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The collection comprised twenty-four specimens, referable to eleven species, all except two new to the Australian Museum collections, and two of the species are evidently new to science. The catfish *Copidoglanis gjellerupi* was taken in both Gaimardian and Leichhardtian watersheds, but all the other species were Gaimardian and most of them belonged to forms already named from the Sepik River system or Lake Sentani. The occurrence of the freshwater eel *Anguilla interioris* in a southward-flowing river is of interest as no Anguillidae are so far known from the Gulf of Papua.

It is hoped that further collections will be made from inland waters of New Guinea and Papua as series of specimens are needed to study variation and to plot the distribution of the species (at present puzzling) in clearer detail.

The freshwater fishes of New Guinea were listed amongst many others in *The Fishes of Oceania*, by H. W. Fowler (1928 and supplements, 1931, 1934 and 1949). No separate list of them has been published: my colleague Mr. Ian Munro, of Cronulla, has a manuscript catalogue which he is preparing with a view to publication elsewhere.

Our knowledge of the freshwater fauna of New Guinea is of such recent growth that, not only is the list of references at the end of this paper practically a comprehensive bibliography of the subject, but the present writer has met many of the men who collected in the wilds there, from Professor L. F. de Beaufort, of Amsterdam, who was with the Dutch expedition to New Guinea in 1903, and visiting European and American naturalists, to the present-day patrol officers who are still opening up new country. Several American and European collectors and naturalists may have taken fishes from the Wahgi Valley to overseas museums. Trout were introduced into the valley by Sir Edward Hallstrom in 1949, and *Tilapia* on private property in 1955.

I am grateful to Mr. Ederic Slater for his photograph (Plate 2), taken from a freshly caught specimen, of the "Jimmi River Fish", *Hemipimelodus*.

A descriptive catalogue of the Australian Museum's series of fishes is as follows:—

Family ANGUILLIDAE.

Genus *Anguilla* Shaw, 1803.

Anguilla interioris Whitley.

Anguilla interioris Whitley, 1938: 224 & 233, fig. 1. Gumanj River, New Guinea. *Id.* Ege, 1939; 10-245, pl. i, fig. 2 and text figs. 5, 7, 8, 42-53 (Humboldt Bay, Upper Purari River and Dinawa, Owen Stanley Range). *Id.* Jespersen, 1942: 18 et seq.

Muraena interioris Fowler, 1949; 43.

One (Australian Museum registered No. IB. 3353). *Locality* 4 (see list p. 23), a limestone creek flowing into the Jimmi River; 22 vii, 1954.

Length 2 ft 8½ in.

Coloration mottled. No white edge to caudal, though dorsal is so edged anteriorly; anterior portions of anal cream.

Family PLOTOSIDAE.

Genus *Copidoglanis* Gunther, 1864.

Copidoglanis gjellerupi Weber.

Copidoglanis gjellerupi Weber, 1913; 525, 528, 530, 604 & 607. Kaiserin Augusta River, German New Guinea [now the Sepik]. *Id.* Hase, 1914: 539. *Id.* Weber & Beaufort, 1913, 2: 237, figs. 11-12.

Copidoglanis papuensis Hase, 1914; 540, figs. 11-12. Sepik River.

B.S. Di, 7. Caudodorsal more than 50. C. 8 to 10. A c. 78 to 86. P.i, 12 or 13. V. 13. C + D + A circa 140 to 146.

Head (36 to 45 mm) 5.0 to 5.1, depth (30 to 35) 6.3 to 6.7 in total length (180 to 230). Eye (5) 7.2 to 9 in head, 3.2 to 4.6 in snout (16 to 23 mm) and 2 to 3 in interorbital (10 to 15) which is 3 to 3.6 in head.

Head as deep as broad or slightly broader than deep, its breadth about 1½ in its length. Eye situated rather high, mostly in posterior half of head, its margin free. Interorbital convex. Lips thick with partly laminated papillae. Nasal barbel reaching to front or middle of eye. Anterior nostril above upper lip. Mouth wider than interorbital. Lower jaw the

shorter. Maxillary barbel reaching beyond eye. Mandibular barbels reaching base of pectorals or almost so. Mental barbels shorter. Maxillary teeth conic to molariform, brown, in two oval patches, each twice as broad as long. Vomerine teeth similar, in a broad crescentic patch. Mandibular teeth molar or peg-like, in two rounded patches, tapering laterally. Nineteen gill-rakers on lower limb of first branchial arch, the free membrane of whose inner border is regular, not crenulated or thrown up into loops.

Dorsal profile slightly convex from origin of dorsal fin to eye, slightly concave from above eye to snout. Lateral line conspicuous. No axillary pore. No dendritic organ. Preanal length about $2\frac{1}{2}$ in total.

Height of dorsal fin (23 to 29 mm). 1.3 to 1.7 in head, its hind border straight, its origin much nearer base of pectorals than that of ventrals. Dorsal spine little shorter than longest rays, flexible distally, more than half depth of body. Height of anterior part of anal less than half length of head. Caudal more or less than half head.

The first visible procurrent caudal rays emerge above middle of anal from a low fat pad which begins about above the anterior fifth (or sixth in IB. 3340) of anal base.

Ventrals rounded, reaching anal, slightly less than half head. Pectorals reaching ventrals, more than three-quarters head (shorter in IB. 3340); P. spine flexible distally. Body anteriorly with slender papillae, smaller and more spaced posteriorly and over top of head.

Dark-grey to brown. Lips and lower surface whitish. Described from four specimens, 180 to 230 mm long. Australian Museum regd. Nos. IB. 3333, 3340, 3355 and 3356.

Localities: 2. (IB. 3355-6), 4 (3340) and 5 (3333).

Family TACHYSURIDAE.

Genus *Hemipimelodus* Bleeker, 1858.

Hemipimelodus Bleeker, 1858: 28 and 236. Logotype, *Pimelodus borneensis* Bleeker, 1851, from Banjarmassin, Borneo.

Pachyula Ogilby, 1898: 33. Orthotype, *Hemipimelodus crassilabris* Ramsay & Ogilby, 1886. Not *Pachyulus* Berlese, 1883, a genus of Myriapoda.

Pachyula is considered to be a subgenus, distinguished from typical *Hemipimelodus* by having the lips thick, the upper produced posteriorly in a wide lobe; adipose dorsal fin partly in advance of anal.

Hemipimelodus velutinus Weber.

(Plate 2.)

Hemipimelodus velutinus Weber, 1908: 205-207, 210, 215 & 225. Lake Sentani and rivers of northern New Guinea. *Id.* Weber, 1913: 549, 551, 604 & 608, fig. 26. *Id.* Weber & Beaufort, 1913: 325, fig. 141. *Id.* Fowler, 1928: 62.

Hemipimelodus papillifer Herre, 1935: 390 and 1936: 441, fig. 44. Sepik River. Syn. nov.

? *Hemipimelodus bernhardi* Nichols, 1940: 3. Idenburg River, Dutch New Guinea. D.i,6; A.ii,17; P.i,12; V.i,5; C.13 branched rays. Head (110 mm) 3.3, depth (80) 4.5 in standard length (365). Eye (14) 3 in snout (44) or 4 in interorbital (55).

Breadth of head, 81 mm. Width of mouth-opening, 34. Height of dorsal fin, 81; of anal, 50. Postorbital, 59. Ventrals, 58 to 61 mm long. Pectoral length, 94. Depth of caudal peduncle, 27.

Snout rounded. Head covered by skin. Casque granulated. Occipital process keeled, granulated. Median fontanelle does not extend to occipital process. Eyes small, orbital margins mostly free but lower portion of left eye adnate; they are not quite lateral and are in anterior half of head. Interorbital convex. Nostrils on each side close together, separated by a valve, without barbel; both above a line connecting middle of eye and point of snout. Maxillary barbels reaching gill-opening and base of pectoral. Mandibular barbels short, the outer ones surpass gill-membranes. Mouth narrow, not reaching eye, rounded; when closed only the posterior part of the maxillary band of teeth is covered. A thick fold around lips at angles of mouth but lip not produced posteriorly. A broad patch of villiform teeth on each jaw, continued across symphysis above, but with a symphyseal gap below. No incisor-like teeth. Vomer slightly roughened. No palatine teeth. Gill-membranes free from isthmus at their posterior margin, connected with it anteriolaterally. Gill-rakers about 10 on lower limb of first branchial arch.

Humeral process weakly granulated. No axillary pore. Vent between middle of ventral fins. Dorsal fin with rounded tip, its origin nearer pectorals than ventrals, its spine granular anteriorly and without posterior serration. Adipose dorsal well developed, situated above anal fin, its base subequal to that of first dorsal. Pectoral long and pointed above, excavated at middle of margin (the right pectoral fin has healed after injury and is not normal). Pectoral spine similar to dorsal spine. Ventrals long, reaching anal. Caudal forked, outer rays three times length of inner ones, lobes pointed.

Colour, in alcohol, dark-grey above. Yellowish-white on front of snout and ventral surfaces. Ventral and caudal fins with brownish tinge, anal dark-grey.

Described and figured from a gutted specimen, Australian Museum regd. No. IB. 3354, 365 mm in standard length and 1 ft 5.7 in. in total length. This is larger than specimens hitherto described so that the slight differences noted are evidently due to growth.

Locality No. 4; 23 vii, 1954.

Family MELANOTAENIDAE.

Genus *Rhombosoma* Regan, 1914b.

Rhombosoma affinis (Weber).

Rhombatractus affinis Weber, 1909: 234, pl. xi, fig. 5. Sentani Lake and Wagani River, New Guinea. Wrongly synonymised with *R. goldiei* Macleay, 1883, by later authors.

Rhombosoma sepikensis Herre, 1935: 400, and 1936: 445, fig. 47. Sepik River, New Guinea.

Rhombosoma affinis Whitley, 1938: 233 and 1939: 270 (Bulolo goldfields. Synonymy).

General characters as described by Herre (1935: 400 and 1936 445, fig. 47) but with anal origin farther back.

D.i, 4 (in one case iv) /i, 16 to 17; A.i, 20 to 22; P.i, 12 to 13. Sc. 32 to 37. Tr. 9 to 11. Predors. 14 to 16.

Head 3.4 to 3.7, depth 3 to 3.4 in standard length. Eye 3.7 to 4.1, interorbital 2.4 to 4.3 in head. Snout shorter than maxillary and generally shorter than eye-diameter. Three rows of cheek-scales. About 16 gill-rakers on lower limb of first gill-arch. Lower jaw included. Premaxillary broad and strong before snout. Cleft of mouth strongly bent. Bands of teeth extending over lips. Scale-edges crenulate. Spine of first dorsal fin much longer than that of anal. Origin of anal below posterior part of spinous dorsal or below interdorsal space. First anal spine short and stout. Pectorals shorter than head without snout.

General colour in alcohol yellowish. Back mostly brown. A dark-brown band from snout through eye to tail-base, an incomplete second brown band along the scale-row level with lower part of caudal peduncle. Fins infuscated brownish. Anterior part of dorsal fin dusky, posterior part white. Anal fin slaty, darker basally.

Described from five specimens (Australian Museum regd. Nos. IB. 3344, 3346 to 3349), 75 to 104 mm in standard length.

Locality No. 4, 21 vii, 1954. The Australian Museum has some smaller examples from the Bulolo goldfields.

Genus *Anisocentrus* Regan, 1914b.

Anisocentrus campsi, sp. nov.

(Figure 1.)

D.i, 5/i, 14; A.i, 23; P.i, 13; V.i., 5. C.15 branched. Sc. 39 to hypural. Tr. 10. Predorsal 18.

Head (14 mm) 4, depth (15) 3.7 in standard length (56). Snout (4) less than eye (5) which is 2.8 in head and equal to the maxillary, interorbital, and depth of caudal peduncle (5). Length of caudal peduncle from end of anal (9 mm), length of pectoral (10) equal to head without snout.

General facies of a young melanotaeniid. Three rows of cheek-scales. Jaws subequal anteriorly or lower jaw included, upper lip terminal. Mouth rather small, its cleft straight, oblique. A single outer marginal row of teeth in each jaw. A single series of splayed, spaced, enlarged teeth around outside of lower jaw. Some teeth (not splayed) exterior to marginal row outside upper jaw. An interspace between inner and outer series of teeth of lower jaw. Vomer toothed, palatines not.

Body compressed. Scales large, regular, very slightly crenulate. Caudal peduncle longer than deep. Anterior dorsal and anal rays much longer than posterior ones. Length of pectoral shorter than or equal to that of head without snout, its lower rays very short. Origin of anal below first dorsal fin. Caudal with procurrent spines.

General colour in alcohol light yellow, with brownish edges to dorsal scales and a dusky lateral band. Eye blue. Paired fins plain, others infuscated. Anal fin light with blackish edge.

Described from the holotype (Australian Museum regd. No. IB 3337), a specimen 56 mm in standard length or 69 mm (2.7 in) overall. A smaller paratype (IB. 3342), 50 mm in standard length, shows only slight variation, as follows:—

D.i, 5/i, 13; P.i, 12. Head and depth each 3.8 in standard length. Snout (4 mm) equal to eye and interorbital, 3.2 in head; less than maxillary (4.5) which equals depth of caudal peduncle. Pectoral (8) less than head without snout (9.5).

Locality.—A small creek flowing into the middle Jimmi River (33 miles, 6° E. of N.E. of Mount Hagen airstrip; altitude 1,200 ft). New Guinea; 21 vii, 1954. Coll. E. Troughton and N. Camps.

The new species differs from the type-species and the only other one known (*Anisocentrus rubrostriatus* Regan, 1914b, non *Nematocentris rubrostriatus* Ramsay & Ogilby, 1886 = *A. dumasi* Weber, 1907) as keyed: A. Depth $2\frac{1}{2}$ to 3 in standard length. Sc. 33 to 36.A.i, 18 to 21. Body and vertical fins striped or spotted . . . *A. dumasi*. AA. Depth 3.7 to 3.8 in length. Sc. 39. A.i, 23 or 24. Coloration plain with median dusky band . . . *A. campsi*, nov.

Named in honour of Mr. Norman Camps, formerly a member of the staff of the Australian Museum, who collected fishes from the Jimmi River when associated with Mr. E. Troughton.

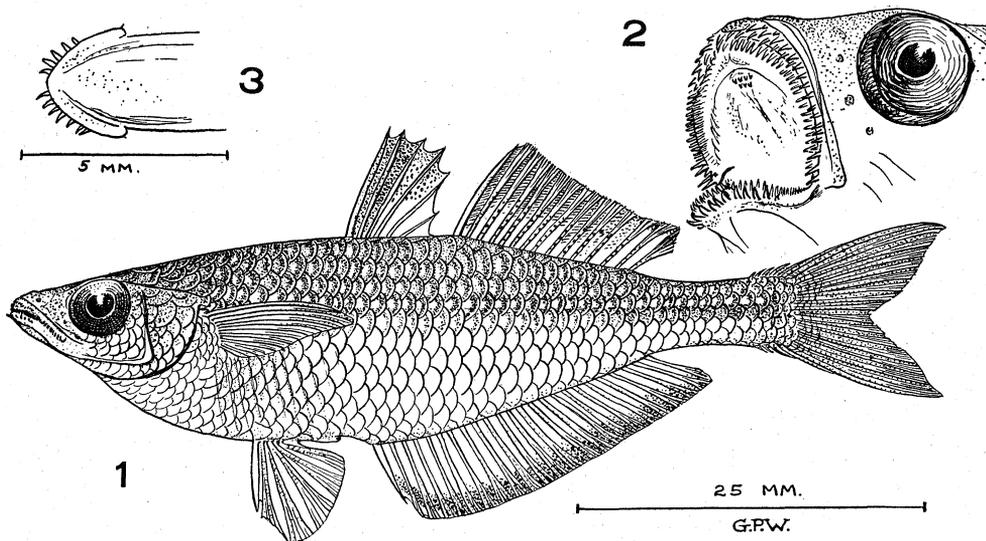


Figure 1.

Freshwater Sunfish, *Anisocentrus campsi* Whitley: 1. Holotype (Aust. Mus. regd. No. IB. 3337); 2. Dentition of paratype (IB. 3342); 3. Ventral view of lower jaw and outer teeth.

G. P. Whitley, del.

Family TERAPONIDAE.

Genus *Terapon* Cuvier, 1816, sensu lato.

Terapon sp. juv.

Three small specimens, 16 to 28 mm long, from the Jimmi River, 1,200 ft, 33 miles N.E. of Mount Hagen airstrip, New Guinea (*Locality* No. 4), are too juvenile for satisfactory identification. An attempt was made to transport these alive by air but the fishes died.

Family APOGONIDAE.

Genus *Apogon* Lacépède, 1802, sensu lato.*Apogon abo* Herre.*Apogon abo* Herre, 1935: 402 and 1936: 447, fig. 48. Sepik (type) and Kerama Rivers.

Three (IB. 3334-5 and 3338), 39 to 105 mm. in standard length, from middle Jimmi River, 20 vii 1954. The characteristic oblique bands are faint in young specimens.

Family GOBIOMORIDAE.

Genus *Mogurnda* Gill, 1863.*Mogurnda bloodi*, sp. n.

D.vii/i, 11; A. 12; V.i, 5; Sc. 40 between head and hypural joint. Tr. 19. Predorsal 27. 13 scale-rows between dorsal and anal rays.

Head (40.5 mm) 2.8, depth (32) 3.6 in standard length (116). Eye (6) 7, interorbital (16) 2.5, snout (12) 3.3, maxillary (15) 2.7, pectoral (25) 1.6, depth of caudal peduncle (19) 2.1 in head.

Head bulbous, broad as deep. Mouth reaching below front of eye. Lower jaw projecting. Bands of coarse villiform teeth in jaws; tongue broadly rounded. Scales of top of head reach forward to level of posterior nostrils. Mucous system inconspicuous, consisting of small papillae, most discrete in a band along supraciliary grooves. Margin of preoperculum without spine, scaly. Gill-opening not reaching forward to level of eye. Scales etenoid. Body thick, robust, compressed posteriorly. Dorsal fins well separated, longest ray equals pectoral. Dorsal and anal lobes pointed. Other fins rounded. Ventrals not reaching vent.

Colour in alcohol:—Muddy-grey to dark-brown on top of head, back and most of sides, becoming dull-cream below, the lighter colour mounting the sides in places and forming about seven pale median blotches. No conspicuous dark spots on top of head. Two indistinct brown oblique bars from the blue eye across the creamy-yellow cheek. Dark-brown blotch at hypural joint. Fins dusky-grey or brownish; superior edges of dorsal fins white; pectoral axil light cream; caudal with some dark-brown spots. Anal papilla grey.

Locality.—No. 4, 21 vii 1954.Described from the holotype of the species (Australian Museum regd. No. IB. 3345), a specimen 116 mm in standard length or 5.8 in. overall. It is near the type-species, *M. mogurnda* (Richardson, 1844), but distinguished mainly by the high number of predorsal scales. Twenty-seven in this one, 15 to 24 in Australian *M. mogurnda* and 14 to 17 in southern Papua examples. Named after Captain Ned B. Blood, noted New Guinea naturalist.Differs from *M. aurifodinae* Whitley, 1938 and 1939 (types compared directly), from Bulolo goldfields, in having fewer fin-rays and more predorsal scales and in proportions.*M. variegata* Nichols, 1951, of which the Australian Museum has a specimen collected by Mr. P. Hinds at the type-locality (Lake Kutubu), has more pointed head and conspicuously banded coloration; the colours of our specimen, when fresh, were as follows:

Creamy-yellow with the back and top of head dark brown. A dark-brown stripe, with irregular edges, along sides joins the back-stripe before the root of the tail. Eye bluish. Two oblique brown stripes on cheeks. Chin yellow. Fins yellow, the dorsal and caudal infuscated with greyish and the anal with dusky border. No ocelli on top of head.

Genus *Ophiocara* Gill, 1863.*Ophiocara aporos hoedtii* (Bleeker).*Eleotris aporos* Bleeker, 1854a: 59. Sindangole and Ternate.*Eleotris hoedtii* Bleeker, 1854b: 456 and 496. Amboina.*Ophiocara aporos* Koumans, 1953: 346, fig. 84 (q.v. for refs. and synon.).

One specimen, 2 inches overall (IB. 3343).

Locality No. 4.

Ground colour in alcohol white to pale yellow overlaid with dark greyish-brown at edges of dorsal scales, like a network. A brown lateral stripe, darkest posteriorly, ends in a black blotch on caudal rays. Head dusky brown above, white below with black spots. Fins dusky brown (except basal halves of ventrals and anal which are white); caudal with dark spots. Eye blue.

Family GOBIDAE.

Genus *Glossogobius* Gill, 1862.*Glossogobius brunnoides* (Nichols).*Gobius* (*Glossogobius*) *brunnoides* Nichols, 1951; 6, fig. 4. Nondugl, Wahgi Valley.

Ground colour yellowish, plain on ventral surface, and on pectoral base and axil, but elsewhere densely overlain with brown or dark-brown markings. Sides of head with dark-brown spots some of which coalesce on the cheeks to form discontinuous longitudinal bands passing between rows of mucus-pores. Top of head dusky. Edges of most scales brown. A series of ill-defined cross-bars on body passing through a median row of conspicuous dark blotches on each side; the last blotch forms a blackish mark at root of caudal fin. Eye dull blue. Fins all dusky brown, the anal lighter proximally. An indistinct dark-grey mark near base of upper pectoral rays. Both dorsals and the caudal fin with conspicuous dark spots. One or two black blotches on posterior membranes of first dorsal fin notably conspicuous.

Three specimens (IB. 3336, 3339 and 3341), 86, 91 and 88 mm in standard length respectively.

Locality.—No. 4, 21. vii 1954.

Agree well with Nichols' description of *brunnoides*, differing only in having maxillary reaching front instead of middle of eye; narrower interorbital and slightly shorter caudal. Differs from *G. gutum* (H. Buch.) in having more dorsal rays.

SUMMARY.

Freshwater fishes collected by members of the Australian Museum staff in the interior of New Guinea are catalogued, one *Anisocentrus* and one *Mogurnda* being described as new species. References supply a bibliography of the freshwater fishes of Papua-New Guinea.

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EXPLANATION OF PLATE 2.

The Jimmi River Catfish, *Hemipimelodus velutinus* Weber. (Aust. Mus. regd. No. IB. 3352.) Ends of caudal lobes omitted.

Photo.—Ederic Slater.

