not extend on fins or head. Breadth of body about $\frac{2}{3}$ its height. Lateral line continuous, sending up a branch below ventral fin, and forming a low keel on each side of the caudal peduncle, which is slightly broader than high.

Dorsal origin very slightly behind that of the anal. The two fins are similar in form, the anterior rays forming a falcate lobe, the median rays long, and the last one in each fin slightly produced. Pectorals broad, pointed. Caudal forked, the lower lobe longer than the upper.

Colour, in alcohol, dark grey above and silvery to yellowish below, the colours well contrasted. Inner axilla of pectoral dark grey. All the fins more or less infuscated. Proximal portion of pectorals and inner rays of ventrals yellowish. Dorsal dark grey; anal similar, except near its base where a yellowish tinge prevails. A blackish spot on upper part of eye.

Locality.—Aviklo village, Möwehafen, New Britain. Obtained by Mr. J. A. Todd. (Austr. Mus. regd. No. IA.6081.)

Family **MELANOTAENIIDAE**.**Aidaprora**, gen. nov.

Orthotype, *Aidaprora carteri*, sp. nov.

Allied to the genera *Rhombosoma* and *Anisocentrus* of Regan 1914, but distinguished by its small mouth, dentition (as described hereunder), form of body, and striking coloration.

Aidaprora carteri, sp. nov.

D. i, $\sqrt{1}$, 10 (11); A. i, 20; P. i, 12; V. i, 5; C. 15. L. lat. 33. L. tr. 11.

Head (19 mm.) 3.3, depth of body at dorsal and anal origin (28) 2.2 in standard length (64). Eye (6) 3.1, upper jaw (5) 3.8, snout (4) about 5, interorbital (7) 2.7, pectoral fin (14) 1.3, depth of caudal peduncle (9) 2.1 in head. Predorsal length (32) 50% of standard length.

Anterior part of mouth horizontal; posterior part oblique, not reaching eye. Jaws subequal anteriorly, the lower not included. Intermaxillary separated from rest of jaw by a notch. Fine teeth on jaws and a row of teeth outside upper jaw. Vomerine teeth present. A series of pores around eye, and on snout and occiput. Eye large. Interorbital broad and flat. Fourteen gill-rakers on lower limb of first branchial arch.

Profile strongly excavated over head and gibbous before first dorsal fin, thence arched fairly evenly to the thick caudal peduncle. Breast markedly convex, rest of ventral profile gently sloping.

Body covered with large cycloid scales with entire edges. Genital papilla just behind ventral base. First dorsal originating on a level with anal origin. The first spine is pungent, but the others are weak, flexible and elongate. Second dorsal high posteriorly and, like the anal rays, overreaching the emarginate caudal.

General ground colour in alcohol brownish-yellow, becoming dark brown on the back. About ten broad brown bands along the overlapping scale-rows reaching from shoulder to tail or along belly. A dusky mark over opercle; top of head dusky. Pectorals yellowish, with a small blackish axillary spot. Other fins black with bold yellow chequers. Eyes bluish.

Described from the holotype of the species, a specimen 65 mm. in standard length or about $3\frac{1}{4}$ inches overall. Austr. Mus. regd. No. I.13091. It is evidently a male, and is the largest of a series, 51 mm. or more in standard length. Specimens with the upper profile much less excavated and the colours lighter and less striking are apparently female. Seven paratypes, Nos. I. 13092-97.

Variation.—The smallest specimen is a young male with only 17 anal rays; otherwise there is no important variation apart from sexual dimorphism.

D. i, iv-v/i, 10-11; A. i (17) 20-21; Sc. 32-33; L.tr. 10-12. Head 3.2 to 3.5, depth 2.3 to 3.2 in standard length. Eye 3.0 to 3.6, upper jaw 3.6 to 4.2 in head. Predorsal length 45 to 50% of standard length.

Locality.—Flinders River and adjacent pools near Hughenden and Richmond, Central Queensland; presented by Mr. Frederick L. Berney in 1914.

I have much pleasure in naming this species after Mr. Alfred Kyrwood Carter, of Clovelly, New South Wales, a keen aquarist who has presented many specimens of fishes to the Australian Museum and has placed his careful notes and accurate drawings of various fishes at my disposal from time to time.

Genus *Amneris*, Whitley, 1935.

Amneris Whitley, Austr. Aquatic Life i, 1, Feb. 1, 1935, p. 37. Orthotype, *Nematocentris rubrostriatus* Ramsay and Ogilby, *sensu stricto*.

A genus of tropical freshwater sunfishes allied to *Rhombatractus* and *Anisocentrus*, but with the following combination of characters:—

A series of fairly large teeth on the upper jaw externally. Jaws subequal anteriorly or lower jaw slightly included. A notch between upper and lateral part of upper jaw; cleft of mouth curved. Gill-rakers short, slender, pectinate; about 15 on lower portion of first gill-arch.

Body elongate rhombic, covered with cycloid scales with entire edges. Lateral line with about 32 scales.

First dorsal fin with one pungent and five flexible, produced spines; second dorsal with a spine and about eleven rays. Anal fin originating below flexible dorsal spines.

This genus approaches *Rhombosoma* Regan, but differs mainly in having a row of enlarged teeth along the outside of the upper jaw instead of bands of very small teeth.

***Amneris rubrostriata* (Ramsay and Ogilby).**

(Figure 5.)

Nematocentris rubrostriatus Ramsay and Ogilby, Proc. Linn. Soc. N. S. Wales (2) i, May, 25, 1886, p. 14. Strickland River, Papua; coll. W. W. Froggatt, Roy. Geogr. Soc. Exped., 1885.

Rhombatractus rubrostriatus Ogilby, Proc. Linn. Soc. N. S. Wales, xxi, 2, 1896, p. 134.

Melanotaenia (*Nematocentris*) *rubrostriatus* Weber, Nova Guinea, ix, 1913, pp. 561 and 608.

Nematocentris rubrostriatus Regan, Proc. Zool. Soc. Lond., 1914, p. 339. Ex McCulloch MS. Not *Anisocentris rubrostriatus* Regan, Trans. Zool. Soc. Lond., xx, 6, 1914, p. 281, pl. xxxi, fig. 3.

Anisocentris rubrostriatus Jordan and Hubbs, Stanford Univ. Ser., Stud. Ichth. 1919, Atherin. p. 22.

Melanotaenia? *rubrostriata* Weber and Beaufort, Fish. Indo-Austr. Archip. iv, 1922, p. 295.

Anisocentrus rubrostriatus Fowler, Mem. Bish. Mus., x, 1928, p. 121 (not refs. to Regan or Weber).

Melanotaenia rubrostriatus Fowler, Mem. Bish. Mus. xi, 6, 1934, p. 398.

Amneris rubrostriata Whitley, Austr. Aquatic Life i, 1, Feb. 1, 1935, p. 37, and fig.

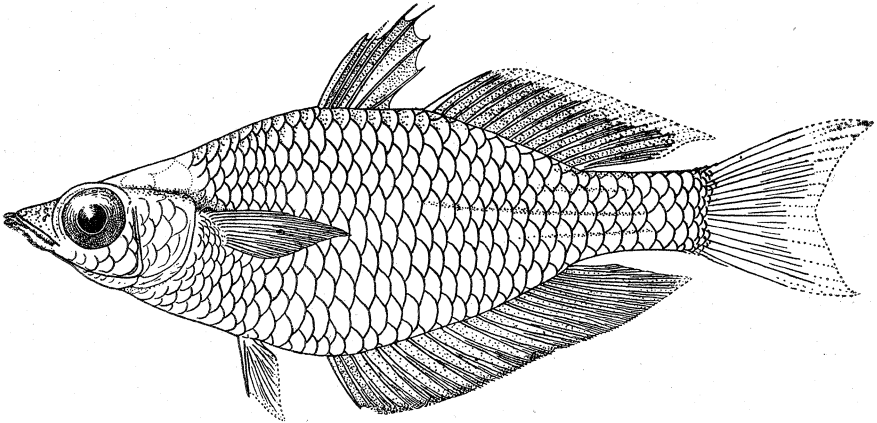


Figure 5.

Amneris rubrostriata (Ramsay and Ogilby). Holotype, 56.5 mm. in standard length, from the Strickland River, Papua. Austr. Mus. regd. No. B. 9949. G. P. Whitley del.

D. vi/i, 11 (last branched); A. i, 20 (last branched); P. ii, 12; V. i, 5; C. 15 branched rays. Sc. 34 between operculum and hypural joint. L. tr. 13.

Head (18 mm.) 3.2, depth (22) 2.6 in standard length (59). Eye (5) slightly greater than snout (4.75), shorter than interorbital (7). Pectoral (11.5) 1.4 in head.

Head strongly depressed above, cultrate below, and with the chin oblique. A marked notch between premaxillaries and maxillaries, which are toothed exteriorly. A series of small caniniform teeth, largest anteriorly, and with a band of villiform teeth immediately behind them on the mandibles, which extend beyond the upper jaw anteriorly. Palate apparently toothless.

A curved row of large pores before the eye and one or two more on the flat, scaleless, interorbital; another series or pores surrounding the chin. Snout and chin naked, opercles entire and scaly.

Body compressed, its upper profile less convex than the lower and with the greatest depth below the first dorsal spine. Scales large, cycloid, with slightly truncate margins, not crenulated.

First dorsal fin with a pungent spine and five flexible rays, the second and third of which are produced into filaments. Second dorsal, ventral, and anal fins also preceded by a pungent spine.

The life-colours of specimens about 2½ inches long, according to Mr. Alfred K. Carter, were as follows:—

“ Back, olivaceous. Belly: abdomen yellowish, breast white.

“ The scales on the sides have a sheen of purple. Between each row of scales, longitudinally, is a stripe. The centre one is dark coloured (either blue-green or brown-green) on the caudal peduncle, the fore part being deep yellow. The other stripes are all yellow, the one immediately below the centre being the most intense, though none are vivid.

“ Opercle: green to light blue sheen below, with an orange spot above, which is bordered above by a thin blue green stripe.

“ Dorsal and anal fins: at the basal half, deep yellow-orange, with dark red, alternately spaced spots, producing a red and yellow checkered effect. This pattern carries out to the fin edge but is much paler, and the basic colour is pinkish. A *faint* black edging is present. Caudal the same, but the general colour is more reddish and the spots not quite so intense. I now recollect that I neglected to notice the colouring of the spinous dorsal, but believe it to be yellowish without spots. Ventrals, yellowish; pectorals, transparent.

“ Iris: yellow, blue streak on lower arc.”

Described from a specimen 59 mm. in standard length, or nearly three inches overall.

Locality.—Cairns district, North Queensland. Australian Museum registered No. IA. 5920.

This species is evidently the *Nematocentris rubrostriatus* of Ramsay and Ogilby, the type of which, here figured, has the following characters:—D. i, 5/1, 11 (12); A. i, 20 (21); P. ii/11; V. i/5; C. 15; Sc. 32. Tr. 11.

Head (15.5 mm.) 3.6, depth of body (20) 2.8 in standard length (56.5). Eye (5) 3.1, interorbital (5.5) 2.8 in head.

The jaws are damaged, but external teeth are clearly visible on the maxillaries, a character recalling Regan's genus *Rhombosoma* rather than his *Anisocentrus*, which seems to be based on a species misidentified as *rubrostriatus* R. & O.

Subfamily **Pseudomugilinae.**Genus **Pseudomugil** Kner, 1864.*Pseudomugil* Kner, Sitzb. Akad. Wiss. Wien liii, 1, 1864, p. 543 and Reise Novara (Fische), 1865, p. 275. Haplo type, *P. signifer* Kner.**Pseudomugil signatus** (Günther).

(Figure 6.)

Atherina signata Günther, Ann. Mag. Nat. Hist. (3) xx, July 1, 1867, p. 64. Cape York, Queensland (Dämel). Type in British Museum (Nat. Hist.).*Pseudomugil signatus* Whitley, Gt. Barr. Reef Exped. Sci. Rept. iv, 9, 1932, p. 278, fig. 2. Low Isles, North Queensland.

In his original description, Günther gave the fin-formula of this species as D.iii/i, 6; A.i, 10, so that it was with some reservation that I identified my Low Isles specimens as *P. signatus*, which was only known from Günther's short description. I gave a figure of a fine Low Isles example with D.v/13; A.12. Since then, Mr. A. K. Carter has submitted specimens from the Cairns district with D.iv-v/7; A.i/9. I therefore wrote to Mr. Norman at the British Museum asking him to examine Günther's type. He very kindly complied with my request and checked the formula as D.iii/7; A.i/10. Thus it seems that the typical *P. signatus* is the mainland form from North Queensland and that the Low Isles Blue-Eye with increased fin-rays is a new subspecies, which may be named *P. signatus affinis*, the type being Austr. Mus. regd. No. IA.4340. There is also a tiny spotted *Pseudomugil* from the mainland which was collected by the Wilkins Expedition and is now becoming a favourite with local aquarists. I propose to deal with this at some later date.

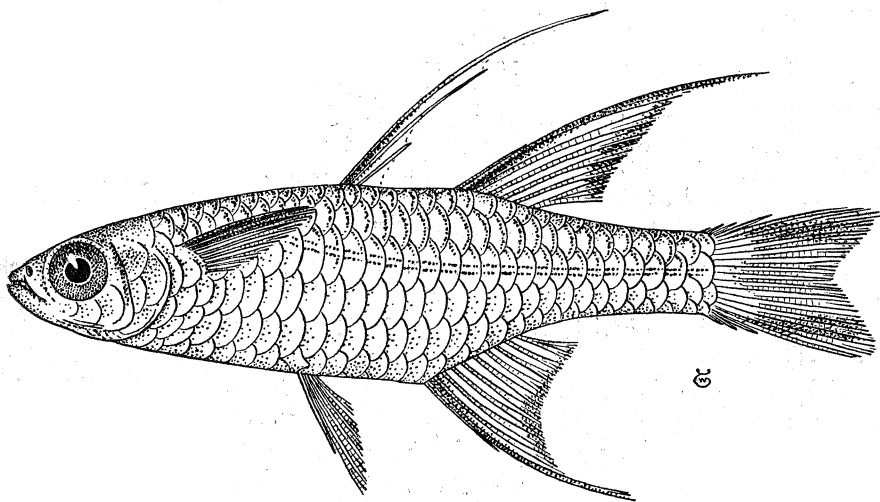


Figure 6.

Pseudomugil signatus (Günther). Holotype, 34 mm. in standard length, from Cape York, Queensland. British Museum (Nat. Hist.) regd. No. 67-5-13-18. Lieut.-Colonel W. P. C. Tenison, D.S.O. del.

Lieut.-Colonel W. P. C. Tenison, D.S.O., kindly prepared the accompanying figure of the type of *Pseudomugil signatus* in the British Museum, and his excellent drawing enables comparison to be made with the other forms.

Family **HYPOPLECTRODIDAE.**

Fraudella, gen. nov.

Orthotype, *Fraudella carassiops* sp. nov.

A genus of small marine Serranoid fishes, superficially like *Hypoplectrodes* and *Ellerkeldia*, but having the lateral line running along the back, rather as in *Owstonia*, and with thirteen spines in the first dorsal fin. There is also a slight resemblance to *Pseudochromis* and *Paraplesiops*, under which generic names specimens were found labelled in the "Endeavour" collections.

Fraudella carassiops, sp. nov.

(Plate xviii, fig. 3.)

Br. 6. D.xiii/9; A.iii/10; P.17; V.1/5; C.15. L.lat. 37 + 6. L.tr. 1/1/17.

Head (15 mm.) 3, depth (13.5) 3.3 in standard length (45). Eye (4) 3.7, interorbital (2) 7.5, snout (2.5) 6, upper jaw (10) 1.5, pectoral (8.5) 1.7, caudal peduncle (7) 2.1 in head.

Mouth large, the maxillary extending to below the hinder margin of the moderate-sized eye. Supplemental bone not well defined. Bands of fine teeth on upper jaw with a large tooth at the symphysis, flanked by two hooked canines on each side. Series of prominent hooked teeth on vomer and palatines. Mandibular teeth fairly strong, hooked, and in a single row; there are a few canines anteriorly. Anterior nostrils in a tube-like flap; posterior ones in orifices just before eye. A series of pores along preorbital, encircling eye, and extending over vertex and temples. Preopercular margin rounded, strongly serrate. Operculum with a very weak spine. Branchiostegal membranes united across the very narrow isthmus. Gillrakers spaced, slender and denticulated, only five on the lower portion of the first branchial arch. Cycloid scales on opercles and occiput; rest of head (including jawbones) naked or porous.

Body elevated, compressed, covered with cycloid scales which do not extend on to the fins, and leave an area naked along each side of the dorsals. The lateral line originates over the gill opening, ascends sharply and runs high up along the back, ceasing below the last dorsal rays. The tubes are simple and occur again on each side of the caudal peduncle, four scale rows below the main lateral line series.

The lateral line scales are not intercalated, or modified in outline, but are similar to those on the rest of the body.

Dorsal spines increasing in length backward, but not as long as the rays. Third anal spine longest; the soft dorsal, anal, pectorals, and caudal rounded. Ventrals with a short spine, the first and second rays longest and contiguous at their base, and the third to fifth rays rather weak.

Coloration in alcohol brownish, with the fins yellowish; some dusky infuscations on flanks and dorsal rays, and a series of dusky marks radiating from the bluish eye. In life, however, the general colour was much more brilliant, being like the rich reddish orange of a goldfish (*Carassius*). No crossbands or prominent colour-markings.

Described from the holotype of the species, a specimen 45 mm. in standard length or $2\frac{1}{4}$ inches overall. A series of eighteen paratypes, the smallest of which is only 16 mm. in standard length, shows no important variation.

Localities.—North-West Islet, Capricorn Group, Queensland; found in a large sponge dredged in 20 fathoms, north of the islet, 27 May, 1931; coll. G. P. Whitley. Holotype: Austr. Mus. regd. No. IA.5093. Also two paratypes (IA.5094). North-West Islet, Queensland; coll. A. A. Livingstone and W. Boardman. Five small paratypes (IA.4788). Near Bowen, Queensland; F.I.V. "Endeavour." Three paratypes (E.2682). Thirteen miles S.E. from Cape Capricorn, Queensland; F.I.V. "Endeavour," 29/7/10. Eight paratypes (IA.6302).

Family APOGONIDAE.

Subfamily Epigoninae.

Genus *Scepterias* Jordan and Jordan, 1922.

Scepterias Jordan and Jordan, Mem. Carnegie Mus. x, 1, Dec., 1922, p. 44. Orthotype, *S. fragilis* Jordan and Jordan. *Id.* Pietschmann, Bull. Bish. Mus. lxxiii, 1930, p. 13.

A genus recently described from the Hawaiian Islands and now found to be represented in Australian seas by a new species, differing from the genotype mainly in its proportions.

Scepterias lenimen, sp. nov.

Br. 7. D. vii/i, 9; A.ii/9; P.18; V.i/5; C. about 16. L.lat 50. L.tr.3/8.

Head (32 mm.) 2.8, depth (circa 20) about 4.6 in standard length (92). Eye (15.5).2, interorbital (10) 3.2, snout (7) 4.5, pectoral (19) 1.7, postorbital (11) nearly 3 in head.

Head rounded, bluntly tapering anteriorly. Eyes extremely large and bulging. Maxillary with a supplement bone, extending to below anterior third of eye. Upper jaw not hidden by the narrow preorbital. Mandibles with very elevated rami.

Minute teeth on jaws and vomer. Tongue slender. Ctenoid scales on opercles and temples, extending over the flat interorbital to before the eyes. Anterior nostril an upright slit, posterior nostril an oval orifice. Preopercular margin entire, weak. Operculum with a pungent spine. Gillrakers long and slender.

Body slightly compressed, covered with spaced, deciduous, ctenoid scales, which become enlarged and gelatinous on the continuous lateral line. Dorsals, anal, and ventrals with long pungent spines, the soft portions of the fins with scales on their bases. Four scales between the two dorsals and five between vent and anal fin. Caudal forked.

Colour (in formalin) brown, each scale-pocket densely infuscated. Snout and fins dusky. Eye blue.

Described from the holotype, a specimen 92 mm. in standard length or $4\frac{1}{2}$ inches overall. It is smaller, but better preserved, than the paratypes, one of which is 7 inches long.

Localities.—Great Australian Bight; south from Eucla, 350 to 450 fathoms. F.I.V. "Endeavour," coll., 14 May, 1913. Holotype regd. No. E.3368, also nine paratypes (E.3554 and I.A.6303). Great Australian Bight; S.W. from Eucla, 190–320 fathoms. $126^{\circ} 45\frac{1}{2}'$ E. long., 4 April, 1913. Two paratypes (E.3581–3582). South of Gabo Island, Victoria; 200 fathoms. F.I.V. "Endeavour," coll. 6 Oct., 1914. Paratype (E.5490).

Range.—Deep water southward of Australia: Victoria, South Australia, Western Australia.

Family PLESIOPIDAE.

Assessor, gen. nov.

Orthotype, *Assessor macneilli* sp. nov.

A small black percoid fish, superficially like a *Plesiops* but with the following characters:—

Head somewhat compressed, its upper profile convex over the moderately large eyes. Snout very short. Opercles entire. Maxillary broad, truncate, scaly. No supplemental bone. Check-scales in three rows. A narrow band of villiform teeth in each jaw, the terminal and external teeth largest. Tongue pointed and, like the palate, apparently toothless.

Six branchiostegal rays. Gill-membranes united across the isthmus. Gill-rakers very long, slender, numerous. Posterior nostrils in a short tube. A series of rather large pores around eye and on top of head. Interorbital convex. Head (except snout) covered with imbricate, cycloid scales.

Body strongly compressed; caudal peduncle deep. Scales of the flanks with denticulated margins. Lateral line with a series of tubes, running along the back to below the soft dorsal rays, interrupted, and then followed by a few tubed scales along the middle of the caudal peduncle.

Dorsal fin with eleven spines, increasing in length backward, joined to nine soft rays, forming a pointed lobe. The membrane of the spinous dorsal is not deeply incised. There is a low scaly sheath to all the fins except the ventrals. Anal fin with three spines, the third longest, and nine rays. Pectorals rounded, about as long as the head. Ventrals long and pointed, with four rays. Caudal forked.

Differs from *Grammatonotus* Gilbert, 1905, in having a much broader maxillary, four ventral rays, and longer pectorals.

Assessor macneilli, sp. nov.

Br. 6, D. xi/9; A. iii/9; V. 1/4; P. 15; C. 15; L. lat. 8 + 7. L. tr. 1/1/9.

Head (14 mm.) 3.2, depth (15.5) nearly 3 in standard length (45). Eye (4.5) 3.1, interorbital (4) 3.5, depth of caudal peduncle (8) 1.75 in head. Pectoral fin (13.5) subequal to head.

General characters as described for the genus.

Colour uniform blackish (in spirit), the pectoral fins greyish. In life, Mr. McNeill informs me, the specimen was an intensely dark blue colour.

Described from a single specimen, 45 mm. in standard length, or $2\frac{1}{2}$ inches overall.

Locality.—Hayman Island, Whitsunday Passage, Queensland. Collected by Mr. F. A. McNeill, Christmas, 1934. Austr. Mus. regd. No. IA. 6383.

Family ANTHIIDAE.

Genus *Franzia* Jordan and Thompson, 1914.*Franzia huchtii* (Bleeker).

Anthias huchtii Bleeker, Act. Soc. Sci. Indo-Neerl. ii, 1857, p. 38. Amboina. *Id.* Weber and Beaufort, Fish. Indo-Austr. Archip. vi, 1931, p. 103 (refs.).

Anthias mortoni Macleay, Proc. Linn. Soc. N. S. Wales, vii, 1883, p. 253. Pitt Bay, Moresby Island, S.E. New Guinea. *Id.* Weber and Beaufort, Fish. Indo-Austr. Arch. vi, 1931, p. 107. *Id.* Fowler, Mem. Bish. Mus. xi, 6, 1934, p. 411.

Pseudanthias mortoni Jordan and Seale, Bull. U.S. Bur. Fish, xxv, 1906, p. 260.

Anthias margaritaceus Fowler, Mem. Bish. Mus. x, 1928, p. 185. Not of Hilgendorf, 1879. New Guinea record only.

D. x/17-18; A. iii/8; P. 16; V. 1/5. L. lat. 40.

Head (21 mm.) nearly 3.5, depth of body (26) 2.8 in standard length (73). Eye (6) 3.5, interorbital (6) 3.5, snout (3) 7, end of maxillary (4) 5.2 in head. Third dorsal spine about 28 mm. long. Macleay stated, "the space between the eyes convex, and equal to nearly two diameters of the orbit," but even at its broadest part the interorbital is little more than the eye-diameter, and Macleay's error has misled other workers.

Diameter of eye slightly less than interorbital width. Orbital margin entire. Maxillary broad and scaly, reaching beyond middle of eye. A row of acute teeth in each jaw with some canines anteriorly, thus: two small adjacent canines on each side of the premaxilla, a canine pointing forwards and outwards on each side of the mandibular symphysis, and a large backwardly hooked tooth on each side of mandible. Other teeth on vomer but none on tongue. Head scaly, except near nostrils, and with auxiliary scales or squamulæ.

Preoperculum markedly denticulate, a few spines slightly enlarged at its angle, but no antrorse barbs. A few spines at the angle of the operculum. About seven rows of cheek-scales. Gill-rakers slender and numerous. Pseudobranchiæ present.

Body deep, compressed, covered with cycloid scales, including numerous squamulæ. Lateral line continuous from shoulder to middle of caudal root, not sharply angulated, and with about 40 scales. Three or four rows of scales between lateral line and the scaly sheaths of the dorsal fins.

Dorsal fins united, the third spine much produced, and the last spine not very much shorter than the first ray. Anal with three spines, the second largest; the longest ray reaches the caudal root. Pectoral with 16 rays, all but the first and last branched. Ventrals originating below pectoral axilla, their rays barely reaching the vent. Caudal too damaged for description, but Macleay said "long and forked, with the lobes produced."

Coloration, after very long preservation in alcohol, brownish, the ventrals with dusky tips. The collector (Andrew Goldie) noted the colours as "slate blue, with crimson stripe on gills, and flame colour fins and tail, the latter has a light edge. Eye green."

Described from the lectotype of *Anthias mortoni* Macleay, the largest of three specimens, 65 to 73 mm. in standard length. Austr. Mus. regd. Nos. I. 9223-9225.

Fowler made this species a synonym of *A. margaritaceus* Hilgendorf, but Macleay's types differ from Tanaka's figure¹⁴ of that Japanese species in having smaller scales, and no produced dorsal ray. To me, it seems conspecific with *Anthias huchtii* Bleeker, figured in the "Atlas Ichthyologique." This species is not a true *Anthias*, but is referable to the genus *Franzia* Jordan and Thompson¹⁵. *Franzia nobilis* and *affinis*, figured by Tanaka (1921), are also allied to *huchtii*.

Chromanthias, gen. nov.

Orthotype, *Chromanthias exilis*, sp. nov.

A genus of small marine fishes superficially like the Indo-Pacific species of "*Anthias*," but differing in the following combination of characters:—

Eye subequal to interorbital; posterior orbital margin denticulated. Maxillary short, naked, with a supplemental bone. Fine teeth on jaws and palate; none on tongue. Preorbital with a row of mucus glands. Preoperculum finely denticulated on its posterior margin only; no antrorse spines. Three to four rows of cheek-scales. Gill-rakers slender and numerous. Pseudobranchiæ present.

Body covered with ciliated scales. Lateral line tubes ceasing below soft dorsal; a few pores along middle of caudal peduncle. Two or three scale-rows between lateral line and back. No squamulæ. Dorsal fins united, none of the spines produced; rays long. Anal with two spines. Pectoral rays divided, the upper ones longest. Ventrals behind pectoral base; first ventral ray long. Caudal forked. Coloration without striking bands, bars, or spots.

Readily distinguished from *Grammatonotus* Gilbert, 1905, by its fin and scale formulæ.

Chromanthias exilis, sp. nov.

Br. 4. D. xii/14; A. ii/14; P. 22; V. 1/5; C. 15. L. lat. 19 + 8 or 9 pores on caudal peduncle. L. tr. $2\frac{1}{2}/1/8\frac{1}{2}$. About 33 transverse rows of scales between shoulder and hypural joint.

Head (10.5 mm.) equal to depth of body (10.5) and length of caudal fin (10.5) and 3.6 in standard length (38). Eye (3.25) subequal to interorbital (3.5), and upper jaw (3.2) and about one-third of head. Depth of caudal peduncle (4) about 2.6 in head.

General characters as defined for the genus.

Colour (in alcohol) reddish brown above and silvery below. Eye dark bluish. Dorsal fins dark brown. Other fins yellowish, the anal and caudal rather infuscated.

Described from the larger of two specimens, 35 to 38 mm. in standard length, or nearly 2 inches overall.

Locality.—Pleasant Island (Nauru), South Pacific. Holotype and paratype (Austr. Mus. regd. No. I. 6681). Though now labelled "old collection," these specimens evidently formed part of the series listed by Waite¹⁶, who, either omitted them from his account, or else may have regarded them as *Anthias* [= *Pseudanthias*] *pleurotaenia* Bleeker, which he rightly recorded from Pleasant Island at the time.

There are also specimens of a small percoid fish, included with the "*Anthias*," but too juvenile and not well enough preserved for description.

¹⁴ Tanaka.—Fish. Japan, xxxi, 1921, p. 559, pl. cxlii, fig. 395, as *Sacura*.

¹⁵ Jordan and Thomp. on.—M. m. Carnegie, Mus., vi, 4, Sept., 1914, p. 251: Orthotype, *Anthias nobilis* Franz.

¹⁶ Waite.—Rec. Austr. Mus., v, 1903, p. 3.

Family **SPARIDAE**.Genus **Roughleyia** Whitley, 1931.**Roughleyia palmaris**, sp. nov.

(Figure 7.)

D. xii/10; A. iii/8; P. 15; V. 1/5; C. 17. L. lat. 46. L. tr. 4/1/10.

Head (80 mm.) 3, depth (100) 2·4 in standard length (240). Eye (16) 5, inter-orbital (26) 3, snout (22) 3·6, second anal spine (38) 2·1, depth of caudal peduncle (28) 2·8 in head.

Head somewhat higher than long; profile oblique, gibbous before eyes and at occiput. Body-profile most arched anteriorly.

Top of head scaly behind interorbital region. Five or six rows of cheek scales. Preopercular limb naked. Opercles entire. Upper jaw slightly longer than lower, the premaxillary overhung by tip of snout. Maxillary reaching to below pupil. Six anterior teeth peg-like; lateral teeth molariform, in three rows in upper jaw and two in lower. No vomerine teeth.

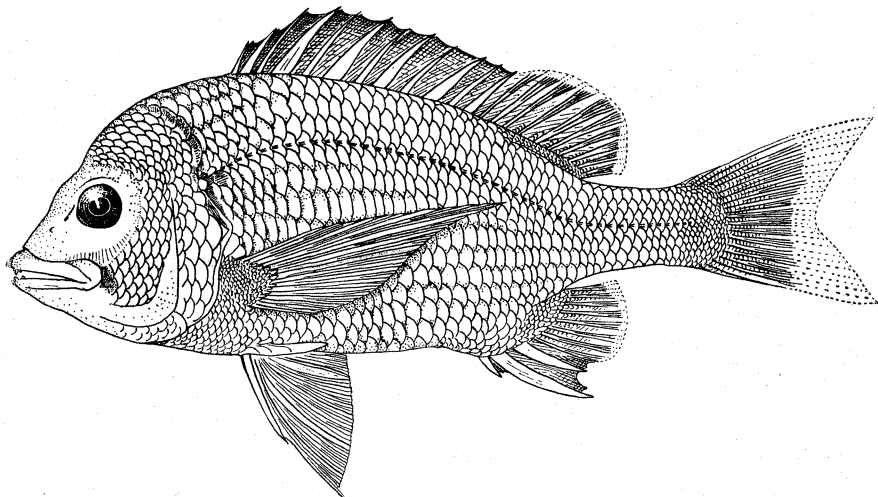


Figure 7.

Roughleyia palmaris Whitley. Holotype, 240 mm. in standard length, from Port Hedland, Western Australia. Austr. Mus. regd. No. I. 12065. G. P. Whitley *del.*

Body deep, compressed. Scales extending on to most of the fins. About four rows between lateral line and back.

Dorsal fin with twelve spines, the fourth to sixth longest, and ten rays, mostly longer than the spines. Anal with three spines (the second enlarged) and eight rays. No filamentous spines or rays.

Colour (after preservation in alcohol) olivaceous, not striped. A diffuse dark blotch just behind the maxillary. Vertical fins dusky. A dark mark at pectoral axilla and an indistinct dark blotch at upper angle of gill-opening.

Described and figured from the holotype, a specimen 240 mm. in standard length, or about 1 foot long. Austr. Mus. regd. No. I. 12065.

Locality.—Port Hedland, north-western Australia; from the Fisheries Department of Western Australia.

This new species differs from the eastern Australian genotype, *Chrysophrys australis* Gunther, 1859, in the following characters:—

- A. Snout conical; upper profile almost straight. Four rows of cheek-scales. Molars in four rows in upper jaw and three in lower. D. xi-xii/11-12. Anal base terminating behind dorsal. Lateral line sinuate . . . *R. australis* (Gunther).
- AA. Snout tumid, deeper; upper profile of head gibbous. Five or six rows of cheek-scales. Molars in three rows in upper jaw and two in lower. D. xii/10. Anal terminating below end of dorsal. Lateral line evenly curved . . . *R. palmaris* sp. nov.

Family CHEILODACTYLIDAE.

Genus *Sciaenoides* Richardson, 1843.

Sciaenoides Richardson, Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (late 1843), pp. 18 and 19. Logotype, *Sciaenoides abdominalis* Richardson ex Parkinson MS = *Cheilodactylus carponemus* Cuv. and Val., by present designation.

Dactylopagrus Gill, Proc. Acad. Nat. Sci. Philad. xiv, May, 1862, p. 114. Orthotype, *Cheilodactylus carponemus* Cuv. and Val. Also spelt *Dactylosparus* on p. 117.

The generic name *Sciaenoides* Richardson (not of Bleeker) takes precedence over Gill's name for the morwongs of Australia and New Zealand.

Sciaenoides morwong (Ramsay and Ogilby).

Chilodactylus morwong Ramsay and Ogilby, Proc. Linn. Soc., N. S. Wales (2), i, Nov., 1886, pp. 879 and 881. Botany Bay, N.S. Wales. Earlier, as a *nomen nudum*, in Ramsay, Cat. Exhib. N.S.W. Court, 1883, pp. 9 and 41 (Tasmania).

Dactylopagrus morwong McCulloch, Austr. Zool. Handbook, i, May 16, 1922, p. 67, and Austr. Mus. Mem. v, 1929, p. 257.

The Queensland Museum submitted for identification a fine specimen of this species, No. I. 5155 in its collection, and measuring nearly 1 foot 8 inches overall. Mr. T. C. Marshall states that it "was caught off Deep Tempest, Stradbroke Island by Mr. F. Z. Eager. Its colours in life were:—General colour pale purplish-grey spangled with bright yellow, dorsal and ventrals pale purplish-grey with yellow spots, three or four bright yellow spots below eyes and also on the operculum and preoperculum." It is one of three similar specimens.

This constitutes a new record for Queensland, this species having not hitherto been recorded from so far north.

Family **POMACENTRIDAE**.Genus **Pseudopomacentrus** Bleeker, 1877.**Pseudopomacentrus rainfordi**, sp. nov.

Br. 5. D. xiii/14; A. ii/14; P. 16; V. 1/5; C. 13. L. lat. 18 + 8. L. tr. 3/1/9.

Head (17 mm.) 3.4, depth of body (31) 1.9, depth of caudal peduncle (8.5) 6.9 in standard length (59). Snout (2) 3 in the eye (6) which is equal to interorbital (6). Pectoral (17) equal to head.

Form robust, elliptical, the profiles of the head steep and convex. Snout short and blunt. Interorbital convex. A single row of compressed incisors, with their tips well separated, in each jaw. Mandible with a sharply ascending ramus. Head scaly except on mouth, suborbital, and extreme ends of snout and chin. Bones of subocular and postocular ring very narrow, irregularly denticulated; a distinct, backwardly-curved, preocular spine. Preopercular margin strongly serrated. Operculum and interoperculum entire. A few mucus pores before the eyes. Gill-rakers long and fairly numerous.

Body covered with large ciliated scales which extend well over the bases of the unpaired fins. Axillary scales enlarged. Lateral line tubes simple, ceasing below the soft dorsal fin, where some small pores replace them and are continued along the caudal peduncle. Dorsal fin increasing in height to the seventh ray which forms the tip of a pointed lobe. Ninth anal ray longest, the fin similar to the soft dorsal. Pectorals rounded. Ventrals with produced tips which reach the anal spines. Caudal forked.

General colour fairly uniform dark chocolate brown, becoming blackish on all the fins except the pectorals which are light grey. The pectoral base is entirely covered by a black blotch, margined with white posteriorly. Allied to *P. melanopterus* Bleeker, but with increased fin-rays and tubes on lateral line, also different proportions.

Described from the holotype of the species, a specimen 59 mm. in standard length or 3 inches overall. Austr. Mus. regd. No. IA.6389.

Localities.—Hayman Island, Queensland; collected by Mr. F. A. McNeill, Christmas, 1934. Holotype and paratype. Others previously collected at the same locality by Mr. E. H. Rainford, who also obtained the species at Holbourne Island and Hook Island, Queensland. Further specimens were caught during the "Geranium" surveys of the Outer Barrier Reef between 17° S. lat. and 19° S. lat. by W. E. J. Paradise. Altogether, I have fifteen specimens from 35 to 75 mm. in standard length, or up to nearly 4 inches overall.

Family **SARDIDAE**.**Scomberomorus (Cybiosarda) elegans**, subg. et. sp. nov.

D. xvi/16 + 10 finlets: A. 15 + 8 finlets.

Head (90 mm.) nearly 4, depth of body (75) 4.7 in length to end of middle caudal rays (355). Eye (10) 9, pectoral fin (44) 2.04 in head; interocular space (32) subequal to snout (32).

Upper profile of head oblique, slightly convex. Posterior nostril a lunate slit. Maxillary reaching to below posterior half of eye and overlying an oblique slit behind the rictus.

General form mackerel-like, with a high spinous dorsal fin and the body plump. A series of long, spaced, compressed teeth along each jaw. A pear-shaped patch of villiform teeth on the vomer and a spindle-shaped patch on each palatine. Broad areas of lingual teeth. Ten long, slender gill-rakers on lower part of first branchial arch.

Most of the body surface is naked, but there are small scales along the top of the back and on the caudal peduncle. Others occur along the slightly undulating course of the single lateral line, near the source of which they mingle with larger scales to form a corselet. Caudal peduncle with a keel.

Dorsal fin highest at about the fifth spine; the interdorsal space is much less than the diameter of the eye.

Head dark bluish-grey above and yellow on the sides. Body bluish-grey on the back, brownish on the flanks, and white below. Back with many small spots around spinous dorsal and with large scattered dark grey spots elsewhere; these become oblique on the sides and transformed into three or four horizontal bands. Spinous dorsal black anteriorly and white at the posterior spines. Other fins and finlets yellow, more or less suffused with dusky infuscations.

Described from a specimen in the Queensland Museum from Moreton Bay, Queensland.

Family MULLIDAE.

Genus *Upeneichthys* Bleeker, 1855.

Upeneichthys porosus (Cuv. and Val.).

(Plate xviii, figure 1.)

Upeneus porosus Cuvier and Valenciennes, Hist. Nat. Poiss., iii, April, 1829, p. 455. New Zealand (type) and Tasmania.

The accompanying figure was prepared by the late D. B. Fry from a specimen trawled in 20 fathoms in Spencer Gulf, South Australia. Austr. Mus. regd. No. I.10348.

Upeneus vlamingii Cuvier and Valenciennes¹⁷ should be restricted to the East Indian fish first observed by Corneille de Vlaming and figured by Renard, as it is evidently not the same as the Southern Australian and New Zealand species, which is apparently *porosus* of the same authors, though the Sydney form was earlier named *Mullus surmuletus* var. *lineatus* by Bloch and Schneider¹⁸.

Family SYNAPTURIDAE.

Genus *Phyllichthys* McCulloch, 1916.

Phyllichthys sejunctus, sp. nov.

(Plate xviii, fig. 2.)

D. 83; A. 66; V. 4; P. 7; C. 15; L.I. *circa* 96 or about 117 on blind side.

Head (32 mm.) 6.5, depth (78) 2.6 in standard length (208). Eye (5) 6.4, caudal fin (25) 1.2, interorbital (4.5) about 7 in head.

¹⁷ Cuvier and Valenciennes.—Hist. Nat. Poiss., iii, April, 1829, p. 452.

¹⁸ Bloch and Schneider.—Syst. Ichth., 1801, p. 78, pl. xviii, as *M. talamii*.

General habit as in *Phyllichthys punctatus* McCulloch¹⁹, with the type of which I have compared it, but body deeper, fin-rays more numerous, head with fewer cirrhi, and slightly broader interorbital. The collector states "it was checked in life, white with gray between each square."

From the genotype, *P. sclerolepis* (Macleay) it differs in having smaller eyes. The three species, which are evidently closely related, may be distinguished as follows:—

A.—Dorsal with more than eighty, anal with more than sixty-five rays.

B.—Diameter of eye 4.6 in head *sclerolepis*.

BB.—Diameter of eye 6.4 in head *sejunctus*.

AA.—Dorsal with about seventy, anal with less than sixty-five rays.

BBB.—Diameter of eye 6.6 to 7.3 in head *punctatus*.

The holotype is a specimen, 9¼ inches long, from Fitzallen Island, Whitsunday Passage, Queensland. Presented by Mr. Melbourne Ward. Austr. Mus. regd. No. IA.6292.

Family PTERACLIDAE.

Genus *Pteraclis* Gronow, 1772.

Pteraclis velifer australiae, subsp. nov.

Pteraclis (Bentenia) sp. Whitley, Rec. Austr. Mus. xviii, 4, June 29, 1931, p. 146. New Zealand; refs. and synonymy.

An unexpected addition was made to the Australian fauna when Mr. H. Wann found a specimen of this Wing Fish washed ashore at Balmoral, Port Jackson, New South Wales, on 20 May, 1935. It is a large female, agreeing generally with my description of New Zealand specimens, but with the following characters:—Br. 8. D. 51. A. 46. P. 19. Ventrals vestigial. Head nearly 100 mm. long; depth of body nearly 120, including sheaths. Standard length, 450 mm. Eye equal to snout, 22.5 mm. Interorbital, 25. Thirteenth dorsal ray longest, about 340 mm., the tip being curved and thickened. Tenth anal ray longest, 310 mm. First and second dorsal and anal spines compressed. About fifty transverse rows of scales between upper limit of gill-opening and root of tail. A small oval patch of teeth on vomer. Austr. Mus. regd. No. IA. 6447 (type of subspecies).

Mr. Wann noted the colours as: "General colour frosty silvery, luminous in the dark. Fins dark blue, with pale turquoise spots posteriorly; eye very dark blue with a silvery iris." The fish is evidently pelagic and may have been associated with the vast quantities of salps, jellyfishes, and other floating organisms which were drifted shorewards along the coasts near Sydney in May, 1935.

The following fishes must now be added to the 630 different species found in New South Wales:—

(a) *Stomias affinis* Gunther, collected by the "Dana" and recorded by Ege, 1934.

(b) *Saccopharynx schmidti* Bertin, collected by the "Dana" and recorded by Bertin, 1934.

(c) *Narooma benefica* Whitley, *supra*.

(d) *Scalanago lateralis* Whitley, *supra*.

(e) *Stromateus? maculatus* Forster, *vide supra*.

⁹ McCulloch.—Mem. Qld. Mus., v, 1916, p. 67: Busselton, W.A.

(f) *Pteraclis velifer australis* Whitley, *supra*.

(g) *Scarus pyrrhostethus* Richardson. A specimen was recently trawled off Sydney Heads. Austr. Mus. regd. No. IA. 6429. I have also collected it at North-West Islet, Queensland, and the Austr. Mus. has Lord Howe Island specimens. Hitherto only known from tropical waters farther north.

Several new species and larval fishes still await description.

An article dealing with the commoner fishes of this State appeared in the January, 1935, number of the Australian Museum Magazine.

Family BROTULIDAE.

Subfamily Dinematichyinae, nov.

Dorsal, anal, and caudal fins separated. No barbels on head as in *Brotula*.

Genus *Dermatopsis* Ogilby, 1896.

Dermatopsis Ogilby, Proc. Linn. Soc. N. S. Wales xxi, 2, Sept. 23, 1896, p. 138.

Haplotype, *D. macrodon* Ogilby. Earlier as a *nomen nudum* in Abstr. Proc. Linn. Soc. N. S. Wales, for June 24, 1896, p. ii.

Allied to *Dinematichthys* but differing in the characters of the reduced scales, dentition, and general proportions.

Dermatopsis macrodon Ogilby.

(Figure 8.)

Dermatopsis macrodon Ogilby, Proc. Linn. Soc. N. S. Wales xxi, 2, Sept. 23, 1896, p. 140. Maroubra, N. S. Wales. Holotype (No. I. 3505) in Austr. Mus., Sydney. *Id.* Ogilby, *ibid.* xxii, 1897, p. 86. *Id.* McCulloch, Austr. Zool. ii, 3, 1922, p. 115; Fish. N.S.W., 1922, p. 89; Austr. Mus. Mem. v, 1929, p. 355.

A very full and accurate description of this genus and species was given by Ogilby in 1896, but no figure has yet appeared. Whilst only one specimen was known about forty years ago, the fish is now ascertained to be fairly common at times, though practically unknown to fishermen on account of its cryptozoic habits. McCulloch (1922) described it as "A translucent, flesh-coloured fish, which lives in rock-pools on the coast. Length 3 inches." It is probably viviparous.

Amongst his manuscripts, the late A. R. McCulloch had the following note:—

"Having dissected away the flesh from the 2nd specimen referred to by Ogilby, I find the dorsal tubercles are the ends of the anterior neural spines, and are only seen when the flesh has shrunk owing to preservation in alcohol. They do not show in fresh specimens, though they can be felt when the flesh is pressed down upon them. The ventral fins are wrongly described by Ogilby being a single ray instead of two in intimate connection.

"This genus is readily distinguished from *Monothrix* by the scales being rudimentary and separate from one another instead of closely imbricate; also the maxillary is much longer than broad posteriorly instead of being as broad as long.

"A fresh specimen found on Maroubra beach is pale brown anteriorly, darker posteriorly; the dorsal caudal and anal fins very dark brown."

The present writer has collected this fish at Bottle and Glass Rocks, Port Jackson, where it lives in burrows in mud, below clumps of mussels, under stones and in suchlike shaded places. The general colour is olivaceous above, white on the belly, whilst the viscera, gills, etc., show through the skin as pinkish areas. Eye dull blue. A dark pink median streak along the body with bloodvessels also visible.

Sketches of living specimens are here reproduced to show swimming attitudes. The fish is not very active, however, preferring to hide. When brought into strong sunlight the olivaceous or dun colour changes to dull reddish brown and the fish, evidently feeling ill at ease, seeks a fresh hiding place.

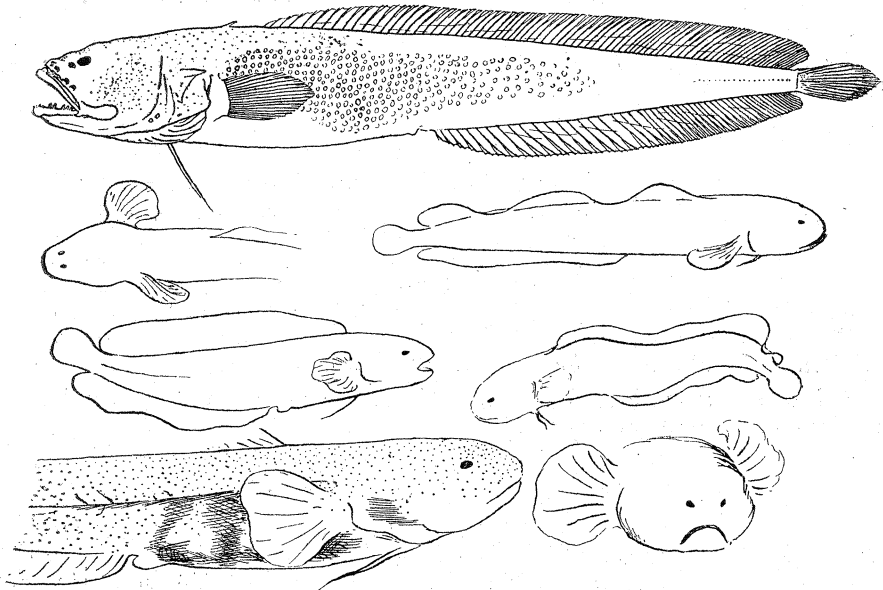


Figure 8.

Dermatopsis macrodon Ogilby. Holotype, 72 mm. in standard length, from Maroubra, N. S. Wales. Austr. Mus. regd. No. I. 3505. Also attitudes of living specimens from Bottle and Glass Rocks, Port Jackson, N. S. Wales. Austr. Mus. regd. No. IA. 5928. G. P. Whitley del.

The following specimens from New South Wales, are preserved in the Australian Museum:—

Registered No.	Quantity.	Locality.	Date when found.	Collector.
I. 2460	2	Bondi	1896	T. Whitelegge.
I. 3505	1 Holotype	Maroubra	July, 1896	T. Whitelegge.
I. 7704	1 large 2 juv.	Watson's Bay	May, 1906	A. R. McCulloch.
? <i>D. macrodon</i>				
I. 9016	1	Long Reef	July, 1907	A. R. McCulloch.
I. 9025	1	Maroubra	?	T. Whitelegge.
I. 9026	1	Maroubra	?	T. Whitelegge.
I. 12658	1	Maroubra	Sept., 1912	A. R. McCulloch.
IA. 405	1	Coogee	15 Nov., 1920	F. A. McNeill.
IA. 697	2	Coogee	Dec., 1921	F. A. McNeill and A. A. Livingstone.
IA. 5800	1	Long Reef	9 May, 1933	G. P. Whitley.
IA. 5818	1	Long Reef	7 June, 1933	M. Ward.
IA. 5928	3	Bottle and Glass Rocks	17 Jan., 1934	G. P. Whitley.
IA. 6423	1	Bottle and Glass Rocks	5 March, 1935	G. P. Whitley.
IA. 6424	1	Bottle and Glass Rocks	5 March, 1935	G. P. Whitley.

In habits and general facies this species recalls the tropical *Dinematichthys mizolepis* which I have collected on the Great Barrier Reef, where both a pink and a yellow form are found. The habits of these apparently half-blind fishes would repay intensive study.

Genus **Monothrix** Ogilby, 1897.

Monothrix Ogilby, Proc. Linn. Soc. N. S. Wales xxii, 1, Sept. 17, 1897, p. 87.
Virtual haplotype, *M. polylepis* Ogilby.

Differs from *Dermatopsis* in having more prominent eyes, fairly well developed imbricate scales, more fin rays, weaker dentition, and somewhat different proportions.

Monothrix polylepis Ogilby.

(Figure 9.)

Monothrix polylepis Ogilby, Proc. Linn. Soc. N. S. Wales xxii, 1, Sept. 17, 1897, p. 88. Maroubra N. S. Wales. Holotype (No. I. 3654) in Austr. Mus. *Id.* McCulloch, Austr. Zool. ii, 3, 1922, p. 115; Fish N.S.W., 1922, p. 89; Austr. Mus. Mem. v, 1929, p. 356.

A careful count of the fin-rays of the holotype, which is here figured, shows rather more rays than Ogilby recorded. Thus: D. 103; A. 78 (54 of them perfect, the others damaged in the type); P. 22; V. 1; C. 14. Seven branchiostegal rays. Ventrals shorter than head. The type, and one "old collection" specimen (Austr. Mus. regd. No. IA. 6433), which is smaller and unfortunately without data, are the only examples known of this interesting little species.

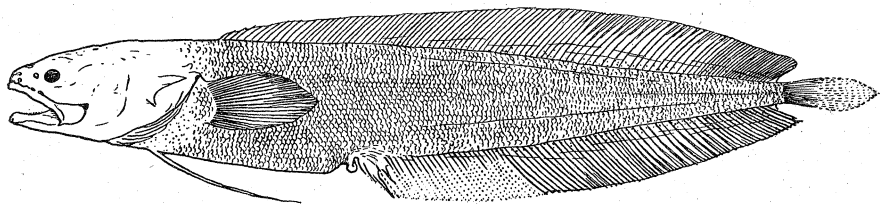


Figure 9.

Monothrix polylepis Ogilby. Holotype, 52.5 mm. in standard length, from Maroubra, N.S. Wales. Austr. Mus. regd. No. I. 3654. G. P. Whitley *del.*

Family **ELEOTRIDAE**.

Lindemanella, gen. nov.

Orthotype, *Lindemanella iota* sp. nov.

A small freshwater gudgeon, strikingly marked, the dark brown ground-colour being traversed by two broad white bands on the body, and the throat and breast white with black spots.

Head somewhat wedge-shaped, the eye intersecting the gently convex upper profile. Body compressed; caudal peduncle rather deep. Fins rounded.

Mouth large, the maxillary almost reaching to below the centre of the large eye. The lower jaw extends beyond the upper anteriorly. The tongue is large, flat, and with a rounded margin. Teeth villiform, in fairly broad bands on jaws. No large canines are present.

Snout broad. Anterior nostril in a tube overhanging the upper jaw; posterior nostril a simple aperture close to eye. Interorbital broad and flat, naked, and with a few mucus pores. No bony crests on top of head. Opercles entire, without any pungent spines. The operculum, and, to a less extent, the cheeks are scaly above, and there are faint traces of a mucus system on the lower part of the cheeks.

Gill-membranes united across isthmus. Gillrakers slender. Body rather deep and compressed, its upper profile more convex than the lower. The greatest depth of the body is just below the first dorsal fin. Body covered with rather small, imbricate, cycloid scales which do not extend on fins. The scales have raised margins with incipient denticulations. The breast appears to be naked. No lateral line. A very small anal papilla.

First dorsal fin reduced, much smaller than the second, from which it is distinctly separated. Anal opposite the soft dorsal and similar to it in form. Pectorals and caudal broadly rounded. Ventrals separate, pointed, reaching vent, and having five soft rays. The fin-rays appear simple, but may branch with age.

Coloration striking. Size small.

Differs from *Pogoneleotris* in having larger eyes and different shape and coloration.

Lindemanella iota, sp. nov.

D. vi/9; A. 9; P. 15; V. 1/5; C. with 13 main rays and several smaller ones above and below. Sc. 33. L. tr. circa 15.

Head (6 mm.) 2.8, depth of body (4) 4.2 in standard length (17). Eye (2) greater than interorbital (1.75), which is much broader than the snout is long.

General characters as defined for the genus.

Ground colour very dark brown, becoming dark greyish on head and back. Chin, throat, and breast yellowish with large spaced blackish spots formed by large chromatophores. A broad whitish band encircles the fish at the interval between the dorsals and is widened below to include the vent and the first anal ray. Another white band encircles the caudal peduncle and there is a small saddle-shaped whitish spot immediately below the soft dorsal. The fins are whitish, more or less suffused with blackish pigment, which is particularly dense on parts of the dorsal fins.

Described from the unique holotype, a specimen 21 mm. in total length. Austr. Mus. regd. No. IA. 6411.

Locality.—Lindeman Island, North Queensland, found in a freshwater creek by Mr. Melbourne Ward in February, 1934. There is no large or constant supply of natural freshwater on the island and creeks are frequently dry, so that the presence of this fish came as a surprise.

Genus **Calleleotris** Gill, 1863.

Calleleotris strigata (Broussonet).

Gobius strigatus Broussonet, Ichthyologia, 1782, pl. 1. Tahiti (Forster).

Mr. Melbourne Ward has collected this species at Lindeman Island, Queensland. New record for Australia.

Austr. Mus. regd. No. IA. 6141.

Family **GOBIIDÆ**.**Austrolethops**, gen. nov.Orthotype, *Austrolethops wardi*, sp. nov.

A goby with the eyes reduced in size, the head and body naked and covered with fatty skin with sensory ridges, and with the ventral fins separated.

Head bulbous, unarmed, invested with a loose skin. A row of small pores along lower part of sides of head and on chin. Eyes very small. Interorbital broad. Jaws subequal, the maxillaries reaching to below the posterior border of eye or a little beyond it. Broad bands of minute conical teeth in each jaw. Lips thick, folded. Tongue fleshy and broadly rounded. The nostrils project as short tubes. Barbels absent. Throat plicate. Gill openings wide and connected to a fairly broad isthmus. Branchiostegal membrane greatly distensible and with 3 or 4 rays embedded in its tissue on each side.

Body naked, the skin adipose and transversely wrinkled into sensory ridges. Form rather deep and compressed. Vent and anal papilla prominent. A groove runs along each side of the body where the lateral line would occur in most fishes.

Two separate dorsal fins, the first of six weak spines. Soft dorsal and anal free from caudal. Pectorals rounded, without free rays. Ventrals slender, separate, each with one spine and four rays. Caudal broadly rounded.

This curious fish is tentatively referred to the Gobiidæ, its separate ventral fins obviously being of secondary importance to the sum of its other characters and not implying Eleotrid relationships. The present form rather recalls some of the blind gobies and is doubtless a sedentary and cryptozoic creature. Its general physiognomy is superficially like that of a Brotulid, such as, for instance, *Dinematichthys*.

Austrolethops wardi, sp. nov.

(Figure 10.)

D. vi/14; A. 13; P. 16; V. i/4; C. 12.

Head (16 mm.) equal to depth of body (16) and 3.75 in standard length (60). Depth of caudal peduncle (7) 2.3, interorbital (5) 3.2, snout (3) 5.3, eye (2) 8 in head.

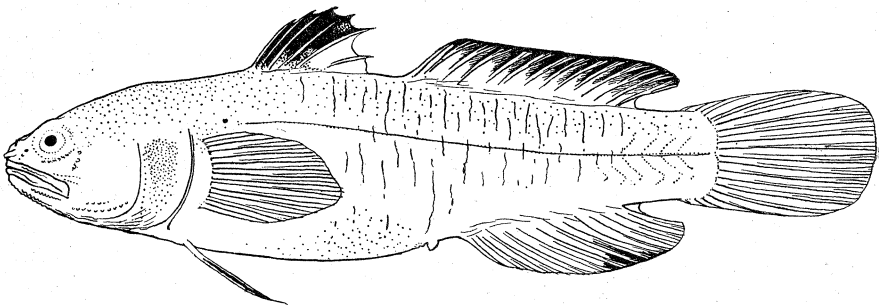


Figure 10.

Austrolethops wardi Whitley. Holotype, 60 mm. standard length, from Lindeman Island, Queensland. Austr. Mus. regd. No. IA. 6175. G. P. Whitley del.

Other characters as described for the genus.

General colour (in spirit) pale fleshy pink with the viscera showing bluish through the skin of the belly. Minute blackish punctulations are scattered on the upper parts of head and body. Pupil of eye blue. Inner surfaces of opercula dusky. First dorsal fin mostly black, only the posterior part being colourless. Second dorsal pale fleshy, with a broad black margin; anal similar, but with much reduced black margin. Pectorals and caudal plain. One of the ventral fins is pale yellowish with some black towards its tip; the other is plain, but it has evidently been damaged. No bands, bars, ocelli, or other striking colour-markings.

Described from the holotype of the species, a specimen 60 mm. in standard length or about $2\frac{3}{4}$ inches overall. It is named in honour of its collector, Mr. Melbourne Ward, who forwarded it with a large collection of fishes from Lindeman Island, Queensland. The collector recalls that it was dredged from over a muddy bottom off the Boat Port Beach, Lindeman Island. Australian Museum regd. No. IA. 6175.

This new genus affords a striking parallel to the blind gobies of California, and the existence of such fishes in Australia has hitherto been unsuspected. Hubbs²⁰ has described *Lethops connectens* which resembles the Australian form, but differs in having united ventrals. He regarded *Lethops* as intermediate in form between the normal reef gobies and the San Diego Blind Fish, *Typhlogobius californiensis* Steindachner, and stated that "the concomitant degeneration of the eye and increased differentiation of tactile organs thus marks the ontogenetic as well as the evolutionary line." The integument and its sensory papillæ and the eyes of *Typhlogobius* have been examined in detail by Ritter²¹, and it may be possible to compare the Australian genus with his account when further specimens are forthcoming.

Possibly *Austrolethops* lives in darkened crustacean burrows. It is interesting to note that when fishes, even of different families or orders, adopt similar modes of life, they come to resemble one another in structure. The Brotulid fish, *Dinematichthys*²², lives in crevices in the Queensland reefs, and the form of the head, pectoral, and ventral fins, and other parts resembles that of *Austrolethops*. Compare also *Dermatopsis* and *Monothrix* in the present paper (*Supra*, p. 239).

Family **KRAEMERIIDAE**.

Psammichthyidae Regan, Ann. Mag. Nat. Hist. (8) viii, Dec. 1, 1911, p. 733.

Genus **Kraemia** Steindachner, 1906.

Kraemia Steindachner, Sitzb. Akad. Wiss. Wien, cxv, 1, July 12, 1906, p. 1409.

Orthotype, *K. samoensis* Steindachner; *vide* Fowler, Mem. Bish. Mus. x, 1928, p. 425.

Vitreola Jordan and Seale, Bull. U.S. Bureau Fish, xxv, Dec. 15, 1906, p. 393.

Orthotype, *V. sagitta* Jordan and Seale. *Id.* Schmidt, Bull. Soc. Etudes Ocean. xvii, 1927, p. 129.

Psammichthys Regan, Trans. Linn. Soc. London xii, 1908, p. 246. Orthotype, *P. nudus* Regan. *Id.* Regan, Ann. Mag. Nat. Hist. (8) viii, 1911, p. 733.

²⁰ Hubbs.—Occas. Pap. Zool. Univ. Michigan, 169, 1926, p. 4, and figs.: American Naturalist, lxi, 1927, pp. 285-288, figs. a-d: California.

²¹ Ritter.—Bull. Mus. Comp. Zool., xxiv, 1893, pp. 51-102, pls. i-iv.

²² Figured by Whitley.—Rec. Austr. Mus. xvi, 1923, p. 303, fig. 2: From Port Denison.

A small, lanceolate fish with minute eyes, very prominent chin, and naked body, which lives in sand at the water's edge on tropical beaches. It has not hitherto been found in Australia.

I follow Fowler in regarding *Kraemeria* as having precedence over *Vitreola*, although Australian specimens have the dorsal fins and papillate head of *Vitreola* as described by Jordan and Seale rather than as shown in Fowler's account.

This curious genus was possibly evolved from an Oxymetopontine ancestry, becoming elongate and naked, and may have developed from a form similar to *Gignimentum*²³.

***Kraemeria samoensis merensis*, subsp. nov.**

(Figure 11.)

D. 5/14; A. 14; P. 8; V.i/5; C. 9.

Head (9 mm.) 3.7, depth (3) about 11 in standard length (34). Depth of caudal peduncle (1.5) 6, snout (1) 9 in head. Eyes less than 1 mm. long and contiguous to one another. Total length 38 mm.

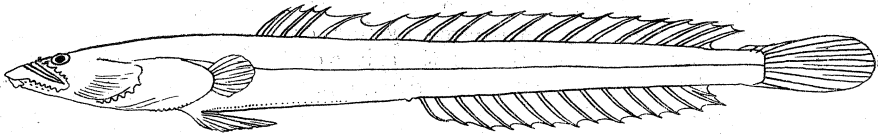


Figure 11.

Kraemeria samoensis merensis Whitley. Holotype of the subspecies, 38 mm. long, from Murray Island, Queensland. Austr. Mus. regd. No. IA. 5975. G. P. Whitley *del.*

Head acutely conical, the chin terminal. Mouth oblique, reaching to below pupil, and with a row of conic papillae above and below the jaws. Bands of fine cardiform teeth in jaws and apparently on palate too. A backwardly directed flap below chin. A row of pores below each mandible. Anterior nostrils in an upright tube; posterior nostrils are inconspicuous pores. Eyes minute, close together on top of head and visible through roof of mouth. Preoperculum radially striated, covered by skin which forms a row of papillae along its edge. Vertex of head smooth. Operculum very large, overhanging the base of the pectoral fin. Four branchiostegal rays, united by membrane to a very narrow isthmus. Gillrakers short and pointed, at least 10 on the lower portion of the first branchial arch.

Body elongated, compressed, naked. A groove runs along the middle of each side, but there appears to be no lateral line system.

Dorsal originating over end of pectoral. The first four rays are separated from the fifth, then after a further membranous gap follow fourteen rays. Anal originating below the third ray of the second dorsal. Pectorals short, rounded. Ventrals very close together but not united. Caudal with nine main rays, some of them divided. The rays are simple in the dorsal and anal fin and divided in the paired fins.

Colour (after long preservation in alcohol) brownish, the eyes dark blue. The fish was probably translucent when alive.

²³ Whitley.—Rec. Austr. Mus., xix, 1933, p. 88.

Described and figured from the largest of fifty-six specimens, about $\frac{7}{8}$ to $1\frac{1}{2}$ inches long, from Murray Island, North Queensland, where the collector, A. R. McCulloch, noted that it "lives in sand at water's edge in company with [a crustacean] *Remipes testudineus*."

New record for Australia.

The Australian form differs from Fowler's figure in having more pectoral rays, and resembles *Vitreola sagitta* in its papillate head, form of dorsal fins, etc. It is, however, slenderer than either, has a much shorter snout in comparison with the length of the head, and there is thus a similar disproportion in relation to the eyes. The base of the dorsal fin is about half the length of the fish. In view of these differences I name the Australian form as a new subspecies.

Family SCORPAENIDAE.

Subfamily Sebastinae.

Maxillicosta, gen. nov.

Orthotype, *Maxillicosta scabriceps* sp. nov.

A genus of Scorpion Fishes allied to *Neosebastes* (*sensu lato*), but differing in having the maxillary naked and traversed by four or five very prominent costae, instead of being scaly and without ridges; the spines on the head are also much more numerous, the pectoral fin is not evenly rounded, and there are fewer than 40 scales on the lateral line.

Maxillicosta scabriceps, sp. nov.

(Plate xviii, figs. 4 and 5.)

Br. 7. D. xii/i, 7; A. iii/5; P. 18; V. 1/5; C. 10 main rays. L. lat. about 30; L. tr.5/1/18.

Head (27) 2.3, depth (20) 3.1 in standard length (62). Eye (8) 3.3, interorbital (3) 9, snout (6) 4.5, and depth of caudal peduncle (6) 4.5 in head.

Head bluntly rounded, exceedingly spiny. Supraorbital spines short, not overhanging eye. Interorbital deeply grooved. Eye large. A broad, naked, sunken area on occiput. Preorbital stay with many recumbent spines, which are not hooked. Interoperculum naked; rest of the opercles scaly. Maxillary broad, its truncate posterior margin equal to half the eye-diameter, and just reaching the posterior half of the eye. It is naked and crossed by several strong oblique ribs. Bands of very fine teeth in jaws, on vomer, along palatines and on tongue.

Gillrakers spaced, slender above and stumpy below; seven on the lower part of the first branchial arch. They are short and thick on the succeeding arches.

Body robust, tapering to the caudal fin, and covered with loose cycloid scales with rather pyriform margins. The course of the lateral line is marked by indistinct ridges. No fleshy flaps.

Dorsal commencing well forward, its fourth spine longest and higher than any of the rays. Second anal spine longer than the others and subequal to some of the anal rays. Last ray in dorsal and anal fins split to base. Upper pectoral rays much longer than the lower ones; only a few of the longest rays are divided. No detached feeler-like rays. Second and third ventral rays longest, but not reaching the vent. Caudal truncate.

Colour (after long preservation) straw-yellowish. A series of five short indistinct dusky bars on each side of the dorsal fins and some dusky blotches along sides. Some orange on the sunken areas of the head. Eyes blue. A large black blotch between the fourth and eighth dorsal spines; rest of fins yellowish.

Described from the holotype of the species, a specimen 62 mm. in standard length or about 3 inches overall. Two paratypes are a few millimetres longer and show unimportant variation in the spines on the head.

Localities.—Kingscote, Kangaroo Island, South Australia; 22 Feb., 1920. Collected by Ellis Le Geyt Troughton. Holotype, Austr. Mus. regd. No. IA. 21.

Fifty miles south of Cape Wiles, South Australia; 75 fathoms, 29 August, 1909. F.I.V. "Endeavour" coll. Regd. No. E. 988 (paratype).

Off Flinders Island, South Australia; 37 fathoms, 30 August, 1909. F.I.V. "Endeavour" coll. Regd. No. I. 10404 (paratype).

Family **PLATYCEPHALIDAE.**

Genus **Neoplatycephalus** Castelnau, 1872.

Neoplatycephalus speculator Klunzinger.

(Plate xviii, fig. 6.)

Platycephalus speculator Klunzinger, Arch. Naturg. xxxviii, 1, 1872, p. 28. Hobson's Bay, Victoria. *Id.* Klunzinger, Sitzb. K. Akad. Wiss. Wien lxxx, 1, 1879, p. 367, pl. iv, fig. 1. *Id.* Macleay, Proc. Linn. Soc. N. S. Wales, ix, 1884, p. 30.

Neoplatycephalus grandis Castelnau, Proc. Zool. Acclim. Soc. Vict. i, July 15, 1872, p. 87. Melbourne Market.

Cacumen speculator Whitley, Austr. Zool. vi, 1931, p. 326.

D. i/vii/i, 12 (13); A. 14; P. 20; V. i/5; C. 11. L. lat. 80 from shoulder to hypural joint. L. tr. 13/1/28 from origin of dorsal to that of anal.

Head about 130 mm. broad and 195 long and thus nearly 2.8 in standard length (545). Depth of body (65) nearly 8.4 in the same. Eye (32) 6, interorbital (29) 6.7, snout (58) 3.36, postorbital length (106) 1.8, second dorsal spine (75) 2.6, pectoral (82) 2.37, ventral (122) 1.6, depth of caudal peduncle (21) 9.3, lower preopercular spine (18) 10.8 in the head, measured obliquely from tip of upper jaw to opercular flap.

Form elongate, depressed, the upper profile gently rounded. Head broad and flattened. Eyes very large and separated by a broad concave interorbital which is wider than the transverse diameter of either eye. Anterior nostril a small opening, with a prominent flap; posterior nostril an oblique slit. Top of head with weak bony ridges, converging slightly on the occiput. Most of the head is scaly above, but the cheeks, chin, and much of the preorbital are naked. Preocular spine almost obsolete. Each cheek with seven to ten striae radiating from the suborbital stay. Preoperculum with the lower spine more than twice as long and thick as the upper. Two strong opercular spines and a broad flap. Gill-membranes overlapping over the isthmus. Pseudobranchiae present. About nineteen spinose gillrakers on first branchial arch, though they become rudimentary anteriorly, only a few near the angle being developed as peg-like processes. Six branchiostegal rays can be discerned through the thick adipose tissue investing them. Mouth large, the maxillaries extending to below anterior half of eye. The lower jaw is the longer and has the lip very thick and broadened laterally to form a kind of inverted distensible pouch.

The premaxillary processes reach to the level of the anterior nostrils and the premaxillaries themselves extend far back, being overhung by the extensible upper lip and intermaxillary membranes.

A patch of coarse cardiform teeth, a few of them like small canines, occurs at the mandibular symphysis and on either side of the premaxillary symphysis. An outer band of villiform teeth in each jaw, although in the lower jaw a row of cardiform teeth is present amongst the villiform ones. A few acute teeth on the vomer. Each palatine well armed with cardiform and caniniform teeth in a single row and interspersed with villiform ones.

Tongue large, flat, toothless and with the tip truncate.

Body robust, broadest and deepest anteriorly, and covered with large, regular ciliated scales with regularly spaced circuli and irregular radiating basal striae. These scales do not extend on the fins, except along the caudal rays, and only form a weak ridge along the lateral line.

First dorsal spine originating a little behind the head and separate from the others. The soft dorsal fin originates a trifle before the origin of the anal and ends well before the anal termination. Pectorals small; inner ventral rays very long, reaching to anal fin. Caudal bluntly rounded.

Colour (in formalin) olive brown above and white below. Each scale has a light pearly centre, bounded by its brownish margin. Eye dull milky bluish, the iris surrounded by a golden ring. Lower lip fuscous towards the chin. Dorsal fins hyaline. Anal rays smoky towards their bases. Some smoky brown streaks on the pectorals and ventrals. Caudal with an inconspicuous smoky band along the lower lobe, below which the fin is whitish.

Described from a specimen 545 mm. in standard length, or a little over 2 feet in total length.

Locality.—80 miles south-west from Cape Everard, Victoria; 45 fathoms. Collected and presented by Captain K. Moller. Austr. Mus. regd. No. IA. 6132.

This large flathead was immediately distinguished by its collector by means of its large scales, and uniform coloration. It appears to be determinable as *Platycephalus speculator* Klunzinger or *Neoplatycephalus grandis* Castelnau, both of which names were published in the same year. Fortunately, Gunther²⁴ definitely recorded that Klunzinger's paper had precedence of date over Castelnau's, so *speculator* is evidently the name to be used.

My specimen is described because it differs in minor details from published descriptions, yet indicates that *Cacumen* and *Neoplatycephalus* are synonyms. The question next arises as to whether *Neoplatycephalus* can still be used for the Tiger Flathead of Eastern Australia, described as *Platycephalus macrodon* by Ogilby. I have compared Ogilby's type and other examples of *macrodon* with the described specimen of *speculator*, but do not regard the differences as of generic but only of subgeneric importance. Key to the species:—

- A.—Width of interorbital less than that of eye. Preorbital spines obsolescent. A series of radiating ridges over suborbital stay, behind eye. Nineteen gill-rakers on lower limb of first gill-arch. Lower preopercular spine much longer than upper. Pectorals shorter than postorbital portion of head. Colour olivaceous, each scale with a light centre. Length over 2 feet . . . *Neoplatycephalus (Neoplatycephalus) speculator*.

²⁴ Gunther.—Zool. Rec., ix, 1872 (publ. 1874), p. 85.

AA.—Width of interorbital subequal to that of eye. Preorbital spines prominent. No series of radiating ridges over suborbital stay. Twelve gill-rakers on lower limb of first gill-arch. Lower preopercular spine not much longer than upper. Pectorals almost equal to postorbital. Coloration brownish with red spots. Length less than 2 feet, usually nearer 1 foot long. . . *Neoplatycephalus (Colefaxia) macrodon*.

The new subgeneric name *Colefaxia* is proposed for *Platycephalus macrodon* Ogilby, mainly on the structure of the gill-rakers and preopercular spines. Although the scales of this form appear smaller than in *speculator*, actual counts reveal very little difference.

Named in honour of Mr. A. N. Colefax, B.Sc., of the University of Sydney, who is investigating the habits, economics, anatomy, and other features of the Tiger Flathead, the first fruits of which investigation have recently been published²⁵.

Family TETRABRACHIIDAE.

Genus *Tetrabrachium* Gunther, 1880.

Tetrabrachium ocellatum Gunther.

Tetrabrachium ocellatum Gunther, Rept. Voy. Challenger, Zool. i, 6, 1880, p. 45, pl. xix, fig. C. South of New Guinea; station 188; 28 fathoms. *Id.* Whitley, Abstr. Proc. Linn. Soc. N. S. Wales, April, 1934.

One specimen of this remarkable little Angler Fish was dredged in 5 fathoms off Hayman Island by Mr. F. A. McNeill. Australian Museum regd. No. IA. 6003. Mr. Melbourne Ward has collected another specimen at Lindeman Island (No. IA. 6136).

These Queensland records entitle this species to recognition as a member of the Australian fauna.

New Generic Names.

The following new generic names are proposed to replace others which are preoccupied:—

Ansorgiichthys (fam. Schilbeidae) for *Ansorgia* Boulenger, 1912, not of Warren, 1899, a genus of moths. Type, *Ansorgia vittata* Boulenger = *Ansorgiichthys vittatus*.

Arambourgia (fam. Chilodipteridae) for *Apogonoides* Arambourg, 1927, not of Bleeker, 1849, another fish genus. Type, *A. cottreui* Arambourg.

Apostasella (fam. Acanthuridae) for *Apostasis* Kramberger, 1891, non Lendenfeld, 1885, a genus of Hydrozoa. Type, *Acanus gaudryi* Kramberger = *Apostasella gaudryi*.

Protosiganus (fam. Amphacanthidae) for *Archaeoteuthis* Wettstein, 1887, not of Brown and Roemer, 1856, another genus of fishes. Type, *A. glaronensis* Wettstein = *Protosiganus glaronensis*.

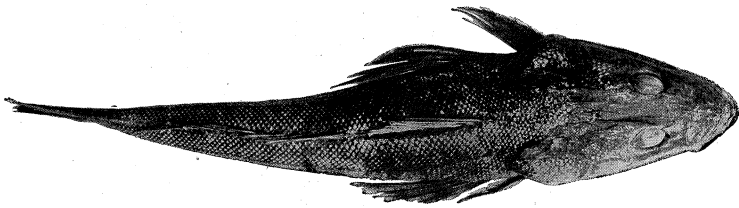
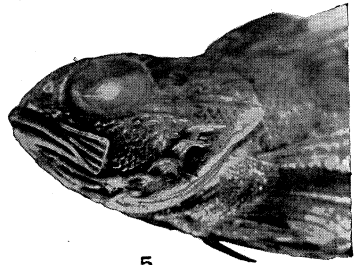
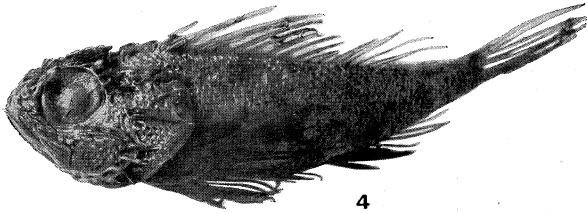
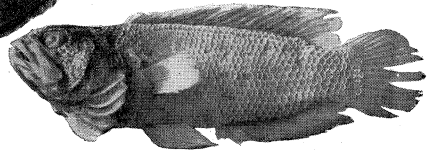
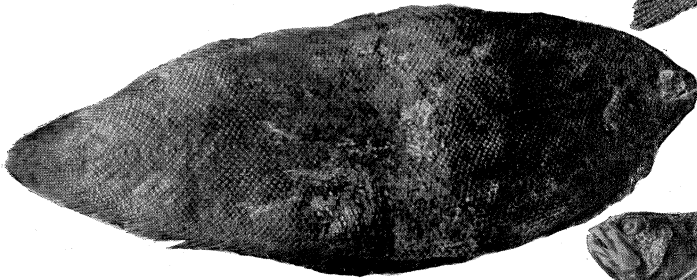
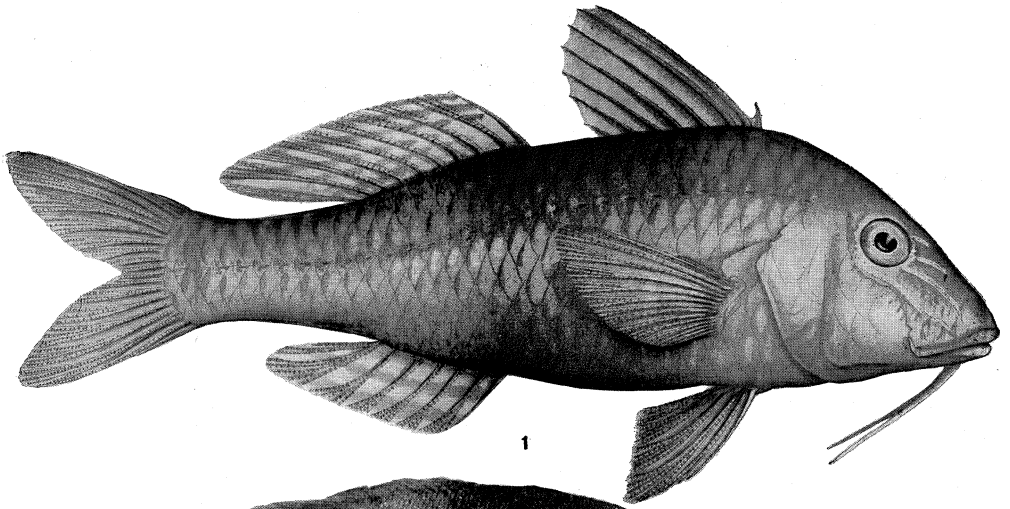
²⁵ Dakin.—Au-str. Zool., vii, 1931, p. 26, pl. 1 and text, fig. 3; A.N.Z. A.A.S. Handbook, N.S.W., 1932, p. 94; Dakin and Colefax—Proc. Linn. Soc. N.S.W., lviii, 1933, p. 210; Colefax—Proc. Linn. Soc. N.S.W., lix, 1934, pp. 71–91, 9 figs.; and Dakin—Proc. Roy. Soc. Tasm., 1934 (1935), p. 11, fig. 1.

- Borodamirus* (fam. Eleotridae) for *Callieleotris* Fowler, 1934, not *Callieleotris* Gill, 1863, in the same family. Type, *C. platycephalus* Fowler = *Borodamirus platycephalus*.
- Zosterisessor* (fam. Gobiidae) for *Zostericola* Iljin, 1927, not of Ashby, 1919, a genus of Loricata Mollusca. Type, *Gobius ophiocephalus* Pallas = *Z. ophiocephalus*.
- Evenichthys* (fam. Characinidae) for *Aequidens*, Steindachner, 1915, preoccupied by Eigenmann and Bray, 1894, another fish genus. Type, *Tetragonopterus fasslii* Steindachner = *Evenichthys fasslii*.

EXPLANATION OF PLATES AND FIGURES.

PLATE XVIII.

- Fig. 1.—*Upeneichthys porosus* (Cuvier and Valenciennes). A specimen, 8½ inches long, from Spencer Gulf, South Australia. Austr. Mus. regd. No. I. 10348.
- Fig. 2.—*Phyllichthys sejunctus* Whitley. Holotype, 9¼ inches long, from Fitzallen Island, Queensland. Austr. Mus. regd. No. IA. 6292.
- Fig. 3.—*Fraudella carassiops* Whitley. Holotype, 45 mm. standard length, from North-West Islet, Queensland. Austr. Mus. regd. No. IA. 5093.
- Fig. 4.—*Maxillicosta scabriceps* Whitley. Holotype, 62 mm. standard length, from Kangaroo Island, South Australia. Austr. Mus. regd. No. IA. 21.
- Fig. 5.—*Maxillicosta scabriceps* Whitley. Head of holotype, showing the ridges on the maxillary.
- Fig. 6.—*Neoplatycephalus speculator* Klunzinger. A specimen, 545 mm. standard length, from off Cape Everard, Victoria. Austr. Mus. regd. No. IA. 6132.



D. B. FRY (1), *del.*

G. C. CLUTTON (2-6), *photo.*

*80083—D