

ADDITIONS TO THE FISH FAUNA OF PAPUA NEW GUINEA—I

PATRICIA J. KAILOLA*

ABSTRACT

Eleven species of fish not previously found in Papua New Guinea waters are here recorded. These species belong to the families Carangidae, Lutjanidae, Sparidae, Lethrinidae, Callionymidae, Opistognathidae, Cepolidae and Pholidichthyidae.

INTRODUCTION

SINCE 1961 when the Fisheries Division of the Department of Agriculture, Stock and Fisheries was moved to Kanudi, near Port Moresby, a reference collection of fishes has gradually been formed. Many of the fish specimens were obtained in surveys carried out for the Fisheries Division by the M.V. *Climacx* in 1962, and by the F.R.V. *Tagula* in 1965. In addition, commercial prawn trawlers, research surveys of reefs, and surveys in fresh water, have yielded a large number of species of fish. In recent years specimens have been added from surveys carried out by the fisheries research vessels *Tagula*, *Rossel* and *Maragili* and the privately owned vessel *La Pinta*. Collections have also been made by staff of the Fisheries Research Station.

The fish collection presently contains some 800 of the 1,000-plus species recorded from Papua New Guinea by Munro (1967). In addition to these are some 240 species which have been previously unrecorded from Papua New Guinea. One hundred and ten of these have been already found in West New Guinea, or the Solomon Islands (Munro 1958 and 1967), and the remainder are new to the whole New Guinea region.

Kailola (1971) has recorded 22 of these species, all from experimental trawling carried out at Yule Island in Papua in 1969-1970. The present paper lists 11 more, from various localities in Papua New Guinea, and is the first in a series of papers covering previously unrecorded species held in the Kanudi collection.

Family CARANGIDAE *CARANX RADIATUS* Macleay

Caranx radiatus Macleay, Proc. Linn. Soc. N.S.W., v 1881, p.537.

D.i; VII-VIII; I, 21-22. A.II; I, 17-20. P.ii, 19-20. V.I, 5. G.R. 12-13 + 24-27.

* Fisheries Biologist, Kanudi Fisheries Research Station, Department of Agriculture, Stock and Fisheries, Port Moresby.

Body oval, depth 2.5-3.0, head 3.4-3.6, eye 3.3-3.7, equal to snout, and with adipose eyelids which posteriorly advance as far as the pupil. A single row of slightly curved teeth in both jaws; behind those in the upper jaw, is a thin band of villiform teeth. Fine teeth on palatines, vomer and tongue.

Scales cover the body except for a round patch on the pectoral fin base, and on the isthmus. Arch of lateral line high, 1.4-1.9 in straight part of lateral line, which has 40-44 scutes, and commences below the fourth or fifth dorsal ray. Widest scute 1.8-2.9 in eye. Soft dorsal and anal fins with high basal sheaths, behind which rays fit when depressed. The filamentous rays are produced to a varying degree beyond fin membrane, middle ones longest (fifth D.ray 2.1-4.2, and fifth A.ray 2.3-7.5, both in standard length). Pectorals falcate 2.9-3.2 in standard length. Ventrals 0.9-1.8 in head and usually reach anal spines, though are produced as far as fifth anal ray in one specimen (F0456).

Colour of preserved specimens brown or silvery below, darker above. A dark brown spot on operculum above the angle. First dorsal fin dusky. Other fins pale, some with brown on the filaments. Tip of upper caudal lobe dark brown.

Material examined

F0796 One specimen trawled between Otomata and Beagle Bay, Papua. (Lat. 9°53'S., Long. 147°33'E.). 5-15 fms. 7-6-1961. Total length 142 mm.

F01151 One specimen trawled at Orangerie Bay, Papua. (Lat. 10°22'S., Long. 149°36'E.). December, 1962. Total length 151 mm.

F0456 One specimen trawled at Yule Is., Papua. (Lat. 8°46'S., Long. 146°31'E.). March, 1963. Total length 180 mm.

F0860 Three specimens trawled in Gulf of Papua, February, 1966. Total lengths 138 mm, 155 mm and 159 mm.

Remarks

McCulloch (1915, p.133) says there is no procumbent spine before the spinous dorsal, and Munro (1960, p.130) is doubtful. All our specimens have a definite spine. Also the number of dorsal spines varied from 7 to 8. This species is reported by Marshall (1964) from North Queensland, Northern Territory and Western Australia. A new record for Papua.

CARANGOIDES HUMEROSUS (McCulloch)

Caranx humerosus McCulloch, Zool. (biol.)
Results Fish Exp. "Endeavour" III, part 3.
1915, p.137, pl. 25.

D.i; VIII; I,21. A.II;I,18. P.i,19. V.I,5. C.17
divided rays. G.R. 9 + 17 (or 8 + 1 + 17).

Depth 2.4, head 3.3, eye 3.5, slightly larger than snout, and interorbital, which latter is 3.6 in head. Villiform bands of teeth in jaws made up of three or four series of fine teeth, those in outer rows slightly larger and curved. Fine teeth present on palatines, vomer and tongue. Maxilla broad posteriorly, its expansion 1.7 in eye, and extends to below hind edge of pupil. Naked area on breast anterior of a line from behind pectoral base to halfway along ventral fins. Lateral line with a low arch 1.2 longer than straight part, which commences below 11th dorsal ray and bears 30 or 31 scutes. Spinous dorsal not high, fourth spine 2.8 in head length. Depth between first dorsal and ventral fins less than soft dorsal base. Lobes of second dorsal and anal fins falcate. Ventrals reach anal spines.

Colour of preserved specimen light brown, with five broad vertical bands, first below spinous dorsal, and others below soft dorsal. A large dark oval blotch on shoulder, another on operculum. Spinous dorsal black. Other fins dusky, darker on the caudal, dorsal and anal lobes. Ventrals dark brown.

Material examined

F02025 One specimen trawled by M.V.
Climacs at Yule Is., Papua. November
1962. Total length 114 mm.

Remarks

Marshall (1964, p.224) states that *C. humerosus* is only known from the Queensland coast north of Gladstone, and four specimens in the Australian Museum, Sydney, (Reg. No.

I.15557-106) caught in September, 1963, are from the Gulf of Carpentaria. Capture of this species at Yule Is. significantly extends its range northwards. A new record for Papua.

CARANGOIDES AUROGUTTATUS (C.V.)

PLATE I

Caranx auroguttatus (Ehrenberg) Cuvier and
Valenciennes, Hist. nat. Poiss. IX. 1833,
p.71.

D.I;VIII;I,26. A.II;I,22. V.I,5. P.ii,19. G.R.
removed.

Body oval, depth 2.6, head 3.4, pointed. Eye rather small, 5.4 in head and 2.2 in snout. Interorbital high and sharply convex, 1.8 broader than eye, and slightly shorter than snout. Preorbital and eye equal. Mouth oblique, its gape in a line with the lower part of pupil. Teeth in jaws in villiform bands, present also on vomer, palatines and tongue.

An oval naked area on pectoral fin base. On ventral surface of breast are three more naked areas; the first as a narrow band on isthmus, the others as oval patches at bases of ventral fins. The latter are separated from the naked isthmus by a band of scales. Ventral naked areas barely extend up on sides (see Smith 1972, Plate 30). Rest of body heavily scaled, scales extending onto anterior lobes of anal and dorsal fins, and over lower rays of caudal and pectoral fins. Soft vertical fins with a scaled basal sheath, ending 2/3rd way along fin bases.

Lateral line with a long, low arch ending below 11th or 12th dorsal ray and 1.9 longer than straight part. Straight part with 22 weak scutes, the broadest of which is contained almost four times in eye. Soft dorsal and anal fins with short lobes, about as high as first dorsal, whose third spine is 3.8 in body depth. Pectoral fin long and falcate, 1.3 longer than head, and reaching straight part of lateral line. Ventrals 2.2 in head.

Colour of fresh specimen greenish blue above, becoming silvery with a greenish sheen below. Body covered with numerous golden-orange spots about as large as pupil. Upper part of head brown, a fine black ring encircling eye. Fins dark green to black, pectorals lighter. Colour of preserved specimen a rich brown with green shades. Black over upper part of head. Fins dark.

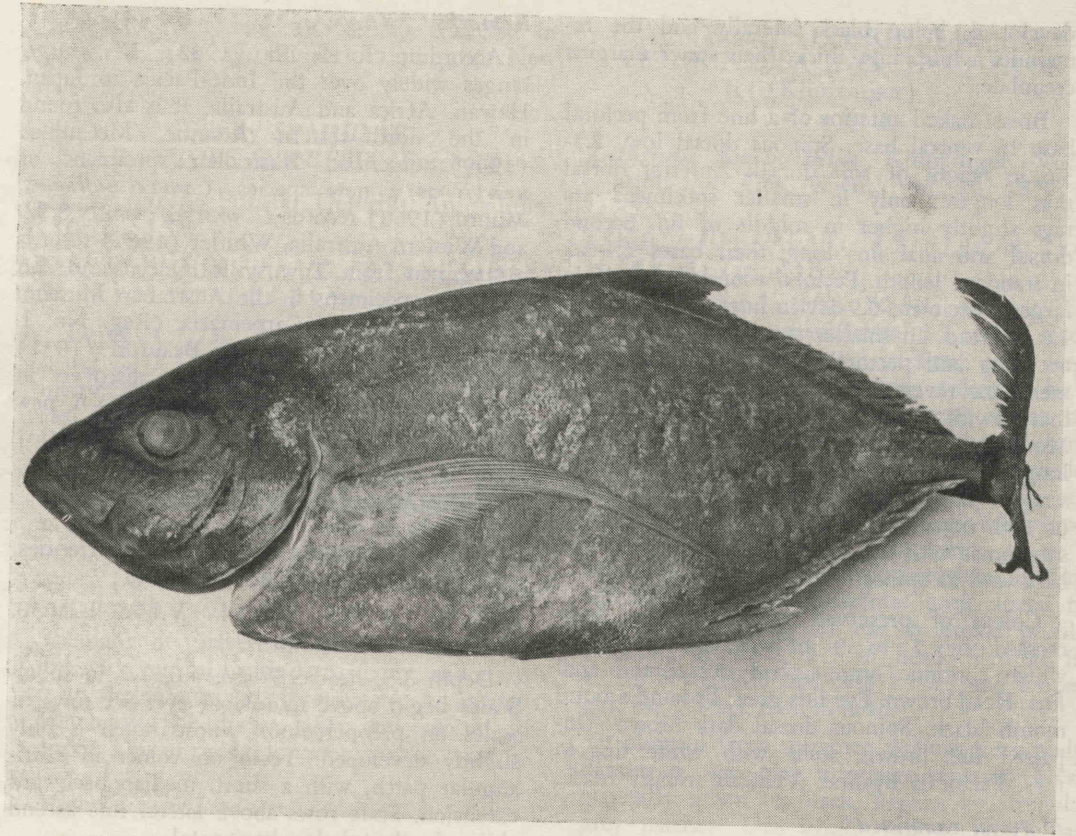


Plate 1.—*Carangoides auroguttatus* (C.V.) Reg. No. F0865. Total length 346 mm

Material examined

F0865 One specimen trolled off Kavieng, New Ireland. (Lat. 2°35'S., Long. 150°48'E.). February, 1970. Total length 346 mm.

Remarks

Weber and de Beaufort (1931) have listed this species as occurring in the Red Sea, Singapore, Java and as far east as Ternate in the Moluccas Islands. Smith (1972) records it also from the Western Indian Ocean. Our specimen thus represents a significant range extension. I have compared our specimen with specimens of *C. fulvoguttatus* Forskal in our collection, and find them quite distinct. A new record for New Guinea.

URASPIS URASPIS (Gunther)*

Caranx uraspis Gunther, Cat. Brit. Mus. II 1860, p.444.

D.i; VIII; I, 26-28. A.II; I, 20-21. P.ii, 20-21. V.I, 5. G.R.5 + 14-15.

Depth 1.8-2.1 head 2.7-3.1 snout subequal to eye (0.9-1.3), which is 2.9-3.8 in head and slightly smaller than interorbital. Eye 1.2-1.7 in postorbital. A sharp median ridge commences over front of eyes and continues along dorsal profile to origin of dorsal fin. Vestigial adipose lids on eye. Teeth in jaws sharp, slender and conical, strongly curved. Teeth in one or two series in upper jaw, and in two series in lower jaw, where in some specimens the outer row is discontinued posteriorly. No teeth at symphysis of jaws. Rest of mouth edentate. A thick white membrane on tongue, roof and floor of mouth. Sides of tongue black posteriorly. Velum of upper and lower jaws well

* A paper by Reuben, 1968 (*J. Mar. biol. Ass. India* 10 (1):133-151) was received after this manuscript was prepared. According to him, *U. uraspis* is the juvenile of *Uraspis belvola* (Foster, 1775, in Bloch and Schneider, 1801).

developed, being black laterally and the remainder white. Lips thick, their inner margins crenulate.

Breast naked anterior of a line from pectoral base to ventral base. Spinous dorsal low, 2.5-3.6 in height of soft dorsal. Anterior dorsal rays longest; only in smaller specimens are rays slightly higher in middle of fin. Second dorsal and anal fins long, their bases 2.1-2.2 in standard length. Pectoral rounded, falcate in largest specimen, 0.9-1.1 in head. Ventrals 0.9-1.8 in head. In smaller specimens the ventrals are long and pectorals short. In larger specimens, the reverse occurs. Pectoral fin not more than twice longer than ventral (0.9-1.9). Moderately arched part of lateral line always longer than straight part (1.2-1.6 times straight part), which commenced opposite 14th or 15th dorsal ray. Scutes 30-32, many keeled, sometimes with the apices directed forward and backward as spines.

Colour of preserved specimens pale, body crossed by 7 to 9 brown vertical bands, which continue onto second dorsal and anal fins. Head brown. Eye-lids grey; lips and around mouth black. Spinous dorsal dark brown. Unpaired fins brown, some with white tips to rays. Pectorals hyaline. Ventrals usually black.

Material examined

- F02308 One specimen trawled at Yule Is. November 1962. M.V. *Climacs*. Total length 105 mm.
- F02026 One specimen trawled at Yule Is. February, 1963. Total length 134 mm.
- F02320 One specimen trawled between mouths of Sepik and Ramu Rivers, New Guinea. (Lat. 4°00'S., Long. 144°40'E.). September, 1965. Total length 138 mm.
- F02326 One specimen trawled in Gulf of Papua. 14-2-1969. Total length 109 mm.
- F0304 One specimen trawled at Oroko Bay, Papua. (Lat. 7°48'S., Long. 145°04'E.). February 1969. Total length 166 mm.
- F01407 Two specimens trawled in three fms at Goaribari Is., Papua. (Lat. 7°50'S., Long. 144°15'E.). 10-2-1969. Total lengths 106 mm and 130 mm.
- F01493 One specimen trawled by the *Falaika* in Gulf of Papua. March, 1969. Total length 114 mm.

Remarks

According to Smith (1962) *U. uraspis* ranges widely over the Indo-Pacific to Japan, Hawaii, Africa and Australia. It is also found in the north-western Atlantic. McCulloch (1909) described Australian specimens of *uraspis* as a new species, *Caranx bullianus*. Munro (1960) records *U. uraspis* from N.S.W. and Western Australia, Whitley (1964) records a specimen from Townsville, Queensland and there are specimens in the Australian Museum from the Gulf of Carpentaria (Reg. No. I. 15557-113). Weber and de Beaufort (1931) record *uraspis* from Ambon. Its discovery in Papua New Guinea seems inevitable. A new record for Papua New Guinea.

Family LUTJANIDAE LUTJANUS BIGUTTATUS (C.V.)

Serranus biguttatus Cuvier and Valenciennes, Hist. nat. Poiss. VI, 1830, p. 507.

D.XI,12. A.III,8. P.ii,14. V.I,5. L.lat.50. Tr.5+13 or 14. G.R.8+18.

Depth 3.3, head 2.7, eye 4.0, 1.2 in snout. Scales begin above middle of eye. Six rows of scales on preoperculum, whose notch is only slightly developed. Teeth on vomer in a triangular patch, with a short, median backward extension. Scale rows above lateral line ascend obliquely, those below horizontal.

Colour of fresh specimen brown on back, separated from the paler lower half by a maroon band from snout through eye to upper caudal base. Lower half silvery, becoming orange on belly. Two pearly blotches above lateral line, one below anterior dorsal rays. Vertical and caudal fins bright yellow-orange; paired fins pale yellow, almost hyaline. When preserved, the brown back is sharply divided from the white lower surface of sides. Fins yellow.

Material examined

- F02107 One specimen seine-netted at Motupore Island in Bootless Bay, Port Moresby. (Lat. 9°33'S., Long. 147°14'E.). 23-9-1971. Total length 171 mm.

Remarks

This species is found throughout south-east Asia to India and the Philippines, and has been recorded from Waigeu and the Solomon Islands. The Australian Museum also has specimens from north of Maiwara, New Guinea

(Lat. $5^{\circ}12'S$, Long. $145^{\circ}49'E$.) collected in 1969. A new record for Papua and New Guinea.

Family SPARIDAE

ARGYROPS SPINIFER (Forsk.)

Sparus spinifer Forskal, Descript. Animalium, 1775, p.32.

D.XI,10. A.III,8. P.ii,12,i. V.I,5. L.lat.51-55 Tr. 6+17-18. G.R.6-7+10.

Depth 1.7-2.0, head 2.8-3.1, eye 2.5-2.9, being 1.1-1.3 in snout and 1.2-1.4 larger than interorbital. Head profile steeply convex. First two filamentous dorsal spines (numbers II and III) reach past caudal fin tip. Pectoral 1.1-1.3 times head, reaching to fourth anal ray. Ventral reaches past anal fin origin, occasionally as far as first anal ray, and is more or less equal to head. First anal spine 2.3-2.9 in second anal spine. Least depth of caudal peduncle 1.0-1.2 in its length.

Colour of preserved specimens pink with five dark vertical bands across body, and a sixth from the interorbital, through eye, to isthmus. Membranes of dorsal, anal and ventral fins dusky. Tips of caudal lobes brown.

Material examined

F0221 One specimen trawled at Daru Roads, Papua. (Lat. $9^{\circ}05'S$, Long $143^{\circ}20'E$.) 19-1-1961. Total length 83 mm.

F0326 Two specimens trawled north-west of Cape Possession, Papua. (Lat. $8^{\circ}35'S$, Long. $146^{\circ}23'E$.) 24-1-1961. Total lengths 94 mm and 117 m.

F01428 One specimen trawled inside Jones Reef, $8\frac{1}{2}$ cables north of Tamina Point, Porlock Harbour. (Lat. $9^{\circ}00'S$, Long. $149^{\circ}06'E$.) 20 fms. 2-12-1962. Total length 97 mm.

F02253 One specimen trawled by F.R.V. *Maragili* at Yule Is., Papua. 19 fms. 21-11-1970. Total length 80 mm.

F02254 One specimen trawled by F.R.V. *Rossel* at Yule Is., Papua. 15 fms. 23-1-1971. Total length 126 mm.

Remarks

Widespread in the Indian Ocean and throughout South-East Asia to Queensland. A new record for Papua.

Family LETHRINIDAE LETHRINELLA XANTHOCEILUS (Klunzinger)

PLATE II

Lethrinus xanthocheilus Klunzinger, Verh. zool. bot. Ges. Wien., Vol. 20, 1870, p. 753.

D.X,9. A.III,8. P.ii,10,i. V.1,5. L.lat.48. Tr.4 $\frac{1}{2}$ +16 G.R. (removed).

Depth 3.4-3.5, head 3.0-3.1, eye 5.0. Eye in snout 2.7-2.8, in suborbital 2.2 and in interorbital 1.3-1.4. Snout 1.8 in head. Four large canines in front of each jaw, followed by a single row of shorter conical teeth which become squat and pointed posteriorly. A villiform band of teeth behind outer row. Posterior nostril about midway between snout tip and hind margin of head. Head profile slopes gently up from snout to before eyes, where it bends to form a very flat interorbital, behind which it is almost horizontal until dorsal fin origin. Upper edge of eye in dorsal profile. Pectoral fin short, 1.5 in head. Ventral fin 1.7 in head. Soft anal base 2.5-2.7 and longest anal ray 3.1-3.3, both in head.

Colour of fresh specimen: yellow-green body, darker on back, pink to orange ventrally. Head generally green to black, broken by irregular grey patches. Lips bright yellow, upper part of maxilla vermillion. Inside of mouth and of operculum scarlet. Chin grey, pink anteriorly. Opercular edge also scarlet. Brown spinous dorsal fin flushed with russet-red. Soft dorsal pinkish-orange. Anal fin similar though has yellow shadings, and its lower part is pale green. Ventral fin bright green, its leading edge orange. Pectoral fin orange, its base bright yellow. On upper and lower portions of pectoral base are scarlet patches, the lower one smaller. Pectoral fin socket also scarlet. Caudal fin pale green, its outer edge pinkish-orange. When preserved, body grey, scales on back and sides outlined in dark brown forming a latticework. Fins light brown. Head dark brown to black. Lips white.

Material examined

F02096 One specimen taken by handline at night from the *Claire M* on Musgrave Reef, Yule Is., Papua. August, 1972. 5 fms. Total length 520 mm.

plus One specimen bought at Koki Market, Port Moresby, on 24th November, 1972. Total length 498 mm.

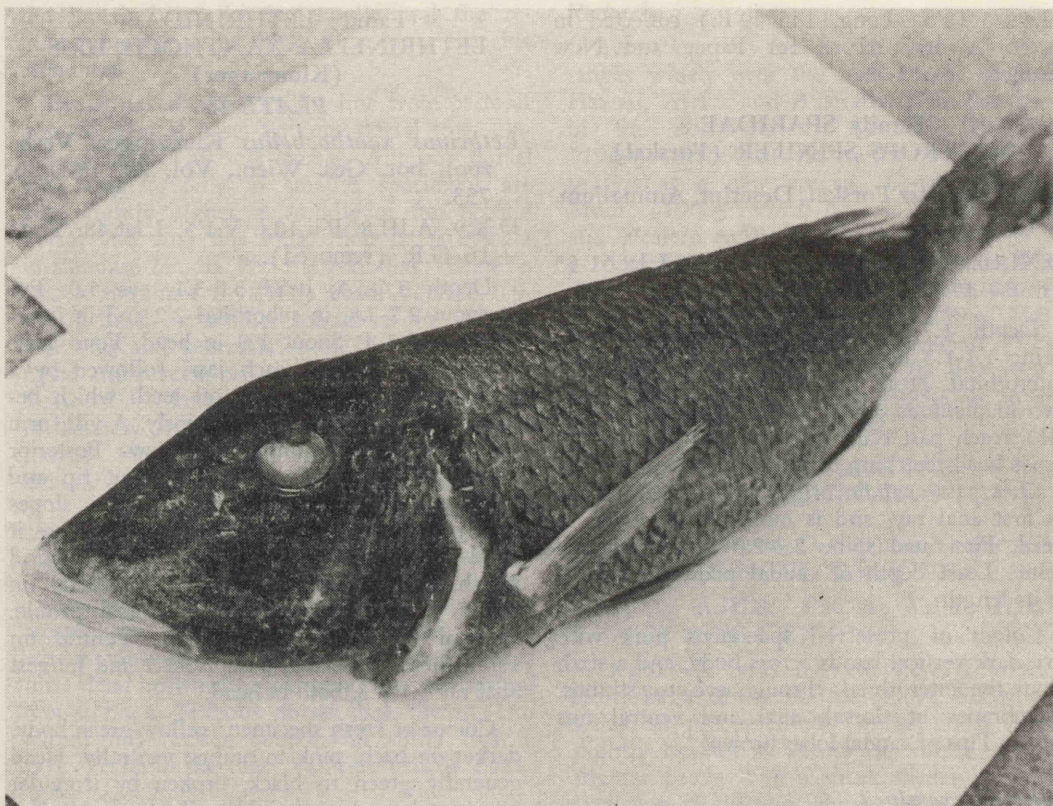


Plate II.—*Lethrinella xanthocheilus* (Klunzinger) Reg. No. F02096. Total length 520 mm

Remarks

These specimens are immediately distinguished as *L. xanthocheilus* by the flat inter-orbital, and the eye in dorsal profile. When fresh, the dark head, bright yellow lips and scarlet on operculum, pectoral base, and in pectoral socket, make the fish immediately recognizable as *L. xanthocheilus*, as illustrated by Smith (1959) on plate 22, figure B. Smith (loc. cit.) gives its distribution as "from 14°00'S. northwards in East Africa, and at several islands in West Indian Ocean . . ." (p.292). Fowler (1933) gives locality as "Red Sea". (p.52) and Silas and Toor (1961) record *L. xanthocheilus* from the Andaman Sea. The Papua New Guinea specimens thus represent a significant range extension. A new record for Papua.

During October and November, 1972 the author observed several specimens of a lethrinid fish at Koki Market, Port Moresby which were almost identical with Smith's figure of

L. xanthocheilus. All had the very flat inter-orbital and eye in dorsal profile characteristic of *xanthocheilus* and flat to slightly rising dorsal profile behind eye. Data from two specimens is given in Table 1 and compared with *xanthocheilus*.

These two specimens were practically identical in colour with the Yule Is. specimen of *L. xanthocheilus*, except that the lower scarlet spot on the pectoral fin base was absent, and the head was lighter. The hind nostril in these specimens was distinctly nearer the snout tip than to the opercular edge: according to Smith (1959, p.291), this is characteristic of young specimens of *xanthocheilus*, as well as for specimens of all ages of *Lethrinella variegatus* (Val.).

Silas and Toor (1961) describe two specimens of a lethrinid fish very similar to my smaller specimens, to which they give the name *Lethrinella* prox. *xanthocheilus* (p.210 and 211). In their specimens the upper red axillary

Table 1.—Comparison of two specimens of *Lethrinella* with a specimen of *L. xanthocheilus* (Klunzinger)

Character	Reg. No. F02360 27-10-72	Reg. No. F02335 7-11-72	Compared to <i>L. xanthocheilus</i> , Reg. No. F02096
Total length (mm)	292	400	520
Standard length (mm)....	231	324	445
Position of hind nostril	nearer to snout tip than opercular edge	nearer to snout tip than opercular edge	approx. midway between snout tip and opercular edge squat and pointed
Hind teeth in jaws	short and conical	short and conical	
Eye in snout	1.7	2.4	2.7
Eye in head	3.8	4.7	5.0
Eye in suborbital	1.5	2.0	2.2
Eye in interorbital	1.0	1.2	1.3
Eye in bony interorbital	0.7	0.9	1.0
Snout in head	2.3	2.0	1.8
Pectoral in head	1.4	1.5	1.5
Ventral in head	1.5	1.7	1.7
Soft anal base in head	2.5	2.4	2.7
Longest anal ray in head	2.9	3.0	3.1
Depth	3.6	3.6	3.4
Head	3.1	3.1	3.0
Gill Rakers	4+5	4+5	removed

spot was on scales just above, not on, the pectoral base. For neither specimen, nor their 593 mm specimen of *xanthocheilus*, do they mention a red spot on the lower part of the pectoral base.

It is quite likely that all seven specimens of *Lethrinella* here discussed belong to *xanthocheilus*, as there is apparently no other species with a colour pattern so close to theirs, and they all have the flat interorbital, and upper margin of the eye in the dorsal profile, characteristic of *xanthocheilus*. The only variations in colour between the seven specimens are the presence or absence of the lower scarlet spot on the pectoral base, and the lighter head in three of the New Guinea specimens. The relative body proportions also vary, apparently with size (shown in Table 2), but this is a phenomenon not uncommon in lethrinid fish (Fowler 1933, p.4; Silas and Toor 1961, p.208 and Weber and de Beaufort 1936, p.431). A detailed study of a whole series of specimens is needed however, before a firm decision can be reached.

Family CALLIONYMIDAE

DACTYLOPUS DACTYLOPUS (C.V.)

Callionymus dactylopus Cuvier and Valenciennes. Hist. nat. Poiss. III, 1837, p.310.

D.IV;8. A.7. P.i,17,i. V.I+i,4.

Depth 5.3, head 3.8, eye 3.1, longer than snout (0.8) and 3.4 times larger than interorbital. Preopercular process with two or three spines along its outer edge and two smaller spines on its inner edge. Lateral line unbranched. Soft dorsal fin high, its height longer than head length. First detached ventral ray as long as pectoral fin.

Colour of preserved specimen brownish above and paler below; light ocelli scattered over back, sides and head. First dorsal with a black, light-ringed ocellus midway on membrane between third and fourth spines. Soft dorsal flecked with darker brown, roughly formed into five or six longitudinal bands. Anal fin similar, with four bands, which break into spots on outer margin. Five transverse rows of spots on pectoral and caudal fins, disappearing on lower half. Ventral variegated with dark.

Material examined

F02156 One specimen trawled near Yule Is., Papua. November, 1962 by M.V. *Climacs*. Total length 90 mm.

Remarks

Found through South-East Asia, the Philippines and from Western Australia and Queensland. A new record for Papua.

Table 2.—Body proportions in thousandths of standard length for seven specimens of *Lethrinella*

Standard Length (mm)	160*	224*	231	324	418	445	593†
Head length	356	379	323	319	321	326	296
Snout length	169	192	143	163	180	180	176
Eye diameter	106	105	86	68	64	61	60
Interorbital	100	118	80	84	92	90	73
Bony Interorbital	—	—	58	60	62	61	—
Snout to post. nostril	156	183	128	145	163	150	—
Post. nostril to hind margin of head	225	232	201	178	157	164	—
Pectoral length	269	246	234	209	209	209	181
Ventral length	231	210	213	185	186	198	154
Soft anal base	131	138	128	134	127	121	102
Longest anal ray	103	98	112	105	94	99	82
Greatest body depth	306	321	282	276	281	292	248

*figures taken from Table I of Silas and Toor (1961) for *Lethrinella* prox. *xanthocheilus*.

†it is difficult to explain the omission of the figure for the 593 mm specimen *xanthocheilus* in Table I of Silas and Toor (loc. cit.). The figure appearing below the column headed "*xanthocheilus*" are actually those for the smallest example of *L. microdon* (Val.) studied by Silas and Toor. For the purpose of comparison here, the present author has calculated the actual measurements and then the body proportions in thousandths of the standard length, from the body ratios for *xanthocheilus* in the text (p.210).

Family OPISTOGNATHIDAE
TANDYA LATITABUNDA (Whitley)

PLATE III

Tandya latitabunda Whitley, Rec. Aust. Mus.,
20(1) 1937, p.21, pl.2, fig. 2.

D.XII,18. A.I,15. P.i,22-23. V.I,5. C.12
branched rays. L. lat. 50-54. Scale rows above
lateral line to tail base 98-108. Tr. 5+1+26-
28. G.R. 6-8+15-16. Br.6.

Depth 2.9-3.2 (belly distended in one speci-
men). Head 2.6-2.7, eye 2.9-3.6, 3.8-4.4 larger
than interorbital, and 4.1-5.6 larger than pre-
orbital.

Head bulbous; body compressed and slightly
tapered, caudal peduncle depth 8.2-8.8 in
standard length. Eyes large and circular, in
front third of head. Maxilla extends almost as
far as preopercular ridge. One row of slender
canines in both jaws, 20-33 each side of sym-
physis in upper jaw, and 21-28 on each side
in lower jaw. An inner row of smaller teeth

may be present near middle of jaws: in upper
jaw these teeth only in one specimen (14
teeth), and in lower jaw present in all three
specimens (7-24 teeth). Large teeth on pharyn-
geal bones. Symphysis and palate edentulous.

No scales on head, neck and in region
anterior to ventral and pectoral fin bases. Rest
of body with cycloid scales, present also on
pectoral base. Lateral line almost straight,
ending below fourth or fifth dorsal ray. Dorsal
fin originates above upper insertion of oper-
culum. Anal fin height subequal to that of soft
dorsal. Caudal and pectoral rounded, the latter
1.7-2.0 in head length. Ventrals 1.5-1.7 in
head.

Colour of preserved specimens: head light
brown, only markings being a black ring around
eye, black on inside of maxilla, and under
maxilla on mandible, and a black streak below
opercular flap. Eyes dark blue. Body pale, with
two rows of large black blotches. The first row
consists of five blotches immediately below the



Plate III.—*Tandya latitabunda* Whitley. Reg. No. F01308. Total length 210 mm

dorsal fin and extending onto fin. Second row of five blotches runs along middle of sides, the first just behind opercular flap, last three extending downwards to above anal fin. A large blotch under pectoral fin. Caudal peduncle crossed by a black band. Anal fin and outer third of dorsal fin black. A black band across base of caudal rays, the rest of fin mottled with black. Pectoral and ventral fins pale brown, the former with a vertical black band in proximal half.

Material examined

F02040 One specimen from Yule Is., Papua. Trawled by M.V. *Climacs*, November, 1962. Total length 190 mm.

F01308 Two specimens from Yule Is., Papua. Trawled by F.R.V. *Tagula* in 15 fms over a mud bottom. 20-5-1967. Total lengths 210 mm and 114 mm.

Remarks

Described in 1937 from one specimen (Aust. Mus. Reg. No. IA. 6958) from Port Newry, north of Mackay, Queensland, this species is rare, as Marshall (1964) says it is "... known only from the unique holotype ..." (p.328). As far as I can ascertain, the three specimens described above, plus two specimens in the Australian Museum (Reg. I. 15557-210) from the Gulf of Carpentaria in 1963 are the only other representatives of the species found since 1937. A new record for Papua.

Family CEPOLIDAE ACANTHOCEPOLA ABBREVIATA (C.V.)

Cepola abbreviata Cuvier and Valenciennes, Hist. nat. Poiss. X, 1835, p. 403.

D.74-79. A.78-81. P.19-20. V.I,5, the innermost ray attached to the body. Scale rows from angle of operculum 176-230*. G.R. 15-17+29-32. (* the number of transverse scale rows, as well as the depth and head ratios, are noticeably higher in the largest specimen.)

Depth 6.7-10.6, head 7.1-9.1, body very compressed and elongate. Eye 2.7-3.4, 1.3-1.8 larger than interorbital, which is 4.5-5.0 smaller than head. Eye 1.7-2.6 longer than snout, which is 6.0-7.0 in head length. A prominent hump on snout. Teeth in upper jaw 33-36 on each

side, an edentulous space at symphysis, the anterior teeth being larger and curved. Maxilla 1.8-2.1 in head, and ends below middle of pupil. Preoperculum with a sharp triangular spine at its angle and three or four antrorse spines on the lower border (reduced in largest specimen). Lateral line curves upwards from insertion of operculum to meet dorsal fin base at the fifth ray, whence it continues to caudal. Body scales in regular rows becoming larger posteriorly in the largest specimen. Dorsal and anal united with caudal by membrane. Pectoral rounded, 1.4-1.6 in head length. Caudal fin tapered.

Colour of preserved specimens off white or creamy, the only marking being a thin black margin to the anal, caudal and posterior third of the dorsal fins (not present in largest specimen).

Material examined

F0708 One specimen from between the Ramu and Sepik River mouths trawled by F.R.V. *Tagula* in September, 1965. Total length 342 mm.

F01133 One specimen trawled between Yule Is. and Cape Possession, Papua between 26th and 28th September, 1967. Total length 197 mm.

F02262 One specimen trawled near Goaribari Is., Gulf of Papua. 12-2-1969. Total length 157 mm.

Aust. Mus. Regd. No. I. 1555-209. One specimen from the Gulf of Carpentaria, at Lat. 15°53'S., Long. 140°55'E. in 5 fms. 21-11-1963.

Remarks

Recorded from India, China, Philippines and as far east as Salajar in Indonesia, and the "Molucca Sea" (Günther 1861, p.488). The occurrence of *C. abbreviata* in Australian waters has been reported by Haysom (1957) on a specimen captured near Townsville, Queensland in 1955, and by Mees (1959) on two specimens from Exmouth Gulf, Western Australia, in October, 1958. The Australian Museum specimen (I. 1555-209) was collected in the Gulf of Carpentaria in November, 1963. The species has not been found east of Papua New Guinea and is a new record for these waters.

Family PHOLIDICHTHYIDAE
 PHOLIDICHTHYS LEUCOTAENIA
 (Bleeker)

PLATE IV

Pholidichthys leucotaenia Bleeker, Natuurk.
 Tijdschr. Ned-Indie XI, 1856, p. 406.

D.66-77. A.49-62. P.15-16. V.I, 2. C.8-10.
 G.R.4-6+1+7-10 (gill raker present in
 angle).

Body tapering, compressed posteriorly, its
 depth 9.1-11.3. Head 5.5-5.9, eye 5.4-6.3,
 subequal to interorbital (1.0-1.2) and to
 snout (snout in eye 0.9-1.1). Eye in front
 half of head, 3.1-4.3 in postorbital head length,
 mouth almost horizontal. Maxilla ends below
 posterior edge of eye. Teeth in both jaws
 pointed conical, in four or five overlapping rows
 (Figure 1) with a few larger canines at front
 of jaws. Conical teeth also present on pharyn-
 geals, but none on vomer, palatines or tongue.

Body naked, no lateral line, numerous pores
 on head (Figure 2, a and b). Dorsal and anal
 fins united with caudal; dorsal beginning just
 anterior of the opercular margin. Caudal slightly
 rounded. Ventral fin 0.8-1.9 times the eye. In
 some specimens one ventral fin is noticeably
 shorter than its partner. Pectoral fin rounded,
 0.8-1.2, in snout plus eye. Head in distance
 from anal fin origin to snout 2.1-2.4. Anal
 and dorsal fins moderately high, thrice in body
 depth.

Colour of preserved specimens off-white to
 pale pink, with a wide black band from snout
 through eye, across pectoral base, to tail base
 whence it continues to caudal fin margin. A
 second black band runs from snout along dorsal
 profile and follows the base of the dorsal
 fin almost to caudal fin. Dorsal and caudal
 fins dusky. Other fins hyaline. Snout and front
 of lips black. Iris black.

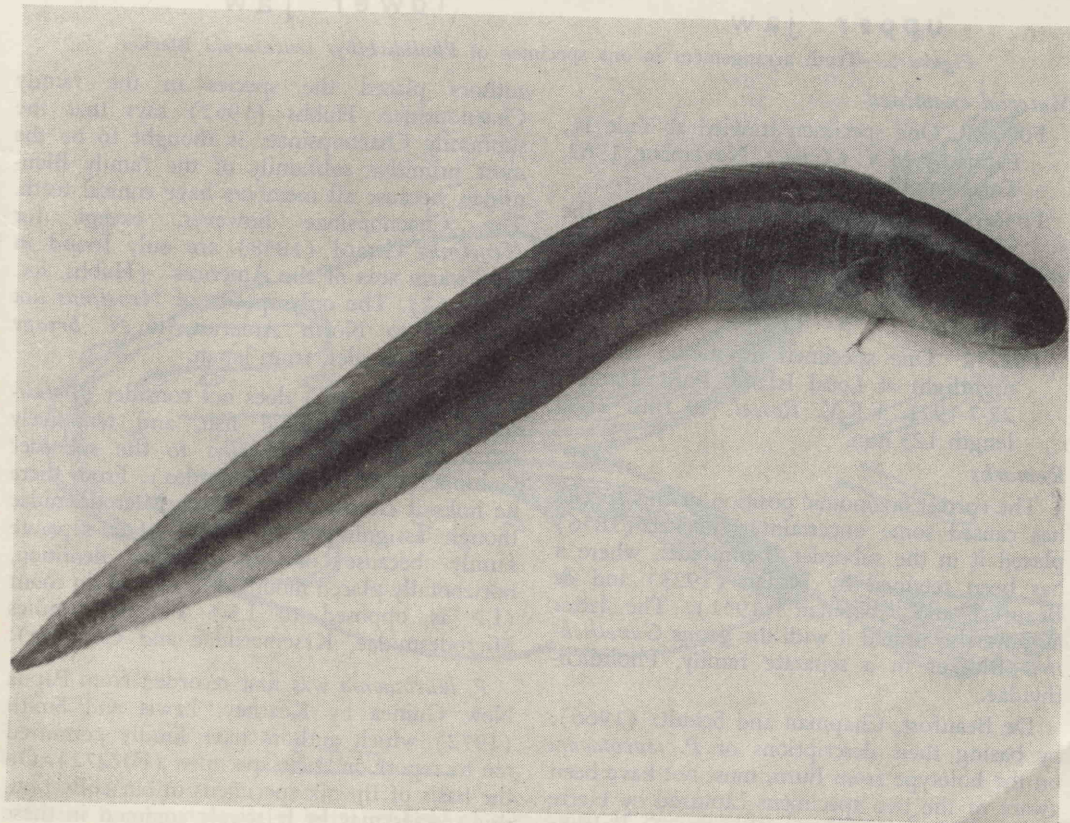


Plate IV.—*Pholidichthys leucotaenia* Bleeker. Reg. No. F02272. Total length 123 mm.

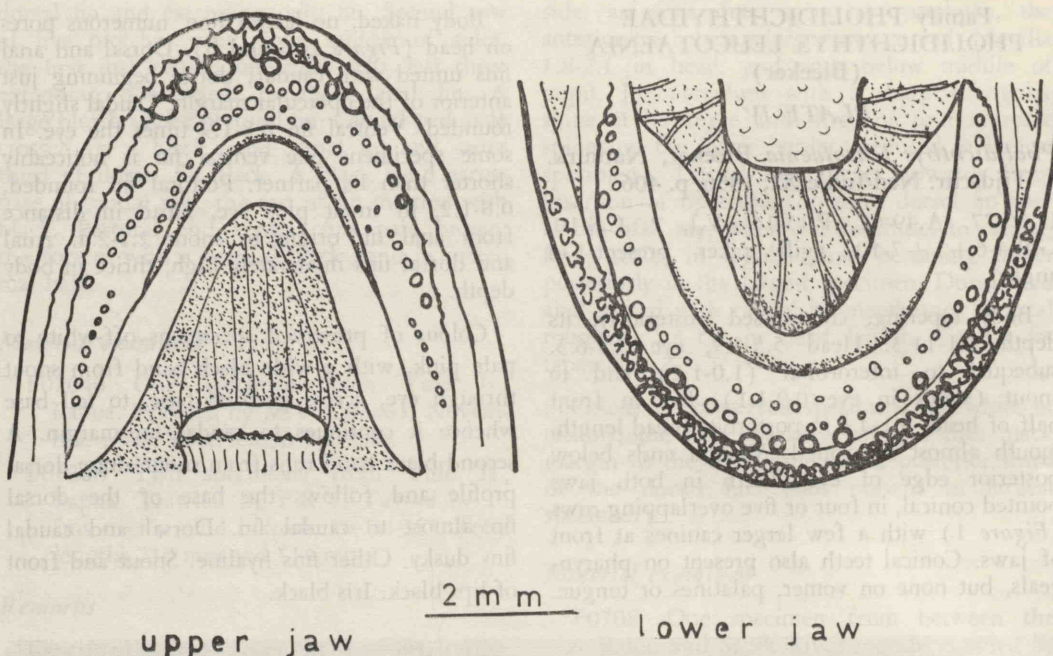


Figure 1.—Teeth arrangement in one specimen of *Pholidichthys leucotaenia* Bleeker.

Material examined

F02038 One specimen trawled at Yule Is., Papua by M.V. *Climacs*. November, 1962. Total length 106 mm.

F0366 Four specimens captured under the wharf at Samarai, Papua. (Lat. 10°37'S., Long. 150°40'E.). April, 1964. Total lengths 130 mm, 123 mm, 131 mm and 123 mm.

F02272 One specimen dip-netted under a nightlight at Local Island, Port Moresby. 22-7-1971. F.R.V. *Rossel*. 10 fms. Total length 123 mm.

Remarks

The correct taxonomic position of this species has caused some uncertainty. Bleeker (1856) placed it in the suborder Blennioidei, where it has been retained by Jordan (1923) and de Beaufort and Chapman (1951). The latter authors also united it with the genus *Gunellichthys* Bleeker in a separate family, *Pholidichthyidae*.

De Beaufort, Chapman and Schultz (1966), by basing their descriptions of *P. leucotaenia* on the holotype from Buru, must not have been aware of the two specimens captured by Herre and Herald (1950) north-east of Balabac Island, Philippines, in December, 1947. These

authors placed the species in the family Chaenopsidae. Hubbs (1952) says that the subfamily Chaenopsinae, is thought to be the most primitive subfamily of the family Blenniidae, because all members have conical teeth. The Chaenopsinae however, except for *Neoclinus* Girard (1858) are only found in the "warm seas of the Americas" (Hubbs, loc. cit, p. 52). The only species of *Neoclinus* not restricted to North America, is *N. bryope* Jordan and Snyder, from Japan.

Schultz (loc. cit.) does not consider *Pholidichthys* as a Blennioid fish, and tentatively refers it and *Gunellichthys* to the suborder Gobiina (superfamily Gobiioidea). From there he links it closest to the family Microdesmidae though assigning it the rank of a separate family because of its peculiar dentition, horizontally-placed mouth, and ventral fin count (I,2 as opposed to I,3-5 in the families Microdesmidae, Kraemeriidae and Gobiidae).

P. leucotaenia was first recorded from Papua New Guinea by Kearney, Lewis and Smith (1972) which authors have kindly permitted me to report on their specimen (F02272). On the basis of the six specimens in our collection, this species may be relatively common in these waters.

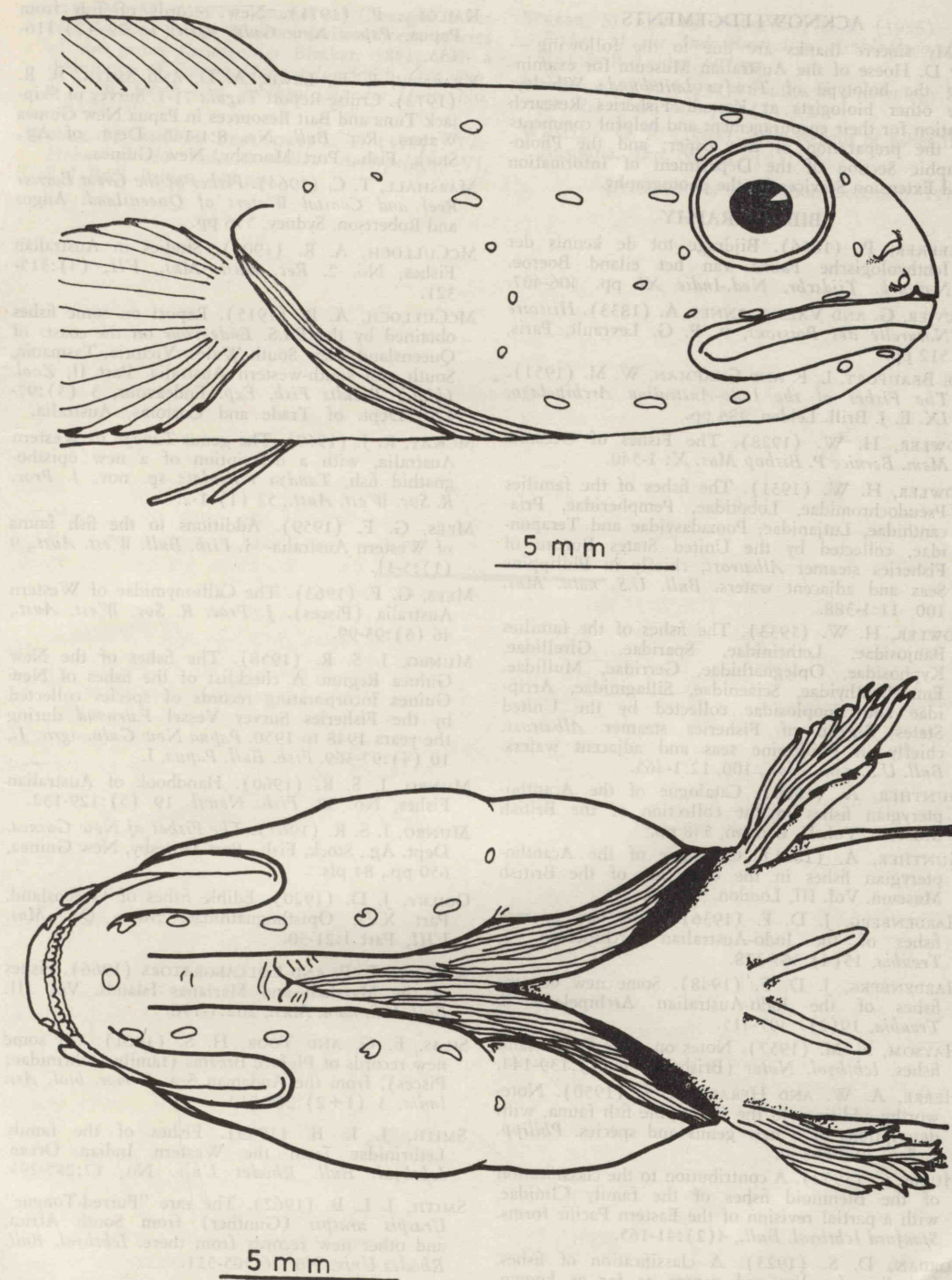


Figure 2.—Arrangement of pores on head of a specimen of *Pholidichthys leucotaenia* Bleeker. (a) Lateral view, (b) Ventral view

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