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SOME LITTLE KNOWN AUSTRALIAN FLAT-FISHES.

By

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(Plate xlix and Figures 1-4.)

Large collections of fishes, resulting from the operations of the Federal Investigation Trawling Ship "Endeavour," include a considerable number of flat-fishes, Heterosomata. These have been sent to Mr. J. R. Norman, of the British Museum, who has generously undertaken to examine and report upon them, and at the same time, to revise all species of the order known from Australian waters.

To assist him so far as possible, representatives of all species available to us have been submitted for his examination. A few species, however, are known from their holotypes only, no other specimens having been recognised since they were first characterised by Sir William Macleay, C. W. De Vis, and Mr. J. Douglas Ogilby. The risk of damage to, or even loss of these unique specimens forbids their transport to and from London, so we have redescribed and figured them here, and have added notes suggesting their identity with, or close relationship to other species. It is hoped that our paper will be published in time to enable Mr. Norman to refer the species to their proper places in his revision.

Family BOTHIDAE.

ENGYPROSOPON *Gunther, subg. SCAEOPS Jordan & Starks.*

Engyprosopon Gunther, Brit. Mus. Cat. Fish. iv, 1862, pp. 431, 438
(*Rhombus mogkii* Bleeker). *Id.* Hubbs, Proc. U.S. Nat. Mus.
xlvi, 1915, p. 457. *Id.* Regan, Ann. Durban Mus. ii, 5, 1920,
p. 210.

Scaeps Jordan & Starks, Bull. U.S. Fish. Com. xxii, 1904, p. 627
(*Rhombus grandisquama* Schlegel), and Proc. U.S. Nat. Mus.
xxx, 1906, p. 168.

Synonymy.—Jordan and Starks (1904) relied upon the size and nature of the scales, dentition, form of the gill-rakers, and later (1906) upon the breadth of the interorbital space to distinguish their genus *Scaeps* from *Engyprosopon*. In 1915, Hubbs united these two genera because the supposed differences in the teeth and gill-rakers

proved to be either invalid or bridged by several species which he enumerated. Regan (1920) likewise included *Scaeops* in the synonymy of *Engyprosopon*. Deciduous or adherent scales of larger or smaller size, in themselves, are unsatisfactory as differentiating characters of closely allied genera, so the width of the interorbital space alone remains to separate *Engyprosopon* and *Scaeops*. In such species as *poecilurus* Bleeker and *natalensis* Regan, the interorbital width is about midway between the extremes of *mogkii* Bleeker, and *grandisquama* Schlegel. It actually varies in the two sexes of some allied species, and changes considerably with growth. It therefore seems that all the characters of *Scaeops* merge into those of *Engyprosopon*, and the former can be maintained only as a subgenus of the latter.

ENGYPROSOPON, SCAEOPS, GRANDISQUAMA *Schlegel*.

(Figure 1.)

Rhombus grandisquama Schlegel, Faun. Japon., Pisces 1846, p. 183, pl. xcii, figs. 3-4.

Rhomboidichthys grandisquama Gunther, Brit. Mus. Cat. Fish. iv, 1862, p. 437.

Scaeops grandisquama Jordan & Starks, Proc. U.S. Nat. Mus. xxxi, 1906, p. 168, fig. 1.

Rhomboidichthys spiniceps Macleay, Proc. Linn. Soc. N.S.Wales vi, 1881, p. 127.

D. 87; A. 65; V. dex. et sin. 6; P. 11; C. 17. 43 scales on the lateral line between its origin at the shoulder-girdle and the hypural joint, and 3 or 4 more on the base of the tail.

Total length 115 mm. Head (23 mm.) 4.1 in the length to the hypural joint (95); the greatest breadth (50) is a little in advance of the middle of the length and is 1.9 in the length to the hypural joint. Upper eye (7) 3.3 in the head, and 1.2 in the interorbital width (9), which is 2.5 in the head.

Body rather broad; the anterior profile of the head rises in a steep curve from a shallow notch at its junction with the snout. A large obtuse spine near the end of the snout projects obtusely forward and upward; a similar but shorter spine is present at the antero-internal angle of each eye, and a bony knob a little behind the mandibular symphysis. Nostrils of upper side separated by a narrow interspace, and on the same level as the upper margin of the lower eye; the anterior is in a short tube with a posterior membranous flap, the posterior with scarcely raised margins; the nostrils of the lower side similar but much smaller. Eyes rather large, separated by a broad scaly interspace; their inner margins are defined by raised

bony crests, and the lower is separated from the mouth by a narrow preorbital bone. The lower eye is considerably in advance of the upper, its posterior margin being on the same level as the middle of the upper eye. Mouth oblique, maxillary terminating a little farther back than the anterior margin of the lower eye. Upper and lower premaxillaries with an outer row of somewhat enlarged teeth, which are fixed and widely spaced, and an inner row of close-set depressible teeth. (Gunther (1862), and Jordan & Starks (1906) described the teeth as uniserial, but Hubbs (1915) states that they are biserial.) Mandibles with a single row of depressible teeth on each side. Gill-opening of upper side extending upward to a point midway between the pectoral fin and the origin of the lateral line. Inferior and lower portion of the posterior preopercular margins exposed. Gill-rakers short and thick; six are present on the lower limb of the first arch of the left side, but none on the upper limb.

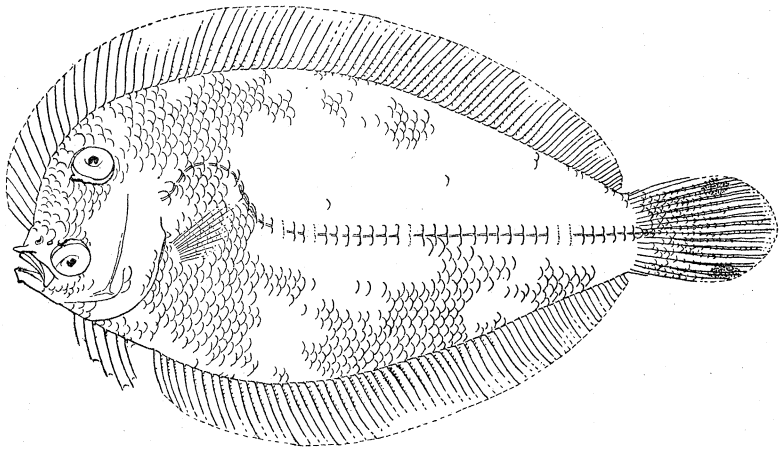


Figure 1.

Engyprosopon grandisquama Schlegel. Holotype of *Rhomboidichthys spiniceps* Macleay, 115 mm. long, from Port Jackson, New South Wales.

Upper surface of head and body entirely covered with rather large scales which appear to be cycloid, but have a larger or smaller number of microscopic cilia along their edges. They extend onto the fin-rays, but do not cover the intermediate membranes. The scales of the lower surface are cycloid. Lateral line developed on the upper side only, originating behind the shoulder-girdle and extending backward onto the caudal fin; it forms a very convex curve anteriorly, the width of which is 3.3 in the straight portion.

Dorsal fin originating on the lower surface of the snout a little in advance of the notch, and terminating a little before the hypural joint; the rays are simple and longest above the middle of the body, 2.3 in the head. Anal rays similar to those of the dorsal opposite them and terminating in advance of the hypural joint. Pectorals well developed on each side, but imperfect in the specimen described. The right ventral fin originates a trifle behind the end of the isthmus and extends along the ridge of the abdomen; the interspace between the last ventral and first anal rays is 1.4 in the diameter of the eye and is occupied by a flat bony extension of the pelvic girdle. The left ventral is much smaller than the right, its base being little more than one-third as long as that of its fellow. It springs from the under-surface of the abdomen, originating almost opposite the fifth ray and terminating behind the last ray of the right ventral. The vent is on the under-surface, a trifle before the first anal ray. Caudal rounded, most of its rays branched.

Colour.—According to Macleay, the colour was “brownish-red, faintly mottled all over with blackish, two larger black spots on the caudal fin, one on the upper, the other on the lower edge, behind the middle.” The specimen is now almost completely faded, but traces of the black mottling are visible and the caudal spots are distinct.

Described and figured from the holotype of *Rhomboidichthys spiniceps*, 115 mm. long, which is preserved in the Macleay Museum.

Synonymy.—*Rhomboidichthys spiniceps* appears to be synonymous with *Engyprosopon grandisquama*. Macleay's holotype is a trifle narrower than any of a series of twenty-eight specimens obtained by the Federal Trawler “Endeavour,” which are duplicates of others sent to Mr. Norman. In these the width varies from 1.6 to 1.8 in the length to the hypural joint, whereas it is 1.9 in Macleay's specimen. The proportions of the holotype are very similar to those of Jordan & Starks' figure of *E. grandisquama*, and as all other structural details and colour-marking are similar to those of the Japanese fish, we believe the two are identical.

Localities.—Macleay's holotype was said to have been obtained in Port Jackson, but as no other specimen has been captured so far south, it must be regarded as a mere straggler from the north. The greater number of the “Endeavour” specimens are unfortunately without data, but four are entered in the register as from northern New South Wales.

(ARNOGLOSSUS) BLEEKERI Macleay.

(Figure 2.)

Arnoglossus bleekeri Macleay, Proc. Linn. Soc. N.S.Wales vi, 1881, p. 124.

D. 93; A. 70; V. dex. et sin. 6; P. 12; C. 17. Lateral line imperfect; the number of tube-bearing scales is estimated at 51.

Total length 73 mm. Head (14 mm.) 4.5 in the length to the hypural joint (63.5); the greatest breadth (32) is a little in advance of the middle of the body, and is 1.9 in the length to the hypural joint. Interorbital space (0.5) 8 in the upper eye (4) which is 3.5 in the head.

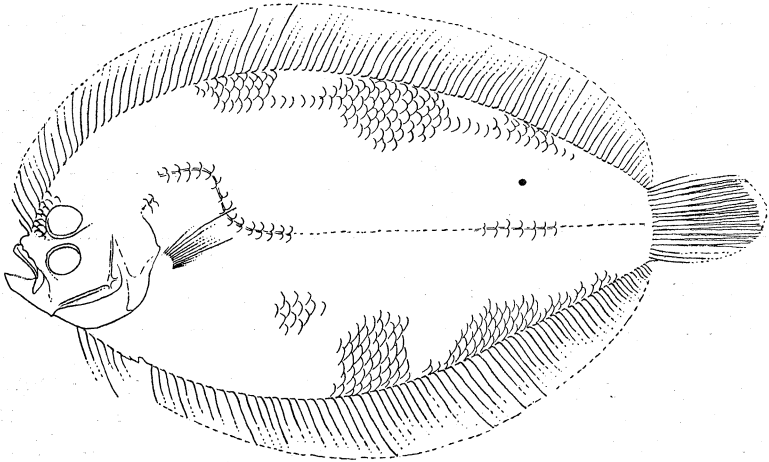


Figure 2.

Arnoglossus bleekeri Macleay. Holotype, 73 mm. long, from the Endeavour River estuary, north Queensland.

Body rather broad; the upper anterior profile forms a strongly convex arch arising from a shallow notch at its junction with the snout. The anterior nostril on the upper surface minute, with raised dermal margins; the posterior a simple opening close to the antero-superior margin of the lower eye; lower nostrils similar in position and form to the upper ones. Eyes separated by a very narrow groove; their inner and anterior margins are bony ridges, and the inner edge of the upper eye is produced obliquely backward towards the preopercular margin. The lower eye is in advance of the upper by about one-fourth of its length, and is separated from the mouth by a narrow

preorbital bone. Mouth oblique; the maxillary reaches a trifle behind the vertical of the anterior margin of the lower eye. Premaxillaries of both sides with two rows of small fixed teeth anteriorly and a single row on the sides. Mandible damaged, but the teeth appear to have formed only a single row. Gill-opening of upper side extending upward to a point a little nearer the origin of the lateral line than the pectoral fin. The lower margin and the lower portion of the posterior margin of the preoperculum free. There appear to be six gill-rakers on the lower limb of the first arch, but none on the upper; they are moderately slender, subequal in length, and about 0.5 mm. long.

Most of the scales have become detached, but the upper and lower surfaces of the head and body were evidently entirely covered by rather large cycloid scales. They apparently extended onto the fin-rays, as in allied species. Lateral line incomplete, developed on the upper side only; it forms an angular arch anteriorly, the width of which (9 mm.) is 4.4 in the remainder of its length to the hypural joint (40).

Dorsal fin originating beneath the upper margin of the snout a little in advance of the notch, and terminating a little before the hypural joint; all the rays are simple, longest above the middle of the body. Anal rays similar to those of the dorsal opposite them, and terminating a little in advance of the hypural joint. Pectorals well developed on each side, but imperfect in the specimen described. The right ventral fin originates near the end of the isthmus and extends along the ridge of the abdomen; the interspace between the last ventral and first anal rays (3 mm.) is 1.3 in the diameter of the eye, and is occupied by two flat spine-like extensions of the pelvic girdle. The left ventral is much smaller than the right, its base being little more than one-third as long as that of its fellow; it springs from the under surface near the margin of the abdomen, originating opposite the interspace between the fourth and fifth, and terminating behind the last ray of the right ventral. The vent is on the under surface close to the base of the first anal ray. Caudal incomplete, most of its rays branched.

Colour.—Macleay describes the colour as "uniform pale reddish-yellow, a spot on the upper part of the operculum." The holotype is now completely faded.

Described and figured from the holotype of *Arnoglossus bleekeri* Macleay, 73 mm. long, which is preserved in the Macleay Museum.

Locality.—Endeavour River estuary, Cooktown, Queensland.

Family PLEURONECTIDAE.*Subfamily* SAMARINAE.SAMARIS CACATUAE *Ogilby*.

(Plate xlix.)

Arnoglossus cacatuae Ogilby, New Fish. Qld. Coast, 1910, p. 130.

D. 13/73; A. 59; P. 4; V. 5; C. 16. 63 scales above the lateral line from its anterior branch to the hypural joint; about 20 rows between the back and the lateral line at the widest part, and about 22 more to the ventral edge.

Head (26 mm.) 5.1 in the length to the hypural joint (134). Depth (53) 2.5 in the same. Lower eye (7) longer than its distance from the end of the snout. Sixth dorsal ray (94) 1.4 in the length to the hypural joint. Pectoral fin (32) 4.2, first ventral ray (32) 4.2, and caudal (36) 3.7 in the same.

A notch before the middle of the upper eye on the anterior profile marks the commencement of the dorsal fin. A free membranous flap commences on the base of the first ray and extends around the lower surface of the head to the angular prominence of the lower jaw. Mouth somewhat asymmetrical, the upper maxillary larger than the lower and reaching backward to below the anterior portion of the lower eye; it is somewhat expanded above and terminates in a rounded lobe. Mandible projecting a little beyond the upper jaw. A band of villiform teeth in each jaw which is as well developed above as below. Palate apparently toothless. Upper nostrils in two divergent tubes overhanging the upper lip. Interorbital space narrow, with a median bony ridge; the upper eye a little in advance of the lower. Preoperculum forming an obtuse angle, only the posterior portion of its margin free. Operculum extending backward as a rounded lobe. Gill rakers very short and broad.

Lateral line almost straight from above the preoperculum to the base of the tail. Body entirely covered with ctenoid scales, which extend forward almost to the level of the anterior margins of the eyes and onto the interorbital space; they extend over the bases of the caudal rays, but leave the other fins naked. Scales of lower surface cycloid. Vent a large opening before the anal fin.

The anterior thirteen dorsal rays are greatly elongate, and are connected by membrane only at their bases; the sixth to tenth are longest. The succeeding rays increase gradually in length backward to the 64th, after which they become suddenly and abruptly shorter.

A membrane connects the 66th with the base of the tail, and covers the bases of the posterior dorsal rays. Anal without prolonged rays, similar in form to the major part of the dorsal and with a similar membrane posteriorly. Ventrals somewhat asymmetrical, the upper extending along the ridge of the abdomen and connected with the anterior anal ray by membrane; its anterior ray is free, elongate, and terminates in a racquet-shaped appendage; the succeeding rays are united by membrane, and the second to fourth have racquet-shaped tips. The left ventral is formed of five rays, of which the median are longest, and a membrane unites the last with the anterior edge of the vent. Upper pectoral elongate, composed of four simple rays, the two upper of which are curved at their tips; no pectoral fin on the blind side. Caudal rays simple, the median longest.

Colour.—Light brown in preservative with a row of five dark, circular spots extending around the back, four around the ventral surface, and three below the lateral line; in addition, there are many scattered dark flecks which coalesce to form irregular markings on the body and head. Dorsal, anal and caudal fins with oblique, greyish-brown bars tending to form angular markings; the filamentous anterior dorsal rays are white. Pectoral with a black ocellus on its distal portion, and irregular greyish-brown crossbands. Ventral rays with brown bars, which are most pronounced on their terminal expansions. According to Ogilby, the general colour was lavender when the fish was fresh.

Described and figured from the unique holotype of the species, 171 mm. long.

Our description differs in several details, such as fin-counts and proportions, from that prepared by Ogilby on board the "Endeavour," but we have checked the discrepancies by reference to the holotype. Ogilby's work upon the ship was carried out under great difficulty, which doubtless accounts for numerous inaccuracies occurring in his various descriptions prepared at that time, and which were later published without further examination of the specimens described.

Affinities.—This species has no resemblance to the genus *Arnoglossus*, in which it was placed by Ogilby, but is referable to *Samaris*. It is very similar to both *S. cristatus* Gray, from Chinese and Indian seas, and *S. ornatus* Bonde, from Natal, but is best maintained as a distinct species until its true status can be determined by a comparison with specimens from those localities.

Locality.—20 miles N.E. of Gloucester Head, Queensland, 35 fathoms. The locality given by Ogilby as 21 miles S. 62° W. from Capt. Gloucester, 26 fathoms, is obviously incorrect, that position being upon the land.

Family CYNOGLOSSIDÆ.

RHINOPLAGUSIA JAPONICA Schlegel.

(Figure 3.)

Plagusia japonica Schlegel, Fauna Japonica, Pisces, 1846, p. 187, pl. xcv, fig. 2. *Id.* Gunther, Brit. Mus. Cat. Fish. iv, 1862, p. 492. *Id.* Klunzinger, Sitzb. Akad. Wiss. Wien lxxx.i, 1879, p. 409.

Usinosita japonica Jordan & Starks, Proc. U.S. Nat. Mus. xxxi, 1906, p. 236 (Synonymy and references).

Plagusia guttata Macleay, Proc. Linn. Soc. N.S.Wales ii, 1878, p. 362, pl. x, fig. 3, and *Op. cit.* vi, 1881, p. 137.

Plagusia notata De Vis, Proc. Linn. Soc. N.S.Wales viii. 2, 1883, p. 288. *Id.* Kent, Proc. Roy. Soc. Qld. vi, 1889, p. 240.

D.107; A.84; V.4; C.8. Lateral line, from its junction with the lines on the head to the hypural joint, 96.

Total length, including the rostral membrane, 100 mm. Breadth of the body at the origin of the anal fin, and exclusive of membranes covering the bases of the dorsal and anal fins (25 mm.), 3.7 in the length to the base of the tail (94.5). Head (24) a trifle less than the breadth of the body, and 3.9 in the length.

Eyes small, the upper considerably in advance of the lower, and separated by a flat scaly interspace of which the width is a little less than the diameter of the eye; lower eye separated from the mouth only by a narrow bony ridge, its anterior margin below the hinder third of the upper eye. Head entirely scaly. Lips with very small dermal tentacles and lobes on the upper side; lips of lower side without them. Posterior angle of the mouth-opening a little behind the middle of the lower eye; the mouth is almost straight on the upper side, and without teeth, but on the lower it is considerably arched and there is a band of villiform teeth on each jaw, those of the mandible largest. Rostral hook extending backward a little beyond the vertical of the angle of the mouth; it has a membranous border, which is as wide as the eye anteriorly, but tapers to the end of the rostral hook below, and merges into a membrane which covers the base of the dorsal fin on the upper side. A short tube close to the edge of the mouth and a little in advance of the lower eye is the opening of the only nostril on the upper side; a larger tube is in a corresponding position on the lower side, and is followed by the simple opening of the posterior nostril.

Entire upper surface covered with ctenoid scales, which extend onto the membranous border of the rostral hook and on that covering the bases of the dorsal and anal fins on the upper side; the scales on the lower surface of the head are cycloid anteriorly, but they develop microscopic teeth at their tips in increasing numbers as they extend backwards, though the denticles are never so numerous on the lower as on the upper side. Three lateral lines are present on the upper surface; one near the dorsal line, another near the ventral, and the third along the middle of the side, all reaching the base of the tail. The lower surface of the body is without lateral lines. Upper surface of head with a complex system arranged as shown in the accompanying figure, but on the lower side a few rudimentary lines may be present or absent.

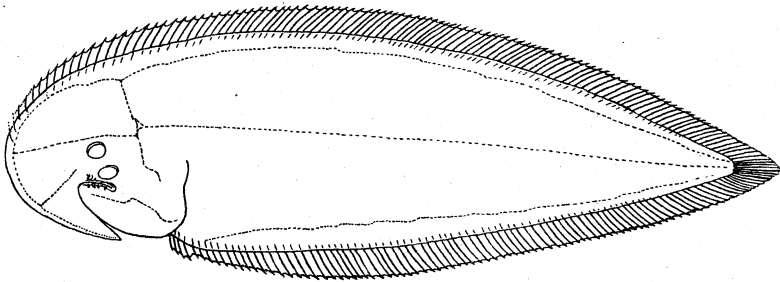


Figure 3.

Rhinoplagusia japonica Schlegel. Lectotype of *Plagusia guttata* Macleay, 100 mm. long, from Port Darwin, north Australia.

First dorsal ray arising in the rostral membrane at about the same level as the upper edge of the upper eye; the rays are simple, longest above the middle of the body, and a little more than one-fourth as long as the head. Anal rays similar to those of the dorsal opposite them; dorsal and anal united with the caudal. No pectoral fins. Only one ventral fin, which is on the ridge of the abdomen; its fourth ray is longest, 5.0 in the head, and united with the first anal ray by membrane. Vent near the base of the first anal ray, but on the lower surface. Caudal rays simple, 4.3 in the head.

Colour.—The specimen described above, which is a co-type, is completely faded and all traces of colour-marking have disappeared. A smaller co-type exhibits a number of light coloured spots on the head and body, some of which are larger than the eye. Three small specimens collected by the senior author at Cooktown, north Queensland, are light greyish-brown all over, and mottled with light rounded spots plentifully disposed over the head and body; the fins are speckled with greyish-brown streaks upon the rays.

Described and figured from one of the co-types, 100 mm. long, and preserved in the Macleay Museum, from Port Darwin.

Lectotype.—It might be considered that the choice of a lectotype for redescription and figuring should fall upon a co-type of the same size as the original figure, which is said to be of natural size. One specimen, 82 mm. long, almost exactly equals the length of the figure, but it is not so well preserved as the larger one, which we have chosen.

Variation.—Ten specimens, 72-196 mm. long, exhibit but little variation. Their fin- and scale-counts are as follow:—D.107-8, A.84, V.4, C.8; 90-96 scales on the lateral line between its junction with the transverse line above the operculum and the hypural joint.

Synonymy.—The identity of *R. guttata* Macleay and *R. japonica* Schlegel was recognised by Klunzinger in 1879. We have examined the five co-types of *guttata* from Port Darwin, which are preserved in the Macleay Museum, and several larger ones in the Australian Museum from Port Darwin and Moreton Bay. We have compared these with Jordan and Starks' description of *japonica*, and find that it applies to our specimens so well that we follow Klunzinger in uniting *guttata* with *japonica*.

The type of *Plagusia notata* De Vis was obtained in Moreton Bay, and we are fortunate in having a specimen, 196 mm. long, in the Australian Museum collection from the same locality. It agrees well with De Vis' brief description in all essential details, and it is evidently referable to his species. A critical comparison of this specimen with our largest Port Darwin representative of *guttata* fails to reveal any specific differences between them, so we are led to the conclusion that *notata* De Vis is synonymous with *guttata* Macleay, and that both are synonymous with *japonica* Schlegel.

Localities.—Port Darwin, Northern Territory; co-types of *Plagusia guttata*; Macleay Museum collection.

Port Darwin; coll. Christie & Godfrey, 1902; Aust. Mus. coll.

Endeavour River, Cooktown (Macleay Museum).

Finche's Bay, Cooktown, Queensland; coll. A. R. McCulloch, June, 1918; Aust. Mus. coll.

Moreton Bay, Queensland; Australian Museum collection.

PARAPLAGUSIA UNICOLOR *Macleay*.

(Figure 4.)

Plagusia unicolor Macleay, Proc. Linn. Soc. N.S.Wales vi. 1, 1881, p. 138, and vii, 1882, p. 13. *Id.* Ogilby, Ed. Fish. N.S.Wales, 1893, p. 163.

Symphurus unicolor Waite, Mem. N.S.Wales Nat. Club ii, 1904, p. 44. *Id.* Stead, Ed. Fish. N.S.Wales, 1908, p. 107, pl. lxxiv.

Paraplagusia unicolor McCulloch, Austr. Zoologist ii.2, 1921, p. 37. *Id.* Lord, Proc. Roy. Soc. Tasm. 1922 (1923), p. 66.

D.113; A.87; V.4; C.8. Median lateral line, from its junction with the other branches above the operculum to the hypural joint, 96.

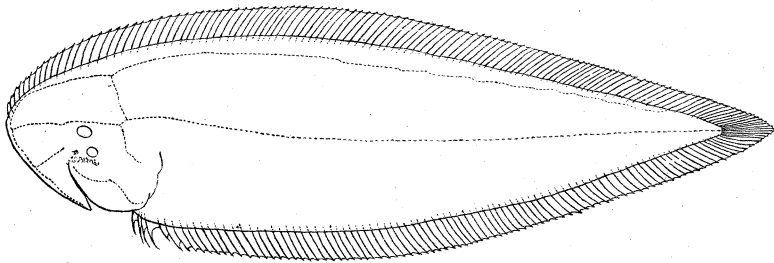


Figure 4.

Paraplagusia unicolor Macl. Co-type, 129 mm. long, from Port Jackson, New South Wales.

Total length, 129 mm. Breadth of the body at about the middle of its length (31 mm.) 3.8 in the length to the hypural (119); head (27) 4.4 in the same. Eye (2.25) a little greater than the breadth of the interocular space (1.5). Snout from the level of the anterior angle of the mouth to the tip (11) 2.4 in the head.

Eyes small, the upper in advance of the lower by about two-thirds of its length; interorbital space scaly, lower eye separated from the mouth by a narrow bony ridge. Lips of the upper side with a row of conspicuous fringes; no fringes on the under side. Posterior angle of the mouth below the hinder margin of the lower eye; mouth almost straight above and without teeth, but on the lower side it is considerably arched, and there is a band of villiform teeth in each jaw. Rostral hook extending backward to a vertical a little in advance of the posterior angle of the mouth. Nostril of the upper side in a short tube, and situated near the mouth a little in advance of the lower eye; lower anterior nostril in a tube placed a little in advance of the mouth, the posterior a simple opening.

The whole surface of the head and body is covered with strongly ctenoid scales, which extend onto the membranous border of the rostral hook and on that covering the bases of the dorsal and anal fins on the upper side; the median caudal rays also are scaly, but the rest of the fins are naked. Most of the scales on the lower side are also ctenoid, only a few on the anterior part of the head being cycloid. Upper side of the body with two lateral lines, one near the dorsal edge and the other along the middle of the side; a complex system of lines on the upper surface of the head; lower side without lateral lines.

First dorsal ray arising at the extreme tip of the snout; the rays are simple, longest above the middle of the body, and about one-fourth as long as the head. Anal rays similar to those of the dorsal opposite them; dorsal and anal united with the caudal. No pectoral fins. Only one ventral fin which is on the ridge of the abdomen; the fourth ventral ray is longest, 4.5 in the head. Vent near the base of the first anal ray on the lower surface. Caudal rays simple.

Colour.—According to Macleay, the colour is light yellowish-brown, indistinctly mottled with ashy-grey; the specimen is now completely bleached.

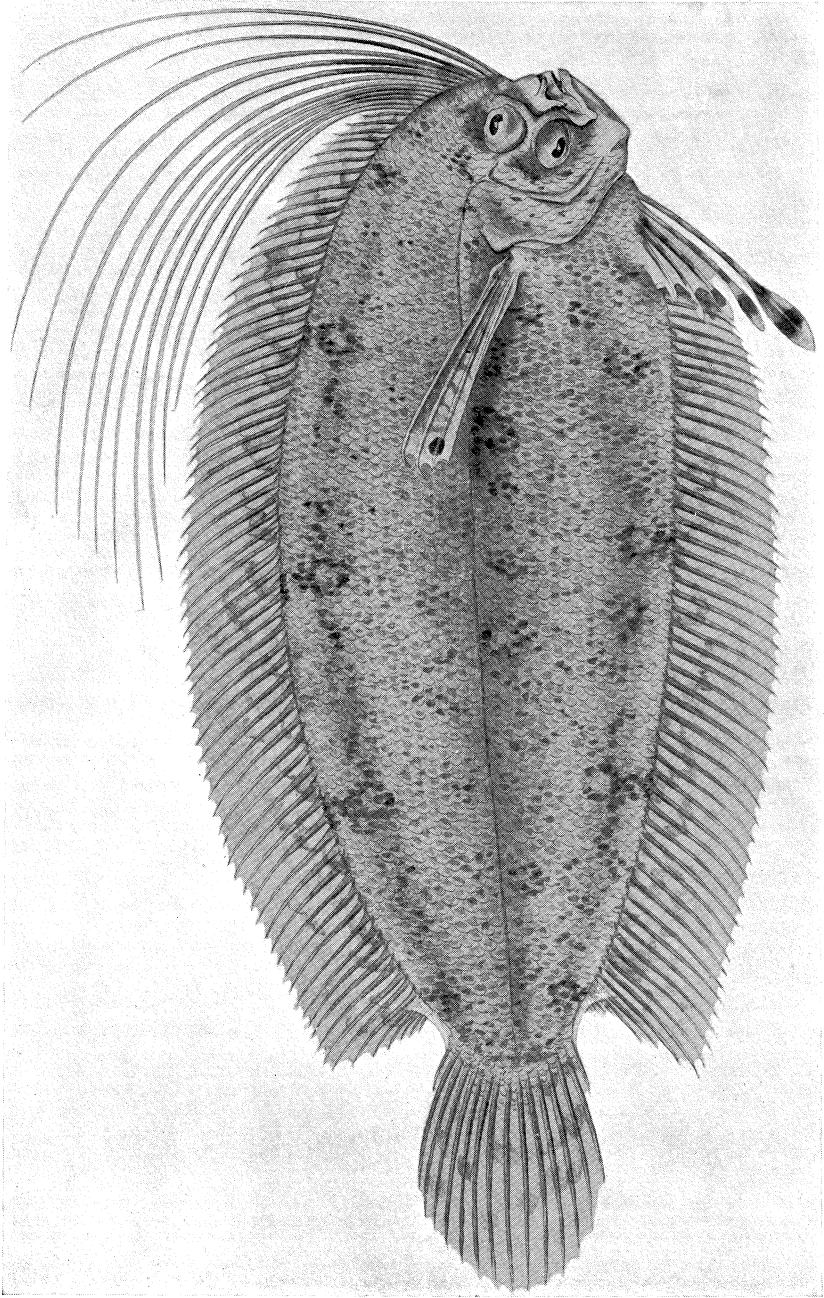
Described and figured from one of the co-types, 129 mm. long, and preserved in the Macleay Museum, from Port Jackson.

The bottle of type specimens in the Macleay Museum contains five specimens, 129-286 mm. in length. The specimen from which the original description was made was said to be six inches long, but none of these are quite that length. Two are 158-164 mm. long, but are rather badly preserved, so we have redescribed and figured the smallest of the series, which is in good condition and does not offer any marked variation from the larger specimens.

Locality.—Port Jackson. According to Ogilby (1893), this species has been recognised from Lord Howe Island and from Queensland, but both these records are unreliable. Lord's (1923) record of its occurrence on the north-east coast of Tasmania is equally unsatisfactory.

EXPLANATION OF PLATE XLIX.

Samaris cacatuae Ogilby. Holotype of *Arnoglossus cacatuae*, 171 mm.
long, from N.E. of Gloucester Head.



A. R. McCulloch, del.