

ON SOME QUEENSLAND FISHES.

BY J. DOUGLAS OGILBY.

(Plates 12-14 and 2 text figures.)

IN the following pages forty-one species of Queensland fishes are more or less fully discussed. These may be separated in five sections as follow:— Undescribed species, redescribed species, species not hitherto recorded from the State, additional information on little-known forms, and corrections.

To the first section belong—

1. SCOLIODON AFFINIS; fam. *Carcharhinidæ*; Snapper Banks off Moreton Bay.
2. SCOLIODON LONGMANI; fam. et distr. eid.
3. RHINOPTERA NEGLECTA; fam. *Aëtobatidæ*; Moreton Bay.
4. GALAXIAS O'CONNORI; fam. *Galaxiidæ*; Mountain Streams of Southern Queensland.
5. DORYICHTHYS STICTORHYNCHUS; fam. *Syngnathidæ*; Coast of South Queensland (Moreton Bay).
6. ATHERINA HONORÆ; fam. *Atherinidæ*; Coast of South Queensland (Nerang Creek).
7. PSEUDORHOMBUS ELEVATUS; fam. *Bothidæ*; Coast of South Queensland (Moreton Bay).
8. PSEUDORHOMBUS CARTWRIGHTI; fam. et distr. eid.
9. PSEUDORHOMBUS ANOMALUS; fam. et distr. eid.
10. LEIOGNATHUS MORETONIENSIS; fam. *Leiognathidæ*; Coast of South Queensland.
11. KYPHOSUS GIBSONI; fam. *Kyphosidæ*; Coast of South Queensland (Moreton Bay).
12. SIGANUS CONSOBRINUS; fam. *Siganidæ*; Coast of South Queensland, generally distributed.
13. SIGANUS AUROLINEATUS; fam. ead.; Coast of North Queensland (Somerset).

14. SPHEROIDES TUBERCULIFERUS; fam. *Tetraodontidæ*; Coast of South Queensland (Moreton Bay).
15. ANTENNARIUS STIGMATICUS; fam. *Antennariidæ*; Coast of South Queensland (Moreton Bay).

To the second section belong—

1. ATHERINA PINGUIS Lacépède; fam. *Atherinidæ*; Indian and Pacific Oceans.
2. ATHERINA LACUNOSA Forster; fam. ead.; Western Pacific (New Caledonia and Moreton Bay).
3. LETHRINUS LATICAUDIS Alleyne & Macleay; *Sparidæ*; Coasts of Middle and North Queensland.
4. LEIOGNATHUS HASTATUS Ogilby; nom. nov. for *Equula longispina* De Vis, preoccupied; fam. *Leiognathidæ*; Coast of North Queensland (Cape York).

To the third—

1. LYCODONTIS MARGARITOPHORUS (Bleeker); fam. *Muraenidæ*.
2. STIGMATOPHORA NIGRA Kaup; fam. *Syngnathidæ*.
3. PEGASUS DRACONIS Linnæus; fam. *Pegasidæ*.
4. PARATRACHICHTHYS ELONGATUS Günther; fam. *Trachichthyidæ*.
5. LOPHONECTES GALLUS Günther; fam. *Bothidæ*.
6. EPINEPHELUS HOEDTH Bleeker; fam. *Serranidæ*.
7. LEPTOSCOPUS MACROPYGUS Richardson; fam. *Leptoscopidæ*.
8. GASTERŒCHISMA MELAMPUS Richardson; fam. *Scombridæ*.
9. EUMYCTERIAS CALLISTERNUS Ogilby; fam. *Tropidichthyidæ*.
10. LEPADICHTHYS FRENATUS Waite; fam. *Gobiesocidæ*.

In the fourth the claims of *Tæniura lymma* and *Leiuranus semicinctus* to inclusion in our fauna are further strengthened, and the ranges of *Amia berthæ* and *Tathicarpus muscosus* are extended, while in the fifth the relationships of *Jenynsella weatherilli* Ogilby, *Homalogrystes luctuosus* De Vis, *Chætodon aurora* De Vis, *C. nigripes* De Vis, *C. germanus* De Vis, *Holacanthus sphynx* De Vis, and *Salarias lineolatus* Alleyne and Macleay, are determined.

CARCHARHINIDÆ.

The genus *Scoliodon* was established in 1837 by Drs. Müller and Henle for the accommodation of certain "blue sharks," which differ from Blainville's *Carcharhinus*¹ chiefly in their small size and less specialized dentition, the teeth

¹ Journ. Phys., 1816, p. 164 (*commersonii*=*lamia*).

being wholly free from serræ. In the "Systematische Beschreibung der Plagiostomen" of these authors, published four years later, *Scoliodon* is reduced to the rank of a subgenus¹ of *Carcharias* Cuvier² (not *Carcharias* Rafinesque³) which is synonymous with *Carcharhinus* Blainville. Three species are described under this subgenus, namely—*Carcharias* (*Scoliodon*) *laticaudus* Müller & Henle⁴ *C. (S.) acutus* Rüppell, and *C. (S.) lalandii* Müller & Henle,⁵ the latter being identical with the *Squalus* (*Carcharias*) *terræ-novæ* of Sir John Richardson,⁶ a Florida species erroneously ascribed by its author to Newfoundland, hence the specific name. In 1856 Bleeker added two species under the names *Carcharias* (*Scoliodon*) *dumerilii*⁷ and *C. (S.) walbeehmi*.⁸ In the "British Museum Catalogue of Fishes" these five species were redescribed by Dr. Günther. No addition was then made to the ranks of the genus until 1882, in which year Professors Jordan and Gilbert made known a second American species, for which they proposed the name *Carcharias longurio*.⁹ It will thus be seen that up to 1896, when Jordan and Evermann published the first part of their monumental work on the "Fishes of North and Middle America," ichthyologists had been content to relegate *Scoliodon* to the subordinate position of a subgenus of Cuvier's *Carcharias*, but the last-named authors reinstated it in its generic rank, making it equivalent with *Prionace*¹⁰ and *Carcharhinus*, a conclusion with which I am cordially in agreement. Rather more than four years ago the writer was fortunate enough to be present at the capture of a shark on the Snapper Banks off Moreton Bay, which on examination proved to be an undescribed species, and which he subsequently described as *Scoliodon jordani*, in commemoration of Prof. Jordan's visits to Brisbane at that time. The present paper adds two more species to the Queensland list, so that no less than four of the nine recognized species are inclusive in the fauna of this State.

¹ That this alteration was only made after much consideration is shown by the fact that in the Plagiostomen there are two separate sheets bearing the pagination 27 and 28. On the first *Scoliodon* is treated as a genus, on the second, which in view of the succeeding pages assuredly represents the final decision of the authors, as a subgenus.

² Règne Animal, ed. 1, 1817, p. 125 (*lamia*).

³ Caratt. d'alc. nuov. Gen., 1810, p. 10 (*taurus*).

⁴ Plagiost., 1841, p. 28, pl. viii.

⁵ Plagiost., 1841, p. 30.

⁶ Faun. Bor. Amer., iii, 1836, p. 239.

⁷ Act. Soc. Sci. Ind. Neerl., i, 1856, Amboina, p. 70.

⁸ Nat. Tijds. Ned. Ind., x, 1856, p. 353.

⁹ Proc. U.S. Nat. Mus., 1882, p. 406.

¹⁰ Cantor, Journ. As. Soc. Bengal, xviii, 1849, p. 1381. Substitute for *Prionodon* Muller & Henle, preoccupied in Mammals.

KEY TO THE QUEENSLAND SPECIES.

*a*¹. Length of anal much less than its distance from the ventrals.

*b*¹. First dorsal fin higher than long.

*c*¹. Labial groove very short, directed outwards from the angle of the mouth.

*d*¹. Preoral length 1.9 in head; eye midway between tip of snout and fourth gill-opening; second dorsal nearer origin of first than tip of tail; anal partly below second dorsal; pectoral extending well beyond origin of first dorsal 1. *affinis*.

*d*². Preoral length 2.5 in head; eye midway between tip of snout and second gill-opening; second dorsal much nearer tip of tail than origin of first; anal wholly in advance of second dorsal; pectoral extending to below origin of second dorsal 2. *jordani*.

*b*². First dorsal fin longer than high; anal fin partly below second dorsal.

*e*¹. Labial grooves very short, extending along both jaws; eye midway between tip of snout and first gill-opening; second dorsal nearer origin of first than tip of tail; pectoral fin extending to below origin of first dorsal 3. *acutus*.

*e*². Labial grooves well developed; eye midway between tip of snout and second gill-opening; second dorsal midway between origin of first and tip of tail; pectoral fin extending to below middle of first dorsal 4. *longmani*.

SCOLIODON AFFINIS sp. nov.

Long-nosed Dog Shark.

Depth of body 9, length of head 5.35, predorsal length 3, length of caudal 3.6, of pectoral 7.75 in total length. Width of head 2, depth of head 2.8, preoral length 1.9, interocular width 2.2, internasal 3.25, width of mouth 3, vertical height of first dorsal 2.45, length of ventral 2.8 in length of head.

Body slender and compressed, conspicuously convex between the occiput and the first dorsal fin, its greatest width 1.66 in its depth. Head strongly depressed, its length 1.5 in that of the trunk. Snout produced and pointed, its length equaling the space between the eye and the last gill-opening and 1.6 time the width of the mouth, which is one seventh more than its ramal length. Space between inner angle of nostril and mouth 1.85 in its distance from the tip of the snout; tip of mandible broadly rounded, extending forward to the vertical from the middle of the eye; no lower labial groove, the upper very short and directed outwards at a right angle to the jaw. Teeth in $\frac{11-1-11}{11-1-11}$ series, those of the upper jaw oblique, with the inner edge slightly angulated mesially, those of the lower linear and nearly horizontal. Diameter of eye 3.5 in the preoral length, which is one fifth more than the interocular width. Tail about one seventh longer than the head and trunk.

First dorsal fin inserted one fifth nearer to the ventral than to the pectoral, its anterior border mostly linear with the outer angle pointed; posterior angle produced and acute, not quite reaching to the vertical from the ventral; vertical height of fin a little more than its basal length. Second dorsal inserted one fifth nearer to the origin of the first than to the tip of the tail; interdorsal space 1.4 in the predorsal length, and 3.25 times the base of the first dorsal. Caudal fin long, the upper angle pointed; anterior border of lower lobe 3 in the upper lobe. Anal fin terminating below the middle of the second dorsal, its length 2.1 in its distance from the caudal, which is 1.25 in that from the ventral. Pectoral fin inserted about one tenth nearer to the ventral than to the tip of the snout and extending to below the anterior third of the first dorsal, the anterior and posterior borders convex, the outer emarginate; upper angle sharply, lower more bluntly rounded, the latter but little produced. Space between ventral and anal 1.2 in its distance from the pectoral. Last gill-opening 1.33 in the third, which is 1.25 in the eye-diameter.

Dark blue above, shading through gray on the lower sides to silvery white below. Iris blue. Anal, pectoral, and ventral fins edged with white. (*affinis*, allied to.)

Total length (of type) 526 millim.

Coast of Southern Queensland.

Described from the single example as yet known, a young male which was taken by myself on a line off Noosa Head on the 6th of August, 1909. Type in the A.F.A.Q. collection, Cat. No. 1524.

This species approaches *S. dumerilii* more closely than to any other species of *Scoliodon*, but may be distinguished by the longer anal fin, which (*fide* Günther¹) is never more than one third of its distance from the ventral. The greater length of the snout, which considerably exceeds the space between the eye and the root of the pectoral, and the more backward extension of that fin are also noteworthy.

SCOLIODON LONGMANI sp. nov.

Longman's Dog Shark.

Depth of body 8.6, length of head 5.25, predorsal length 3.25, length of caudal 3.7, of pectoral 8.15 in total length. Width of head 1.8, depth of head 2.25, preoral length 2.25, interocular width 2.25, internasal width 3.95, width of mouth 2.8, vertical height of first dorsal 2.25, length of ventral 2.5 in length of head.

¹ Br.t. Mus. Catal. Fish., viii, 1870, p. 359.

Body rather slender and but little compressed, with a gentle convexity from the eye to the first dorsal, its greatest width 1.25 in its depth. Head strongly depressed; its length 1.4 in that of the trunk. Snout produced and sharply rounded, its length equaling the space between the eye and the second gill-opening and 1.2 time the width of the mouth, which is one third more than its ramal length. Space between inner angle of nostril and mouth 1.7 in its distance from the tip of the snout; tip of mandible rounded, not extending forward to the vertical from the front margin of the eye; labial grooves well developed, the upper the longer, three fourths of the space between the eye and the mouth. Teeth in $\frac{13-1-13}{11-1-11}$ series, those of both jaws with the inner border obliquely linear, the outer deeply notched. Diameter of eye 3.7 in the preoral length, which is equal to the interocular width. Tail about one tenth longer than the head and trunk.

First dorsal fin equidistant from the pectoral and ventral, its anterior border linear with the outer angle sharply rounded, the posterior angle produced and acute, reaching to the vertical from the origin of the ventral; vertical height of fin 1.1 in its basal length. Second dorsal inserted a little nearer to the origin of the first than to the tip of the tail; interdorsal space 1.25 in the predorsal length and 2.6 times the base of the first dorsal. Caudal fin long, the upper angle obtusely pointed; anterior border of lower lobe 3 in the upper lobe. Anal terminating below the anterior third of the second dorsal, its length 1.7 in its distance from the caudal, which is 1.1 in that from the ventral. Pectoral fin inserted two fifths nearer to the ventral than to the tip of the snout and not quite extending to below the middle of the first dorsal, the anterior border linear, the posterior convex, the outer feebly emarginate; upper and lower angles rounded, the latter but slightly produced. Space between ventral and anal fins 1.6 in its distance from the pectoral.

Last gill-opening 1.1 in the third, which is equal to the eye-diameter.

Blue-gray above, shading into whitish below. Outer edge of first dorsal, upper, posterior, and part of the lower edge of the caudal blackish.

Described from an immature male, 452 millim. long, obtained in Moreton Bay, and now in the possession of the Queensland Museum; Reg. No. I. 292.

I have much pleasure in naming this distinct species after my friend and colleague Heber Albert Longman, Queensland biologist.

DASYBATIDÆ.

TÆNIURA LYMMA (Forskål).

Twenty-seven years ago the writer identified an old spirit specimen from Cape York in the Australian Museum collection, since which time it does not seem to have been noticed on the Australian Coast. It is, therefore, with great pleasure that I am able to record the reception of a beautifully marked young male from Darnley Island, whence it was forwarded by Mr. J. R. Tosh.

AËTOBATIDÆ.

RHINOPTERA NEGLECTA sp. nov.

Australian Cow-nose Ray.

Disk more than twice as broad as long; median notch of snout deep. Nine series of teeth in each jaw, those of the middle upper series eight times as wide as long and one and two thirds time as wide as the adjacent series; middle lower teeth a little wider than the upper.

Width of disk 86 cm.

Moreton Bay.

In the first part of the second volume of the Royal Society of Queensland Mr. De Vis recorded the specimen here briefly described under the name *Rhinoptera javanica*, but the characters relied on above show that it is more closely allied to the Brazilian *R. jussieu* than to the Malayan species. This unique Australian specimen is unfortunately in such wretched condition as to preclude a more detailed description.

APLOCHITONIDÆ.

In part 9 of the Annals of the Queensland Museum I described under the name of *Jenynsella weatherilli* a small fish collected by Mr. W. Weatherill in Enoggera Creek; being under the impression that it was scaleless I placed the genus in the neighborhood of *Aplochiton*. During the past winter several fine examples were captured in the same locality by Messrs. Marshall and Catchpole, which coming into my hands in a fresh state I at once perceived to be covered by small delicate scales. This fact naturally brought to my mind Weber's much desired *Prototroctes semoni* from the Burnett River, and a further examination confirmed the identity of the two fishes. The synonymy of the species should therefore stand as follows—

JENYNSELLA SEMONI (Weber).

Prototroctes semoni Weber, Zool. Forsch., 1895, p. 274.

Jenynsella weatherilli Ogilby, Ann. Queensl. Mus., pt. 9, 1908, p. 15.

From the fact that for several years this smelt has been persistently but vainly sought for during the summer months, and that it was rediscovered in considerable numbers during last August (the month of its original discovery near Brisbane), we may well surmise that it is a migratory anadromous species, ascending our creeks during the winter months for the purpose of depositing its spawn.

GALAXIIDÆ.

GALAXIAS O'CONNORI sp. nov.

Queensland Mountain Trout.

Depth of body 7.33, length of head 4.52 in length of body. Diameter of eye 1.21 in length of snout and 4.42 in that of the head; width of interorbit 4.87 in the head. Lower jaw slightly projecting; maxillary extending to below the anterior border of the eye. Dorsal $2 + 8$; space between origin of dorsal and root of caudal 3.62 in the length of the body. Anal $3 + 9$, originating below the last third of the dorsal and not extending to the caudal when depressed. Pectoral extending four ninths of the distance between its origin and the ventral. Ventral 7-rayed, originating one eighth nearer to the root of the caudal than to the tip of the snout, extending half the distance between its origin and the anal. Caudal emarginate; caudal peduncle three fifths longer than deep. Light brown, profusely spotted with darker brown; fins immaculate.

Our single specimen comes from Lyra, near Stanthorpe, and measures 77 millim. It was presented to the Queensland Museum by Mr. Daniel O'Connor, and I am pleased to have the opportunity of naming this, the first Queensland galaxiid, after my old and valued friend, to whom also the State owes a debt of gratitude for having taken living specimens of our Queensland Lungfish (*Neoceratodus forsteri*) to England and the Continent, and thus giving our friends on the further side of the globe the opportunity of seeing in a living state one of the most marvelous of the products of our land, the ancestors of which at one time peopled the valleys where the Thames now runs. Reg. No. I. 421.

According to Mr. Tate Regan's able "Revision of the Fishes of the Family Galaxiidæ" the nearest ally of our species is *Galaxias ornatus* Castelnau, only known at present from Cardinia Creek, Victoria.

OPHICHTHYIDÆ.

LEIURANUS SEMICINCTUS (Lay and Bennett).

Last year Mr. Allan R. McCulloch, of the Australian Museum, Sydney, exhibited before the Linnean Society of New South Wales a specimen of this handsome eel, which he had personally collected at Murray Island, Torres Strait; this was said to be the earliest Australian record of the species. I have now much pleasure in recording a second specimen, which has been forwarded by Mr. J. R. Tosh from Darnley Island.

MURÆNIDÆ.

LYCODONTIS MARGARITOPHORUS Bleeker.

During December of last year I received from Mr. Fred. Leftwich a collection of fishes and crustaceans obtained by him in the Wide Bay District. Among other rarities contained therein I found a small but beautifully preserved example of this rare and handsome Reef Eel. I have retained Bleeker's name for the Queensland fish, because the series of oro-opercular spots, which form so conspicuous a character in his specimen, are equally well marked in mine, in which however they are supplemented by several large irregular spots on the cheeks and lower opercular bones. Nevertheless it must be admitted that, even after so brief a period (not more than six months) of immersion in a 2½ per cent. formalin solution, these markings have perceptibly faded, and it may well be that in the old Madagascar example, which alone was available to Günther, they have wholly disappeared. The question therefore of the identity of Bleeker's species with *L. stelliferus* (Richardson)¹ must still remain in abeyance, until such time as opportunity is given to compare a representative series of specimens from so widely separated localities. My specimen, which bears the Cat. No. 1732 in the A.F.A.Q. Mus., measures 158 millim., and is therefore somewhat shorter than the British Museum type of *L. stelliferus*, 168 millim.

Günther in his latest publication² places *L. margaritophorus* in the synonymy of *L. undulatus*,³ from which he omits *L. stelliferus*, thus divorcing the species which he had previously considered varietal. This may be correct, but in any case the above is, so far as I can ascertain, the first Australian record of the occurrence of this very handsome variety.

SYNGNATHIDÆ.

DORYICHTHYS STICTORHYNCHUS sp. nov.

Osseous rings 21 + 24. Trunk hexagonal and moderately robust, its depth slightly more than its width and 1.25 in the postorbital portion of the head. Dorsal profile transversely linear, the ridges moderately elevated cultriform and smooth, continuous with the upper caudal ridges; sides above the lateral ridge convex, below concave; lateral ridge curved downwards posteriorly, uniting with the lower caudal ridge at the suture of the first and second caudal rings. Tail tetragonal, the caudal ridges rough but not spinulose, its length 1.37 in that of the head and trunk.

¹ *Muraena stellifera* Richardson, Zool. Erebus & Terror, Ichth., 1846, p. 86.

² Journ. Mus. Godeffr., Heft ix, 1910, p. 413.

³ *Muraenophis undulata* Lacépède, Hist. Nat. Poiss., v, 1803, pp. 629 & 644.

Length of head 3 in that of the trunk and 6.9 in that of the body, the frontal region but little deflected from the level of the snout. Snout straight, with a well developed keel above, terminating between the eyes, a lateral keel terminating in front of the eye, and a pair of inferior keels, divergent posteriorly, and terminating at the opercle, its length 1.86 in that of the head. Interorbital region convex, its width 1.24 in the eye-diameter, which is 3.9 in the length of the snout to the tip of the lower jaw. Occipito-nuchal carina originating a little behind the posterior borders of the orbits and terminating at the last third of the first body (nuchal) ring; it is rather low and is divided by notches into three sections, the anterior (postfrontal) of moderate length and curved outwards anteriorly almost to the upper angle of the right eye,¹ its length twice that of the median (occipital) section, which like the nuchal section is straight; nuchal section longest, 1.5 time the postfrontal; supraciliary ridge low, bent downwards behind the eye, where it passes into an irregular carina, which crosses the parietal region; opercle with three well marked slightly divergent median ridges, extending backwards from an anterior tubercle.

Dorsal fin with 41 rays, inserted upon ten rings, two and a half of which belong to the body, its base not elevated, its length equal to the head from the tip of the upper jaw. Caudal fin small and pointed, with 8 rays, which increase in length to the third, below which they become rapidly shorter, its length 3.25 in that of the head. Pectoral with 16 rays, short and broad, scarcely reaching the end of the nuchal ring.

Ovisac occupying 19 body-rings, its length but little less than that of the tail.

Dark olive brown above, paler profusely dotted with brown below. Sides of snout with a series of nine conspicuous black, mostly quadrilateral, spots. Caudal fin black. (στικτός, spotted; ῥύγχος, snout.)

Described from a male specimen, 188 millim. in length, obtained in Moreton Bay by Mr. J. Palmer, and presented by him to the A.F.A.Q. Mus.; Cat. No. 1741.

Our species may possibly be the male of *Doryichthys bernsteini* Bleeker,² with which it has many characters in common, but cannot possibly be identified with *D. auronitens* Kaup,³ which is a *Doryrhamphus*. From *D. serialis* Günther,⁴

¹ Possibly this is an individual peculiarity and in other specimens the ridge would be straight.

² Arch. Néerl., 1867, p. 398 : Halmaheira (Gilolo).

³ Brit. Mus. Catal. Lophobr. Fish., 1856, p. 59 : Macassar.

⁴ Zool. Alert, 1884, p. 30, pl. iii, fig. B. : Port Molle, Q.

the only other Queensland member of the genus, it differs in the more elongate habit, the trunk being thrice the length of the head, in the increased carination of the opercle, in the increased number of dorsal rays and osseous rings, and in the coloration.

STIGMATOPHORA NIGRA Kaup.¹

There is a specimen of this fish in the A.F.A.Q. Museum, obtained at Bulwer by Mr. J. Palmer. This is the only example of the genus as yet recorded from the State.

NOTE.—The Queensland Museum possesses two examples of *S. olivacea* Castelnau² labeled "South Australia." The species is certainly valid.

PEGASIDÆ.

PEGASUS DRACONIS Linnaeus.³

The Queensland Museum possesses five examples of this hypostomid from the "Coast of Queensland"; Reg. No. I. 146. This is the first record of its occurrence in the State.

ATHERINIDÆ.

On the 18th of last October I received from my valued correspondent Mr. James Palmer, telegraph operator at the Bulwer Station, Moreton Bay, six atherinids, all of which had the dusky-tipped pectoral fins which are supposed to be a distinguishing character of the two species *Atherina lacunosa* and *A. pinguis*,¹ and which have been the direct cause of so much confusion. One of these was easily recognisable as belonging to the former species, which is the common "hardihead" of Moreton Bay, but the most cursory glance was sufficient to show that the remaining five were quite distinct, and a closer examination convinced me that I had unquestionably rediscovered Forster's long-lost species, about which there has been so much controversy. To facilitate comparison I therefore give detailed descriptions and figures of both species, and woodcuts showing the position of the vent in relation to the ventral and anal fins, as also of a new atherinid here described from the same localities.

¹In order to assist those, who like myself have no access to the works of Schneider and Lacépède, I append here translations of the original descriptions of these two species, as kindly furnished to me by Mr. Allan R. McCulloch, of the Australian Museum, Sydney.

¹ Brit. Mus. Catal. Lophob. Fish., 1856, p. 53.

² Proc. Zool. & Accl. Soc. Vic., i, 1872, p. 244.

³ Syst. Nat., ed. 12, 1766, p. 418.

ATHERINA LACUNOSA:—

Body oblong, lanceolate, subcultrate, semitransparent, with large rounded silvery scales; firmly adherent and imbricate. Head triangular, nearly linear above, naked, and pitted, with two pits between the eyes, and about 6 grooves on the snout. Cleft of mouth directed obliquely upwards; jaws equal, the lower with rounded apex; teeth very small and closely set; nostrils simple; eyes superior and very large. Opercles naked and silvery. Anus median.

Br. 6. D. 5, 9; P. 17; V. 1/6; A. 15; C. 18.

Caudal forked; posterior anal ray the longer; a slender oblong pointed scale adjacent to the ventral fin.

ATHERINA PINGUIS:—

L'Atherine Grasdeau { Six rays to the first dorsal fin; ten to the second;
(*Atherina pinguis*) { twenty to the anal fin; six to the branchial membrane;
a membrane between the ventrals; the caudal forked.

Atherina pinguis—The gradeau or the grasdeau, a transparent atherine, with denticulated mouth, etc. *Commerson, MSS.*

The *Atherina grasdeau* is yet another species unknown to naturalists. Commerson has seen, described, and figured it. The general color of this fish resembles that of very pellucid water, the back being of a somewhat darker tint; the upper fins are brown, as also is the caudal; the lower white and diaphanous; the pectorals are ornamented with a large transparent silvery transverse band; the interior of the mouth is also of a shining diaphanous white; the iris is silvery. The eyes are but little projecting; the head is destitute of small scales; the opercle is composed of two pieces and is pointed from behind; upper jaw extensible; peritoneum black; the flesh very delicate.

The following characters will suffice to distinguish the three species—

*a*¹. Pectoral fins with dusky tips.

*b*¹. Body robust, its depth about 4.75 in its length; spinous dorsal originating nearer to root of caudal than to tip of snout; base of anal more than its distance from caudal; vent in advance of tips of ventrals .. *pinguis*.

*b*². Body slender, its depth about 6 in its length; spinous dorsal originating midway between root of caudal and tip of snout; base of anal as long as its distance from caudal; vent well behind tips of ventrals .. *lacunosa*.

*a*². Pectoral fins uniform.

*c*¹. Body slender, its depth less than 6 in its length; spinous dorsal originating nearer to tip of snout than to root of caudal; base of anal much shorter than its distance from caudal; vent between tips of ventrals *honoræ*.

2. *ATHERINA PINGUIS* Lacépède.

Atherina pinguis Lacépède, Hist. Nat. Poiss., v, 1803, p. 372, pl. xi. fig. 1: Mauritius. After Commerson—Bleeker, Act. Soc. Sci. Ind. Néerl., viii, 1860, Sumatra 8, p. 24—Günther Brit. Mus. Catal. Fish., iii, 1861, p. 399: Madagascar; Southern Australia; Sydney; Aneiteum, New Hebrides—Klunzinger, Verh. zool.-bot. Ges. Wien, 1870 p. 833: Red Sea—Day, Fish. India, pt. 2, 1876, p. 344: Seas of India—Alleyne & Macleay Proc. Linn. Soc. N.S. Wales, i, 1877, p. 340: Hall Sound, British New Guinea—Kirk, Proc. N.Z. Inst., xii, 1880, p. 309, c. text-fig.: Wellington—Macleay, Proc. Linn. Soc. N.S. Wales, vi, 1881, p. 38—Hutton, Ind. Faun. Nov. Zeal., 1904, p. 46.

Atherina affinis Bennett, Proc. Zool. Soc., 1831, p. 166: Mauritius.

Atherina pectoralis Cuvier & Valenciennes, Hist. Nat. Poiss., x, 1835, p. 447: Ile de France Bourbon; Seychelles.

Atherina lacunosa Günther, Journ. Mus. Godeffr., Heft xiii, 1877, p. 213, pl. cxviii, fig. E. Vaté, New Hebrides; New Caledonia—id., Zool. Challenger, i, 1880, Shore Fish., p. 36: Fiji—Ogilby, Catal. Fish. N.S. Wales, 1886, p. 40—Waite, Synops. Fish. N.S. Wales, 1904, p. 21—id., Rec. Canterb. Mus., i, 1907, p. 15.

Common Hardihead.

Plate 12, fig. 1.

Depth of body 4.63 to 5.02, length of head 3.63 to 3.86, of caudal fin 4.47 to 4.86, of pectoral 4.2 to 4.8, of ventral 7 to 7.33 in length of body. Length of snout 3.85 to 4.25, diameter of eye 2.51 to 2.75, width of interorbit 2.64 to 2.92, length of maxillary 2.42 to 2.76, of mandible 2.03 to 2.17, height of spinous dorsal 2.38 to 2.62, of soft dorsal 1.86 to 2.2, of anal 1.7 to 2.05 in length of head.

Body robust and compressed, its width 1.5 to 1.62 in its depth, which is 1.24 to 1.36 in the length of the head; caudal peduncle long and slender, its least depth 2.13 to 2.5 in its length and 1.28 to 1.44 in the eye-diameter. Width of head 1.13 to 1.2 in its depth, which is 1.41 to 1.61 in its length; snout short and broad, its length 1.43 to 1.7 in the eye-diameter, which is equal to or a little more than the postorbital length of the head. Jaws equal; maxillary extending to below or somewhat beyond the anterior border of the eye, mandible to below the middle of the eye or not quite so far. Interorbital region flat, its width 1 to 1.12 in the eye-diameter; postorbital length of head 1.61 to 1.93 in the rest of the head. Posterior suborbital deeply notched above the angle.

Scales 38 to 40¹/₆. Predorsal scales 19; interdorsal 7; 5 scales between the origin of the soft dorsal and the anal; cheek scales and interopercular scales in a single series each; no axillary pectoral scale; axillary scale of ventral usually present, its length 2.06 to 2.32 in that of the fin and 1.58 to 1.77 in the eye-diameter.

¹ From behind the pectoral to the root of the caudal.

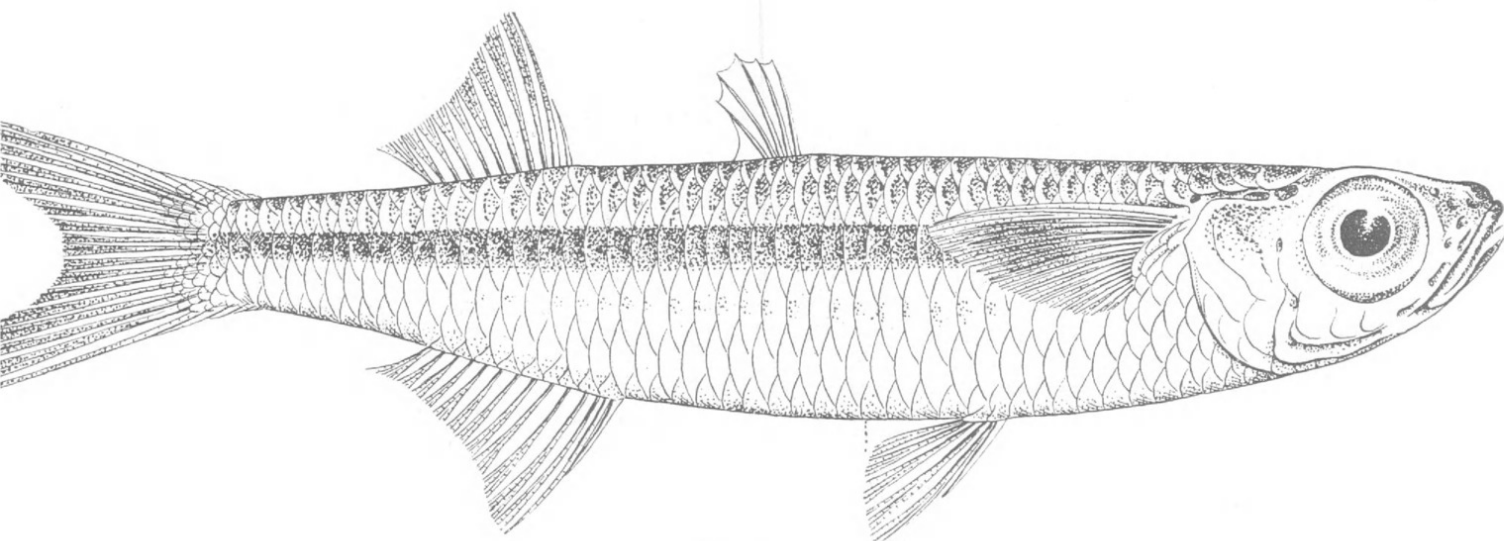


FIG. 1.

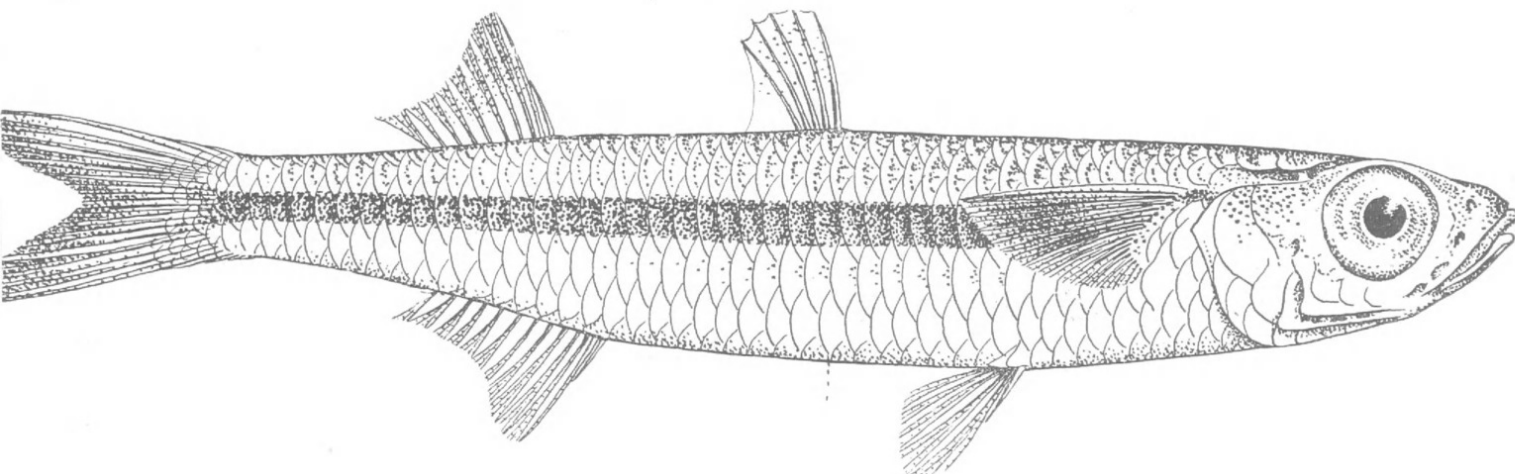


FIG. 2.

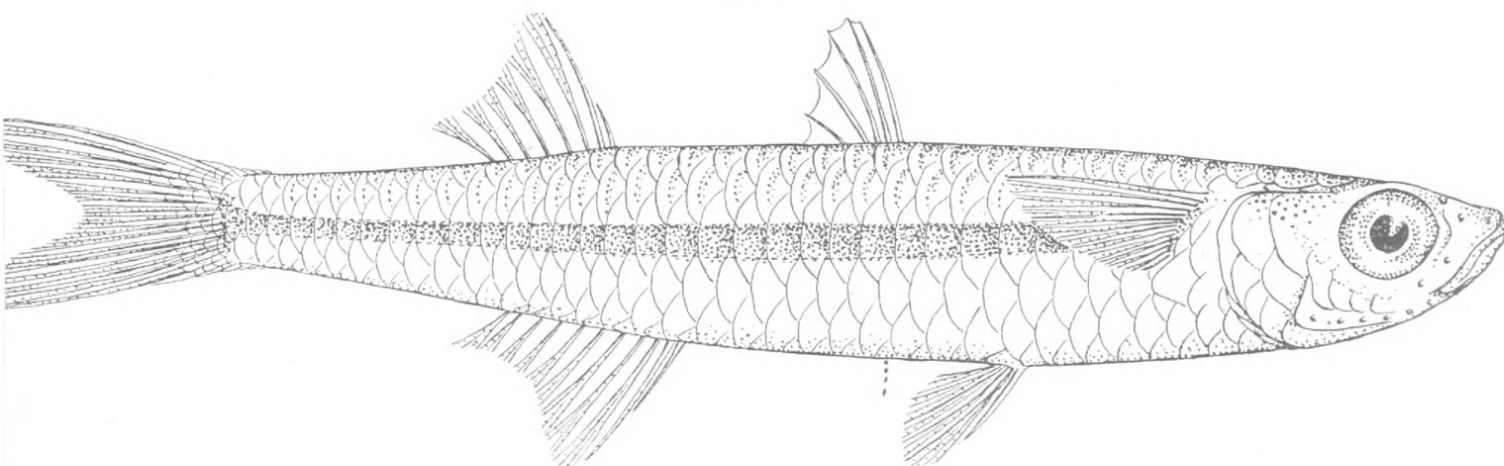


FIG. 3.

A. R. McCulloch, del.

FIG. 1.—*Atherina pinguis* Lacépède. Nat. size.

FIG. 2.—*Atherina lacunosa* Forster. $\times 2$.

FIG. 3.—*Atherina honoriae* Ogilby. $\times 3$.

D. v or vi, i 9 or 10; A. i 13 or 14; P. 16 to 19. Spinous dorsal originating above the 14th body-scale, its distance from the root of the caudal 1.16 to 1.25 in that from the tip of the snout; second spine usually a little longer than the first or third, 1.12 to 1.33 in the height of the soft dorsal, which originates above the 22nd body-scale. Caudal forked, with pointed lobes, the middle rays 1.79 to 2.06 in the upper lobe. Anal originating 3 scale-lengths in advance of and terminating on the same plane as the second dorsal, its base .21 to .35 more than its distance from the caudal and .4 to .6 more than that of the soft dorsal; last ray of both fins somewhat produced. Third and fourth pectoral rays longest, extending to the 8th or 9th body-scale. Ventral inserted a little behind the middle of the appressed pectoral, the space between its origin and the anal 1.31 to 1.53 in its distance from the tip of the mandible.

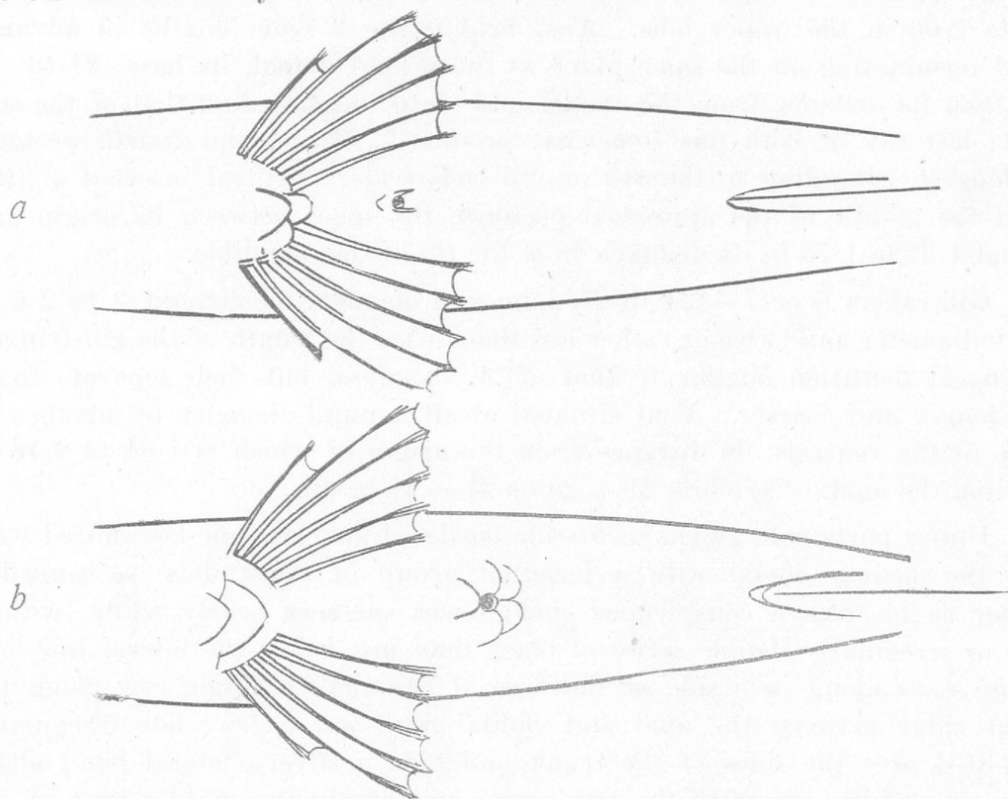
Gill-rakers 6 or 7 + 24 to 27, long and slender, the longest 2 to 2.5 in the eye-diameter and twice or rather less than twice the length of the gill-fringes. Pharyngeal dentition similar to that of *A. lacunosa*, but each separate tooth much longer and coarser. Vent situated about a pupil-diameter in advance of the tip of the ventrals, its distance from the origin of which is 1.81 to 2.18 in that from the anal. Vertebrae 21 + 20 or 21 = 41 or 42.

Upper parts pale green, each scale bordered and more or less dotted with black, the median dorsal with a terminal group of black dots so crowded together as to form a conspicuous spot; lower surfaces pearly white, with a single or irregularly double series of black dots just below the lateral line, one or more rows along each side of the base of the anal, a single row along the ventral ridge between the anal and caudal fins, and a few dots irregularly distributed over the sides of the trunk and tail; a silvery lateral band about half a scale-width separates the two areas, and covers the middle part of the third row of scales, extending from behind the base of the pectoral to the root of the caudal. Lips, upper surface of head, and parietal region profusely black-dotted, the dots being most densely crowded on the anterior edge of the snout, the ground color of which posteriorly is smoky brown; interorbital region wholly or in two supraciliary patches dark blue. Iris silvery, clouded above with blue. Vertical fins colorless, or with a series of black dots along the edge of the first dorsal spine and ray. Caudal narrowly, pectorals broadly black-tipped, due to the crowding together of numerous black dots; ventrals colorless. (*pinguis*, stout.)

Described from twelve Moreton Bay examples, measuring from 102 to 174 millim., the number being evenly divided between the Queensland and A.F.A.Q. Museums.

I am somewhat sceptical as to the specific identity of such a fish as this ranging from Madagascar to the New Hebrides and Fiji and from the Red Sea to New Zealand. It is more than likely that, as in the case of *Elops*, half a dozen species are being confounded under the name *pinguis*; as no other

Museum is likely to have so complete a geographical series of this fish as the British, we over here hope that Mr. Tate Regan will shortly make use of his opportunities to institute an exhaustive inquiry into the forms of this interesting little species, for even on the Australian coast the intertropical form differs more or less markedly from its southern brother.



(a) Ventral surface of *Atherina pinguis* Lacépède, showing position of vent.
 (b) Same view of *Atherina lacunosa* Forster, greatly enlarged.

ATHERINA LACUNOSA Forster.

Atherina lacunosa Forster, in Bloch & Schneider, Syst. Ichth., 1801, p. 112: New Caledonia—id., Deser. Anim., Lichstenstein ed., 1844, p. 298. Not of Valenciennes,¹ nor Bleeker,² nor Günther,³ nor Jordan & Richardson.⁴

Slender Hardihead.

Plate 12, fig. 2.

Depth of body 5.71 to 6.35, length of head 4.05 to 4.21, of caudal fin 5 to 5.19, of pectoral 5.1 to 5.4, of ventral 7.56 to 7.71 in length of body. Length of snout 3.86 to 4.1, diameter of eye 2.45 to 2.75, width of interorbit 2.59 to 2.82, length of maxillary 2.4 to 2.58, of mandible 2.25 to 2.5, height of spinous dorsal 2.24 to 2.6, of soft dorsal 2.14 to 2.6, of anal 1.87 to 2.2 in length of head.

¹ Hist. Nat. Poiss., x, 1835, p. 454: New Caledonia.

² Nat. Tijds. Nederl. Ind., v, 1853, p. 504: Sumatra.

³ Journ. Mus. Godefr., Heft xiii, 1877, p. 213, pl. cxviii, fig. E: Vaté, New Hebrides; New Caledonia.

⁴ Bull. U.S. Bur. Fish., xxvii, 1907, p. 243: Iloilo, Philippines.

Body slender and subfusiform, its width 1.23 to 1.37 in its depth, which is 1.36 to 1.53 in the length of the head; caudal peduncle long and slender, its least depth 2.41 to 2.79 in its length and 1.38 to 1.62 in the eye-diameter. Width of head 1 to 1.11 in its depth, which is 1.67 to 1.73 in its length; snout short and broad, its length 1.4 to 1.62 in the eye-diameter, which equals or exceeds by one fifth the postorbital length of the head. Jaws equal; maxillary extending to or nearly to below the anterior border of the eye, mandible to below that of the pupil. Interorbital region flat, its width 1 to 1.09 in the eye-diameter; postorbital length of head 1.7 to 2.06 in the rest of the head. Posterior suborbital notch obsolescent.

Scales 38 to 40¹/₆. Predorsal scales 17 or 18; intedorsal 7 or 8; 5 scales between the origin of the soft dorsal and the anal; cheek-scales and interopercular scales in a single series each; no axillary pectoral scale; axillary scale of ventral sometimes wanting, its length, when present, 2.75 to 3 in the length of the fin and 2 to 2.12 in the eye-diameter.

D. v or vi, i 10; A. i 12; P. 17. Spinous dorsal originating above the 12th or 13th body-scale and midway between the root of the caudal and the tip of the snout or a trifle (less than one fifteenth) nearer to the former; second spine longest, as high as the soft dorsal, which originates above the 23rd or 24th body-scale. Caudal forked, with pointed lobes, the middle rays 1.8 to 2.04 in the upper lobe. Anal originating 2 scale-lengths in advance of and terminating on the same plane as the soft dorsal, its base as long as its distance from the caudal and .37 to .47 more than that of the soft dorsal; last ray of both fins somewhat produced. Fourth and fifth pectoral rays longest, extending to the 8th body-scale. Ventral inserted below the last quarter of the appressed pectoral, the space between its origin and the anal 1.25 to 1.41 in its distance from the tip of the mandible.

Gill-rakers 6 + 22 or 23, rather short and slender, the longest 4.5 to 5 in the eye-diameter and about as long as the gill-fringes. Upper pharyngeal bones armed with numerous close-set conical slightly curved teeth; lower with longer and more slender erect teeth. Vent immediately behind the tips of the ventrals in young to nearly a pupil-diameter behind in adult examples and midway between the origins of the ventrals and anal. Vertebrae 19 + 21 = 40.

Coloration as in *A. pinguis* (See p. 39). (*lacunosa*, full of pits; alluding to the large open pores of the muciferous system.)

Described from five specimens, measuring from 63 to 107 millimeters, obtained at Bulwer, Moreton Bay, by Mr. James Palmer, and kindly forwarded by him to the A.F.A.Q. Museum. One of these specimens being somewhat

¹ From behind the pectoral to the root of the caudal.

damaged was utilized for dissection; a second is in the possession of Dr. William Patten, Professor of Biology, Dartmouth College, Hanover, New Hampshire; a third has been presented to the Australian Museum, Sydney; a fourth is in the Queensland Museum, Reg. No. I. 448; and the last has been retained by the A.F.A.Q., Cat. No. 1700.

ATHERINA HONORIÆ sp. nov.

Estuarine Hardihead.

Plate 12, fig. 3.

Depth of body 6.12 to 6.25, length of head 4.13 to 4.33, of caudal fin 4.88 to 5.05, of pectoral 5.62 to 5.78, of ventral 7.66 to 8 in length of body. Length of snout 3.43 to 3.6, diameter of eye 2.7 to 2.86, width of interorbit 3.4 to 3.6; length of maxillary 2.9, of mandible 2.45 to 2.5, height of spinous dorsal 2.16, of soft dorsal 1.66 to 1.85, of anal 1.6 to 1.75 in length of head.

Body slender and somewhat compressed, its width 1.42 to 1.5 in its depth, which is 1.4 to 1.5 in the length of the head; caudal peduncle long and slender, its least depth 2.83 to 3 in its length and 1.15 to 1.33 in the eye-diameter. Width of head 1.08 to 1.13 in its depth, which is 1.67 in its length. Snout moderate and pointed, its length 1.2 to 1.33 in the eye-diameter, which is equal to or rather less than the postorbital portion of the head. Jaws subequal, mouth small, with strongly oblique cleft, the maxillary not extending to the level of the eye, the mandible to below the anterior border of the pupil. Interorbital region flat, its width 1.27 to 1.33 in the eye-diameter; postorbital length of head 1.5 to 1.66 in the rest of the head. No suborbital notch.

Scales 32 to 34/6. Predorsal scales 13 or 14; interdorsal 6; 5 scales between the origin of the soft dorsal and the anal; cheek-scales and interopercular scales in a single series each; no axillary pectoral scale; axillary scale of ventral short and triangular, its length 3.16 to 3.34 in that of the fin and 2.1 to 2.18 in the eye-diameter.

D. v, i 7 or 8; A. i 10; P. 13. Spinous dorsal originating above the 10th body-scale and nearer to the tip of the snout than to the root of the caudal; second spine longest, 1.12 to 1.28 in the height of the soft dorsal, which originates above the 18th body-scale. Caudal fin forked, with pointed lobes, the middle rays 1.9 to 2.15 in the upper lobe. Anal originating 3 scale-lengths in advance of and terminating slightly before the last ray of the soft dorsal, its base 1.25 to 1.4 in its distance from the caudal and .41 to .48 more than that of the soft dorsal; last ray of both fins slightly produced. Third pectoral ray the longest, extending to the 7th body-scale. Ventral inserted below the last quarter of the appressed pectoral, the space between its origin and the anal 1.5 to 1.62 in its distance from the tip of the mandible.

Gill-rakers $5 + 12$, rather short and stout, the longest about one fourth of the diameter of the eye and a little longer than the gill-fringes. Upper and lower pharyngeal bones clothed with close-set acicular teeth, the former with one or two rows of coarse conical teeth posteriorly. Vent between the tips of the ventrals and midway between the origins of the ventrals and anal. Vertebrae $21 + 20 = 41$.

Coloration after ten years' immersion in formalin solution—Yellow, clear above dull below; each scale of the median dorsal line with two or more black spots and numerous brown dots, the latter present on the other dorsal scales, mostly as a diminishing marginal band; a broad violet band along the middle of the side from above the base of the pectoral to the root of the caudal; all the scales below this band immaculate, except those along the median ventral line, which are black-dotted. Snout powdered with brown; a large blackish occipital blotch. Fins immaculate. Dedicated to Miss Honor Coralie Hamlyn-Harris.

Described from two specimens, measuring respectively 64 (type) and 78 millim., collected in Nerang Creek by Mr. J. R. Tosh in 1902; they are in the collection of the Queensland Museum.

TRACHICHTHYIDÆ.

PARATRACHICHTHYS ELONGATUS (Günther).

The Queensland Museum possesses a specimen of this fish labeled Moreton Bay; this was one of the discoveries of Mr. E. Marwedel during his memorable trawling experiments in 1889.

BOTHIDÆ.

With the addition of the two species here described we are now acquainted with seven flounders of the genus *Pseudorhombus* inhabiting Queensland waters, as against but one catalogued by Macleay up to 1884 and a second recorded by Saville Kent in 1893.

Our list now contains the following forms:—

1. *russellii* Gray, in Gray and Hardwicke Ind. Zool., 1830, pl. —, fig. 2—Large-toothed Flounder.¹
2. *polyspilos* Bleeker, Nat. Tijds. Ned. Ind., iv, 1853, p. 503—Starry Flounder.
3. *novæ-cambiæ* Ogilby, Proc. Linn. Soc. N.S. Wales, xxiii, 1898, p. 296—Common Flounder.
4. *tenuirastrum* Waite, Mem. Austr. Mus., iv, 1899, p. 121—Slender Flounder.
5. *elevatus* Ogilby, infra.—Deep Flounder.

¹ I have not seen this species and doubt its occurrence.

6. *cartwrighti* Ogilby, infra.—Cartwright's Flounder.

7. *anomalus* Ogilby, infra.—Ocellated Flounder.

8. sp.—Twin-spot Flounder. Of this latter species, according to my notes, seven specimens were obtained during the Endeavour's second cruise in Queensland waters, two off Pine Peak in 25 fathoms on mud and five off Cape Gloucester in 36 fathoms on sand and mud. Owing to the tardy way in which these collections are unavoidably being worked out it may be years before we can authoritatively include this and many other interesting fishes in the Queensland Catalogue. This flounder may be *Pseudorhombus dupliciocellatus* Regan¹ from the Inland Sea of Japan.

In the same notes reference is briefly made to two other flounders which may belong to this genus; of the first of these four specimens are noted, under the heading "Small-mouthed Flounder," as having been trawled in 15 fathoms on sand and shell off Hummocky Island, and it is specially mentioned that the maxillary does not reach the eye; of the second two examples are recorded from 24 fathoms on fine sand off Cartwright Point; it is noted as the "Yellow Flounder" and as being destitute of ocelli or spots of any kind.

But few of these valuable food-fishes find their way to the tables of our consumers owing to the inefficient means of capture at our command, since it is not often that they approach so closely to the shore as to come within the scope of the seine-net, and the only others that are taken are the accidental captives of hook and line, mostly the spoil of the amateur angler. That, however, with the introduction of proper appliances—the more important of which would be the trawl-net and the boulder—our market supply of these delicious fishes might be materially increased, is evident from the fact that the number of specimens captured, during the necessarily sporadic and tentative operations of the Endeavour when on our coast, closely approached 500, most of which were in good condition and of marketable size. It is therefore quite within the bounds of probability that the day may not be far distant when the flounder and the sole may occupy their proper place on the daily bill of fare.

There is often considerable difficulty in distinguishing from outside characters alone the species of this genus, the one from the other, the general pattern of coloration being very similar in all; in some cases of course, such as that of our "twin-spot flounder"—much the handsomest of our species—this is unmistakable. The grouping of the larger ocellated spots gives some guidance, but I have not sufficient examples on hand to determine definitely whether this character be dependable. Of purely structural characters, in addition to the dentition, the relative depth of the body and the size of the gape—as shown by the length of the maxillary—may afford valuable assistance, but according

¹ Ann. & Mag. Nat. Hist. (7) xv, 1905, p. 25.

to my experience the form and number of the gill-rakers provides the most reliable character for the separation of our species, as they differ to an extraordinary degree *inter se*. This fact was first noted by the author (*loc. cit.*) when comparing the gill-rakers of his *P. novæ-cambiæ* with those of *P. multimaculatus* as described by Günther, and was afterwards made good use of by Waite in diagnosing his *P. tenuirastrum*.

SYNOPSIS OF THE PSEUDORHOMBI OF MORETON BAY.

*a*¹. Scales of eyed side ctenoid, of blind side cycloid.

*b*¹. No enlarged teeth in either jaw; depth of body 1.83, length of head 3.55 in length of body; depth of peduncle 5.33 in that of body; scales in 66 transverse series; D. 71; A. 54; gill-rakers rather long and slender, 14 on lower branch of anterior arch 1. *elevatus*.

*c*¹. Enlarged teeth present in both jaws.

*d*¹. Depth of body about 1.95, length of head about 3.6 in length of body; depth of peduncle 4.75 in that of body; scales in about 85 transverse series; D. 71 or 72; A. 54 to 56 2. *russellii*.¹

*d*². Depth of body 2.02 to 2.28, length of head 3.22 to 3.42 in length of body; depth of peduncle 4.15 in that of body; scales in about 76 transverse series; D. 73 to 77; A. 56 to 59 3. *polyspilos*.

*c*². No enlarged teeth in either jaw.

*e*¹. Length of head 3.5 in that of body; depth of peduncle 3.9 in that of body; scales in about 71 transverse series; D. 67 to 70; A. 50 to 55; gill-rakers short and broad, 7 to 9 on lower branch of anterior arch 4. *novæ-cambiæ*.

*e*². Length of head 3.3 in that of body; depth of peduncle 4.7 in that of body; scales in 82 transverse series; D. 75; A. 63; gill-rakers shorter and broader, 10 on lower branch of anterior arch 5. *cartwrighti*.

*e*³. Length of head 3.4 in that of body; depth of peduncle 3.7 in that of body; scales in 84 transverse series; D. 64; A. 53; gill-rakers rather long and slender, 10 on lower branch of anterior arch 6. *anomalus*.

*a*². Scales cycloid on both sides; no enlarged teeth on either jaw; depth of body 2.2 to 2.4, length of head 4.25 in length of body; depth of peduncle 3.65 to 4 in that of body; scales in 76² transverse series; D. 75 or 76; A. 60 or 61; gill-rakers rather long and slender, 12 on the lower branch of the anterior arch 7. *tenuirastrum*.

PSEUDORHOMBUS ELEVATUS sp. nov.

Deep Flounder.

Depth of body 1.83, length of head 3.55, of caudal fin 4.68 in length of body. Length of snout 3.37, diameter of eye 3.88, length of maxillary 2, of mandible 1.81, of left pectoral 1.44, of left ventral 2.43 in length of head.

¹ *Fide* Bleeker.

² Waite counts 91.

Body ovate, its dorsal contour more elevated than that of our other species, so that the rostro-caudal line passes well below the lateral line; profile of head and nape from in front of the upper eye evenly and rather strongly convex, of mandible anteriorly truncate and vertical, inferiorly linear and declivous; caudal peduncle short, its depth 5.33 in that of the body. Snout a little shorter than the eye, its profile subvertical in front, bent sharply backwards above, the rostro-frontal notch deep; mental knob well developed and acute, as also is the articular. Mouth strongly arched, the jaws equal; maxillary extending to below the middle of the eye, its distal border truncate or feebly undulous, with a distinctly backward slope, its width 1.42 in the eye-diameter. Eyes on the same vertical plane; interorbital region reduced to a narrow sharp elevated ridge, rising to slightly above the level of the eye. None of the teeth enlarged; shaft of vomer with two large conical tooth-like processes, the posterior the larger.

Scales in 66 transverse series above the lateral line, those of the colored side ciliated, of the blind cycloid; maxillary scaly; a row of scales along each of the vertical fin-rays, except a few anteriorly and posteriorly. Depth of lateral line curve 2.74 in its length and 1.1 time the eye-diameter; the nuchal branch extending to the base of the seventh dorsal ray.

D. 71; A. 54; C. 15; P. 12/11; V. 6.

Dorsal originating on the blind side in front of the upper eye, the anterior rays only connected at the base, those of the anal similarly free. Caudal subcuneate. Left pectoral with oblique base, the upper middle rays the longest, reaching slightly beyond the curve of the lateral line, its insertion on the same plane as that of the right pectoral, the length of which is but 1.65 in that of the left. Ventrals well developed, that of the colored side inserted rather nearer to the abdominal ridge and notably anterior to the right fin, with which it is subequal in length, and which reaches to the first anal ray.

Gill-rakers of moderate length and slender, fully denticulated, 14 on the lower branch of the anterior arch.

Upper surface sandy brown with a large dark spot behind the angle of the lateral line and five series of inconspicuous ocelli, two above one on and two below the lateral line. Iris blue above, silvery below. Vertical fins with rather faint dark spots at intervals of about eight rays; caudal with some small spots distally and an upper and lower ocellus mesially; pectoral and ventral fins immaculate (*elevatus*, raised up: in reference to the height of the dorsal profile).

Described from a specimen, 142 millim. long, taken at Bulwer, Moreton Bay, by Mr. James Palmer, and presented by him to the A.F.A.Q. Museum. Cat. No. 1713.

At first I had hopes that this species would prove to be the missing *Pseudorhombus multimaculatus* Günther,¹ with which it agrees in the exceptional depth of the body, the shape of the interorbital region, the form and length of the gill-rakers, etc., but the remaining characters seem to show conclusively that my hopes were futile, and that Günther's species, if Australian, remains as heretofore a desiderate in all the Museums of the Commonwealth.

PSEUDORHOMBUS CARTWRIGHTI sp. nov.

Cartwright's Flounder.

Depth of body 2.08, length of head 3.31, of caudal fin 5.17 in length of body. Length of snout 4.41, diameter of eye 6.25, length of maxillary 2.14, of mandible 1.9, of left pectoral 1.87, of left ventral 3.12 in length of head.

Body ovate, its anterior upper profile gently rounded and but moderately declivous, the dorsal contour so little elevated that the rostro-dorsal line passes almost directly along the middle of the side; caudal peduncle short, its depth 4.7 in that of the body. Snout long, 1.42 time the eye-diameter, its profile obtusely angulated in front of the upper eye, the rostro-frontal notch conspicuous; profile of mandible anteriorly truncate and vertical, inferiorly linear and rather strongly declivous, with a slight concavity behind the mental knob, which is well developed and somewhat obtuse, as also is the articular knob. Mouth moderately arched, the jaws subequal; maxillary extending to below the middle of the eye, its distal border feebly convex and sloping well backwards, its width but little less than the eye-diameter; mandible reaching slightly beyond the maxillary. Lower eye slightly in advance of the upper, its diameter 1.5 in the length of the snout; interorbital region reduced to a narrow naked sharp ridge, which rises well above the level of the eye. None of the teeth enlarged.

Scales in 82 transverse series above the lateral line, those of the colored side smooth and ciliated, of the blind side cycloid; posterior half of left maxillary scaly; a row of scales along each of the vertical fin-rays, except some of the anterior and posterior ones. Depth of lateral line curve 2.69 in its length and 1.27 time the eye-diameter, the nuchal branch extending to the base of the ninth ray.

D. 75; A. 63; C. 15; P. 11; V. 6.

Dorsal originating on the blind side of the rostro-frontal notch. Caudal subcuneate. Left pectoral with slightly oblique base, the upper rays longest, just reaching the straight part of the lateral line, its insertion slightly higher than that of the right pectoral, the length of which is 1.29 in that of the left. Ventrals well developed, that of the colored side inserted rather nearer to the abdominal ridge and a little anterior to the right fin, which is slightly the longer and reaches to the third anal ray.

¹ Brit. Mus. Catal. Fish., iv, 1862, p. 427.

Gill-rakers very short broad and strongly compressed, the tips denticulated, 10 on the lower branch of the anterior arch.

Lavender gray, tinged with pale brown, most of the scales with narrow darker edges; body with numerous dark ovate annuli of variable size; six of these are larger than the others and than the eye-diameter; included within them are a pair of still darker spots, usually with a whitish centre and numerous smaller gray spots; these annuli are fairly constant in position and are arranged in pairs; the upper of the anterior pair is situated in the angle formed by the curved and straight portions of the lateral line, the lower below and behind the end of the pectoral; the second pair are similarly transverse in position and are situated somewhat nearer to the head than to the caudal fin; the third pair are smaller and are placed horizontally on the lateral line; the remaining annuli are much smaller and are irregularly distributed. Head paler than the body and with a few still smaller annuli and ocelli, the snout and lips yellowish gray freckled with pale brown; edge of premaxillary darker brown. Vertical fins closely speckled with pale brown and with a few scattered ocelli; a transversely arranged pair near the base of the caudal; left pectorals and ventrals with numerous small light brown spots.

Described from a fine specimen, 296 millim. long, purchased in the Brisbane Market from a basket of fishes seined in Moreton Bay during September, 1911; Cat. No. 1647.

I have much pleasure in dedicating this fine flounder to my friend Capt. George H. Cartwright, late of the F.I.V. Endeavour, to whose untiring zeal and energy and excellent seamanship all such success as that vessel achieved during her sojourn in Queensland waters is wholly due.

PSEUDORHOMBUS ANOMALUS sp. nov.

Ocellated Flounder.

Depth of body 2.15, length of head 3.41, of caudal fin 4.64 in length of body. Length of snout 4.15, diameter of eye 5, length of maxillary 2.43, of mandible 1.94, of left pectoral 1.6, of left ventral 2.31 in length of head.

Body ovate, the contour of the nape very feebly convex, of the mandible linear, rather strongly oblique anteriorly, much less so inferiorly; caudal peduncle short, its depth 3.72 in that of the body. Snout gibbous above, the rostro-frontal notch well developed; mental knob small. Mouth strongly arched, the lower jaw the longer; maxillary extending to below the middle of the eye, its distal border truncate with a strong backward slope, its width 1.51 in the eye-diameter. Lower eye conspicuously more anterior than the upper, the diameter of which is 1.21 in the length of the snout; interorbital ridge sharp, but low and not rising to the level of the eye. None of the teeth enlarged.

Scales in 84 transverse series above the lateral line, those of the colored side ciliated, of the blind cycloid; left maxillary with three minute scales superiorly on the dilated portion, the right naked; dorsal and anal fins without interradii rows of scales. Depth of lateral line curve 2.3 in its length and 1.1 in the eye-diameter; nuchal branch extending to the base of the eighth dorsal ray.

D. 64; A. 53; C. 15; P. 12/12; V. 6/6.

Dorsal originating on the blind side in front of the outer border of the upper eye, the tips of the anterior rays free for more than half their length, those of the anal similarly but not so extensively free. Caudal fin broadly rounded. Left pectoral with oblique base, the upper middle rays the longest, reaching five eighths of an eye-diameter beyond the curve of the lateral line, its insertion much higher than that of the right pectoral, the length of which is 1.42 in that of the left. Ventrals well developed, that of the colored side inserted much nearer to the abdominal ridge, but on the same plane as the right fin, which is a little the shorter and reaches to the second anal ray.

Gill-rakers rather long and slender, smooth except the anterior three on the lower limb, which are subclaviform and feebly serrulate distally; 10 on the lower branch of the anterior arch, the longest 2.3 in the eye-diameter. Vent opening on the summit of a conspicuous papilla on the blind side immediately in advance of the anal.

Chocolate-brown, the body profusely ornamented with round and oval black annuli, irregularly disposed and variable in size, but all containing a more or less central black spot, which corresponds in size to that of the enclosing ring. Head with a few black spots, but without annuli. Vertical fins flecked and speckled with black (*anomalus*; deviating from the normal habit of the genus).

Described from a Moreton Bay specimen, measuring 142 millim. Catalogue number 1908.

LOPHONECTES GALLUS Günther.¹

While searching for suitable examples of fishes for exhibition in the Queensland Museum, I had occasion to examine the contents of a bottle containing a number of small *Pseudorhombi* from Moreton Bay. Among these I found a rather dilapidated specimen of this southern fish. Its presence on the Queensland Coast had however been previously known to me, since 12 examples had been trawled in 13 fathoms off South Hill in the course of the last haul made by the Endeavour on 6th September, 1910.

¹ Zool. Challenger, i, 1880, Shore Fish., p. 28.

CHEILODIPTERIDÆ.

AMIA BERTHÆ Ogilby.¹

In the Leftwich collection above referred to (v. p. 21) a second specimen of this beautiful "percelle" occurs, and is noteworthy in that it increases the recorded range of the species from Dunk Island southward to Wide Bay. The example has been deposited in the State Museum.

SERRANIDÆ.

EPINEPHELUS FLAVOCÆRULEUS (Lacépède).²

The fish described by De Vis as *Homalogrystes luctuosus*³ is identical with the above.

EPINEPHELUS HOEDTII Bleeker.⁴

This handsome "rock cod" occurs sporadically in Moreton Bay, but always of large size, the smallest which I have had the opportunity of measuring being 32 inches long, while one which I saw in the Brisbane Market could not have been less than four feet. During the last week in May 1907 several specimens of this fish were noticeable in the Brisbane shops on account of their large size and conspicuous appearance. From that date none were in evidence until the winter of 1910, when a few examples appeared in the shops; since then it has not reappeared. From these data it may be inferred that it is only an occasional visitor to our shores during the winter months.

KYPHOSIDÆ.

KYPHOSUS GIBSONI sp. nov.**Banded Drummer.**

Depth of body 2.33, length of head 4.2, of caudal fin 3.65, of pectoral 6.25, of ventral 6.5 in length of body. Length of snout 3.05, diameter of eye 3.9, width of interorbit 2.1, longest dorsal spine 2.15, longest anal 3.9 in length of head.

Body deeply ovate, the dorsal contour rather more arched than the ventral; caudal peduncle one third longer than deep, its least depth 4.25 in the depth of the body. Upper profile of head sublinear and moderately declivous, the snout anteriorly convex and strongly declivous. Diameter of eye 1.3 in

¹ Ann. Queensl. Mus., pt. 10, 1911, p. 47, pl. v, fig. 1.

² Hist. Nat. Poiss., iv, 1802, p. 367.

³ Proc. Linn. Soc. N.S. Wales, vii, 1882, p. 369.

⁴ Nat. Tijds. Nederl. Ind., viii, 1855, p. 406: Amboina—id., Atlas Ichth., vii, 1876, p. 45, pl., cclxxxii, fig. 2.

the length of the snout, 1.1 in the depth of the cheek below it, and 1.85 in the strongly convex interorbital width; lower jaw included; maxillary extending to below the anterior border of the eye, the width of its distal extremity 2.66 in its length. Incisors strong, $\frac{12-12}{10-10}$; tongue smooth. Preopercle and supra-scapula feebly serrated.

Scales, $12 \frac{7}{8}$ 21; L.l. 54. Cheek-scales in 8, opercular in 11 series; preorbital and maxillary scaly.

D. xi 13; A. iii 12; P 18.

Soft dorsal rather longer than the spinous; dorsal spines rather weak, increasing in length to the seventh, the last a little longer than the fourth and about as long as the subequal soft rays. Caudal lunate. Anal originating below the third dorsal ray, its length equal to the soft portion of the dorsal; third spine longest, half the length of the anterior rays, which are 1.55 time that of the last rays and somewhat higher than the spinous dorsal. Pectoral pointed, inserted rather more horizontally than vertically, scarcely extending backward beyond the vertical from the axil of the ventral. Ventral inserted well behind and a little shorter than the pectoral, the first ray longest, reaching midway between its origin and the base of the third anal spine.

Gill-rakers much shorter than the gill-fringes, 21 on the lower branch of the anterior arch, mostly with but a slight downward gradation from the angle, the longest half of the eye-diameter.

Upper surface plumbeous, each of the scales with a narrow lighter border, which posteriorly dilates to form a silvery spot; on the sides the lighter shade predominates, leaving only a darker border to each scale, even this on the abdominal region being nearly, on the pectoral and thoracic wholly lost, these latter regions being uniform lavender with a mesial stripe of dull white; sides with 8 bronze-gold bands, about a third of a scale in width, and confined to the upper and lower edges of the mid-lateral series of scales. Cheeks and opercles violaceous, crossed by two broad bronze-gold bands, the upper from the eye to the opercle, the lower from behind the angle of the mouth to the preopercle; lower lip and chin lavender with a blackish border. Iris purple, with a broad upper golden and lower silvery outer edge. Spinous dorsal violet; soft dorsal, anal, and caudal plumbeous, the lobes of the latter lighter; pectorals blue-gray, with a broad lighter terminal border; ventrals violet.

Type in the Queensland Museum: Cat. No. I. 11/30.

Described from a specimen, 431 millim. long, taken in Moreton Bay by Mr. W. Gibson, to whom I have much pleasure in dedicating the species.

This species differs from *K. sydneyanus*¹ in the number of soft dorsal and anal rays, the scale formula, the deeper body and longer head, etc., but, except in coloration, the differences between it and *K. meridionalis*² are not nearly so marked; it may be, therefore, that two species occur on the New South Wales Coast and have been confused together, in which case this fish should perhaps be called *Kyphosus meridionalis*; the figure given by me³ is as high or higher than the Moreton Bay specimen. Its nearest ally appears to be *K. lembus*.⁴

SPARIDÆ.

LETHRINUS LATICAUDIS Alleyne & Macleay.

Lethrinus laticaudis Alleyne & Macleay, Proc. Linn. Soc. N.S. Wales, i, 1877, p. 276, pl. viii, fig. 2: Percy Islands.

Gibbous-fronted Emperor.

Depth of body 2 to 2.2, length of head 2.5 to 2.8, of caudal fin 3.5, of pectoral 2.8, of ventral 3.15 to 3.3 in length of body. Length of snout 1.75, diameter of eye 3.85, width of interorbit 4 to 4.2, depth of preorbital 2.6 to 2.66, length of maxillary 2.75 to 3, of mandible 2.25, longest dorsal spine 2.5 to 2.65, longest anal 2.8 in length of head.

Body elevated, the dorsal contour strongly arched, its depth about one fifth more than the length of the head, caudal peduncle a little longer than deep, its least depth 3 in the depth of the body. Head rather longer than deep, its upper profile from above the posterior nostril linear and moderately acclivous, the nape convex; snout obtusely pointed, with concave anterior profile, the internasal region conspicuously swollen; eye large, its diameter 2.2 in the length of the snout and 1.5 in the depth of the preorbital; interorbital region feebly convex, its width a little less than the eye-diameter. Jaws equal; maxillary not extending to the vertical from the anterior border of the eye. Canines moderate; the 4 posterior lateral teeth with rounded crowns. Hinder limb of preopercle subvertical, with a feeble backward inclination; opercle with a spinous point.

Scales 5/45 or 46/16. Postocular region with 2, parietal with 1 or 2 series of scales; lateral line rather strongly curved downwards below the middle of the soft dorsal; 1 or 2 tubular scales on the base of the caudal.

D. x 9; A. iii 8; P. 13.

Dorsal spines strong, the first 1.33 to 1.45 in the second and 1.85 to 2.33 in the fourth and fifth, which are the longest; last spine longer than the penultimate; soft portion of dorsal higher than long, rounded behind, the fourth ray

¹ *Pimblepterus sydneyanus* Günther, Ann. & Mag. Nat. Hist. (5) xviii, 1886, p. 368.

² *Pimblepterus meridionalis* Ogilby, Proc. Zool. Soc., 1886, p. 539.

³ Ogilby, Edib. Fish. & Crust. N.S. Wales, pl. xvi.

⁴ *Pimblepterus lembus* Cuvier & Valenciennes, Hist. Nat. Poiss., vii, 1831, p. 269: Vanicolo.

longest, not much longer than the fifth, and 1.33 to 1.45 time the longest spine. Caudal emarginate, with broadly rounded lobes, the middle rays about 1.5 in the upper lobe. Anal originating below the last (or penultimate) dorsal spine, rounded posteriorly, the third spine longest, 1.33 in the second and longest ray, which equals the length of the fin and is somewhat lower than the soft dorsal. Pectoral pointed, a little shorter than the head, the second ray much the strongest but not so long as the third and fourth, which extend to the vertical from the third anal ray. Ventral inserted mostly behind the pectoral, the spine rather weak, half or rather more than half as long as the first ray, which is more or less produced and extends to the third spine or second ray of the anal.

Brown or purplish brown above shading into pearl gray or lavender below, each of the upper scales with a darker, of the lower with a lighter median spot. Naked portion of head fulvous. Fins hyaline, except the naked part of the caudal, the proximal half of which is purple.

Length of body 235 millim.

Coast of Queensland north from the Percy Islands.

Described from two specimens, measuring 266 and 302 millim., collected by the late Mr. Kendal Broadbent at Cape York and Murray Island respectively.

I do not think there can be any doubt of the identity of these two specimens with that of Alleyne and Macleay, notwithstanding that there are two grave discrepancies between our respective descriptions—namely, in the type specimen (now in the Macleay Museum, Sydney University) the head is said to “four times in the total length” and the diameter of orbit “much less than the distance between the eyes.” With regard to the former character the exact length of the head to the total length in my specimens is as 1 to 3.24 and 1 to 3.28, while in Macleay’s plate it is as 1 to 3.6, which figures greatly reduce the discrepancy. Verification of second controversial character can only be made from an examination of the type.

The species is very closely allied to *Lethrinus hypselopterus* Bleeker.¹

The specimens are in the collection of the Queensland Museum. Cat. No. I. 11/33.²

¹ Ned. Tijds. Dierk., iv, p. 326.

² Since writing the above Mr. McCulloch has kindly examined the type of *L. laticaudis*, and advises me that the true measurements of the head are as follow—“length of head 2.8 in that of body, 3.4 in that to the end of the middle caudal rays, and 3.5 in the total length.” He also states that “the bony interorbital width equals the bony orbit, is a little wider than the actual eye-opening,” and that “the preorbital is 2.66 in the head.” These corrections bring my specimens within measurable distance of *L. laticaudis*, with which I therefore identify them.

CHÆTODONTIDÆ.

CHÆTODON FALCULA Bloch.¹

The species described by De Vis as *Chætodon aurora*² is identical with the above.

CHÆTODON CITRINELLUS Cuvier & Valenciennes.³

Chætodon nigripes De Vis⁴ can not be separated from this species.

CHÆTODON PELEWENSIS Kner.⁵

Antedates *Chætodon germanus* De Vis.⁶

HOLACANTHUS CYANOTIS Günther.⁷

Holacanthus spynx De Vis⁸ only differs from the above in the absence of the blue markings; I do not think they can be separated specifically on such slight grounds.

All four of these types have been mounted and are now in a most wretched condition.

FAMILY SIGANIDÆ.

SIGANUS CONSOBRINUS sp. nov.

Teuthis albopunctatus Alleyne & Macleay, Proc. Linn. Soc. N.S. Wales, i, 1877, p. 338: Cape Grenville—Macleay, *ibid.*, v, 1881, p. 443. After Günther—Saville-Kent, Great Barrier Reef, 1893, p. 286. Not *Amphacanthus albopunctatus* Schlegel 1845.

Queensland Spine-Foot.⁹

Plate 13.

Depth of body 2.64 to 2.75,¹⁰ length of head 4.1 to 4.22, of caudal fin 3.85 to 4.04, of pectoral 5.21 to 5.28, of ventral 7.44 to 7.6 in length of body. Length of snout 2.23 to 2.38, diameter of eye 3.67 to 3.87, width of interorbit 3.39 to 3.58, of preorbital posteriorly 6.96 to 7.28, depth of cheek 4 to 4.4, longest dorsal spine 1.62 to 1.83, longest anal 2.02 to 2.1 in length of head.

¹ Ausl. Fisch., x, 1797, p. 102.

² Proc. Linn. Soc. N.S. Wales, ix, 1884, p. 453.

³ Hist. Nat. Poiss., vii, 1831, p. 27.

⁴ *Ibid.*

⁵ Sitzb. Akad. Wien, lviii, 1868, p. 306.

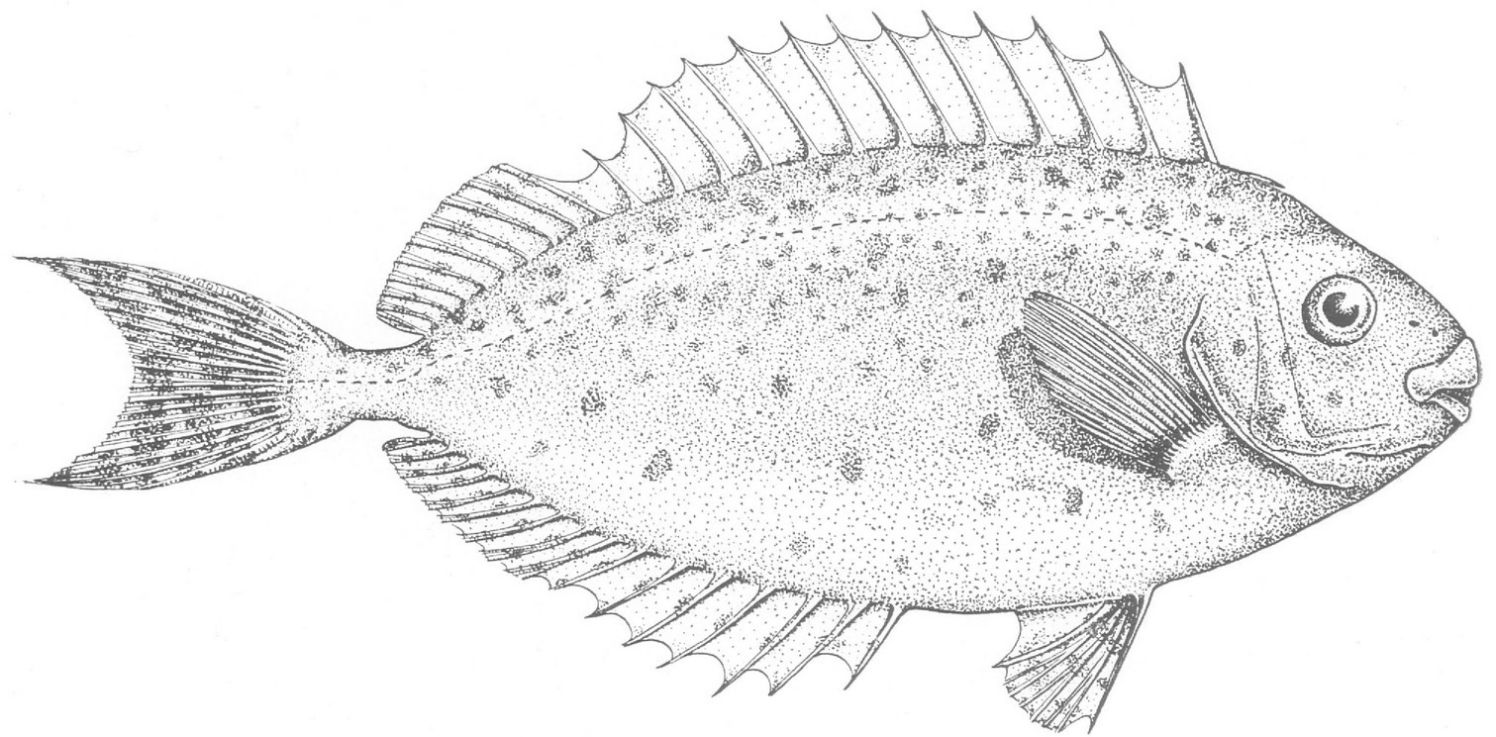
⁶ *Ibid.*, p. 454.

⁷ Brit. Mus. Catal. Fish., ii, 1860, p. 517.

⁸ *Ibid.*, p. 457.

⁹ In my recent list of the "Edible Fishes of Moreton Bay and its Affluents" (*see Rep. Mar. Dept. Queensl.*, 1911, App. 7, p. 15), published with a view to systematizing the popular names of our fishes and bringing into existence some kind of uniformity in this respect among the different States of the Commonwealth, I gave to this fish the common market name of "Butter Fish"—so called because of its smooth slippery skin—but as that name is given to several distinct species of fishes in the older States, it is necessary to adopt a new appellation, suitable to all the fishes of the family, and I therefore propose the above name—Siganidæ, The Spine-Foots—as being both distinctive and appropriate, and not elsewhere employed so far as I am aware.

¹⁰ Depth of body 3.3 to 3.42 in total length.



Siganus consobrinus Ogilby. Drawn from type : $\frac{1}{4}$ reduction.

D. B. Fry, del.

Face page 54.

Body subovate, its depth about 1.54 time the length of the head; mesial length of caudal peduncle equal to or rather more than the length of the snout. Fronto-occipital profile feebly concave; profile of snout feebly concave and moderately declivous, the fronto-nasal gibbosity conspicuous. Upper lip wide, the upper lateral edges concave, its symphysial length 1.26 to 1.41 in the eye-diameter. Eye small, situated well below the cephalic profile, its diameter 1.58 to 1.65 in the length of the snout; a low rough ridge ending in a small spine above the antero-superior angle of the eye; interorbital region mesially flat, its width a trifle less than the eye-diameter and 1.67 to 1.81 time the space between the eye and the closed maxillary. Maxillary extending to or nearly to below the posterior nostril, its distal width 3.2 to 3.45 in the length of the snout. Nostrils on a level with the upper half of the pupil, the internasal space less than that between the posterior nostril and the eye, which equals the distance of the anterior nostril from the edge of the preorbital. Opercle with a few feeble subvertical striæ.

D. i + xiii 10; A. vii 9; P. 16; V. i 3 i.

Spinous dorsal fin with rounded outline, the last spine 1.95 to 2.25 in the sixth and longest; soft dorsal rounded, the second and third rays longest, 1.12 to 1.33 in the longest spine, its base 2.65 to 2.82 in that of the spinous portion. Caudal deeply emarginate, with pointed lobes, the upper sometimes the longer, twice or more than twice as long as the middle rays. Anal originating a little nearer to the tip of the snout than to the base of the caudal; third spine longest, .31 to .44 more than the longest ray; base of soft anal 1.3 to 1.35 in that of the spinous, its height much less than that of the soft dorsal. Pectoral pointed, its length 1.24 to 1.37 in the head. Ventral inserted, well behind the pectoral, the space between its origin and the anal 1.6 to 1.68 in its distance from the tip of the snout, that between its tip and the anal 2.54 to 2.62 in its length.

Vent nearer to the origin of the ventral than to that of the anal.

Olive- or chocolate-brown, darkest above, with some irregular lighter blotches; back and sides with numerous small close-set light blue spots, which are as wide or slightly narrower than the interspaces; entire body, or more usually its lower half only, with much larger scattered dark brown or blackish spots; a round blackish shoulder spot about as large as the eye usually present. Upper surface of head dark brown blotched with yellowish green, the sides with or without blue spots; lips brown or lead blue. Iris pale yellow or silvery, uniform or brown-blotched. Vertical fins hyaline, the spinous portions with suffused dusky blotches, the rays of the soft portions, more or less distinctly zoned with purplish brown and gray, the darker color sometimes encroaching on the membrane; caudal olive-green, the lobes deeply glossed with yellow, the outer ray above and below with alternate black and gray patches, sometimes with one or more inconspicuous darker cross-bands; pectorals uniform pale

yellow or gray, with a blackish basal blotch; ventrals dusky, or hyaline with dusky blotches (*consobrinus*, a cousin; on account of its close relationship to *S. albopunctatus*).

Described from three Moreton Bay specimens, measuring between 228 and 236 millim. Type in the Queensland Museum; Reg. No. I. 291.

SIGANUS AUROLINEATUS sp. nov.

Golden-banded Spine-Foot.

Depth of body 1.97,¹ length of head 3.7, of caudal fin 4.17, of pectoral 4.48, of ventral 5.65 in length of body. Length of snout 1.96, diameter of eye 3.33, width of interorbit 3.27, of preorbital posteriorly 3.81, depth of cheek 3.08, longest dorsal spine 1.9, longest anal 1.82 in length of head.

Body ovate, its depth about 1.87 time the length of the head; mesial length of caudal peduncle 1.89 in the length of the snout. Fronto-occipital profile feebly concave; profile of snout feebly concave and strongly declivous, without conspicuous fronto-nasal gibbosity. Upper lip of moderate width, the upper lateral edges linear, its symphysial length 1.71 in the eye-diameter. Eye moderate, situated slightly below the cephalic profile, its diameter 1.7 in the length of the snout; supraorbital edge feebly serrated anteriorly, the posterior denticle the longest; interorbital region evenly convex, its width equal to the eye-diameter, and 1.16 time the space between the eye and the closed maxillary. Maxillary extending to below the posterior nostril, its distal width 4.08 in the length of the snout. Nostrils on a level with the lower fourth of the eye, the internasal space less than that between the posterior nostril and the eye, which again is less than that between the anterior nostril and the edge of the preorbital. Opercle vertically striated.

D. i + xiii 10; A. vii 9; P. 17; V. i 3 i.

Spinous dorsal fin with undulous outline, the spines increasing in length to the seventh, which is but little longer than the last, this exceeding in length the intervening spines; soft dorsal acutely pointed, the third and fourth rays longest, one third more than the longest spine, its base 2.41 in that of the spinous portion. Caudal emarginate, with subequal pointed lobes, the middle rays 1.37 in the upper. Anal originating a little nearer to the tip of the snout than to the root of the caudal, the spines increasing in length to the last, which is slightly more than the longest dorsal spine and 1.32 in the third and longest ray; margin of soft anal obtusely pointed, its base 1.45 in that of the spinous portion, its height a little more than that of the soft dorsal. Pectoral rounded, its length 1.21 in the head. Ventral inserted in advance of the middle of the appressed pectoral, the space between its origin and the anal 1.58 in its distance from the tip of the snout, that between its tip and the anal 4.2 in its length.

¹ Depth of body 2.45 in the total length.

Vent midway between origin of ventral and anal.

Chocolate-brown with several narrow orange bands along the sides of the body. Head lighter, apparently with two orange bars, enclosing a pale greenish yellow interspace, extending from the rictus to the lower border of the eye, the upper bar forked posteriorly. Fins immaculate, with the exception of a few brown spots near the tips of the middle caudal rays¹ (*aurum*, gold; *lineatus*, banded).

Described from a single example, 184 millim. long, collected at Somerset, North Queensland, by the late Mr. Kendal Broadbent. Type in the Queensland Museum; Reg. No. I. 449.

The nearest ally of this species appears to be the *Amphacanthus lineatus*² of Cuvier and Valenciennes, obtained by Messrs. Quoy and Gaimard from the seas of Vanicolo and New Guinea. The description given by Valenciennes, and copied by Günther,³ is wholly inadequate to determine the species accurately, but one character, the size of the head, is so conspicuously different that I think it advisable to keep the two species distinct until fresh specimens can be obtained from the type localities. This should not be difficult since Valenciennes states that it is "common at Vanicolo," and North Queensland collectors should be able to find it in our waters. The French author gives the head, in specimens of about the same size as ours, as being 4.5 in the total length in his *Siganus lineatus* in *S. aurolineatus* it is but 3.7, which is altogether too great a disparity.

LEPTOSCOPIDÆ.

LEPTOSCOPUS MACROPYGUS Richardson.

This species is now for the first time recorded from Queensland waters. It appears to be not uncommon in the rock-pools about Cape Moreton and Point Lookout, from which localities I have received it on three separate occasions.

SCOMBRIDÆ.

GASTEROCHISMA MELAMPUS Richardson.

During the month of August, 1911, while passing along Queen Street, my attention was attracted to the dismembered portions of a large fish exposed for sale in the window of one of our leading fishmongers. Inquiries of the

¹ This specimen has for many years been preserved in diluted methylated spirits and exposed to a strong light; it is therefore difficult to say what the original colors may have been. The specific name by which I have described it was attached to the specimen by Mr. De Vis as a *nom. mus.*, and it is presumable that the longitudinal body-bands were much more distinct when he received the specimen than is now the case.

² Hist. Nat. Poiss., x, 1835, p. 130, pl. cclxxxvi.

³ B.M. Catal. Fish., iii, 1861, p. 322.

proprietor elicited the fact that the fish was caught in the Bay along with five similar examples; also that they were quite unknown both to fishermen and dealers. Unfortunately all six had been cut up and sold before I became aware of their presence, and I was only able with difficulty to secure the head of this specimen for the Queensland Museum. This however was quite sufficient to show that our visitors were of the above species, which is here recorded for the first time from the Coast of Queensland. All of the six specimens sold in the Brisbane Market were of large size, measuring from thirty inches upwards.

At the time of this visitation it was also noticeable that fully a dozen tunnies (*Thunnus thynnus*) were exposed for sale in the Brisbane Market and shops, and attracted much attention in the latter from passers-by. One of these was secured intact for the Queensland Museum. This fish is a very rare visitant to our shores.

LEIOGNATHIDÆ.

LEIOGNATHUS HASTATUS nom. nov.

Equula longispina De Vis, Proc. Linn. Soc. N.S. Wales, ix, 1884, p. 542: Cape York. Not *E. longispinis* Cuvier & Valenciennes 1835.

Long-spined Pony-Fish.

Depth of body 2.5,¹ length of head 3.5,¹ of second dorsal spine 1.7,¹ of second anal 3.4¹, of caudal fin 3.57¹ in length of body. Length of snout 2.04, diameter of eye 3, width of interorbit 3.58, length of nuchal spine 2.33, of pectoral fin 1.43, of ventral 2.15 in length of head.

Body ovate, the ventral contour a little more arched than the dorsal. Head a little longer than deep; profile of snout and interorbit obliquely linear, of occiput and nape slightly convex; mandibular outline feebly concave and moderately declivous; tip of snout on a level with the middle of the eye, its length equaling the eye-diameter, which is one sixth more than the interorbital width. Jaws equal; maxillary extending to below the anterior border of the eye. Supraorbital ridges smooth, the occipital extensions slightly convergent, not continuous with the outer nuchal ridges; nuchal spine linear, extending three fifths of the distance between its base and the dorsal fin; lower limb of preopercle smooth, the angle somewhat roughened.

Scales distinct; breast scaly. Lateral line ceasing below the middle dorsal rays.

D. viii 16; A. iii 14; P. 16.

Dorsal spines with flexible tips, the second much the strongest, smooth, and greatly produced, reaching when depressed beyond the base of the last ray; third spine also somewhat produced, a little less than half the length of the

¹ Depth of body 3.13, length of head 4.37, of second dorsal spine 2.13, of second anal 4.26 of caudal fin 4.48 in the total length.

second, and like the fourth without basal serrature. Second anal spine produced, stronger and much longer than the third, smooth, and subequal to the third dorsal spine; third spine feebly serrated at the base. Pectoral as long as the head in front of the hinder border of the eye. Ventral moderate, not reaching to the anal, its spine 2.75 in the second anal spine.

Gill-rakers 4 + 14, short and slender, all functional.

Coloration (*vide* De Vis)—Uniform silvery, the upper lip black.¹

Length of body 75 millim.

Coast of North Queensland.

Described from the unique specimen obtained at Cape York, which forms the type of De Vis' *Equula longispina*.

This species differs from *Leiognathus fasciatus* in its much more slender habit, scaly breast, incomplete lateral line, etc.

LEIOGNATHUS MORETONIENSIS sp. nov.

Black-banded Pony-Fish.

Depth of body 2.42 to 2.59,² length of head 3.44 to 3.62,² of second dorsal spine 4.04 to 4.23,² of second anal 5.53 to 5.71,² of caudal fin 3.5 to 3.82² in length of body. Length of snout 2.77 to 3.21, diameter of eye 2.63 to 2.88, width of interorbit 2.68 to 3, length of nuchal spine 2.04 to 2.33, of pectoral fin 1.24 to 1.42, of ventral 1.77 to 1.98 in length of head.

Body ovate, the ventral contour slightly more arched than the dorsal. Head much longer than deep; profile of snout convex, of interorbit and occiput sublinear and moderately oblique, forming with the rounded nape a long shallow concavity; mandibular outline concave and strongly declivous; tip of snout on a level with the middle of the eye, its length equal to or rather less than the eye-diameter, which somewhat exceeds the interorbital width. Jaws equal; maxillary extending to below the anterior border of the eye. Supraorbital ridges serrulate anteriorly, the occipital extensions parallel, not continuous with the lateral nuchal ridges, which are serrulate and strongly convergent; nuchal spine feebly curved, extending two thirds of the distance between its base and the dorsal fin; lower limb of preopercle evenly serrulate.

¹ This specimen has been for many years exposed to a strong light and may now be described as "pale yellow above vertebral line of the body, silvery below. Head yellowish, except the cheeks, which are brilliantly silvery. Vertical fins hyaline; caudal, pectorals, and ventrals yellowish."

² Depth of body 3 to 3.24, length of head 4.23 to 4.51, of second dorsal spine 5.12 to 5.27, of second anal 7 to 7.25, of caudal fin 4.44 to 4.76 in total length.

Scales small and inconspicuous; breast naked. Lateral line ceasing below the last dorsal rays and composed of about 38 pores.

D. viii 16 or 17; A. iii 14; P. 15.

Dorsal fin originating above the base of the ventral, the spines with flexible tips; second spine smooth, but little stronger than the third, and reaching when depressed to the fourth soft ray; third spine 1.12 to 1.18 in the second and, like the fourth, serrated at the base anteriorly. Second anal spine longer and much stronger than the third, about as long as the fourth dorsal spine; third spine serrated basally. Ventral long, not quite reaching to the anal, its spine 1.60 to 1.72 in the second anal spine.

Gill-rakers 3 + 16, short and slender.

Back and upper sides pale brownish yellow, profusely ornamented with oblique darker bars and occasionally a few pyriform spots above the lateral line, and vertical bars with more or less numerous round spots between it and the median line of the sides; below this is a wider blackish band, rarely absent, having a downward curve anteriorly from above the pectorals to the peduncle; lower sides, abdomen, and breast silvery, the edges of the thorax black-dotted. Small blackish dots crowded together on the side of the snout and much more sparsely scattered over the cheeks and opercles; isthmus smoky yellow. Iris silvery, with a broad blackish border above. Fins colorless; a narrow blackish stripe along the base of the dorsal; hinder base of pectoral profusely black-dotted, but not evident as an axillary spot (*moretoniensis*, belonging to Moreton Bay).

Described from two examples, measuring 67 and 81 millim., taken by seine at Bulwer, Moreton Bay, and forwarded to the A.F.A.Q. Museum by Mr. James Palmer in May, 1909; Cat. No. 1106. During the operations of the Endeavour on the Queensland Coast this species was found to be very abundant in Moreton Bay, 149 specimens being taken in a haul off Moreton Island on the 31st July, 1910, at a depth of 9 fathoms on a muddy bottom.

BLENNIIDÆ.

SALARIAS spp.

The Queensland Museum has lately acquired from Darnley Island, through the good services of Mr. J. R. Tosh, several fine specimens of the handsome *S. fasciatus* Bloch. An examination of these forces me to the conclusion that *S. lineolatus* Alleyne and Macleay cannot be separated from Bloch's species. There were also several specimens of the very beautiful form described by the same authors as *S. irroratus*; this appears to be a valid species.

TETRAODONTIDÆ.

SPHEROIDES TUBERCULIFERUS sp. nov.

Fringe-gilled Toado.

Plate 14, fig 1.

Depth of body 3.21 to 3.33, length of head 2.72 to 3 in length of body. Greatest depth of caudal peduncle 2.09 to 2.53, width of head 1.05 to 1.13, length of snout 2.37 to 2.78, diameter of eye 3.38 to 3.57, width of interorbit 6.83 to 8.45, height of dorsal 1.87 to 2.38, of anal 2.56 to 2.77, length of caudal 1.55 to 1.78, of pectoral 1.96 to 2.11 in length of head.

Body robust and depressed, its upper profile gently and evenly rounded between the occiput and the dorsal fin; greatest depth of peduncle 1.13 to 1.28 in its greatest width and 1.68 to 1.86 in its mesial length from above the end of the anal, its least depth 1.26 to 1.47 in the eye-diameter. Depth of head 1 to 1.16 in its width, its length a little less to a little more than that of the trunk. Upper profile of snout linear or feebly convex and declivous, the mouth well below the level of the eye; chin prominent, its vertical depth 1.65 to 2 in the length of the snout. Nostrils pierced in a low papilla, rising from an ovate depression, above the rim of which it is but little perceptible. Eye rather large, not adnate to the lower lid, and encroaching considerably on the cephalic profile, its diameter 1.25 to 1.5, the concave interorbital width 2.71 to 3.5 in the length of the snout.

Skin of head and body more or less coarsely striated, of tail smooth. Dorsal surface from the occiput to the dorsal fin, throat, and abdomen armed with coarse spinules as also is a transverse band behind the base of the pectoral; upper surface and sides of head, sides of body except where stated, and entire tail unarmed. Lateral line forming a long gentle curve above the pectoral fin, between the appressed tip of which and the dorsal fin is a short but somewhat abrupt downward curve, beyond which it runs straight to the root of the caudal; an undulous connecting branch across the nape; beyond this the main line curves gently downwards to the postero-inferior angle of the eye, and crossing the free lid is continued forwards to a level with the nostril, where it forms a loop, which, skirting the nasal depression posteriorly, bends backwards and, passing entirely around the eye, crosses the main line behind the eye and is continued downwards to the lateral fold; a short subsidiary branch detaches itself from the nasal loop to pass in front of the nostril, where it ceases. Sides of head and body with a well-developed fold, which meets across the chin.

D. 10; A. 7 or 8; C. 8; P. 16.

Dorsal and anal fins subfalciform, the length of the former 2.23 to 2.5 in its height; anal originating below the last third of and much smaller than the dorsal. Caudal fin rounded, with the outer rays slightly produced. Pectoral fin evenly rounded.

Gill-opening wide, extending a little above and from .06 to .2 more than the base of the pectoral, the outer anterior edge bearing 7 or 8 fleshy tubercles, the inner flap concealed or present only as a short angular projection.

Upper surface and sides lavender-gray closely speckled with brown, the spots on the head and back much smaller than those on the sides and tail; lower surface uniform rufous white; young examples with four broad dark transverse bands, the first linear crossing the occiput, the second curved backwards between the bases of the pectorals, the third more feebly curved includes the base of the dorsal, the last straight across the peduncle; these bands grow fainter with increasing age, and in our largest example only traces of the last two remain. Fins uniform yellowish white, the caudal broadly tipped with blackish brown (*tuberculum*, a small protuberance; *fero*, I bear).

Described from three examples, measuring from 113 to 164 millim. The largest, which is in the A.F.A.Q. Museum, was obtained in Moreton Bay by Mr. J. H. Stevens, Cat. No. 1514; the smaller of the two others is in the same Museum, Cat. No. 1799, while the remaining specimen (134 millim.) is now in the State Museum, Reg. No. I. 405. The two last were forwarded from Wide Bay by Mr. Fred. Leftwich, to whom, as also to Mr. Stevens, our thanks are here tendered.

This species may be distinguished from all our other tetraodontids by the presence of the prebranchial papillæ.

TROPIDICHTHYIDÆ.

EUMYCTERIAS CALLISTERNUS Ogilby.¹

The A.F.A.Q. Museum possesses a beautiful specimen of this fish, which was given to me some ten years ago by Mr. J. R. Tosh, who had captured it at Southport.

GOBIESOCIDÆ.

LEPADICHTHYS FRENATUS Waite.²

I obtained a single specimen of this sucker adhering to the under side of a piece of loose coral on Nor-West Islet during the visit of the Endeavour in 1910. The species had previously been known only from Lord Howe Island.

¹ Mem. Austr. Mus., ii, 1889, p. 74, pl. iii, fig. 5.

² Rec. Austr. Mus., v, 1904, p. 180, pl. xxiv, fig. 2.

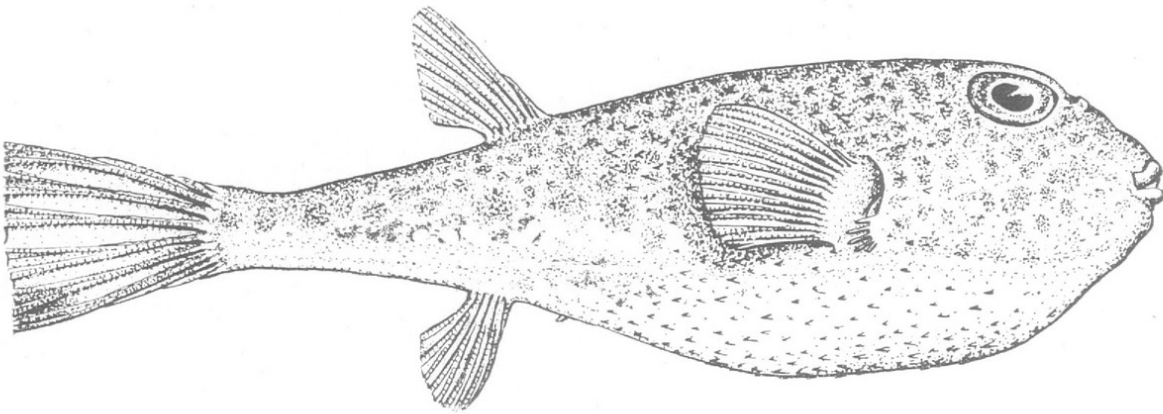


FIG. 1.—*Spheroides tuberculiferus* Ogilby. Nat. size from type.
D. B. Fry, del.

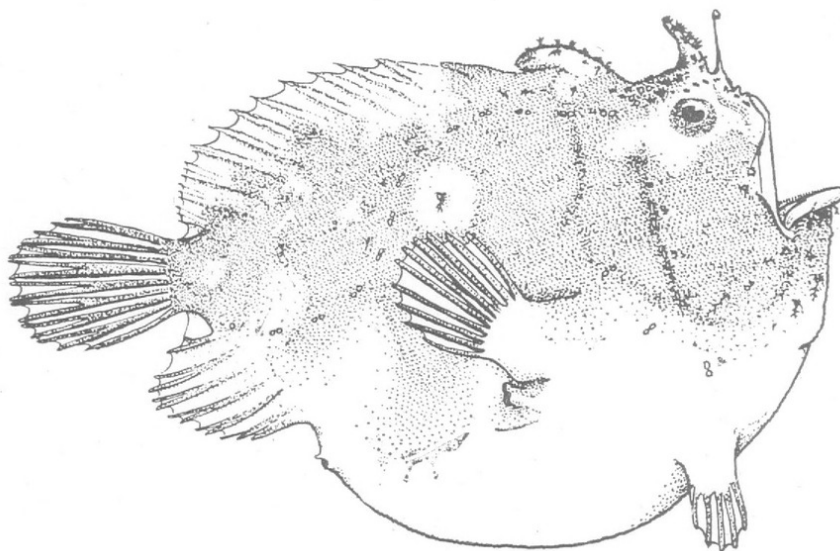


FIG. 2.—*Antennarius stigmaticus* Ogilby. Nat. size from type.
D. B. Fry, del.

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ANTENNARIIDÆ.

ANTENNARIUS STIGMATICUS sp. nov.

White-spot Angler.

Plate 14, fig. 2.

Depth of body about 1.45,¹ of caudal peduncle 8.9, width of head 2.66, length of head² 1.54, of caudal fin 4.37, of free pectoral limb 3.81, preanal length 1.2 in length of body. Width of interorbit 6.75, length of snout 7.43, of maxillary 2.88, of first dorsal spine 6.5, of third 4, of soft dorsal 1.37, of anal 2.74, of ventral 3.71 in length of head.

Habit robust. Upper profile from the tip of the snout to the origin of the soft dorsal gently rounded, its continuity broken by a deep naked transverse fossa between the second and third dorsal spines. Snout moderately declivous, its length 2.57 in that of the maxillary; eye small, its diameter 1.56 in the length of the snout and 1.72 in the convex interorbital width. Mouth vertical; distal extremity of maxillary obliquely truncated and as wide as the eye; mental tubercle moderate; a vertical groove below the eye.

Head and body covered with minute granular scales, each of which bears a bifid or trifid criniform spinule; cutaneous appendages short, more numerous on the lower surface of the head than elsewhere; each pore of the lateral line with a bifid filament.

D. iii 12; C. 9; A. 7; P. 10; V. 6.

Basal tubercle of first dorsal spine small, situated well behind the tip of the snout, the spine slender and short, terminating in a ciliated tubercle and extending when depressed to midway between the two posterior spines, its length rather more than that of the second, which is curved and mobile, clothed anteriorly with enlarged spinulose granules, not nearly reaching to the succeeding spine, and with only an inconspicuous basal membrane; third spine originating behind the eye, recumbent and immobile, not twice as long as the second, nor extending to the origin of the soft dorsal; neither of these spines possess terminal filaments. Length of soft dorsal fin 1.22 time its distance from the tip of the snout; rays gradually increasing in height to the eighth, which is the longest, 2.44 in the base of the fin; membrane of last ray reaching to the base of the caudal. Caudal rounded. Anal fin originating below the ninth dorsal ray, the outer border obtusely pointed; fourth ray longest, 1.38 in the basal length and 1.23 in the height of the soft dorsal; membrane of last ray not reaching to the base of the caudal, but the rays of both fins when depressed reach well beyond that base. Pectoral fin extending to the vertical from the vent.

¹ The stomach is so much distended that it is only possible to arrive approximately at the normal depth of the body.

² From the tip of the snout to the gill-opening.

Anal papilla moderately developed.

Coloration, after long immersion in alcohol:—Upper surface and sides dull violaceous brown, shading into yellowish white on the abdominal region; snout, lips, and a broad band through the eye to the margin of the preopercle white, the two former brown-dotted; chin and throat like the back; a large round white blotch on the middle of the side above the base of the pectoral; a dark-brown filament at the centre of the blotch. First dorsal spine white, the two others violaceous; soft dorsal white, with the anterior ray and the base pale brown; caudal, anal, ventral, and the inner surface of the pectoral fins white; outer surface of pectorals transversely barred with brown. Inner surface of mouth uniform gray.

Described from a single specimen, 98 millim. long, obtained in Moreton Bay. Type in the Queensland Museum. Reg. No. I. 363.

From the enormously distended stomach of this unique example there was taken a specimen of a *Holocentrus* measuring no less than 108 millim., that is 37 millim. more than the body of its captor not including the tail. The only signs of gastric action shown by the victim are on the head and caudal peduncle, where the bones are partly laid bare; the prey must therefore have been but recently swallowed at the time the fish was captured. When it is remembered that the *Holocentridæ* are covered with a panoply of strong close-set scales, which make it at any time a matter of difficulty to bend double one of these fishes, we shall be in a position to realise the enormous power which must have been exerted by the abdominal muscles of the *Antennarius* to enable it, after swallowing its prey, to bring the tail round to a level with the mouth; in addition one might almost be excused for believing that the long strong and erectile second anal spine of *Holocentrus*—which in this example measures 24 millim.—along with the coarse and sharply pointed armature of the head would have had a deterrent effect upon the angler.

TATHICARPUS MUSCOSUS (Ogilby.)¹

Previously known from the type specimen only, which was sent to the Queensland Museum from Port Curtis by Dr. Graham Butler; two others have been forwarded to me from Wide Bay by Mr. Fred. Leftwich, to whose collection I have twice previously had occasion to refer. One of these specimens has been retained in the A.F.A.Q. Museum, Cat. No. 1733; the second has been transferred to the State Museum, to take the place of the type, which has unaccountably disappeared.

¹ Proc. Roy. Soc. Queensl., xx, 1907 p. 22.

CERATODONTIDÆ.

NEOCERATODUS FORSTERI (Krefft).

Early in October of this year the Queensland Museum became the fortunate possessor of a beautiful specimen of the "Queensland Lung-Fish," measuring 367 millim. (about 14.45 in.). This is, so far as I know, the smallest specimen in any museum; always excepting those which were bred from the ova by Mr. Thomas Illidge. It was presented to the Museum by Dr. Thomas H. May, of Bundaberg, who reported that it was obtained in Quay street during a heavy flood. This example has some irregular and crenate black blotches along the base of the dorsal fin. There are 33 scales on the lateral line.



Ogilby, J. Douglas. 1912. "On some Queensland Fishes." *Memoirs of the Queensland Museum* 1, 26–65.

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