

AUSTRALIAN MUSEUM SCIENTIFIC PUBLICATIONS

Whitley, Gilbert P., 1932. Studies in ichthyology. No. 6. *Records of the Australian Museum* 18(6): 321–348, plates xxxvi–xxxix. [20 April 1932].

doi:10.3853/j.0067-1975.18.1932.737

ISSN 0067-1975

Published by the Australian Museum, Sydney

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STUDIES IN ICHTHYOLOGY.

No. 6.*

By

GILBERT P. WHITLEY,
Ichthyologist, The Australian Museum, Sydney.

(Plates xxxvi-xxxix and Figures 1-3.)

Part I.—Class ELASMOBRANCHII.

Family ORECTOLOBIDÆ.

Genus *Hemiscyllium* Müller and Henle, 1838.

Hemiscyllium trispeculare Richardson.

(Plate xxxvi, fig. 2.)

Hemiscyllium trispeculare Richardson, *Icones Piscium*, 1843, p. 5, pl. i, fig. 2. Turtle Island, north-west Australia. Based on a drawing by Lieut. Emery. *Id.* Richardson, *Zool. Voy. Erebus and Terror, Fish.*, March, 1845, p. 43, pl. xxviii and text-figs. 1-2. *Id.* Duméril, *Hist. Nat. Poiss.*, i, 1, 1865, p. 326. *Id.* Günther, *Ann. Mag. Nat. Hist.* (3), xx, 1867, p. 67 (Turtle Is. and Cape York). Types in British Museum.

Chiloscyllium trispeculare Günther, *Cat. Fish. Brit. Mus.*, viii, 1870, p. 411. *Id.* Regan, *Proc. Zool. Soc. Lond.*, 1908, p. 359 (type). *Id.* Ogilby and McCulloch, *Proc. Roy. Soc. N. S. Wales*, xlii, 1909, p. 293. *Id.* Ogilby, *Mem. Qld. Mus.*, iii, 1915, p. 131; *ibid.* v, 1916, pp. 77 and 93. *Id.* Paradise and Whitley, *Mem. Qld. Mus.*, ix, 1; 1927, p. 96 (Knight Reef, Clarence Str., N. Australia).

The accompanying figure represents a specimen (Austr. Mus. Regd. No. I.5268) 540 mm. long, from Port Darwin, North Australia, collected by Messrs. Christie and Godfrey. The species has been well described and compared with *H. ocellatum* by Richardson (1845).

Range.—North and north-western Australia.

Hemiscyllium ocellatum (Bonnaterre).

(Plate xxxvi, fig. 1.)

Squalus ocellatus Bonnaterre, *Tabl. Encycl. Meth. Ichth.*, 1788, p. 8. Based on "L'Oeillé" Broussonet, *Mem. Acad. Sci. Paris*, 1780, p. 660, No. 10, vernac. "côté de la nouvelle Hollande" (Banks) [= northern Queensland]. Synonyms: *Scylium ocellatus* Eichwald, 1819; *Scyliorhinus ocellatus* Blainville, 1816; *Squalus oculatus* Gray, 1826; *Hemiscyllium ocellatum* Müller and Henle, 1838; *Scylium ocellatum* Blyth, 1847; *Hemiscyllium oculatum* Duméril, 1865.

Chiloscyllium ocellatum Günther, *Cat. Fish. Brit. Mus.*, viii, 1870, p. 411 (refs. and synonymy), and of most later authors.

* For No. 5, see RECORDS OF THE AUSTRALIAN MUSEUM, Vol. xviii, No. 4, 1931, p. 138.

This species has been dealt with in detail by Ogilby and McCulloch,¹ but a new figure, contrasting it with its Dampierian ally, *H. trispeculare*, is here given, prepared from a specimen (No. IA.4485), 400 mm. long, collected by the writer at Low Isles, North Queensland.

Range.—Queensland, common on the Great Barrier Reef in shallow water; New Guinea and beyond.

Genus *Chiloscyllium* Müller and Henle, 1837.

Chiloscyllium punctatum Müller and Henle.

(Text-fig. 1.)

Chiloscyllium punctatum Müller and Henle, Syst. Plagiost., i, 1838, p. 18. *Ex* Kuhl and Van Hasselt MS. Java. *Id.* Ogilby and McCulloch, Proc. Roy. Soc. N.S. Wales, xlii, 1909, p. 287, pl. xliii, fig. 2 and text-fig. 1 (references, etc.). *Id.* Ogilby, Mem. Qld. Mus., v, 1916, pp. 77 and 93. *Id.* Whitley, Austr. Zool., iv, 1926, p. 227 (North-west Islet, Qld.) and p. 318 (Isopod parasite).

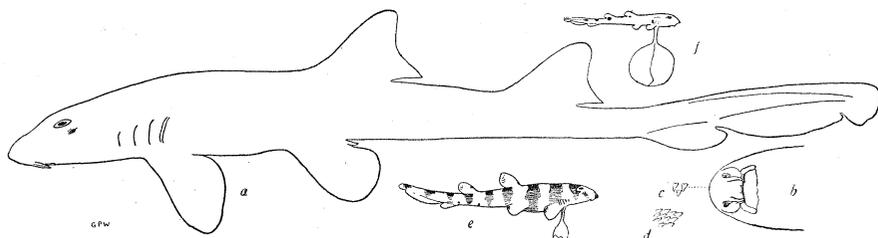


FIGURE 1.

Chiloscyllium punctatum Müller and Henle. *a*, a specimen from North-west Islet, Queensland; *b*, ventral surface of head; *c*, teeth; *d*, dermal denticles of same specimen (original); *e*, foetus from Moreton Bay, Queensland (after Ogilby and McCulloch); *f*, a smaller (68 mm.) foetus from North-west Islet (original).

[G. P. Whitley, del.]

The figure represents an immature male (No. IA.4029), nearly 500 mm. long, from North-west Islet, Capricorn Group, Queensland; collected by Messrs. M. Ward and W. Boardman. At the same place, Mr. F. A. McNeill later collected a 68 mm. foetus with external gills. This is figured together with a copy of Ogilby and McCulloch's illustration of a larger embryo from Moreton Bay.

Family SCYLORHINIDÆ.

Genus *Atelomycterus* Garman, 1913.

Atelomycterus marmoratus (Raffles).

(Plate xxxviii, fig. 1.)

Scyllium marmoratum Raffles, Mem. Raffles, Feb., 1830, p. 693. Sumatra. *Id.* Smedley, Journ. Malay Br. Roy. Asiat. Soc., v, 2, 1927, p. 355 (China Sea; eggs and young).

? *Scyllium maculatum* Gray, Illustr. Ind. Zool., July, 1830, pl. xcvi. India. Not *Scyllium maculatum* Eichwald, 1819 (*vide* Sherborn, Index Anim.).

Scyllorhinus marmoratus McCulloch, Proc. Linn. Soc. N. S. Wales, xxxv, 1910, p. 688 (Port Darwin, north Australia).

¹ Ogilby and McCulloch.—Proc. Roy. Soc. N. S. Wales, xlii, 1909, p. 290.

Atelomycterus marmoratus Garman, Mem. Mus. Comp. Zool. Harvard, xxxvi, 1913, p. 100, and of modern authors.

The Australian Museum specimen (No. I.5269) recorded from Port Darwin, north Australia, by McCulloch (1910) is here figured. It is apparently correctly identified as this species, but its colour-pattern differs considerably from that figured in Day's "Fishes of India". I have only seen this one specimen, which was collected by Messrs. Christie and Godfrey, but comparison with extra-Australian specimens might prove it to be deserving of varietal or subspecific distinction.

Genus *Cephaloscyllium* Gill, 1861.

Cephaloscyllium isabella laticeps (Duméril).

(Text-fig. 2.)

Squalus isabella Bonnaterre, Tabl. Encycl. Meth., Ichth., 1788, p. 6. Based on "L'Isabelle" Broussonet, Mem. Acad. Roy. Sci. Paris, 1780, p. 648, No. 1, vernac. Nouvelle-Zealande (Solander and Banks). Spelt *S. sabella* by Gmelin, 1789.

Scyllium? lima Richardson, Rept. 12th meet. Brit. Assn. Adv. Sci., 1842 (1843), p. 29. *Ex Squalus lima* Parkinson MS. Eaheenomauwee, New Zealand.

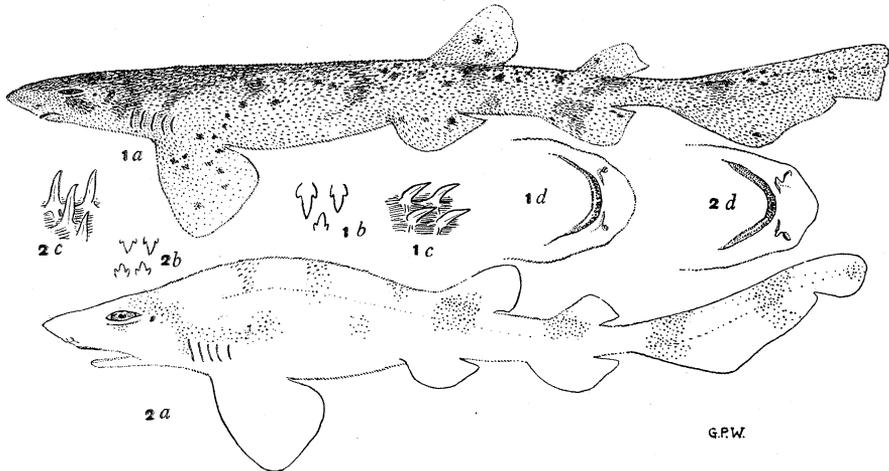


FIGURE 2.

Cephaloscyllium isabella laticeps (Duméril). 1, a virtual topotype from the Derwent River, Tasmania; 2, holotype of *C. i. laticeps* forma *nascione* Whitley from off Montague Island, New South Wales. *a*, lateral view; *b*, teeth enlarged; *c*, dermal denticles enlarged; *d*, ventral surface of head.

[G. P. Whitley, del.]

Scyllium laticeps Duméril, Rev. Mag. Zool., xxxiv, 1853, p. 84, pl. iii, fig. 2; Hist. Nat. Poiss., i, 1, 1865, p. 323, pl. viii, fig. 1 (egg). Australia.

Cephaloscyllium isabella McCulloch, Zool. Res. Endeav., i, 1911, p. 6. *Id.* Kershaw, Vict. Nat., xlv, 10, 1928, p. 290, and of modern authors.

Cephaloscyllium isabellum Garman, Mem. Mus. Comp. Zool. Harvard, xxxvi, 1913, p. 79 (refs.).

The Swell Shark, as this species is called, is capable of distending its body with sea-water; the eggs are flanged, not smooth, and specimens of them in the

Australian Museum from off Eden, Disaster Bay and Green Cape indicate that this species breeds in southern New South Wales. Illustrated here is a topotypical *laticeps* form from the Derwent River, Tasmania. It is 268 mm. long and was collected by Mr. Melbourne Ward. A slightly smaller (250 mm.) specimen, collected by Mr. W. Boardman, was trawled in 90 fathoms, 24 miles N.N.E. of Montague Island, New South Wales, on Sept. 4, 1926. This specimen is much lighter in colour than the Tasmanian one, and may be named forma *nascione*, nov., as it differs in the shape and position of the fins, form of nostrils, and other minor details, as shown in the figures, from the forma *laticeps*, which is again apparently distinct from the true New Zealand *Cephaloscyllium isabella isabella*, which has base of anal equal to its distance from lower caudal lobe.

Family CARCHARHINIDÆ.

Genus *Galeolamna* Owen, 1853.

Galeolamna greyi Owen.

Galeolamna greyi Owen, Descr. Cat. Osteol. Roy. Coll. Surgeons, i, 1853, p. 96, no. 427, South Australia. Type in Museum of Roy. Coll. Surgeons.

Owen's name has been overlooked by ichthyologists, and must now be added to the Australian list. His description is brief, but apparently refers to the South Australian Whaler Shark, a species which has been figured by Waite² as *Carcharinus brachyurus*.

In the same work, Owen names three species of rays from South Australia: *Raia acutidens* (p. 106), *R. parvidens* (p. 106) and *R. molaridens* (p. 107), but as he only gives a few words on their teeth, these species are unrecognizable and virtual *nomina nuda* and I propose to dispose arbitrarily of his names by making them synonyms of *Raja lemprieri* Richardson.³

Family GALEIDÆ.

Genus *Notogaleus* Whitley, 1931.

Notogaleus Whitley, Austr. Zoologist, vi, 4, Feb. 13, 1931, p. 310. Orthotype, *Galeus australis* Macleay.

This genus is the Australian representative of the European *Galeus*, *Eugaleus* or *Galeorhinus* of authors, from which it differs in the disposition of the fins and in colour. The acute serrated teeth distinguish it from the Mustelidæ, which are otherwise superficially similar. Sherborn lists the genus *Emissola* Jarocki⁴ in his *Index Animalium* as a genus of Squalidæ. I have not seen Jarocki's work, but his name, which has been generally overlooked, probably refers to the European Tope, which is called "l'Emissole" in French.

Notogaleus australis (Macleay).

(Text-fig. 3.)

Galeus canis Günther, Cat. Fish. Brit. Mus. viii, 1870, p. 379. Tasmanian record only. *Id.* Klunzinger, Arch. Naturg., xxxviii, 1, 1872, p. 45 (Murray R.). *Id.* Castelnau, Proc. Zool. Acclim. Soc. Vict., i, 1872, p. 216 (Hobson's Bay). Not *Galeus canis* Bonaparte 1834.

² Waite.—Rec. S. Austr. Mus., ii, 1, April 23, 1921, p. 12, fig. 8.

³ Richardson.—Zool. Voy. Erebus and Terror, 1845, p. 34, pl. xxiii. Port Arthur, Tasmania.

⁴ Jarocki.—Zoologia. iv. 1822, p. 448.

- Galeus* sp. Macdonald, Proc. Zool. Soc. Lond., Nov., 1873, p. 312. Flinders I., Bass Strait (Haslar Hospital Museum).
- Galeus australis* Ramsay, Proc. Linn. Soc. N. S. Wales, v, 1, Aug., 1880, p. 96. Nude name. Port Jackson. *Id.* Macleay, Proc. Linn. Soc. N. S. Wales, vi, 2, Sept. 12, 1881, p. 354; Descr. Cat. Austr. Fish, ii, 1881, p. 290. Port Jackson, N. S. Wales. Types in Macleay Mus., Univ. Sydney. *Id.* McCoy, Prodr. Zool. Vict., i, dec. vii, 1882, p. 13, pl. lxxiv, fig. 2 (Hobson's Bay). *Id.* Ogilby, Cat. Fish. N. S. Wales, 1886, p. 2, and Cat. Fish. Austr. Mus., i, Paleich., 1888, p. 3 (Port Jackson). *Id.* Waite, Rec. Canterb. Mus., i, 2, 1909, p. 139, pl. xv (New Zealand). *Id.* Ogilby, Proc. Roy. Soc. Qld., xxi, 1908, p. 23 (Moreton Bay, Q.). *Id.* McCulloch, Zool. Res. Endeav., i, 1911, p. 9. *Id.* Engelhardt, K. Akad. Wiss. Berlin, iv, Suppl.-Bd. 3, i, 1913, p. 32. *Id.* Ogilby, Mem. Qld. Mus., v, 1916, pp. 78 and 93. *Id.* Waite, Rec. S. Austr. Mus., ii, 1921, p. 13, fig. 12, and Fish. S. Austr. 1923, p. 29, and figs.
- Galeorhinus australis* Waite, Austr. Mus. Mem., iv, 1899, p. 34 (Morna Pt., N.S.W.). *Id.* Hutton, Index Faun. N.Z., 1904, p. 54. *Id.* McCulloch, Proc. Linn. Soc. N. S. Wales, xlvi, 1921, p. 459, pl. xxxvii, figs. 5-7, and Austr. Zool. Handbook, i, 1922, p. 6, fig. 12a. *Id.* Phillipps, N.Z. Journ. Sci. Tech., vi, 1924, p. 259, fig. 2 (N. Zealand; dorsal and anal opposite).
- Mustelus australis* Waite, Mem. N. S. Wales Nat. Club, i, 1904, p. 7.
- Eugaleus australis* Waite and McCulloch, Trans. Roy. Soc. S. Austr., xxxix, 1915, p. 460 (Great Australian Bight).
- Carcharhinus cyrano* Whitley, Austr. Mus. Mag., iv, 3, July 17, 1930, p. 93, fig. of jaws. Port Stephens, New South Wales; July, 1929 (Norman Caldwell). Holotype (jaws of ♀; Regd. No. S.1847) and fetotype (fœtus from holotype; No. IA.3936) in Australian Museum.
- Notogaleus australis* Whitley, Austr. Zool., vi, 4, Feb. 13, 1931, p. 310.

As *Galeorhinus australis*, the Tope or School Shark of New South Wales has been well described and figured by McCulloch (*loc. cit.*, 1921), but the synonymy given above is noteworthy.

A "Long-nosed Sea Shark" from off Port Stephens, New South Wales, was recently brought before my notice by Mr. Norman Caldwell, of Marine Industries, Ltd., who presented the jaws and a photograph of a female over six feet long to the Australian Museum. A fœtus taken from this shark is here figured. I provisionally named it *Carcharhinus cyrano*, but that name must fall as a synonym of Macleay's species.

In McCulloch's card-index there is a sketch labelled "Carchariidæ" which can be identified as this species. He noted: "One or two specimens of this shark were captured in almost every haul of the trawl in about 60 fathoms off the east of Babel Island. Specimen sketched was captured in 74-79 fathoms, 17 miles S.E. of Bruni Island, Tasmania.

"Total length, from tip of snout to end of tail, 1,465 mm. Tip of nostril to anterior base of first dorsal, 517. Height of first dorsal, 112; base of first dorsal, 133. Interdorsal space, 380. Height of second dorsal, 40; base of second dorsal, 55. Length of tail, 295. Length of lower lobe, 125. Anterior border of eye to tip of snout, 130. Eye, 37. Posterior margin of eye to anterior gill-opening, 115. Length of pectoral, 210.

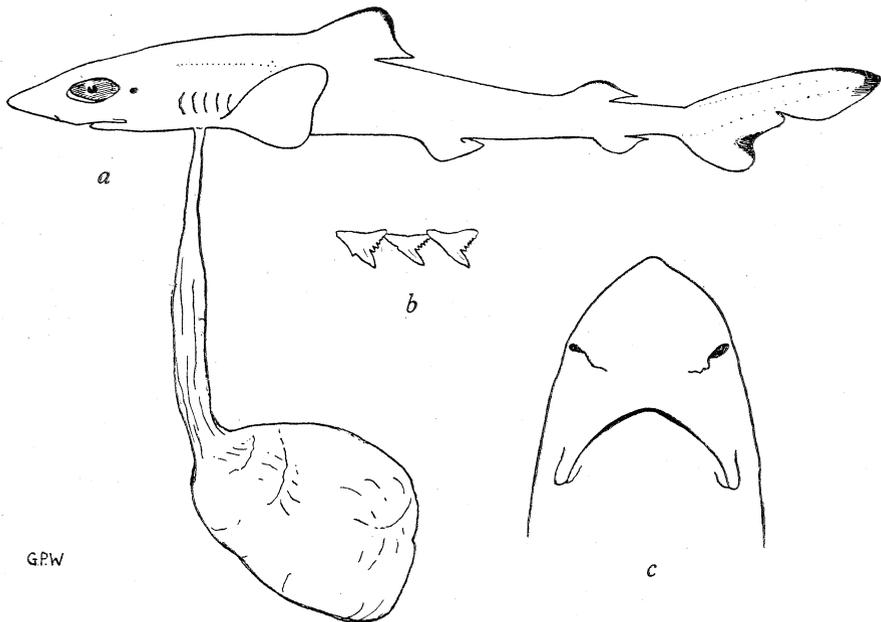


FIGURE 3.

Notogaleus australis (Macleay). *a*, foetotype of *Carcharhinus cyrano* Whitley from Port Stephens, New South Wales; *b*, teeth from mother of *a*; *c*, ventral surface of head of *a*.

[G. P. Whitley, *del.*

"Snout acute. Eye [when viewed laterally] over middle of mouth. Spiracle minute, placed well behind eye. Gill-openings subequal, the last placed over the base of the pectoral. Angle of mouth with a groove extending a short distance along each jaw. Origin of dorsal behind posterior margin of pectoral; posterior angle somewhat produced and acute. Second dorsal a little in advance of the anal, the two fins subequal in size. Ventrals a little nearer the second than the first dorsal, almost midway between the two. No pit at base of caudal above, a shallow one below. Nostrils nearer mouth than tip of snout. Teeth preserved. Registered E.4909.

"Light grey in colour, belly whitish. Fins without dark marks."

Family SQUALIDÆ.

Deaniops, gen. nov.

Orthotype.—*Acanthidium quadrispinosum* McCulloch⁵ = *Deaniops quadrispinosus*.

The type of McCulloch's species was a shark over two feet long, but I have seen a much larger specimen. The logotype of the genus *Acanthidium* Lowe⁶ is *A. pusillum* Lowe which was figured in that author's "Fishes of Madeira". That

⁵ McCulloch.—*Biol. Res. Endeav.*, iii, 1915, p. 100, pl. xiv, figs. 5-8. South of Gabo Island, Victoria. Type on deposit in Australian Museum.

⁶ Lowe.—*Proc. Zool. Soc. London*, vii, Oct., 1839, p. 91.

species, Lowe stated, varies in length from only eleven to twelve inches. Apart from size, however, McCulloch's species differs from Lowe's in several characters which are independent of age or growth. In *A. pusillum* the snout is much shorter, the first dorsal fin very much smaller, and the base of the ventrals comparatively longer than in *quadrispinosum*, so as the two are obviously not congeneric, I propose the new name *Deaniops* for the Australian form.

Family RHINOBATIDÆ.

Genus *Trygonorrhina* Müller and Henle, 1838.

Trygonorrhina fasciata guanerius, subsp. nov.

The South Australian Fiddler Ray, which has been figured by Waite,⁷ differs markedly from the typical New South Wales form in the disposition and nature of its colour-markings. The differences may be better appreciated by comparing Waite's figure with that of McCulloch⁸ than conveyed by written description. Comparison of specimens in the National Museum, Melbourne, from Port Jackson, New South Wales, and Glenelg, South Australia, demonstrated that the two forms are worthy of nominal separation, so I propose the new name *guanerius* for the South Australian subspecies.

Family TORPEDINIDÆ.

Notastrape, gen. nov.

Orthotype.—*Notastrape macneilli*, sp. nov.

Eyes functional, not far in advance of the spiracles, which are without fringes or papillæ. Tail shorter than the disc, which is broader than long. Two dorsal fins. Caudal fin large.

Notastrape macneilli, sp. nov.

Torpedo fairchildi McCulloch, Rec. Austr. Mus., xii, 1919, p. 171, pl. xxv. Off Green Cape, New South Wales; 49 fathoms. Not *T. fairchildi* Hutton, Cat. Fish. N. Zeal., 1872, p. 83, pl. xii, fig. 134.

The holotype of this new species, in the Australian Museum, has been described by the late A. R. McCulloch and figured by Mr. F. A. McNeill, who collected it. It was evidently wrongly identified as the Neozealanic *Torpedo fairchildi* which Hutton described as having the dorsal and ventral fins in different relative positions. The Australian species, here renamed, is chocolate brown in colour above and white below, whereas the New Zealand type is uniform greyish-black above and has a more prominent snout, and disc much broader anteriorly.

Family MOBULIDÆ.

Dæmomanta, gen. nov.

Orthotype.—*Manta alfredi* Stead.

Head short and very wide. Mouth terminal. Teeth ?. A long cephalic fin with rounded extremity on each side of mouth. Eye large, lateral, situated at junction of pectoral and cephalic fins. Nostrils wide apart and connected by a groove about as wide as mouth.

⁷ Waite.—Rec. S. Austr. Mus. ii, 1, April 23, 1921, p. 27, fig.

⁸ McCulloch.—Proc. Linn. Soc. N. S. Wales, xlvi, 1921, p. 460, pl. xxxviii, figs. 1-2.

Size very large. Disc much broader than long. Pectorals acutely pointed, their posterior margins excavate but not so markedly concave as in *Manta*. Ventrals small, bluntly rounded. One well developed dorsal fin, without spine, present before tail. Tail distinct from disc, long and pointed, without a caudal fin and apparently without a serrated spine. Skin somewhat tubercular.

Similar to *Manta* Bancroft as described by Jordan and Evermann,⁹ but with cephalic horns farther apart and posterior margins of pectoral fins less concave. Probably other differences would be apparent if good specimens of these giant rays from America and Australia could be compared.

***Dæmomanta alfredi* (Stead).**

(Plate xxxvii, figs. 1-4.)

Ceratoptera alfredi Krefft, Industr. Progr. N. S. Wales, Rept. Intercol. Exhib., 1870, Sydney, 1871, p. 778. Port Jackson; 15 feet wide. *Nomen nudum*. Chirotype, No. I.1731, in Australian Museum. *Id.* [Hill], Sydney Mail, May 27, 1871, p. 394 (near Watson's Bay). *Id.* Macleay, Proc. Linn. Soc. N. S. Wales, vi, Sept. 12, 1881, p. 381, and Descr. Cat. Austr. Fish., ii, 1881, p. 317. *Id.* Tenison-Woods, Fish. and Fisher. N. S. Wales, 1882, p. 99. *Id.* Ramsay, Cat. Exh. N. S. Wales Court, 1883, p. 22, and as *Dicerobatus* sp. *Id.* Ogilby, Cat. Fish. N. S. Wales, 1886, p. 6. All virtually *nomina nuda*.

Manta alfredi Waite, Mem. N.S.W. Nat. Club, ii, Nov. 7, 1904, p. 11. Undescribed. *Id.* Stead, Fish. Austr., 1906, p. 233. *Id.* McCulloch, Austr. Zool., i, 7, Nov. 27, 1919, p. 227, pl. xviii, fig. 43a (type figured); Austr. Zool. Handbook, i, 1922, p. 13, pl. iii, fig. 43a; Austr. Mus. Mem., v, 1929, p. 31.

This species was named by Krefft many years ago, but not described, and the chirotype, a damaged specimen, was reconstructed to such an extent that several ichthyologists would not venture to diagnose the species. The name *Ceratoptera alfredi*, proposed by Krefft, was thus a *nomen nudum*. Waite, recognizing that the generic name was preoccupied, placed the species in *Manta*, an American genus, but the name still had no validity until Stead in 1906 briefly described the species, and McCulloch, in 1919, gave a figure of Krefft's type in his New South Wales "Check-List".

The generic diagnosis given above is as descriptive of the species as is practicable with Krefft's specimen, which has either shrunk or been made smaller in mounting, as it is not now 15 feet wide as stated by Krefft. In an old photograph album in the Australian Museum, I have discovered some pictures of Krefft standing beside what is evidently the type-specimen of this species and the best of these is here reproduced. Other specimens have been caught off the New South Wales coast from time to time, but have not been preserved. Such a one was, for instance, caught off Cape Hawke and illustrated in the *Sunday News*, Sydney, April 22, 1923, p. 23; photographs of this specimen are also given here.

In an exercise book of the late E. P. Ramsay, I find some sketches of another specimen evidently referable to this species. This is a young male from New South Wales. From notes on the sketches, the following measurements are evident:

⁹Jordan and Evermann.—Bull. U.S. Nat. Mus., xlii, March, 1896, p. 92.

Total length without tail	24.0 inches
Width of disc	56.0 "
Pectoral margins.. .. .	27.0 "
Interorbital space	9.1 "
Centre of eye to tip of cephalic fin	4.9 "
Maximum diameter of eye	1.0 "
Lower lip	5.5 "
Width of mouth	5.6 "
Dorsal fin	2.9 "
Caudal spine	2.7 "
Tail	48.5 "

"Colour a rich plum. White underneath. Jan. 9th, 1883."

Waterhouse¹⁰ notes *Ceratoptera alfredi* from Roviana, Solomon Islands, but this is probably another species of the family Mobulidæ.

Part II.—Class PISCES.

Family MURÆNIDÆ.

Genus *Uropterygius* Rüppell, 1838.

Uropterygius obesus, sp. nov.

(Plate xxxix, fig. 1.)

Uropterygius marmoratus Whitley, Journ. Pan-Pacif. Res. Inst., ii, 1, 1927, p. 8, and Fish. N. S. Wales (McCulloch), 1927, add. Off Montague Island, New South Wales. Not *Gymnomuræna marmorata* Lacépède, 1803.

Head bulbous, contained nine times in total length, its upper profile concave between the eyes and curving into the convex and rather overhanging snout anteriorly. Eye small, overlaid with adipose tissue and without free margin. Anterior nostrils in large tubes on the anterior portion of the snout; posterior ones pore-like, with scarcely elevated rims and situated above and before eyes. Lower jaw longer than upper, the rictus extending far behind eyes. Lips thick. Three pores along each side of upper jaw exteriorly and some smaller ones scattered on chin. Each jaw with a single lateral row of about seventeen strong conical teeth directed slightly backwards and depressible. A depressible fang behind the intermaxillary teeth and some small teeth around the anterior part of the upper jaw. Vomer apparently toothless; the roof and floor of the mouth are covered with thick, plicated skin. Tongue not free. Mouth not closing completely. Gill-slits small, lateral, slightly oblique.

Body very elongate and somewhat tapering, not much compressed except towards tail, entirely covered with tough, smooth skin. Belly rounded. Dorsal and anal fins reduced to low fatty folds anteriorly; the dorsal fin first becomes apparent well behind the gill-slits and the anal in the posterior half of the fish, well behind vent and genital orifice. Dorsal and anal rays only visible posteriorly where they are confluent with the small caudal fin. Pectorals none. Some lateral line pores visible at the shoulder, but soon disappearing posteriorly.

Owing to the large size of this eel, the following measurements are mostly approximate: Eye, 9 mm.; interorbital, 30; maximum length of upper jaw 70, of lower 75; head, 165; snout, 35; depth of body 105, of head 113. Distance from snout to vent 780 mm., rather longer than that from vent to tip of tail, 735.

¹⁰ Waterhouse.—Roviana and English Dict., 1928, p. 168.

General ground-colour yellowish-cream, densely overlaid with brown vermiculations, as shown in the figure, which extend over the ventral surface as well as head, body and fins. Area around rictus and inside mouth pinkish. Gill-slit putty-coloured. Caudal and last dorsal and anal rays tinged with blackish. Some light patches on the body and tail where the brown markings are absent may have been caused by rubbing the sides against rocks or by wounds when the fish was alive. The eye was originally blackish with a yellow iris surrounded by a blackish ring with some smoky speckles, but after preservation in formalin it has turned milky-blue.

Described and figured from the holotype, a specimen five feet long, from off Montague Island, New South Wales. Austr. Mus. Regd. No. IA.3888.

A paratype from the same locality (No. IA.2658) is only two and a half feet long and has the vertical fins less covered over with fat than in the holotype, so that the dorsal originates just over the gill-slits and the anal commences immediately behind the vent. It has a depressed fang, followed by a single series of minute teeth on the vomer, and there are up to five depressible fangs inside the outer row of teeth along the sides of the upper jaw. Its mouth closes completely and the jaws are subequal. All these characters seem due to its immaturity.

Localities.—Nine miles N.E. of Montague Island, New South Wales; about 70 fathoms, May, 1929. Presented by Mr. Alec Ward. Holotype (Austr. Mus. Regd. No. IA.3888), plastotype (Nos. L.1676, T.627).

South of Montague Island, N.S.W.; 40–50 fathoms, April, 1926 (Captain Reid); paratype (No. IA.2658), recorded as *Uropterygius marmoratus*.

Trawled off Cape Everard, Victoria (Mr. A. A. Murrell). No. IA.4072.

Range and station.—Southern New South Wales and Victoria, in fairly deep water on the continental shelf. A living specimen in Taronga Park Aquarium, Sydney, lies with the head protruding from a heap of rocks in the usual moray fashion.

Affinities.—*Uropterygius concolor* Rüppell,¹¹ the type of the genus, differs from my new species in having the vertical fins still more reduced and in its uniform colour. *Gymnomuræna marmorata* Lacépède¹² has the anus nearer the head than the tip of the tail and the outline of the body in transverse section is more triangular. *Gymnomuræna macrocephalus* Bleeker¹³ is more elongate and with lower fins. All the other species of *Uropterygius* known to me differ markedly in coloration from my new species. The slender-headed *U. acutus* Parr¹⁴ may even represent a distinct genus.

Genus *Gymnothorax* Bloch, 1795.

Gymnothorax cribroris, sp. nov.

(Plate xxxix, fig. 2.)

Anguilla richardsoni Saville-Kent, Great Barrier Reef Austr., 1893, p. 370. Queensland (listed only). Not *Muræna richardsonii* Bleeker.

¹¹ Rüppell.—Neue Wirbelth. Abyssin. Fische, 1838, p. 83, pl. xx, fig. 4. Red Sea. Kaup (Cat. Apod. Fish., 1856, p. 105) called this *Uropterygius unicolor*, a needless synonym. *Scuticaria unicolor* Seale, Bull. Mus. Comp. Zool., lxi, 4, May, 1917, p. 94, from the Society Islands, is evidently a new species, *Uropterygius sealei*.

¹² Lacépède.—Hist. Nat. Poiss., v, 1803, p. 648. New Britain.

¹³ Bleeker.—Ned. Tijdschr. Dierk., ii, 1864, p. 54. Amboina.

¹⁴ Parr.—Bull. Bingham Oceanogr. Coll., iii, 4, July, 1930, p. 16, fig. 2. West Caicos Island.

Muræna (Gymnothorax) richardsoni Weber and Beaufort, Fish. Indo-Austr. Archip., iii, 1916, pp. 362 and 383. Australian record only.

Gymnothorax sp. McCulloch and Whitley, Mem. Qld. Mus., viii, 2, July 7, 1925, p. 136. On Saville-Kent, 1893.

Several specimens (Austr. Mus. Nos. IA.4619, 5012 and 5027) from North-west Islet, Capricorn Group, Queensland, consistently differ from the original description¹⁵ of *Muræna richardsonii* and from Bleeker's figure¹⁶ in various details, notably in dentition and coloration, and require a new name. The species may be described as follows.

Height (16 mm.) 16.2 in total length (260). Head (30) 8.2 in same. Gill-slit (2) much smaller than eye (3.3) which is nearly 2 in snout (6.5), which is again 2 in cleft of mouth (13). Head and trunk (124) shorter than tail (136). Head and body elongate, somewhat compressed, but thickest in middle of length. Snout conical, compressed laterally. Centre of eye over posterior half of mouth. Upper jaw the longer; lips with spaced ciliate papillæ. Seven teeth around intermaxillary followed on each side by two large teeth before the smaller maxillary ones, interior to which there is a single depressible tooth on each side. Two mesial depressible fangs on intermaxillary and a single row of small teeth on vomer. Mandible with two canines on each side anteriorly, followed by the single row of lateral teeth. Dorsal originating on head in advance of gill-openings. Skin with minute criss-cross folds.

Ground-colour cream on fins and tail, suffused with pinkish on trunk and becoming yellowish on top of head and snout. Ventral surface of head and trunk plain. Sides of head with large brown spots which become mere dots on the vertex and do not extend over the snout. No white spots along lips. Body and fins densely overlaid by a network of brown markings which do not form transverse bands, though on the tail they enclose the ground-colour in rows of white or yellowish spots. Posterior margins of fins cream. An ill-defined smoky blotch at the rictus. A brown blotch immediately over each gill-opening is hardly darker than others on the body.

Described and figured from the holotype (No. IA.5012), a specimen 260 mm. long, collected in May, 1931, at North-west Islet by the writer, who has also taken a similar, though distinctly coloured form, at Rarotonga which will be dealt with separately in a later paper.

The species recorded from Western Australia as *Muræna richardsonii* is quite distinct and has been named *Gymnothorax woodwardi* by McCulloch.¹⁷

Family CLUPEIDÆ.

Genus *Macrura* Van Hasselt, 1823.

Macrura Van Hasselt, Algem. Konst. Letter-Bode, 1823 (21), May, 1823, p. 329.

Type, "Koelee" Russell, 195 (*vide* Sherborn, Index Anim. (2), xv, May, 1928, p. 3778). Book not available to me.

The genus *Macrura* has been overlooked by ichthyologists and evidently applies to the group of Indo-Australian fishes regarded as *Atosa* by authors.

¹⁵ Bleeker.—Nat. Tijdschr. Ned. Ind., iii, 1852, p. 296. Ceram and Sumatra.

¹⁶ Bleeker.—Atlas Ichth., iv, 1864, p. 100, pl. clxxxvi, fig. 2.

¹⁷ McCulloch.—Rec. W. Austr. Mus., i, 1912, p. 80, fig. 1.

Alosa Cuvier¹⁸ is a later name than Van Hasselt's, and seems to be only strictly applicable to the Shads of Europe. Van Hasselt's name may be regarded as pre-occupied, however, by *Macroura* Meuschen, 1778 (Mammalia), *Macrourus* Bloch, 1786 (Pisces), and *Macrurus* Bloch and Schneider, 1801 (Pisces), and the genus, therefore, should, in my opinion, receive a new name. My reason for not giving it one is that there appears to be some obscurity regarding the genotype. Russell¹⁹ figured a Clupeid fish as "Keelee", a native vernacular name, and Bleeker²⁰ identified Russell's plate as his *Alosa kanagurta*. However, Russell's fish disagrees in fin-formula and length of caudal in relation to head with the one figured by Bleeker, and may be more closely allied to *Alosa macrura* (Kuhl and Van Hasselt MS.) Bleeker, or an allied species.

The fish recorded from the Sir Edward Pellew Group, Gulf of Carpentaria, as *Harengula kanagurta*²¹ differs from both accounts in having a much deeper body, and will probably require a new name when the problem of *Macrura* is eventually solved.

Genus *Harengula* Cuvier and Valenciennes, 1847.

Harengula punctata stereolepis Ogilby.

Clupea punctata Rüppell, Neue Wirbelth. Abyssin. Fische, 1837-8, p. 78, pl. xxi, fig. 2. Red Sea.

Clupea profundis, torresiensis and *ranelayi* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 11. *Nomina nuda ex De Vis* MS. Queensland.

Harengula stereolepis Ogilby, Proc. Linn. Soc. N. S. Wales, xxii, June 4, 1895, p. 759. Torres Strait, Queensland.

Harengula punctata Whitley, Rec. Austr. Mus., xvi, 1927, p. 4 (refs. and synonymy).

Specimens bearing De Vis' labels in the Australian Museum demonstrate that the *nomina nuda* listed by Saville-Kent in the genus *Clupea* may be disposed of as synonyms of *Harengula stereolepis* Ogilby, the Queensland form of *punctata* Rüppell. The "Sardines" of Murray Island remarked upon by Yonge²² are doubtless this species also.

Maugeclupea, gen. nov.

Orthotype, *Clupea bassensis* McCulloch²³ = *Maugeclupea bassensis*.

McCulloch employed the subgeneric name *Pomolobus* Rafinesque²⁴ for his *Clupea bassensis*, but his choice was unfortunate, as Rafinesque's genus applies to an Ohio species which differs in many characters from the Australian one, which is not congeneric. It may be noted that *Pomolobus* was emended to *Pomatolobus*, an overlooked synonym, by Agassiz.²⁵ *Clupea bassensis* obviously requires a new

¹⁸ Cuvier.—Règne Anim., Ed. 2, ii, April, 1829, p. 319. Tautotype, *Clupea alosa* Linné, Syst. Nat., Ed. 10, 1758, p. 318, from European seas.

¹⁹ Russell.—Fish. Vizagapatam, 1803, p. 75, pl. cxcv.

²⁰ Bleeker.—Atlas Ichth., vi, 1872, p. 114, pl. cclxv, fig. 5.

²¹ Paradise and Whitley.—Mem. Qld. Mus., ix, 1, 1927, p. 79, pl. xii, fig. 1.

²² Yonge.—Nature, Nov. 2, 1929, p. 695, fig. 3, and A Year on the Great Barrier Reef, 1930, p. 191, pls. lvi-lviii.

²³ McCulloch.—Zool. Res. Endeavour, i, Dec. 22, 1911, p. 16, pl. iv, fig. 2. Bass Strait and Tasmania. Types on deposit in Australian Museum.

²⁴ Rafinesque.—Western Review, ii, 3, April, 1820, p. 170; Ichth. Ohiensis, Dec., 1820, p. 38; McCall's Reprint, 1899, p. 89. Haplotype, *P. chrysochloris* Rafinesque.

²⁵ Agassiz.—Nomencl. Zool., 1846, Index Univ., p. 305. Type, *Pomolobus chrysochloris* Rafinesque, by present designation.

generic name, and may be called *Maugeclupea*, the diagnostic characters being: Teeth present in jaws. Depth of the elongate body less than length of head. Ventral scutes small. Ventral fins each with eight rays, originating a little in advance of the vertical of the dorsal and reaching half-way to vent when adpressed.

Family MYCTOPHIDÆ.

Subfamily SCOPELOPSINÆ, nov.

Genus *Scopelopsis* Brauer, 1906.

Scopelopsis Brauer, Wiss. Ergeb. Deutsch. Tiefsee-Exped. Valdivia xv, 1906, p. 146.

Haplotype *S. multipunctatus* Brauer from off South Africa. *Scopelopsis* in Index Zoologicus.

Scopelopsis caudalis, sp. nov.

D.19. A.23. P.13. V.8. C.17. L.lat.42. L.tr. $3\frac{1}{2}/1\frac{1}{4}\frac{1}{2}$.

Head (15 mm.) 3.5, depth of body (12.5) 4.2 in standard length (53). Orbit (4) 3.7, interorbital (5) 3, snout (2.5) 6, maxillary (11) 1.3 in head.

Form elongate, compressed. A median crest on snout flanked by cavernous olfactory pits. Upper profile of head more rounded and rising more steeply than lower. Scales of head with entire edges and each bearing a small central photophore. About four photophores below the mandible on each side. Gape of mouth very wide, the maxillary extending more than an eye-diameter behind the eye. Preopercular margin very oblique. Narrow bands of minute conic teeth on jaws, vomer, palatines, and tongue. Gill-rakers numerous, long and slender, and extending well forward into mouth.

Body deepest below dorsal origin, covered with hard, adherent, crudely ctenoid scales, each one of which bears a small central photophore. A light area above the caudal peduncle was probably luminous in life.

Dorsal and anal bases equal in length (17 mm.). Adipose dorsal fin rayed and situated over the last anal ray. Pectorals small, their longest rays (complete?) subequal to eye-diameter. Ventrals reaching vent. Caudal strongly forked, its lobes subequal to maxillary; the median rays bear one or two, and the outward rays six or seven small photophores.

General colour in alcohol, dark brown. Very light yellow on interorbital space and above caudal peduncle. Photophores mostly milky-blue, sometimes surrounded by a dark brown ring. Fins whitish except the caudal which has a brown-speckled appearance due to the photophores.

Described from the unique holotype of the species, a specimen 53 mm. in standard length or just over $2\frac{1}{2}$ inches in total length. Austr. Mus. regd. no. IA.2427. Collected at Lord Howe Island by the late Allan R. McCulloch, who found it on the lagoon beach seven or eight years ago.

The long maxillary, oblique preoperculum, and long caudal fin bearing photophores appear to distinguish this species from the genotype and hitherto only known species of the genus, *S. multipunctatus* Brauer, of which Barnard gave an extended description in his Monograph of the Marine Fishes of South Africa (1925).

Family SERRANIDÆ.

Genus *Othos* Castelnau, 1875.

Othos Castelnau, Vict. Offic. Rec. Philad. Exhib., 1875, p. 43. Haplotype, *O. cephalotes* Castelnau [= *Plectropoma dentex* Cuv. and Val.].

Colpognathus Klunzinger, Sitzb. Akad. Wiss. Wien, lxxx, 1, 1879, p. 339. Orthotype, *Plectropoma dentex* Cuv. and Val. Name preoccupied by *Colpognathus* Wesmael, 1844, a genus of Insecta (*vide* Sherborn).

Klunzinger's name, which has been in common use, is preoccupied, but *Othos*, which has been wrongly regarded as a Brotulid, is earlier as a name and identical with *Colpognathus*, and must therefore replace it.

***Othos dentex* (Cuvier and Valenciennes).**

Plectropoma dentex Cuvier and Valenciennes, Hist. Nat. Poiss., ii, Oct., 1828, p. 394. King George's Sound, Western Australia (Quoy and Gaimard). *Id.* Richardson, Zool. Voy. Erebus and Terror Fish., 1848, p. 117, pl. lvii, figs. 3-5 (King George's Sound). *Id.* Klunzinger, Sitzb. Akad. Wiss. Wien, lxxx, 1, 1879, p. 337, pl. i, fig. 1 (King George's Sound).

Plectropoma richardsonii Günther, Proc. Zool. Soc. Lond., 1861 (April 7, 1862), p. 391, pl. xxxviii. Fremantle, W. Australia. Holotype in British Museum.

Othos cephalotes Castelnau, Vict. Offic. Rec. Philad. Exhib., 1875, p. 44. Beach near Swan River, W. Australia. *Id.* McCulloch, Austr. Mus. Mem., v, 1929, p. 356 (in Brotulidæ).

Colpognathus dentex Boulenger, Cat. Perc. Fish. Brit. Mus., 1895, p. 310, fig. 21 (Adelaide, S. Austr.; King George's Sound and Fremantle, W. Austr.), and of authors.

Richardson and others have given good figures of Cuvier and Valenciennes' species, which is the type of *Colpognathus* Klunzinger, preocc. A hitherto unsuspected synonym is *Othos cephalotes* Castelnau, the prolix description of which, based on portions of a skull and a rat-gnawed skin, agrees excellently with figures and descriptions of *dentex*. Castelnau's statement that the ventral fins are "jugular" evidently confused McCulloch, who regarded his species as an aberrant Brotulid. Another mistake of Castelnau's is his statement that the eye is contained seven times in the length of the fish, when "in the head" was obviously intended. These are minor discrepancies, however, and the correct name for this species is thus *Othos dentex* (Cuv. and Val.).

Family HISTIOPTERIDÆ.

***Evistiopterus*, gen. nov.**

Orthotype, *Histiopterus acutirostris* Temminck and Schlegel²⁵ = *Evistiopterus acutirostris*.

Anterior profile of head very irregular; orbital region, snout, and jaws very prominent. End of maxillary not covered by preorbital; vomer toothless. Dorsal spines four, the third shorter than the fourth and all lower than the rays of the soft dorsal. Anal spines three, the second largest, but the third longest.

This new generic name will replace *Evistias* Jordan²⁷ preoccupied by *Evistius* Gill,²⁸ a genus of Labracoglossid fishes of identical etymological derivation.

²⁵ Temminck and Schlegel.—Fauna Japon. Pisces, 1844, p. 88. Japan.

²⁷ Jordan.—Proc. U.S. Nat. Mus., xxxii, 1907, p. 237.

²⁸ Gill.—Mem. Nat. Acad. Sci. Wash., vi, 1893, pp. 114 and 123.

Family BELONIDÆ.

Genus *Platybelone* Fowler, 1919.*Platybelone dorsalis*, sp. nov.

Belone persimilis Günther, Journ. Mus. Godeff., vi, 16, Fische der Südsee, iii, 8, 1909, p. 349. North-western Australian specimen in British Museum only. *Id.* McCulloch, Austr. Mus. Mem., v, 1929, p. 101.

Included in Günther's original description of the Hawaiian *Belone persimilis* is an atypical north-western Australian specimen which requires a new name. Günther notes it as having D.16; A.19; diameter of orbit, 11 mm.; interorbital space, 9.5 mm.; postorbital, 23 mm. Length, 17 inches. The increased number of dorsal rays is the main character distinguishing the Australian species.

Family MUGILIDÆ.

Genus *Ellochelon* Whitley, 1930.*Ellochelon vaigiensis* (Quoy and Gaimard).

Mugil vaigiensis Quoy and Gaimard, Voy. Uran. Physic., Zool., 1825, p. 337, pl. lix, fig. 2. Waigiou. *Id.* Günther, Cat. Fish, Brit. Mus. iii, 1861, p. 435, and fig.

Mugil ventricosus Castelnau, Vict. Offic. Rec. Philad. Exhib., 1875, p. 32. Nicol Bay, Western Australia. Name preoccupied by *Mugil ventricosus* Richardson, Rept. 15th Meet. Brit. Assn. Adv. Sci, 1845 (1846), p. 249, a Chinese mullet.

The name *Mugil ventricosus* Castelnau is preoccupied, but the species does not appear to require a new name, as Castelnau's types seem to have been merely small bloated or deformed specimens of *Ellochelon vaigiensis*, which is recorded from north-western Australia.

Family BRANCHIOSTEGIDÆ.

Genus *Branchiostegus* Rafinesque, 1815.

Coryphænoides Lacépède, Hist. Nat. Poiss., iii, 1802, p. 219. Haplo type, *C. hottuynii* Lacépède, based on "Hottuyn, Act. Haarl. 20, 2, p. 315" from Japan. Name preoccupied by *Coryphænoides* Gunnerus, Trondhiemska Selsk. Skrift., iii, 1765, pp. 50 and 58 (*fide* Sherborn, Index Anim.), another genus of fishes.

Branchiostegus Rafinesque, Analyse de la Nature, 1815, p. 86 (*fide* Sherborn). "Substitute for *Coryphænoides* Lacépède, not of Gunner"—*fide* Jordan, Gen. Fish., 1919, p. 90. Type *C. hottuynii* Lacépède.

Latilus Cuvier and Valenciennes, Hist. Nat. Poiss., v, July, 1830, p. 368. Logotype, *L. argentatus* C. and V., selected by Jordan, Tanaka, and Snyder, Journ. Coll. Sci. Imp. Univ. Tokyo, xxxiii, 1, 1913, p. 187.

Branchiostegus wardi, sp. nov.

(Plate xxxix, fig. 3.)

Branchiostegus sp. Marshall, Mem. Qld. Mus., ix, 2, June 16, 1928, p. 189. Off Noosa Heads, Queensland. Specimen (No. I.4389) in Queensland Museum.

Br.6; D.vii/15(16); A.ii/11(12); P.i/17; V.i/5; C.13. Sc.76 to hypural. L.tr.8/1/23. 14 gill-rakers on lower limb of 1st gill-arch.

Head (*circa* 95 mm.) subequal to depth (96) and 3.47 in standard length (c. 330). Eye (20) 4.7 in head or 1.5 in snout (31), which is 3 in head and longer than interorbital (29).

Vertex of head with a low crest, 69 mm. long, before dorsal fin. Top of head before interorbital soft and tumid. An outer row of small canines and an inner band of villiform teeth in each jaw. About ten transverse rows of scales on cheeks. Depth of caudal peduncle about $2\frac{1}{2}$ in head.

Other general characters as in *Branchiostegus ilocanus* Herre.²⁹

General colour, in formalin, light brownish above and shading to white below, without defined cross-bands. Crest on head, suprascapula, pectoral base and axilla yellow. Some faint orange or yellow blotches along lateral line. Front of head faint lavender. Eye milky bluish. Pectorals light greyish, with a narrow black margin to the first two rays. Dorsals greyish, with yellow along the base and disposed irregularly on the membranes; a narrow, smoky, inframarginal stripe. Anal and ventrals uniform smoky grey. Uppermost caudal rays grey; most of upper caudal lobe yellow, brightest on sixth ray; seventh and part of eighth ray grey; an oblique band of bright yellow crosses base of lower caudal lobe and extends along parts of eighth and ninth rays; lowest part of caudal lobe dark greyish, with a whitish margin below.

Described from the holotype, about 330 mm. in standard length. Trawled in 50-60 fathoms, off Port Stephens, New South Wales; September 18th, 1931. Australian Museum Regd. No. IA.5130.

Named after Mr. Alec Ward, who collected the specimen, and who has obtained many rare and interesting fishes on board the trawlers in recent years.

Branchiostegus wardi is closely allied to the Philippine *B. ilocanus* Herre, 1928, but differs from the original description and figure of that species in having more rows of cheek-scales and more scales on body. The first two dorsal spines are close together, but not united as in Herre's species. In the Australian form, the proportions of the head are quite different from those of *B. ilocanus*.

Family CHÆTODONTIDÆ.

Genus *Chelmon* Cloquet, 1817.

Chelmon Cloquet, Dict. Sci. Nat., viii, 1817, p. 370. Based on "Chelmon" Cuvier, Règne Anim., Ed. 1, ii, "1817" = Dec., 1816, p. 344, vernac. Logotype, *Chatodon rostratus* Linné, by present designation.

Chelmo Schinz, Das Thierreich (Cuvier), ii, 1822, p. 532. *Ex* Cuvier, vernac. Logotype, *Chatodon rostratus* Linné.

Chelmonus Jarocki, Zoologia, iv, 1822, p. 260 (*vide* Sherborn, Index Anim.).

Of this genus, I recognize two Australian forms, instead of four, as entered in the Check-List³⁰: *Chelmon rostratus mulleri* Klunzinger from north-eastern Australia and *C. rostratus marginalis* Richardson (syn. *tricinctus* Castelnau) from Western and north-western Australia.

Family ODACIDÆ.

Genus *Neodax* Castelnau, 1875.

Neodax semifasciatus (Cuvier and Valenciennes).

Odax semifasciatus Cuvier and Valenciennes, Hist. Nat. Poiss., xiv, "1839" = Jan., 1840, p. 299, pl. ccccvii. "Mers des Indes" (Péron).

²⁹ Herre.—Philippine Journ. Sci., xxxv, 1, Jan., 1928, p. 32, pl. iii. Ilocos, P.I.

³⁰ McCulloch.—Austr. Mus. Mem., v, 1929, p. 249.

To the synonymy of this species may now be added *Labrus squalidus* Girard,³¹ described from "Île Decrès", nowadays known as Kangaroo Island, South Australia. Girard also (pp. 166 and 271) noted the practically unknown *Balistapodus wittensis* (family Balistidæ) as probably a mutilated *Balistapus lineatus*, of which it may conveniently be regarded as a synonym, thus removing another doubtful species from the Australian list.³²

Family CARANGIDÆ.

Turrum, gen. nov.

Orthotype, *Turrum emburyi*, sp. nov.

A genus of trevallies of large size and with the general facies of *Caranx*, sensu latissimo, but separable from all the known Carangid genera by the following combination of characters.

Eye small. Teeth present in villiform bands on jaws, vomer, and palatines. Lips not sharp-edged. Gill-rakers not extending forward into mouth. Body deep, compressed, its profiles convex, not angular, that of the dorsal surface being much more convex than that of the ventral. Breast naked. Straight portion of lateral line commencing well behind origin of soft dorsal and anal fins and shorter than curved portion; the bucklers are well-developed posteriorly, but not hooked forward. Dorsal and anal fins lobed anteriorly, without convex margins, produced rays, or finlets. No transverse bands across head or body.

Turrum emburyi, sp. nov.

(Plate xxxviii, fig. 4.)

Br.7. D.viii/i, 29; A.ii/i, 24; P.21; V.i/5; C.17. L.lat. scutes 40 or more on straight portion.

Head one-fourth of standard length, the upper profile steep and convexly rounded above. General form deep, compressed, the upper profile of the body more convex than the lower. Vent between ends of ventrals.

Eye rather small, more than 2 in preorbital and nearly 3 in snout. Maxillary not reaching level of eye. A band of villiform teeth in each jaw; others on vomer and palatines. Gill-rakers long, but not projecting into mouth, blunt-tipped, 15 on lower limb of first gill-arch. Pseudobranchiæ present.

Dorsal and anal fins long, without produced rays, and with the anterior rays only forming moderate lobes; both fins have low sheaths at their bases anteriorly. Pectoral falciform. Lateral line arched for the first half of its length, becoming straight below the soft dorsal fin; there are at least forty scutes on the straight portion; these are very small anteriorly, but occupy most of the sides of the caudal peduncle posteriorly. The breast is naked backward to behind the ventrals, but scales from the sides of the body encroach upon the naked area between the pectorals and ventrals.

General colour opalescent bluish above, with a few yellow spots on upper parts of sides, and light silvery below. Fins smoky olive. A small black opercular blotch and a broken line of dark brown marks along anal base. Pectoral axil black.

³¹ Girard.—Péron sa Vie, 1857, p. 162.

³² McCulloch.—Austr. Mus. Mem., v, 1929, pp. 413-414.

Described from the holotype, a large specimen, about 32 inches in total length, and weighing 13 pounds. This was one of a series, 7 to 16 pounds in weight, caught by fishermen at North-west Islet, Queensland, in May, 1931.

The vernacular name, "Turrum", applied to this fish has been utilized for its generic title, whilst the specific name has been given in honour of Mr. E. M. Embury, leader of an expedition, of which the writer was a member, to North-west Islet.

This species is a good sporting fish, being caught on spinners trolled from a launch. The flesh is reddish, and, when cooked, is firm and finely flavoured.

Family LUTJANIDÆ.

Genus *Glabrilutjanus* Fowler, 1931.

Glabrilutjanus marshalli, sp. nov.

D.x/17; A.iii/9; P.ii/15; V.i/5; C.15. L.lat. 54. L.tr.8/1/20.

Head (41 mm.) 2.8, depth (43.5) 2.6 in standard length (115). Eye (8) 5.1, interorbital (9) 4.5, and snout (16) 2.5 in head. Pectoral (25) 1.2 in height of second dorsal (30).

Head and body compressed. Eye rather small. Preoperculum finely denticulated, without notch. Maxillary not quite reaching vertical of eye. Upper lip deflected upwards. A canine on each side of symphysis of upper jaw. A narrow band of villiform teeth in each jaw and on palatines and in a boomerang-shaped patch on the vomer. Tip of tongue rounded. Seven or eight oblique scale-rows on cheeks. Opercles scaly; temples and top of head naked. Gill-membranes united to a narrow isthmus. Gill-rakers lanceolate above and rudimentary below; eleven or more on the first gill-arch.

Body deep, covered with moderate ctenoid scales which do not extend far on to the fins. The scale-rows are all subhorizontal or sloping downwards slightly posteriorly.

First dorsal fin low, with a convex margin, the fifth spine longest. Second dorsal elevated, higher than long, but not produced into filaments. Anal similar to second dorsal but lower; the spines increasing in length backward. Third and fourth pectoral rays longest, but not nearly as long as head. Ventrals about half as long as head and reaching the vent when adpressed. Caudal emarginate, shorter than pectoral.

General colour, in formalin, grey above and whiter below. Five whitish, subhorizontal stripes (probably blue in life) on the upper parts of the body; the first along base of spinous dorsal, the second parallel to it but lower, the third running from eye to end of soft dorsal and crossing the highest part of the lateral line, the fourth extending from shoulder to below termination of dorsal, and the fifth running from opercular point to middle of caudal peduncle. Some indistinct vertical fuscous areas extend from below the dorsal fins across the upper half of the sides, and the scales near the root of the tail are dark grey. Pectoral base dark grey, its axil whitish. Each body-scale with a dusky grey margin. Head whitish, becoming grey on the cheeks and brownish-grey on opercula and nape. A curved dark grey line crosses the interorbital, a U-shaped mark crosses the snout and joins the nostrils, and the tip of the snout and top of upper lip are dark grey. An indistinct smoky stripe below eye. Fins whitish with some greyish infuscations. Ventrals dark grey, as is also a distal band on the anal fin.

Mr. T. C. Marshall, of the Queensland Museum, after whom I have pleasure in naming this species, noted the colours of this fish, when fresh, as: "Belly rose-colour. Fins yellow. Body with bands of blue."

Described from the holotype of the species, a specimen 115 mm. in standard length or 5½ inches in total length. Queensland Museum Regd. No. I.4723.

Locality.—Dunwich, Moreton Bay, Queensland; caught by Mr. Dick Perry, March 2, 1931.

Mesoprion aurivittatus and *M. helenæ* Saville-Kent,³³ *nomina nuda*, may be relegated to the synonymy of *Glabrilutjanus marshalli*.

Family LETHRINIDÆ.

Genus *Lethrinus* Cuvier, 1829.

Lethrinus viridis, sp. nov.

Lethrinus flavescens Saville-Kent, Gt. Barr. Reef, 1893, p. 369. *Nom. nud. ex De Vis MS. Queensland. Id.* McCulloch, Austr. Mus. Mem., v, 1929, p. 227. Not *L. flavescens* Cuv. and Val., Hist. Nat. Poiss., vi, Sept., 1830, p. 299, from Tongatabu.

Lethrinus viridis, lachrymans, margaritifer, and regius Saville-Kent, Gt. Barr. Reef, 1893, p. 369. *Nomina nuda ex De Vis MS. Queensland.*

Lethrinus richardsonii Günther, Ann. Mag. Nat. Hist. (3) xx, 1867, p. 59 (Cape York rec. only). *Id.* Klunzinger, Sitzb. Akad. Wiss. Wien, lxxx, 1, 1879, p. 357 (Endeavour R. and Port Darwin). Not *L. richardsonii* Günther, Cat. Fish. Brit. Mus., i, 1859, p. 456, from China.

D.x/9; A.iii/8; L.lat. 48. L.tr.6/1/16.

Head (37.5 mm.) 2.7, depth (42.5) 2.4 in standard length (103). Orbit (12) greater than interorbital (9) and 1.5 in snout (18) or subequal to preorbital (11.5). Depth of caudal peduncle before tail-fin (13) nearly 8 in standard length.

Head longer than deep, its upper profile sloping obliquely, becoming gibbous on nape and very slightly convex before the eyes. Interorbital slightly convex, without median ridge. Lateral teeth conical; posterior teeth small and blunt, not molariform nor in several series.

Depth of body greater than length of head. Lateral line following the curve of the back, overlying three-quarters of the sides, and with five rows of scales above it.

Second dorsal spine not so long as third. Second anal spine equal to third; height of soft anal less than its length. Pectoral (30 mm.) less than head in length, but twice as long as ventral spine. Ventrals reaching base of first anal spine. Caudal markedly emarginate.

Colour now faded to a uniform yellowish-brown. Apparently no black lateral blotch or cross bands.

Described from the largest of seven small specimens from Cape York in the "old collection" of the Queensland Museum (Regd. No. I.6/84). These were labelled *L. flavescens*, but they do not belong to that species of which I have seen Melanesian specimens. Other labels bore some unpublished names of De Vis. I have selected for this novelty the name *L. viridis*, one of several *nomina nuda* listed

³³ Saville-Kent.—Gt. Barrier Reef, 1893, p. 369. Queensland.

by Saville-Kent. I have been unable to find any specimens upon which he may have based the names *L. lachrymans*, *margaritifer*, and *regius*, so designate them synonyms of *viridis*.

The specimen described above agrees fairly well with *Lethrinus richardsonii* as described by Herre and Montalban,³⁴ but the maxillary does not reach to below the nostrils.

Family LABRIDÆ.

Genus *Chærodon* Bleeker, 1847.

Chærodon albigena (De Vis).

Chærops albigena De Vis, Proc. Linn. Soc. N. S. Wales, ix, 4, March 4, 1885, p. 876. Cape York, Queensland. Type (No. I.110) in Queensland Museum seen.

Chærops olivaceus De Vis, Proc. Linn. Soc. N. S. Wales, ix, 4, March 4, 1885, p. 876. [Dunk Island off] Cardwell and Cape York, Queensland. Lectotype (I.4734) in Qld. Mus. seen. Not *Cossyphus olivaceus* Dumont, Dict. Sci. Nat., xxix, 1823, p. 268.

Chærops concolor De Vis, Proc. Linn. Soc. N. S. Wales, ix, 4, March 4, 1885, p. 876. North-east coast of Queensland. Type (I.946) in Qld. Mus. seen.

Chærops unimaculatus De Vis, Proc. Linn. Soc. N. S. Wales, ix, 4, March 4, 1885, p. 877. Barrier Reef, Queensland. Types (I.95) in Qld. Mus. seen. Name pre-occupied by *Chærops unimaculatus* Cartier, Verh. Phys. Med. Ges. Würzburg, v, 1873, p. 102 (*vide* Fowler and Bean, Bull. U.S. Nat. Mus., 100, vii, 1928, p. 198).

Chærodon albigena Ogilby, Mem. Qld. Mus., ii, 1913, p. 93. *Id.* McCulloch and Whitley, Mem. Qld. Mus., viii, 1925, p. 168.

Chærodon olivaceus Ogilby, Mem. Qld. Mus., ii, 1913, p. 93. *Id.* McCulloch and Whitley, Mem. Qld. Mus., viii, 1925, p. 168. *Id.* Whitley, Austr. Zool., iv, 4, 1926, p. 231 (N.-W. Islet and Wide Bay, Q.). *Id.* Paradise and Whitley, Mem. Qld. Mus., ix, 1927, p. 92 (Pellew Group, Gulf of Carpentaria).

D.xiii/7; A.iii/10; P.i/15; V.i/5; C.12. L.lat. 28-29; L.tr.4/1/8-9.

Head (95 mm.) 2.6, depth (108.5) 2.3 in standard length (254). Eye (15) 6.3, preorbital (37) 2.5, snout (42) 2.2, interorbital (21.5) 4.4, eye to lower preopercular margin (47) 2 in head.

Head and body elevated, compressed. Upper anterior profile regularly convex. Eye small. Interorbital broadly convex. Spaced rudimentary scales on cheeks, a single row on suboperculum; large scales on operculum, rest of head naked. Preoperculum entire, the serræ having become obsolete. Vertex of head pitted; preorbital with radiating tubes. A broad, faintly striated opercular flap; lower margin of operculum deeply concave. Mouth just reaching vertical of anterior orbital margin. Two pairs of bluish tusks in each jaw, those of the lower being largest. Some small, stout canines near the tusks in upper jaw and at back of sides of lower jaw; dental ridges confluent laterally. Apparently no posterior canines. The gills of the type have been mutilated, so the gill-rakers may not be counted.

³⁴Herre and Montalban.—Philip. Journ. Sci., xxxiii, 4, 1927, p. 405, pl. ii, fig. 2. Philippine Islands.

Body covered with large cycloid scales which are arborescent on the continuous lateral line, which has four rows of scales above it and eight or nine below. Scales on caudal root not much enlarged. Six predorsal scales.

Eleventh dorsal spine longest (22 mm.), shorter than the longest (sixth) dorsal ray (37 mm.). Pectoral (75 mm.) shorter than head. Ventrals reaching base of first anal spine. Caudal margin bisinuate, its upper lobe subequal to snout and a little longer than least depth of caudal peduncle.

Colour, after long preservation in formalin, now faded to uniform light brownish. A smoky blotch on snout and tip of lower jaw and on tip of upper caudal lobe may not be natural. De Vis noted the colours as "Violet brown, chin yellowish white; anal with four pale longitudinal bands. A dark blotch (sometimes obsolete) on the back beneath the ninth dorsal spine."

Described from the holotype of *Chærops albigena* De Vis, a specimen 254 mm. in standard length or 11¼ inches in total length, collected by Kendall Broadbent at Cape York, Queensland.

The type of *Chærops concolor* De Vis, also in the Queensland Museum, is a small skin, apparently referable to this species, with the preoperculum denticulated, the body more slender than in the adult and with the eye larger. It was collected by K. Broadbent in north-east Queensland.

The two paratypes of *Chærops unimaculatus* De Vis from Cardwell also agree with this species. One has a black spot below the dorsal fin and the other has the lower caudal lobe with a brownish margin, perhaps a stain. These specimens have turned greenish in preservative.

The holotype of *Chærops olivaceus* De Vis, from Dunk Island, off Cardwell, Queensland, agrees in practically all details with that of *albigena*, the only apparent differences being as follows:

Lateral line obliquely bent. Pores behind eye rather few. Ventrals reaching anal spine *albigena* (type).

Lateral line evenly curved. Pores behind eye numerous. Ventrals not reaching anal spine *olivaceus* (type), also types of *concolor* and *unimaculatus*.

These differences may perhaps be accounted for by changes with growth and age, or may indicate that there is a northern (*Chærodon albigena albigena*) and a southern (*Chærodon albigena olivaceus*) form of this species, a condition comparable with that of *Pseudopomacentrus wardi wardi* and *P. wardi macleayi*, in the Family Pomacentridæ, as demonstrated in my paper on the fishes of Low Isles, Queensland (in the press).

Other specimens of *Chærodon albigena* are preserved in the Queensland Museum, labelled "*Chærodon olivaceus* De Vis. Magnetic Island, coll. Taylor" (No. I.1780) and "*Chærops cyanodon* Rich. Queensland coast. coll.?"

The Australian Museum has specimens from Vanderlin Island, Pellew Group, Gulf of Carpentaria; Great Sandy Strait, Wide Bay, and North-west Islet, Queensland. There is also an old specimen labelled "Port Jackson", but the locality may be doubted. *Chærodon albigena* is not authentically known outside Queensland waters at present.

***Chærodon venustus* (De Vis).**

Chærops venustus De Vis, Proc. Roy. Soc. Qld., i (about July), 1885, p. 147.

Moreton Bay, Queensland. Type (old. coll. No. 4735) in Queensland Museum seen.

Chærodon venustus Cockerell, Mem. Qld. Mus. ii, 1913, p. 58 (scales). *Id.* Ogilby, Mem. Qld. Mus., ii, 1913, p. 93. *Id.* McCulloch, Austr. Zool., ii, 1922, p. 98, fig. 264a (Clarence and Richmond Rivers, N. S. Wales). *Id.* Whitley, Austr. Zool., iv, 1926, p. 232 (Queensland locs.).

The type of this species differs at sight from *C. albigena* in having a slight dip in profile before the eyes, preoperculum very finely denticulate, and eye large. Roughley³⁵ has figured a New South Wales specimen as *C. ommopterus* Richardson, with which species it has been confused by some authors (*vide* Ogilby, *loc. cit.*, 1913).

Chærodon vitta Ogilby.

Chærodon vitta Ogilby, Proc. Roy. Soc. Qld., xxiii, Nov., 1910, p. 13; Ann. Rept. Amat. Fish. Assoc. Qld., 1910-11, July, 1911, p. 11. Dobo, Aru Islands. Lectotype (I.1555) in Queensland Museum seen, also a paratype in A.F.A.Q. Museum, Brisbane, and another in Austr. Mus., Sydney.

This species is quite different from the foregoing and possibly deserving of subgeneric distinction, as the lateral tusks in the lower jaw are flared upwards and outwards. Pectorals evenly rounded. Ventrals not reaching anal fin. An indistinct oblique band below eye. A large brown blotch on caudal peduncle. Not authentically known from Australia.

Chærodon lineatus (De Vis).

Torresia lineata De Vis, Proc. Linn. Soc. N. S. Wales, ix, 4, March 4, 1885, p. 881. Cardwell, Queensland. Type (No. I.82) in Queensland Museum seen.

Chærodon ambiguus Ogilby, New Fish. Qld. Coast, Dec., 1910, p. 100. Off Double Island Point, south Queensland; 33 fathoms. Type (No. I.1543) in Queensland Museum seen. A co-type in the Austr. Mus. figured by Whitley, Rec. Austr. Mus., xvii, 1929, p. 125, pl. xxxiii, fig. 4.

Chærodon lineatus and *C. ambiguus* McCulloch and Whitley, Mem. Qld. Mus., viii, 1925, p. 168.

The holotype of *Chærodon ambiguus* Ogilby "Deposited by the A.F.A.Q." in the Queensland Museum, but actually collected by the F.I.V. "Endeavour", is now soft and partly decayed. It agrees with my figure, quoted above, and has rudimentary scales on cheeks in regular rows, but scarcely imbricate. Most of head pitted with regularly spaced pores. On left side of head are two dark marks just above and behind eye. Five predorsal scales. There is no doubt that this species is synonymous with *Torresia lineata* De Vis, the type of which, collected by Broadbent, is also now partly decayed, but has the characteristic "pimply" head. The lower canines are not flared outwards.

Chærodon anchorago (Bloch).

Sparus anchorago Bloch, Nat. ausl. Fische, v, 1791, p. 108, pl. cclxxvi. No loc. Received from the Holland auction.

Labrus macrodontus Lacépède, Hist. Nat. Poiss., iii, 1802, pp. 451 and 522. No loc. From collection ceded to France by Holland.

³⁵ Roughley.—Fish. Austr., 1916, p. 150, pl. 50.

Labrus chlorodus Gray, Cat. Fish. Coll. Gronow Brit. Mus., 1854, p. 80. *Ex* Gronow MS. No loc. Seen at Hague in D. van Hoey coll. This may even be the same specimen as named by Bloch and Lacépède.

Cherops macrodon Bleeker, Atl. Ichth., i, 1862, p. 162, pl. xlvii, fig. 1. *Id.* Günther, Cat. Fish. Brit. Mus., iv, 1862, pp. 94 and 505.

Labrus choirodon Bleeker, Atl. Ichth., i, 1862, p. 162. *Ex* Kuhl and van Hasselt MS. No loc. Name in synonymy only.

Cherops graphicus De Vis, Proc. Linn. Soc. N. S. Wales, ix, 1885, p. 878. Cardwell, Queensland. Type (I.944) in Queensland Museum.

Cherodon weberi Ogilby, Ann. Rept. Amat. Fish. Assoc. Qld., 1910-11, July, 1911, p. 11. *Nom. nud.* *Id.* Ogilby, Ann. Qld. Mus., x, Nov. 1, 1911, p. 52. Dobo, Aru Is. Type (I.1532) in Queensland Museum seen.

D.xiii/7; A.iii/9; P.i/14; V.i/5; C.12. L.lat. 29. L.tr.4/1/9.

Head (62 mm.) 2.6, depth (60) 2.7 in length to hypural joint (163). Eye 11 mm., preorbital 22.5, snout 27, interorbital 16, distance from eye to lower preopercular margin 27, least depth of caudal peduncle 25.5.

Form robust. Upper anterior profile convex, slightly tumid over eyes. Interorbital broadly convex. Eyes moderate. About nine oblique rows of imbricate scales on cheeks; a row of larger ones on suboperculum with a few rudimentary scales forming a second row; large weak scales on operculum, rest of head naked and smooth. Preopercle entire with obsolescent serræ. A broad, weakly striated opercular flap with an excavate lower margin. Maxilla not reaching vertical of eye. Tusks white or very faded bluish. Two large inner and two small outer tusks in upper jaw; outer tusks of lower jaw longest and curved outwards as in *Cherodon vitta*. Lateral teeth confluent into ridges, but almost separate at back of mandible. Posterior canines well developed. Gill-rakers short, curved, pointed, 6 + 10 on first gill-arch.

Body-scales cycloid, with broad membranous margins. They lie in three series above the arborescent lateral line, not counting the smaller scales along the base of the dorsal fins. About seven predorsal scales.

Dorsal spines longest posteriorly, the last measuring 13 mm. from the scaly base. Penultimate dorsal ray (22 mm.) longest and equal to seventh and eighth anal rays. Pectoral (45) with convex margin. Ventrals (38) not reaching anal fin. Caudal margin broadly convex, its rays shorter than those of the ventrals.

Colour, after long preservation in formalin, dark brown. Sides of head with small white spots which are much smaller than the interspaces. A light vertical bar below seventh and eighth scales of lateral line and fading into the body-colour behind the pectoral fin. A light saddle-shaped area embraces nearly all the upper half of the caudal peduncle. Base and axil of pectoral blackish. Some small and inconspicuous pearly spots on nape and on some of the scales on the back. Dorsal fin smoky, especially over the darkest portion of the body-colour, which is on the posterior half of the back. A narrow light margin along the tops of the soft dorsal and anal fins. Caudal membranes dusky proximally. Pectorals and ventrals whitish.

Described from the lectotype of *Cherodon weberi* Ogilby, a specimen 163 mm. in length to hypural joint, or nearly eight inches in total length. Collected by John Colclough, a brother of the last Queensland Museum taxidermist, at Dobo,

Aru Islands. It agrees better with Bleeker's figure in the Atlas Ichthyologique than with Bloch's original plate, and differs from *Chærodon melanostigma* Fowler and Bean³⁶ in having the anterior profile not so far removed from front of eye and in different coloration.

I have much pleasure in expressing my indebtedness to Mr. H. A. Longman, Director of the Queensland Museum, and to Mr. T. C. Marshall, of the same institution, for placing their collection of *Chærodon* spp. at my disposal on my visit to Brisbane last May. The synonymy detailed above is a step towards an understanding of the Australian species, but considerable work has yet to be done before our knowledge of even the forms already described can be regarded as in any way complete.

Family SILLAGINIDÆ.

Genus *Sillago* Cuvier, 1816.

Sillago ciliata diadoi Thiollière.

Sillago ciliata Cuvier and Valenciennes, Hist. Nat. Poiss., iii, April, 1829, p. 415.

"Southern Seas" (Péron). Type-loc. King George's Sound, W. Australia, designated by Fowler, Mem. Bish. Mus., x, 1928, p. 235, but Péron's specimen may have come from Tasmania or even Sydney.

Sillago diadoi Thiollière, Ann. Soc. Imp. Agric. Hist. Nat. Lyons, viii, 1856, p. 351; Essai Faune Woodlark, 1857, p. 151. Woodlark I. Based on a drawing by Montrouzier, labelled *Merlucius?*

Sillago insularis Castelnau, Proc. Zool. Acclim. Soc. Vict., ii, May 10, 1873, p. 114. Noumea, New Caledonia.

Sillago terræ-reginæ Castelnau, Proc. Linn. Soc. N. S. Wales, ii, 3, May, 1878, p. 232. Moreton Bay, Queensland.

Sillago auricomis Ogilby, New Fish. Qld. Coast, Dec. 20, 1910, p. 97. Coast of southern Queensland; 437 specimens from various locs.

Br.5. D.xi/i,17(18); A.ii/16; P.i/15; V.i/5; C.15. L.lat. 62 to hypural (+ 3 and some minute caudal scales). L.tr.6/1/12.

Head (100 mm) 3.32; depth (72) 4.6 in standard length (332). Eye (18) 5.5 in head. Interorbital (30) 1.4 in snout (42), which is longer than postorbital portion of head (37).

Head naked except for two or three rows of scales on the cheeks, others on operculum, and those on the top of the head extending backward from the interorbital. A band of villiform teeth, largest anteriorly, on each side of both upper and lower jaws; no teeth on symphyses. A band of villiform teeth on vomer; none on palatines. Pharyngeal teeth molariform. A flat opercular spine. Pseudo-branchiæ present. Eight gill-rakers on lower limb of first arch; short and pointed above, rudimentary and granulose below.

Form of body rather robust, covered with large, regular, ciliated scales which extend over the caudal root and become minute on the caudal membranes. Breast flat, scaly. First dorsal originating behind the insertion of the pectorals and ventrals, separated by one or two scales from the second dorsal, whose base (97 mm.) is longer than that of the anal (85). Second dorsal spine (60) longest, nearly twice as long as the longest (first) ray (31). Rows of scales on membranes

³⁶ Fowler and Bean.—Bull. U.S. Nat. Mus., 100, vii, 1928, p. 199, pl. xvi. Jolo, Philippine Islands. Types in U.S. Nat. Mus.

between spines and rays of both dorsal and anal fins. Anal similar to second dorsal, its origin beneath the second dorsal ray. Second anal ray (29 mm.) longest. Three scales between urinogenital apertures and first anal spine. Pectoral rounded, its fourth ray (55 mm.) longest, greater than the first ventral ray (50). Caudal forked, the upper lobe (60) longer and more pointed than the lower (50), which has a rounded margin.

General colour olivaceous on the back, shading to white on the belly, the tone darkest on the dorsal fins and tail and becoming greenish-grey on the top of the snout. Iris golden, with some brown above and whiter below; pupil black, surrounded by a yellowish ring. A large dark grey patch covers the pectoral base; inner axil tinged with wine colour. Dorsal fins olive-greenish with smoky markings forming spots between the rays and spines. Pectorals, ventrals and anal light yellowish. Caudal dark olivaceous with a narrow grey margin. A small dark grey spot before each ventral fin.

Three Cymothoid parasites at back of mouth and one on the pharyngeal teeth.

Described from a large adult male specimen, 332 mm. in standard length, or 15½ inches in total length. Netted close to the shore of North-west Islet, Queensland, where it was swimming slowly over a sandy bottom, by the writer, May 26, 1931.

I identify this species as *Sillago ciliata diadoi* as Thiollière's name appears to be the earliest which may be applied to the Queensland species. The type-locality of *S. ciliata* Cuv. and Val. is doubtful, but as Péron did not collect in what is now Queensland, it is extremely improbable whether Cuvier and Valenciennes' name can be used for this north-eastern Australian form. *Sillago insularis*, *terræ-reginæ*, and *auricomis* are evidently synonyms of *S. ciliata diadoi*.

Family RHOMBOSOLEIDÆ.

Genus *Ammotretis* Günther, 1862.

Ammotretis Günther, Cat. Fish. Brit. Mus., iv, 1862, p. 458. Haplotype, *A. rostratus* Günther.

Tapirisolea Ramsay, Internat. Fisher. Exhib., Cat. Exhib. N. S. Wales Court, 1883, pp. 17 and 44. *Nomen nudum*.

Ramsay's name may be designated a synonym of *Ammotretis*, as I have not been able to find a description of *Tapirisolea* in either the published work of Ramsay or in any of his manuscripts available to me.

Ammotretis rostratus Günther.

Ammotretis rostratus Günther, Cat. Fish. Brit. Mus., iv, 1862, p. 458. Norfolk Bay [Tasmania]. Type in British Museum. *Id.* Norman, Biol. Res. Endeav., v, 5, 1926, p. 267 (refs., etc.).

Ammotretis ovalis Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10; Great Barrier Reef, 1893, p. 370. *Nomen nudum* [ex De Vis MS.]. "Queensland" [= South Australia].

Through the courtesy of Mr. H. A. Longman, Director of the Queensland Museum, I have been permitted to examine a volume of manuscripts, written in the 'eighties of last century by C. W. De Vis. This is one of a series of exercise-books

in that institution, and includes descriptions of fishes, measurements of fossils, and other items. Here and there a new bird or reptile is described and many new names are proposed in MSS. Some of these have been crossed out when De Vis realized they were synonyms of published names. This manuscript was utilized by Saville-Kent in the preparation of his book on the Great Barrier Reef of Australia, and it is unfortunate that, in this way, a list of *nomina nuda*, which are only gradually being disposed of, came into being. This list, which was first issued in 1889 in a Parliamentary Report, includes, as one of the food-fishes of Queensland, *Ammotretis ovalis*, but inspection of De Vis' MS. description shows that this species was originally received from South Australia, not Queensland, where the genus is not known to occur. The name *Ammotretis ovalis* Saville-Kent may now be disposed of as a synonym of *Ammotretis rostratus* Günther.

In the family Soleidæ, it would be convenient to relegate *Synaptura armata* and *S. inermis* Saville-Kent, *nomina nuda*, to the synonymy of *S. cinerea* De Vis 1883 = *S. nigra* Macleay 1880.

Family SYNANCEJIDÆ.

Dampierosa, gen. nov.

Orthotype, *Dampierosa daruma*, sp. nov.

Near the genus *Erosa* of authors (? *Erosa* Swainson, 1839), but distinguished by having the upper profile of the head convex, the body papillated, and fewer dorsal spines and pectoral rays.

Dampierosa daruma, sp. nov.

(Plate xxxviii, figs. 2 and 3.)

D.xii/i,9; A.ii/7; P.12; V.i/4; C.12.

Head, measured obliquely from symphysis of upper jaw to end of opercular flap (46 mm.), subequal to depth (47) and to distance from origin of dorsal to snout (45) and rather more than 2 in length to hypural joint (98). Eye (10) 2.5 in interorbital (25) or 4.6 in head. Third (longest) dorsal spine (13) equal to depth of caudal peduncle (13). Last dorsal spine (10) 1.7 in sixth (longest) dorsal ray (17). Fourth (longest) pectoral ray (26.5) considerably longer than ventral (21.5).

Head bulbous, its upper profile broadly convex, but the surface very irregular owing to the numerous corrugations formed by the underlying bones. Top of head cavernous, except at the transverse interorbital ridge. Preorbital and preoperculum armed with prominent blunt spines. Occipital spines blunt and almost confluent, forming a bony ridge on each side of the nape. No pit on cheek. Preopercular stay coarsely striated from a median eminence. A prominent knob at the base of the operculum. No barbels or wart-like outgrowths on head. Mouth oblique, with an almost semicircular opening, the broad maxillary reaching to below the middle of the eye. Tongue large, rounded. Bands of villiform teeth on jaws, separated at the symphyses. A boomerang-shaped patch of teeth on the vomer; palatines toothless. No prominent knob at symphysis of the lower jaw, which fits into a slight depression in the upper jaw. Gill-slits wide, separated at the isthmus by 15 mm. Four branchial arches, no slit behind fourth. Seven or eight short, rounded, thick gill-rakers on first arch. Pseudobranchiæ present. Anterior nostrils tubular; posterior ones pore-like.

Form of body deep and robust anteriorly, compressed and rather tapering posteriorly. Body scaleless, covered with small papillæ and with blunt spine-like outgrowths on the nape and parts of the flanks. Lateral line with about ten pores, indistinct posteriorly, but with blunt spine-like processes anteriorly. Body and fins covered with a thick layer of mucus.

Dorsal fin originating over hinder half of head well behind the eye and terminating behind the vertical of the anal base and a little in advance of the caudal. Thirteen rather low weak dorsal spines, the first three of which are highest and broadly webbed, but none of the spines is as long as the dorsal rays. Anal commencing below end of spinous dorsal. Pectorals short, not reaching anal, broad, the upper rays slender and branched and the lower ones shorter and thickened into curved fingers; no free fin-rays. Ventrals short, each with a blunt spine and four rays, the last of which is much shorter than the others. Caudal rounded, all its functional rays branched.

General colour in alcohol dark purplish-brown, irregular in tone and broken up by the lighter papillæ and raised cephalic surfaces. Interorbital and pterotic regions white. Light brown mottling on lower surface of head and on parts of the body below the spinous and soft dorsal fins. Dorsal dark brown anteriorly, but mottled yellowish on the middle and posterior spines. Soft dorsal dark brownish with a narrow margin of yellow and a broad oblique median band of yellow. Anal similar to soft dorsal. Pectoral dark brownish with a yellowish band partly encircling its base, a broader band crossing the rays to form large ocelli below, and a distal margin of yellowish. Ventrals dark brown with two bands of yellowish and a similarly coloured spot on the proximal part of the last ray. Caudal dark brown, crossed by a broad median band of yellowish and with a broad margin of the same colour.

Easily distinguished from the species of "*Erosa*" by the more even profile of the head, fewer dorsal spines and pectoral rays, and different coloration.

Described and figured from the unique holotype of *Dampierosa daruma*, a specimen 98 mm. in standard length, or nearly five inches in total length. Dredged off Broome, north-western Australia, in 1931, by Mr. R. Bourne.

Australian Museum registered No. IA.5116.

Family OPHICLINIDÆ.

Genus *Ophiclinus* Castelnau, 1872.

The species of this genus were reviewed by McCulloch and Waite,³⁷ but those authors were apparently unaware that Herzenstein³⁸ had previously described two species of *Neogunnellus* (= *Ophiclinus*) from Saint Vincent's Gulf, South Australia. I am indebted to Professor P. Schmidt, of Leningrad, for copies of Herzenstein's descriptions of these species, *N. homacanthus* and *N. microchirus*. Fortunately, these names do not clash with those of McCulloch and Waite, as *microchirus* seems to be a "good" species, having D.90; A.56, and *homacanthus* a close ally of *Ophiclinus antarcticus* Castelnau.

³⁷ McCulloch and Waite.—Rec. S. Austr. Mus., i, 1, May 24, 1918, pp. 54-59, and figs.

³⁸ Herzenstein.—Ann. Mus. Zool. St. Petersburg, i, 1896, pp. 5 (*homacanthus*) and 7 (*microchirus*).

Ophiclinops, gen. nov.

Orthotype, *Ophiclinus pardalis* McCulloch and Waite³⁹ = *Ophiclinops pardalis*.

Differs from true *Ophiclinus* in having the head comparatively smaller and the body more elongate. Bands of obtusely conical teeth on jaws and vomer. Lateral line obsolete. Dorsal commencing well behind head, with more than 50 spines and a single ray. Anal with two spines and 39 rays. Dorsal and anal completely connected to caudal by membrane. Pectorals reduced, smaller than eye.

EXPLANATION OF PLATES.

PLATE XXXVI.

Fig. 1.—*Hemiscyllium ocellatum* (Bonnaterre). A specimen from Low Isles, Queensland. *a*, lateral view; *b*, ventral surface of head; *c*, teeth; *d*, dermal denticles; *e*, a denticle much enlarged.

Fig. 2.—*Hemiscyllium trispeculare* Richardson. A specimen from Port Darwin, North Australia. *a*, lateral view; *b*, ventral surface of head; *c*, teeth; *d*, dermal denticles; *e*, a denticle much enlarged.

PLATE XXXVII.

Figs. 1-3.—*Dæmomanta alfredi* (Stead). Three views of a specimen from off Cape Hawke, New South Wales.

Fig. 4.—*Dæmomanta alfredi* (Stead). Holotype from Port Jackson, New South Wales, with the late Gerard Krefft standing alongside.

PLATE XXXVIII.

Fig. 1.—*Atelomycterus marmoratus* (Raffles). A specimen from Port Darwin, North Australia. *a*, lateral view; *b*, ventral surface of head; *c*, part of pattern on dorsal surface of body.

Fig. 2.—*Dampierosa daruma* Whitley. Holotype from off Broome, Western Australia.

Fig. 3.—*Dampierosa daruma* Whitley. Front view of head of type.

Fig. 4.—*Turrum emburyi* Whitley. A specimen from North-west Islet, Queensland.

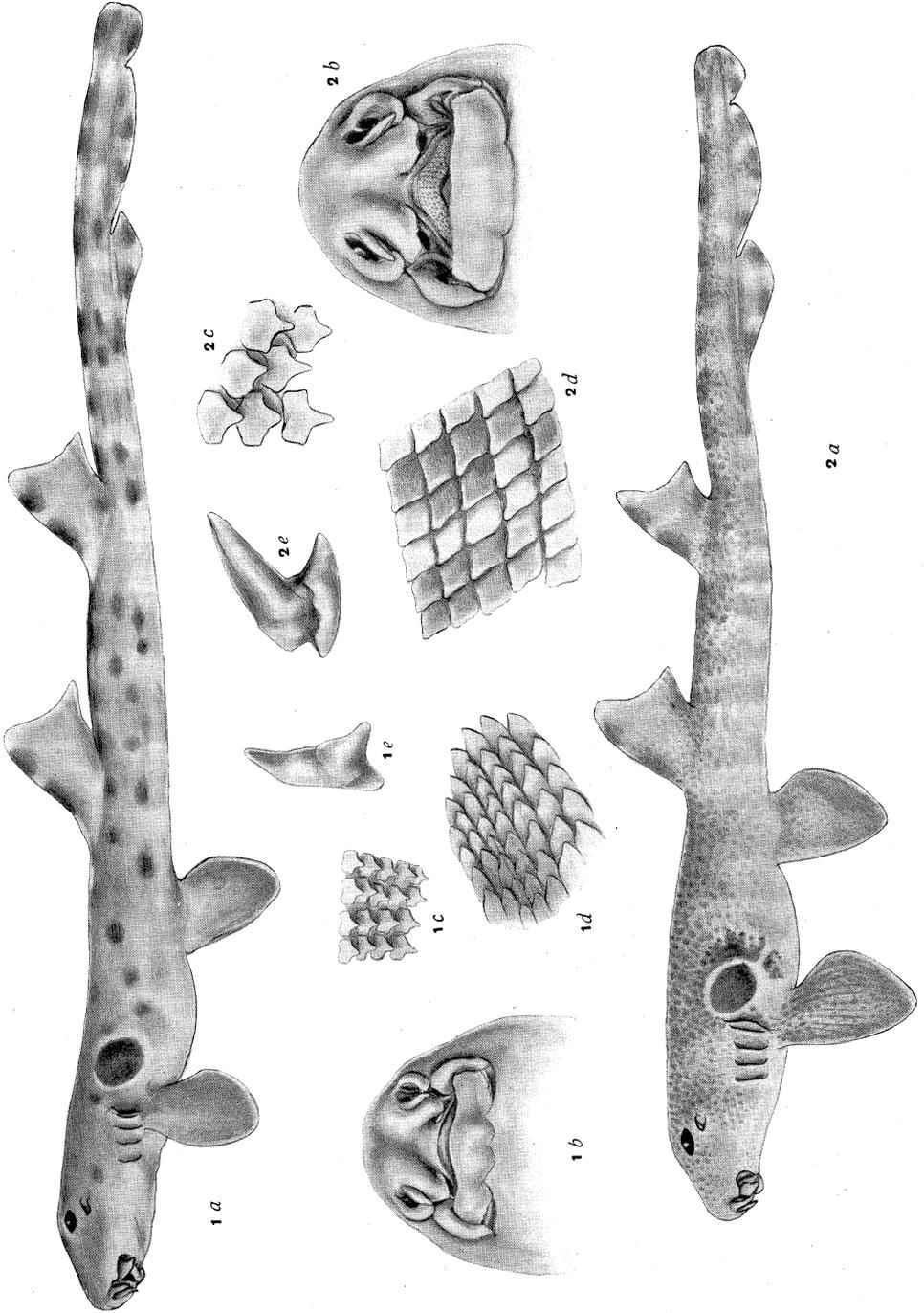
PLATE XXXIX.

Fig. 1.—*Uropterygius obesus* Whitley. Holotype from off Montague Island, New South Wales.

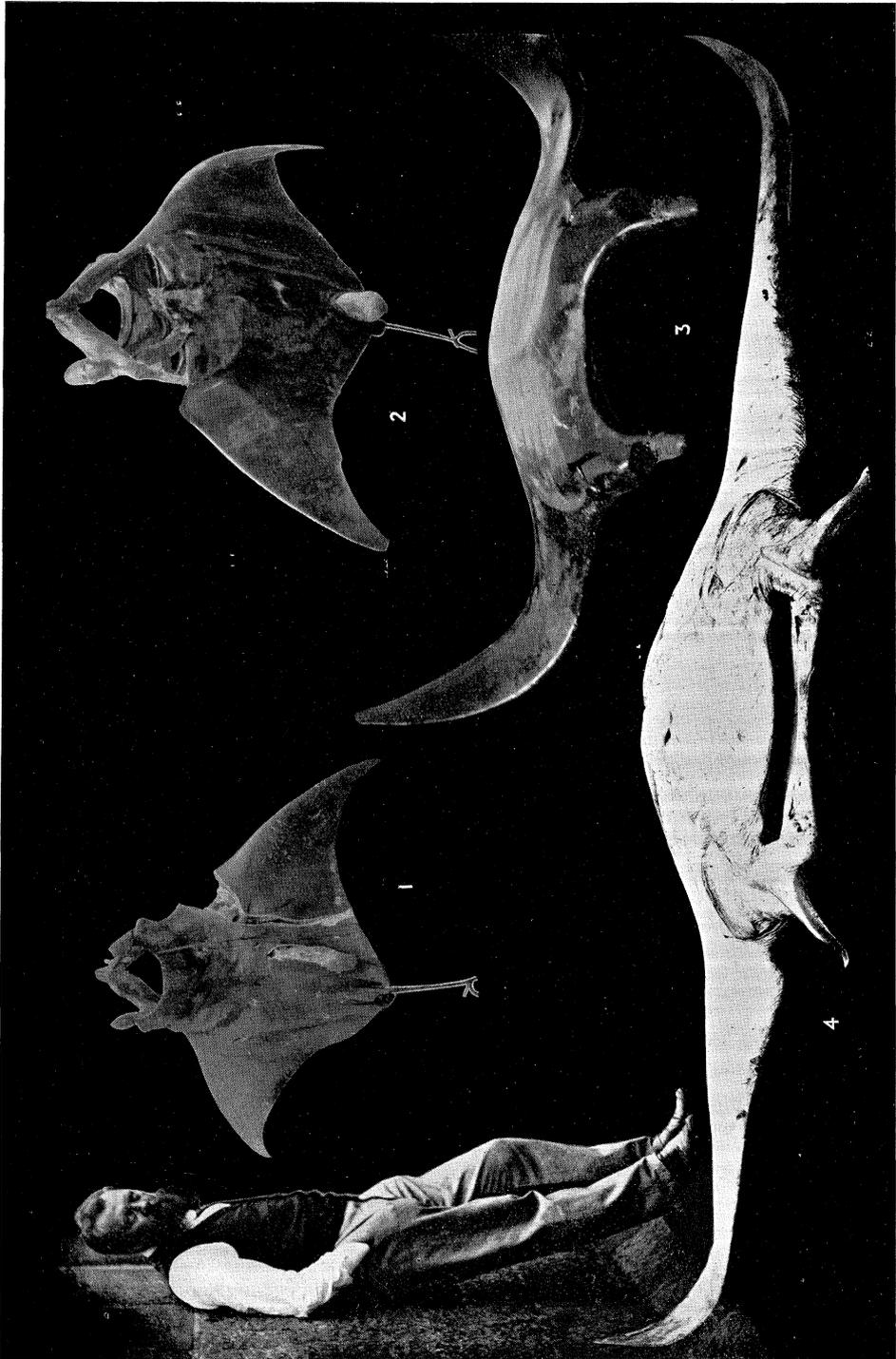
Fig. 2.—*Gymnothorax cribroris* Whitley. Holotype from North-west Islet, Queensland.

Fig. 3.—*Branchiostegus wardi* Whitley. Holotype from off Port Stephens, New South Wales.

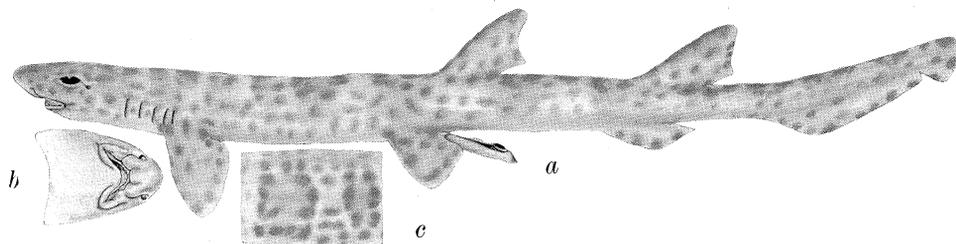
³⁹ McCulloch and Waite.—Rec. S. Austr. Mus., i, 1, May, 24, 1918, p. 58, pl. iv, fig. 2. Streaky Bay, Great Australian Bight. Holotype in South Australian Museum. This species was omitted through inadvertence from McCulloch's Check-List: Austr. Mus. Mem., v, 1929, p. 352.



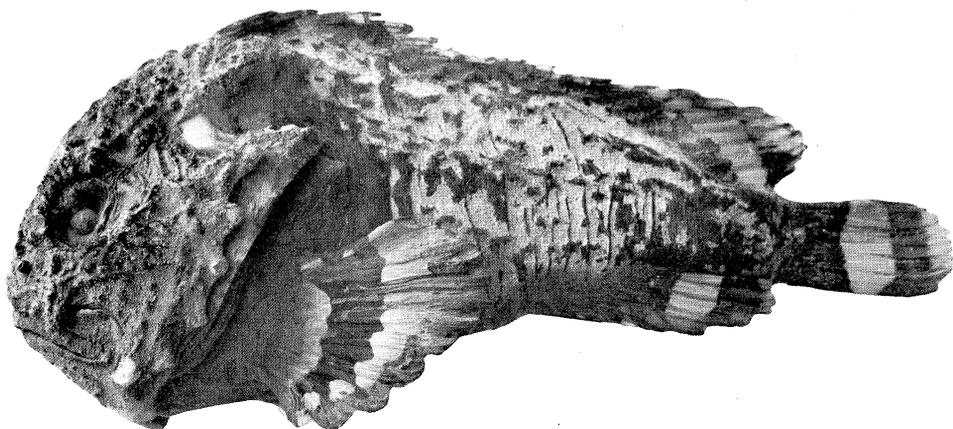
JOYCE K. ALLAN, del.



G. E. TANNER (1-3) and H. BARNES (4), photo.



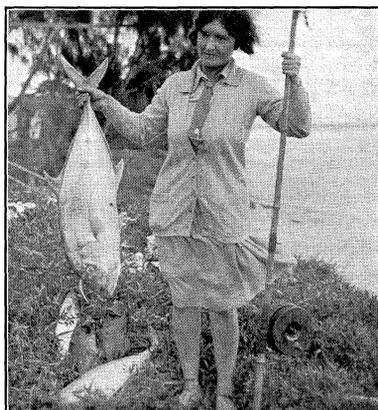
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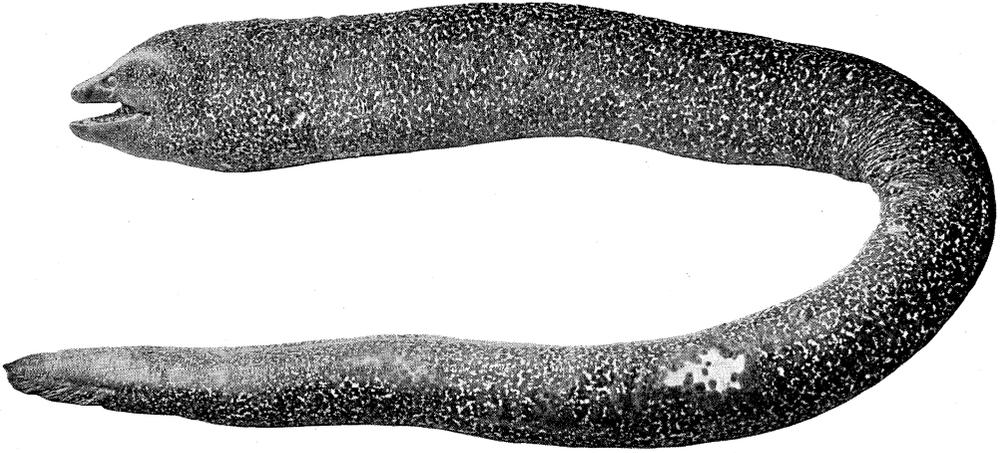


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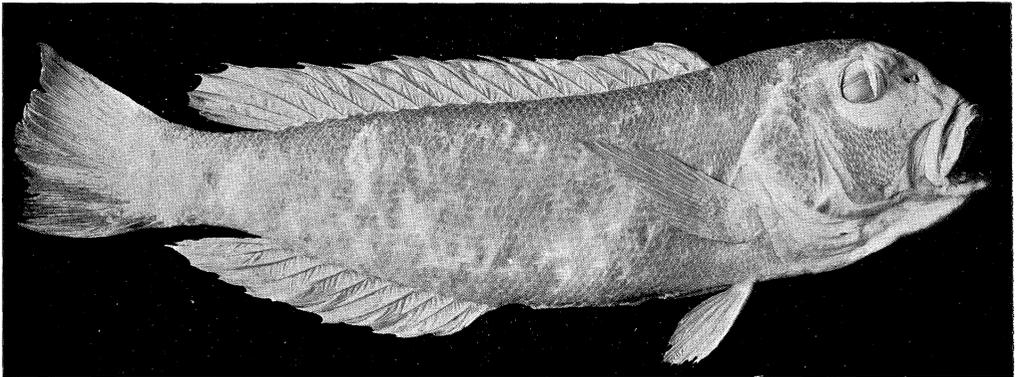
JOYCE K. ALLAN (1), del.; G. C. CLUTTON (2 and 3) and DR. W. MACGILLIVRAY (4), photo.



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