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FISHES OF THE ISLANDS OF LUZON AND PANAY. ^{cat}

By DAVID STARR JORDAN and ALVIN SEALE.

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FISHES OF THE ISLANDS OF LUZON AND PANAY.

BY DAVID STARR JORDAN AND ALVIN SEALE.

In the summer of 1900, in connection with the investigations in Japan by Professors Jordan and Snyder, a very considerable collection of fishes was made at Manila and Cavite, on the island of Luzon, and about Iloilo, on the island of Panay, in the Philippine Islands, by Dr. George A. Lung, surgeon in the United States Navy. This collection is the property of Stanford University, but a series of specimens has been presented to the U. S. Bureau of Fisheries and to the U. S. National Museum. The specimens in question are in excellent condition, and the large number of species obtained shows the faithful work of Dr. Lung as collector.

The following are the new species in the collection, with the numbers borne by the types and cotypes in the Stanford University and U. S. National museums. In cases where specimens are registered in both institutions the first number given is that of Stanford University, the second that of the National Museum. Where only one number is given, the Stanford University collection is referred to.

<i>Jenkinsiella nectura</i> (9984).	<i>Callyodon eleræ</i> (9246).
<i>Gymnothorax philippinus</i> (9215).	<i>Elates thompsoni</i> (9247, 53068).
<i>Doryichthys spaniaspis</i> (9240).	<i>Rhinogobius lungi</i> (9248, 53069).
<i>Polydactylus zophomus</i> (20113, 55598).	<i>Rhinogobius ocyurus</i> (9249, 53070).
<i>Amia cavitensis</i> (9241).	<i>Gobius panayensis</i> (9250).
<i>Priopis lungi</i> (9242, 53060).	<i>Creisson validus</i> (9251).
<i>Scolopsis luzonia</i> (9243).	<i>Oplopomus vergens</i> (9256, 53071).
<i>Upeneus luzonius</i> (9244, 53067).	<i>Blennius thysanius</i> (9252, 53072).
<i>Abudefduf turchesius</i> (9245).	<i>Petrosirtes vulsus</i> (9253).

Family CARCHARIDÆ.

SCOLIODON Müller & Henle.

1. *Scoliodon acutus* (Rüppell).

Two specimens from Cavite.

Family SPHYRNIDÆ.

SPHYRNA Rafinesque.

2. *Sphyrna zygaena* (Linnæus).

Length of posterior margin of each lateral expansion of the head equal to its width at eye; a groove along anterior edge of expansion. Three specimens from Cavite, length 11 to 17 inches.

NOTE.—The accompanying plates are from drawings by Mrs. Chloe Lesley Starks and William S. Atkinson.

Family RHINOBATIDÆ.

RHYNCHOBATUS Müller & Henle.3. *Rhynchobatus djiddensis* (Forskål).

Dorsal almost over ventrals; a black spot behind eye; scattered round white spots over back. One specimen from Cavite, length 18 inches.

Family DASYATIDÆ.

DASYATIS Rafinesque.4. *Dasyatis kuhli* (Müller & Henle).

Two specimens of this sting-ray are in the collection. The adult is brownish, with dark purple spots on back; the posterior half of tail has alternate white and dark bands. The young (in spirits) do not show the dark spots on back.

The specimens from Japan referred by Jordan & Fowler to *Dasyatis kuhli* do not belong to this species, but probably rather to *Dasyatis akajei*. *Dasyatis kuhli* is not certainly known to occur in Japan.

Family AETOBATIDÆ.

STOASODON Cantor.5. *Stoasodon narinari* (Euphrasen).

One specimen of this ray was secured at Cavite. In spirits the color is brownish, the upper surface of disk covered with pale blue spots. The pale spots are much fainter than in Hawaiian examples, the latter, however, of much larger size.

Family CHIROCENTRIDÆ.

CHIROCENTRUS Cuvier.6. *Chirocentrus dorab* (Forskål).

Head 5.50 in length; depth 6.75; eye 4.50 in head; dorsal 17; anal 33. Color silvery, blue on back, a dusky blotch on upper part of opercles. One specimen from Cavite, length 7.50 inches.

Family CHANIDÆ.

CHANOS Forskål.7. *Chanos chanos* (Forskål).

Head 3.75 in length; depth 4.25; eye 3.05 in head; a very large adipose eyelid; dorsal 14; anal 9; scales 13-83-75. One specimen from Cavite, length 10.75 inches.

Family CLUPEIDÆ.

HARENGULA Cuvier & Valenciennes.8. *Harengula gibbosa* (Bleeker).

Head 4 in length; depth 3.55; eye 3.10 in head; dorsal 18; anal 19; scales 42; bluish above, silvery below; belly sharply serrated; a dusky blotch on opercle; tip of dorsal and spot near base of anterior rays dusky; tip of caudal dusky. Seven specimens; length 1.50 to 4.25 inches.

This species is near *Harengula sundaica*, recorded by us from Negros. It is not quite so deep in body, and it usually shows some more or less distinct dusky streaks on upper third of body.

9. *Harengula moluccensis* (Bleeker).

Head 4.10 in length; depth 4.12; dorsal 18; anal 16; scales 45; eye 3 in head; maxillary ending under anterior third of eye; ventral below middle of dorsal. Color deep blue above, silvery below, the dividing line of colors sharply marked. Three specimens from Cavite, length 3.25 to 4.35 inches.

This species is near *H. sundaica*, but more slender in body.

DUSSUMIERIA Cuvier & Valenciennes.

10. *Dussumieria elopsoides* (Bleeker).

Head 3.80 in length; depth 5; eye 3.50 in head; dorsal 19; anal 15. Color bluish above, silvery below, a more or less distinct line along sides; margin of caudal dusky; belly not distinctly rounded but slightly compressed, with a ridge which, however, has no sharp scutes.

A second specimen has the head 3.50 in length; depth 6; eye 3.75 in head; dorsal 20; anal 24; scales about 56; some minute teeth in jaws. Color yellowish white, a distinct black streak down back, another indistinct one along side. The two colors are not sharply divided on sides. This specimen has the origin of ventrals under anterior half of dorsal.

Four specimens from Cavite; length 5.75 to 6 inches.

ILISHA Gray.

11. *Ilisha hævenii* (Bleeker).

Head 3.50 in length; depth 9.45; eye 2.50 in head; dorsal 17; anal 37; maxillary 2 in head. Color silvery; tip of caudal and dorsal dusky. Eight specimens from Cavite, length 3 to 7.50 inches.

Family DOROSOMATIDÆ.

ANODONTOSTOMA Bleeker.

12. *Anodontostoma chacunda* (Hamilton).

Head 3.50 in length; depth 2.25; eye 3.50 in head; adipose eyelid well developed; tip of snout projecting beyond the narrow under jaw; maxillary ending under anterior margin of pupil; scales 39; dorsal 18; anal 19. Color light brown above, silvery below, a brown spot above axil of pectoral just posterior to upper edge of opercle. Five specimens from Cavite, length 3.50 to 6 inches.

Family ENGRAULIDÆ.

ANCHOVIA Jordan & Evermann.

13. *Anchovia commersoniana* (Lacépède).

Head 4.20 in length; depth 5.50; dorsal 15; anal 21; small teeth in jaws, vomer, and palatines; scales 36. Color yellowish white, caudal with wash of dusky at tip. Seven specimens from Manila, length 2 to 4.20 inches.

14. *Anchovia hamiltonii* (Gray).

Head 4.45 in length; depth 3.50; eye 4 in head; scales 40; dorsal 12; anal 37; maxillary ending as a sharp spine almost on line with posterior margin of opercle; maxillary 4.25 in head. Color brownish above; silvery below; red at base of anal; a blotch of short narrow black lines on shoulders; belly sharp, serrated. Two specimens from Cavite, length 3 and 7.35 inches.

15. *Anchovia indica* (Van Hasselt).

Head 4.50 in length; depth 6; eye 3.20 in head; dorsal 16; anal 18; scales about 40; deciduous teeth in jaws, vomer, and palatines. Color yellowish white; a silvery line on side. Six specimens from Cavite, length 2.50 to 6 inches.

Related to *Anchovia commersoniana*, but easily distinguished by the greater length and the greater number of scales.

Family SYNODONTIDÆ.

SAURIDA Cuvier & Valenciennes.

16. *Saurida japonica* (Houttuyn).

Head 4 in length; depth 9; eye 4.25 in head; dorsal 11; anal 10; scales 54; adipose eyelid thin. Color in spirits brownish above, with some indistinct blotches on side, white below; outer half of pectoral and caudal shaded with gray. Eight specimens from Cavite, length 3.50 to 5.50 inches.

This species differs from *Saurida badi* (Cuvier) in the thin adipose eyelid, and pale ventrals. *Saurida tumbil* has the scales 60, and the back with dark crossbars.

17. *Saurida gracilis* (Quoy & Gaimard).

Head 4.10 in length; depth 6.20; eye 5 in head; dorsal 10; anal 9; scales 49. Color brownish, with dusky blotches along the side, extending to below lateral line; fins spotted and irregularly banded with brown. Three specimens from Manila, length 4.25 inches.

Family LEPTOCEPHALIDÆ.

UROCONGER Kaup.

18. *Uroconger lepturus* (Richardson).

Teeth in double rows in jaws; vomerine teeth in a single pointed row; outer and anterior teeth largest. Tail tapering to a very fine point. Color in spirits dull uniform brown; head and chin lighter. One specimen from Manila, length 12.50 inches.

Family MURÆNESOCIDÆ.

MURÆNESOX McClelland.

19. *Murænesox cinereus* (Forskål).

Vomerine teeth large and sawlike, with a basal lobe before and behind. Two specimens from Manila, length 12.75 and 13.50 inches.

Family MYRIDÆ.

20. *Murænichthys gymnopterus* (Bleeker).

Two specimens, one of 4 inches, one of 12, from Cavite.

Family OPHICHTHYIDÆ.

OPHICHTHUS Ahl.

21. *Ophichthus tapeinopterus* (Bleeker).

Teeth small, pointed, of equal size, forming broad bands in maxillary, in two rows on mandible and vomer; trunk half the length of tail; gape 2.75 in head. Color in spirits uniform yellowish brown, a little darker on upper part. One specimen from Cavite, length 11 inches.

22. *Ophichthus* sp. (larva).

Four specimens, from Manila, of a larval eel with sharp-pointed mouth, rather long teeth in a single series; no pectorals; anal, dorsal, and caudal fin differentiated, body very strongly compressed, rather short. Length 4 to 5 inches.

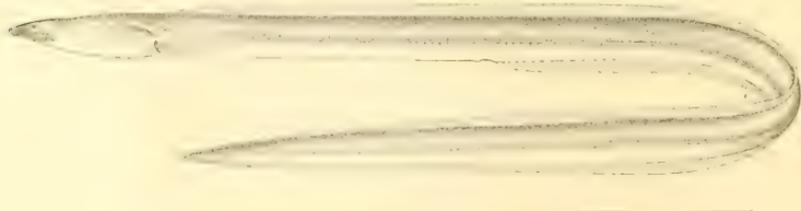
23. *Jenkinsiella nectura* Jordan, new species.

FIG. 1.—*Jenkinsiella nectura* Jordan, new species. Type.

Body slender, subterete, the greatest depth about 3 in head; head 9.75 in total length, 2.25 in trunk; head and trunk 3.5 in tail; eye very small, nearly 9 in head, 1.75 in snout; mouth rather large, extending much past eye nearly 3 in head; edge of upper lip with a row of conspicuous fleshy fringes posteriorly, the longest about

1.66 in eye; teeth slender, even, sharp, arranged in single series; no canines; upper jaw wider than lower and projecting around it; snout sharp, about 5.5 in head; anterior nostril with a moderate tube; gill openings small, placed rather low. Pectorals long, 1.6 in head; insertion of dorsal close behind base of pectoral. Dorsal fin very low, not much higher than eye. Anal very low; tip of tail without fin. Color light brown, darkened above by minute dots, which become sparse below; no distinct spots or bars; fins plain yellowish.

A single specimen, 7.5 inches long, was taken by Dr. Lung at Cavite. It is numbered 9984 in Stanford University.

The species is close to *Jenkinsiella macgregori* (*Microdonophis macgregori* Jenkins, Bull. U. S. Fish Commission XXII, 1902, p. 422) described by Jenkins from Maui, Hawaii. It differs from that species in the more posterior insertion of the dorsal, in the lower dorsal, and much longer pectoral. The coloration is much the same, but the tail is much longer in the Philippine species, *Jenkinsiella nectura*. The fringe of barbels, as in the genus *Cirrhinuræna*, well separates *Jenkinsiella* from *Microdonophis*.

Family MORINGUIDÆ.

24. *Moringua lumbricoidea* Richardson.

One specimen, 6.5 inches in length, from Cavite.

Family MURÆNIDÆ.

GYMNOTHORAX Bloch.

25. *Gymnothorax philippinus* Jordan & Seale, new species.

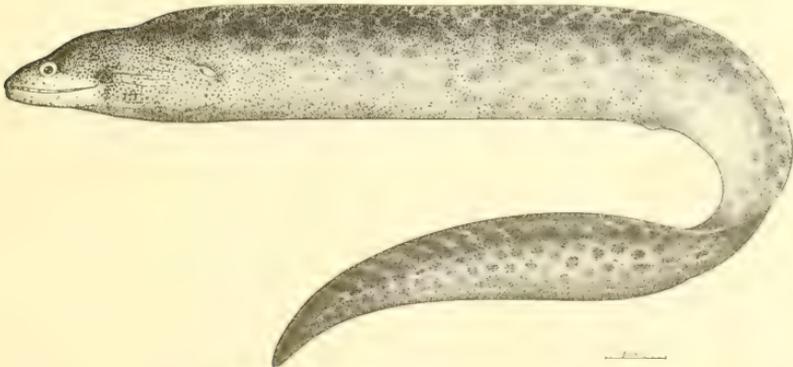


FIG. 2.—*Gymnothorax philippinus* Jordan & Seale, new species. Type.

Head 3.45 in trunk; length of head and trunk greater than length of tail by a distance equal to length of snout; eye rather large, 1.90 in snout; length of mouth to angle 2.40 in head; a single row of sharp-pointed teeth in lower jaw; teeth in upper jaw in a single row, reinforced by 3 or 4 additional teeth in palatine series; three large fang-like vomerine teeth in front, with a row of smaller ones extending back; anterior teeth large canines; fins of moderate height.

Color in spirits, everywhere powdered with yellow and brown, lighter on belly and chin, darker on posterior two-thirds of body, which shows rather wide indistinct darker bands; a distinct black blotch at angle of mouth, which unites with a black band around chin; a second dusky blotch midway between angle of mouth and gill opening; gill openings uncolored; fins dark, without white margins.

One fine specimen, the type, no. 9215, Museum Stanford University, 23 inches long.

Family SILURIDÆ.

NETUMA Bleeker.

26. *Netuma nasuta* (Bleeker).

Head 3.50 in length; depth 4.50; barbels 6; maxillary barbel single; dorsal 1, 7; anal 17. Teeth villiform, those of palate in subtriangular patches, as in Bleeker's figure. Three specimens from Cavite, length 7 to 12 inches. In all of these specimens the spines have been broken off by the fishermen.

Family PLOTOSIDÆ.

PLOTOSUS Lacépède.

27. *Plotosus anguillaris* (Bloch).

Head 4.75 in length; depth 8; barbels 8. Color in spirits brown, with 2 longitudinal pale bands. Fourteen specimens from Manila, length 3 to 6.25 inches.

Family CLARIIDÆ.

CLARIAS Gronow.

28. *Clarias magur* (Hamilton-Buchanan).

Head 3.30 in length; depth 1.75; barbels 8; top of head entirely ossified except the small fontanelle. Dorsal 65; anal 53; pectoral spine finely serrated, hidden under the skin.

Family BELONIDÆ.

TYLOSURUS Cocco.

29. *Tylosurus leiurus* (Bleeker.)

Head 2.75 in length; depth 4.30 in snout; eye 2.75 in postorbital part of head; snout 4 in length without caudal. Dorsal 19; anal 23; insertion of dorsal over the eighth to ninth anal rays; caudal truncate; no teeth on vomer. Color in spirits bluish above, silvery below, a silvery and blue band along side; no keel on caudal peduncle. One specimen from Cavite, length 14 inches.

30. *Tylosurus giganteus* (Schlegel).

Head 2.30 in length; depth 3.30 in snout; eye 2.10 in postorbital part of head. Dorsal 24; anal 21; origin of dorsal very slightly posterior to origin of anal; caudal with lower lobe prolonged. Color in spirits bluish green above, silvery below, a blue line on side. Two specimens from Cavite, length 11.75 inches.

Family EXOCETIDÆ.

HEMIRAMPHUS Cuvier.

31. *Hemiramphus quoyi* Cuvier & Valenciennes.

Head 4.75 in length; exposed lower jaw 1.50 in head; depth 8.50; dorsal 16; anal 15; scales about 52. Color in spirits bluish above, a blue line on side; top of dorsal and tip of caudal bluish. Seven specimens from Cavite, length 4 to 8.75 inches.

32. *Hemiramphus cantoris* Bleeker.

Head 5 in length; exposed lower jaw 2.75; depth 6.50; dorsal 15; anal 15; caudal forked. Color in spirits yellowish white, side with a wide blue band; tip of caudal dusky; lower jaw and top of head dusky. Four specimens from Cavite, length 4 to 5.50 inches.

ZENARCHOPTERUS Gill.

33. *Zenarchopterus dispar* (Cuvier & Valenciennes).

Hemirhamphus dispar Günther, Cat., vi, 274.

Head 3.50 in length; the exposed lower jaw 2.50 in length without caudal; caudal almost rounded; scales about 39; base of anal modified into a reproductive organ; dorsal 11; anal 10. Color in spirits yellowish, with wash of light brownish; side with a silvery line, with a narrow dark line above it. One specimen from Cavite, length 4 inches.

PAREXOCÆTUS Bleeker.

34. *Parexocætus mento* (Cuvier & Valenciennes).

Ereocætus mento Günther, Cat., vi, 281.

Head 4 in length; depth 5; eye 2.75 in head; dorsal 11; anal 12; ventrals short. Color in spirits bluish above, silvery below; pectoral bluish above, whitish below; dorsal with broad dusky tip. Eight specimens from Cavite; length 3.50 to 4.75 inches.

CYP SILURUS Swainson.

35. *Cypsilurus brachysomus* (Bleeker).

Head 4 in length; depth 5; eye 3 in head; dorsal 12; anal 8; ventral extending to middle of base of anal; pectoral reaching middle of base of dorsal. Color in spirits bluish above, silvery below; pectoral uniform bluish, the lower ray whitish. One specimen 7 inches long from Cavite.

Family FISTULARIID.E.

FISTULARIA Linnæus.

36. *Fistularia serrata* Cuvier.

Four young specimens from Cavite.

37. *Fistularia petimba* Lacépède.

One fine adult from Cavite, length 32 inches.

Family CENTRISCID.E.

CENTRISCUS Linnæus.

38. *Centriscus scutatus* Linnæus.

Head 3 in length; depth 2.10 in the projecting snout; dorsal 11, 10; anal 12; dermal skeleton with the ventral margin sharp. Nine specimens from Manila, length 3 to 3.20 inches.

Family SYNGNATHID.E.

CORYTHROICHTHYS Kaup.

39. *Corythoichthys spicifer* (Kaup).

Head 7.15 in length; snout 1.85 in head; rings 15+39; dorsal 26; a single ridge across cheek. Color in spirits brownish, with black bands around belly, a row of black dots on side of lower jaw. One specimen, length 6 inches, from Manila, and one 4.50 inches long from Cavite.

DORYICHTHYS Kaup.**40. *Doryichthys spaniaspis* Jordan & Seale, new species.**

Head 8.75 in total length; snout 2.30 in head; rings 13+34; dorsal 20; no distinct filaments on head; cheek with a single keel; dorsal fin on 5 rings; profile about eye not elevated; snout narrow, its width being 1.50 in depth; trunk 1.75 in tail; egg-sac on abdomen; lateral line running down to caudal ridge, where it is

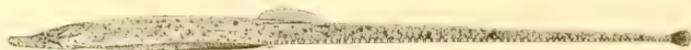


FIG. 3.—*Doryichthys spaniaspis* Jordan & Seale, new species. Type.

interrupted; caudal small, its length 3.90 in head; pectoral of 14 rays, short, 5.50 in head; edges of rings not distinctly serrated; no strong median line on interorbital space. Color in spirits grayish with tint of green; alternating darker bands over body, narrow dusky crossbands of dots on chin and throat. One specimen from Cavite, the type, no. 9240, Museum Stanford University, 4.24 inches long.

GASTEROTOKEUS Heckel.**41. *Gasterotokeus biaculeatus* (Bloch).**

Head 5.25 in length; snout 1.85 in head; dorsal 44; rings 17+44; filaments on under side of body and tail. Color in spirits grayish, with slight tint of green; a row of black spots on each side of belly. Two specimens from Iloilo, length 5.75 and 6.25 inches. One specimen from Cavite, length 6.25 inches.

HIPPOCAMPUS Linnæus.**42. *Hippocampus aterrimus* Jordan & Snyder.**

Hippocampus aterrimus Jordan & Snyder, Proc. U. S. National Museum, vol. xxiv, 1902, p. 14, pl. ix, Riukiu Islands.

Snout equal to postorbital part of head; spines blunt, short; dorsal 16; rings 11+36. Color black, spines enlarged at ventrals. One specimen from Cavite, agreeing with the Riukiu Islands type, length about 5 inches.

43. *Hippocampus kuda* Bleeker

Snout longer than postorbital part of head; rings 11+35; dorsal 17; spines blunt. Color in spirits, brownish. One specimen from Cavite, length 5.50 inches. It corresponds well with the account given by Jordan and Snyder.

Family PEGASIDÆ.

PARAPEGASUS Duméril.**44. *Parapegasmus natans* (Linnæus).**

Head 3 in length; depth 13; snout 4.75 in head; dorsal 5; anal 5; vent much nearer eye than to base of caudal; tail compressed, with 12 rings; upper surface of head and trunk concave; pectoral rays equally slender; snout prolonged into a large flat process which is denticulate on sides; pectoral and dorsal spotted with brown. One specimen from Cavite, length 2.20 inches.

The generic name *Zalises* is synonymous with *Pegasus*.

Family MUGILIDÆ.

MUGIL Linnæus.**45. *Mugil longimanus* Günther.**

Head 4 in length; depth 3.75; scales 32, 9 in vertical series; dorsal iv, 8; anal iii, 8. Color in spirits silvery, with narrow indistinct longitudinal lines along each row of scales; a black spot at axil of pectoral. Five specimens from Cavite, length 4 to 7.50 inches.

46. *Mugil sundanensis* Bleeker.

Head 4.10 in length; depth 4; dorsal iv, 9; anal iii, 9; scales 27 to 30, 9 in vertical series; a well-developed adipose eyelid; snout equal to eye; 17 or 18 scales in front of dorsal. Color in spirits silvery; no spot at axil; narrow line indistinctly along each row of scales. Two specimens from Cavite, length 7.50 inches.

47. *Mugil ceramensis* Cuvier & Valenciennes.

Six specimens from Cavite.

LIZA Jordan & Swain.

48. *Liza amarula* (Cuvier & Valenciennes).

Head 3.75 in length; depth 4; eye 3.10 in head; dorsal iv-1, 9; anal iii, 9; scales 37; upper jaw rather wide, smooth; lower jaw thin, the symphysis prominent; preorbital strongly bent and serrated. Color silvery, light below, outer margin of caudal dusky. One specimen from Cavite, length 3.25 inches.

49. *Liza troscheli* (Bleeker).

Head 3.50 in length; depth 3.55; eye 3.50 in head, 1 in snout; scales 32, 11 in vertical series; no adipose eyelid; dorsal iv-1, 8; anal iii, 9; 19 rows of scales before dorsal; lip thin; premaxillary hidden, except tip; preorbital strongly spinous at end; maxillary scaled; origin of dorsal over anterior third of anal; caudal emarginate. Color in spirits silvery, a light brownish wash above; caudal with dusky wash at margin, fins otherwise uniform. One specimen from Cavite, length 2.75 inches.

50. *Liza waigiensis* (Quoy & Gaimard).

Head 3.50 in length; depth 3.75; dorsal iv-1, 8; anal iii, 8; scales 27. Color in spirits yellowish, with silvery reflections, the centers of scales with narrow dark longitudinal line; dorsals and upper half of pectoral black, other fins gray. Two young examples from Cavite, length 2.50 inches.

Family SPHYRÆNIDÆ.

SPHYRÆNA Linnæus.

51. *Sphyræna obtusata* Cuvier & Valenciennes.

Head 3 in length; depth 6.05; eye 4.25 in head; snout 2.50; dorsal vi, 9; anal i, 9; scales 83, about 16 series in front of dorsal and 16 between the 2 dorsals. Color in spirits dusky above, silvery below, an indistinct dusky band on side. Five specimens from Cavite, length 5 to 9.50 inches.

52. *Sphyræna jello* Cuvier & Valenciennes.

Head 2.90 in length; depth 8; scales about 130; dorsal v-1, 9; anal i, 9. Color in spirits yellowish, with indistinct darker bands over back and on sides. One specimen from Manila, length 5.25 inches.

Family POLYNEMIDÆ.

POLYDACTYLUS Lacépède.

53. *Polydactylus zophomus* Jordan & McGregor, new species.

Polynemus plebejus Cantor, Malayan Fishes, 27, 1854, Malayan Peninsula; not of Broussonet. Günther, Cat., II, 329, 1849, Amboyna; Malayan Peninsula; not synonymy.

Polydactylus plebejus Jordan & Evermann, Proc. U. S. Nat. Mus., xxv, 1902, 331, Kotosho, Formosa.

Head 3.2 in length to base of caudal; depth 3.25; dorsal viii-1, 13; anal iii, 13; first dorsal spine and first anal spine minute; 5 free pectoral rays, the longest reaching a little beyond tip of pectoral fin; eye 4 in head; scales large, ctenoid, deciduous, about 58 in lateral line.

Color in alcohol light golden brown; fins browner, all of them more or less speckled with black; first dorsal most heavily speckled and with a narrow but distinct black border; a horizontally oblong black spot with serrate edges, three-eighths of an inch in diameter, above gill-opening, the lateral line passing through its middle.

Four specimens, 0.25 to 8 inches in length, from Cavite, Luzon. The type is numbered 55598, U. S. National Museum. Cotype is no. 20113, Museum Stanford University.

This species differs from the true *Polydactylus plebeius* of Samoa in its much larger scales and also in its different color, its less concave anal and second dorsal, its deeper body, and shorter, blunter snout. In *P. zophomus* the free pectoral filaments reach but little beyond tip of pectoral, while in *P. plebeius* they reach beyond tip of ventral.

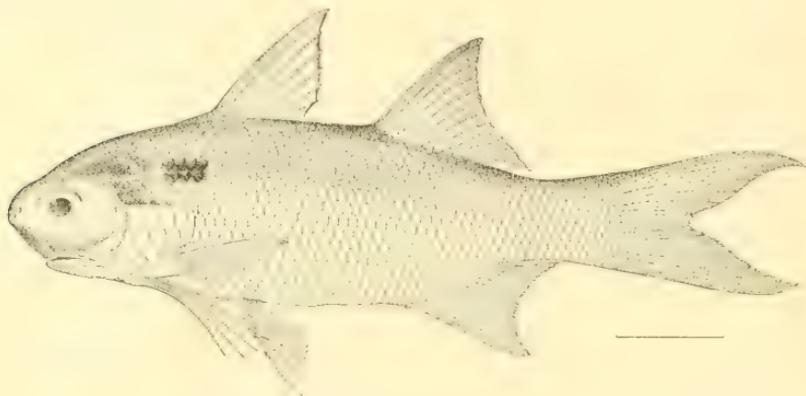


FIG. 4.—*Polydactylus zophomus* Jordan & Seale, new species. Type.

P. zophomus has been confounded with *Polydactylus plebeius*, as the above synonymy indicates. It is, however, quite distinct from the latter and equally so from the common Japanese species, *Polydactylus agonasi* Jordan & McGregor, which also has been recorded as *Polydactylus plebeius*.

Family HOLOCENTRIDÆ.

HOLOCENTRUS Bloch.

54. *Holocentrus ruber* (Forskål).

Head 2.75 in length; depth 2.75; dorsal XII, 13; anal IV, 9; scales 37. Color in spirits yellowish, with 8 dark longitudinal stripes; a dusky blotch at base of soft dorsal; tip of ventrals and upper and lower margins of caudal, web between first and second anal rays, and portions of spinous dorsal dusky. Three specimens from island of Panay, length 3 to 3.25 inches.

Family SCOMBRIDÆ.

SCOMBER Linnæus.

55. *Scomber microlepidotus* Rüppell.

Head 3.35 in length; depth 3.75; eye 3.90 in head; adipose eyelid covering all but middle of eye. Dorsal X-1, II, V; anal I, II-V; teeth minute, in both jaws; none on vomer or palatines; maxillary reaching to below posterior margin of eye. Color, back bluish, old individuals with longitudinal stripes, silvery below; young with dusky spot under pectoral fin; adults usually showing some dusky spots at base of spinous dorsal, the fin with dusky margins; other fins yellowish white; pectoral with slight wash of dusky at tip. Twelve specimens from Cavite, length 3 to 11 inches.

SCOMBEROMORUS Lacépède.

56. *Scomberomorus commersoni* (Lacépède).

Head 3.75 in length; depth 5; eye 4.75 in head; dorsal XVI-III, 14+IX; anal II, 12+IX; maxillary long, extending to posterior margin of eye; teeth strong, canine-like. Color bluish above, with irregular vertical bands, silvery below; first dorsal black, posterior dorsal with a black margin. One young example from Cavite, length 4 inches.

Family TRICHIURIDÆ.

TRICHIURUS Linnæus.

57. *Trichiurus savala* Bleeker.

Head about 7 in length; depth 2 in head; eye 5.50 in head, 2 in snout; jaws with long fang-like teeth; anal fin consisting of small spinules. Color silvery, slightly darker above; fins with slight dusky tint at tip. Six specimens from Cavite, length 10 to 17 inches.

Family CARANGIDÆ.

SCOMBEROIDES Lacépède.

58. *Scomberoides tala* (Cuvier & Valenciennes).

Head 4.50 in length; depth 3; eye 3.75 in head; dorsal VII-1, 20; anal II-1, 17; teeth on jaws, vomer, tongue, and palatines; enlarged canines in each jaw; maxillary long, ending slightly posterior to hind-margin of eye. Color in spirits dull bluish above, silvery below; a row of about 7 large vertical brown blotches along side; tip of dorsal dusky; a small black spot in axil of pectoral. Five specimens from Cavite, length 4 to 12 inches.

This species is easily distinguished from *Scomberoides tolooo-parah* by its great depth and by its markings and from *S. lysan* by the presence of canines.

59. *Scomberoides tolooo-parah* (Rüppell).

Head 4.50 in length; depth 4; eye 4.10 in head; dorsal V-II, 18+IX; anal II, 20, the posterior 10 or 12 anal rays united by a very narrow membrane at base only. Maxillary ending under posterior third of eye; minute teeth on jaws, vomer, palatines, and tongue, enlarged canine-like teeth in outer row in jaws; dorsal spines not connected. Color bluish above, silvery below; 8 or 9 dusky spots along side, a black spot at axil and a wide dusky area from upper margin of opercle to interorbital; anal fins golden; dorsal yellowish, with a black blotch on its upper half; tips of caudal slightly dusky; other fins yellowish white. Fourteen specimens from Cavite, length 4 to 10 inches.

TRACHUROPS Gill.

60. *Trachurops crumenophthalma* (Bloch).

Head 3.20 in length; depth 3.20; eye 2.75 in head; dorsal VIII-1, 24; anal II-1, 21; entirely scaled, scales of straight portion of lateral line forming keeled plates, about 38 in number. Color yellowish white, with golden reflections; a dusky opercular spot; caudal with dusky tip. Two specimens from Cavite, length 10 inches.

CARANX Lacépède.

61. *Caranx hasselti* Cuvier & Valenciennes.

Head 3.50 in length; depth 3.10; dorsal VII, 1, 25; anal II, 21; plates well developed; maxillary short, ending under anterior third of eye; pectoral very long, falcate, 2.75 in length. Color brownish above, silvery below; a very distinct opercular spot. One specimen from Cavite, length 7.50 inches.

62. *Caranx forsteri* Cuvier & Valenciennes.

Three specimens from Cavite.

63. *Caranx sexfasciatus* Quoy & Gaimard.

Head 3.10 in length; depth 2.75; eye 3.75 in head; adipose eyelid well developed; maxillary 2 in head, the end under posterior third of eye; teeth on jaws, vomer, palatines, and tongue; a row of slightly enlarged teeth in jaws; breast scaled; 53 scales in curved portion of lateral line; 34 plates along straight portion; dorsal vi-1, 20; anal ii-17. Color yellowish; tip of dorsal, anal, and caudal dusky; a dusky wash along plates; axil dusky; a black opercular spot. Three specimens from Cavite, length about 11 inches.

These specimens seem to belong to the species from Hawaii and Samoa called *Caranx rhabdotus* by Dr Jenkins.

64. *Caranx nigripinnis* Day.

Head 3.60 in length; depth 2.75; dorsal vii-23; anal ii, 21; plates 54; breast scaled; no teeth on vomer or palatines. Color silvery below, dark bluish above; a distinct opercular spot; spinous dorsal dusky, soft dorsal more or less marked with dusky. Eight specimens from Cavite, length 3 to 4 inches.

65. *Caranx ignobilis* (Forskål).

Head 3.50 in length; depth 2.50; eye 3 in head; maxillary reaching to below posterior third of eye; no scales on breast: dorsal vi-1, 20; anal ii-1, 18. Color silvery, darker above, with 5 wide vertical dusky bars. Eleven specimens from Cavite, length 1.50 to 3.75 inches.

66. *Caranx speciosus* (Forskål).

Color silvery, with about 11 dusky lines alternating narrow and wide, the one through the eye and the one over nuchal region very dark. Two specimens from Cavite.

67. *Caranx plumbeus* Quoy & Gaimard.

Head 3.20 in length; depth 2; eye 3.75 in head; dorsal vi-1, 21; anal ii-1, 18; maxillary 2.18 in head; 42 plates along lateral line; axil black; several of dorsal and anal rays elongate and filiform in males. Color yellowish, with bright reflections; the young banded vertically, with anterior rays of dorsal and anal extremely elongate; in females, a dusky blotch on posterior margin of opercle. Eight specimens, length 3.50 to 10 inches.

This species seems identical with the one from Samoa which we call *Caranx plumbeus*.

68. *Caranx armatus* (Forskål).

Head 3 in length; depth 1.50; eye 3.10 in head; small teeth on jaws, vomer, and palatines; maxillary extending to below anterior margin of pupil; breast naked; a dusky opercular spot; dorsal vi-1, 20; anal ii-1, 18; about 48 scales in straight portion of lateral line; the anterior rays of dorsal and anal elongate. Three specimens from Cavite, length 2 to 3 inches.

ALECTIS Rafinesque.**69. *Alectis ciliaris* (Bloch).**

Head 2.75 in length; depth 1.20; eye 4 in head; dorsal vi-1, 19; anal ii-1, 16; teeth villiform. A small keel on side of caudal peduncle; anterior dorsal and anal rays greatly prolonged into black filaments; anterior rays of ventrals greatly prolonged; five wide, rather indistinct bands down the side. Three specimens from Cavite.

Family RACHYCENTRIDÆ.**RACHYCENTRON Kaup.****70. *Rachycentron pondicerianum* (Cuvier & Valenciennes).**

Head 4 in length; depth 7.50; dorsal viii-30; anal 27. Villiform teeth on jaws, vomer, palatines, and tongue. The young have the caudal rounded; in the adult it becomes lunate. Color in spirits brownish; two brown longitudinal lines along side; upper and lower margins of caudal white. Two specimens from Iloilo, length 4.15 and 6.75; one specimen from Manila, length 8.5 inches.

Family MENIDÆ.

MENE Lacépède.

71. *Mene maculata* (Bloch).

Head 3.10 in length; depth 1.18; eye 3.20 in head; dorsal *iv*, 42; anal 33; no scales; origin of dorsal fin on back; teeth villiform. Color silvery below, with large bluish blotches above a line from pectoral to top of caudal peduncle; a dusky spot in front of eye. The young have the ventral fins filiform. Three specimens from Iloilo; length 2 to 7.50 inches.

Family EQUULIDÆ.

EQUULA Cuvier.

72. *Equula insidiator* (Bloch).

Head 3.75 in length; depth 2.10; eye 2.26 in head. Color yellowish white, with several incomplete bands over back, down to middle of side; a black band from lower anterior orbital margin to chin. Four specimens from Cavite, length about 3.25 inches.

73. *Equula ruconia* (Hamilton-Buchanan).

Equula interrupta Günther, Cat., II, 504. Day, Fishes of India, 242, pl. LI, c. fig. 4.

Head 3.75 in length; depth 1.50; eye 2.50 in head; dorsal *viii*, 16; anal *iii*, 14; lateral line extending to opposite middle of soft dorsal. Color yellowish above, silvery below; axil of pectoral black; a black line from orbit to chin; a dusky spot on upper part of opercle; dorsal tipped with dusky. Five specimens from Cavite, length 2 to 2.75 inches.

This species is very similar to *Equula insidiator*; but the body is deeper.

LEIOGNATHUS Lacépède.

74. *Leiognathus fasciatus* Lacépède.

Head 3.20 in length; depth 2; eye 2.60 in head; dorsal *vii*, 16; anal *iii*, 14; lateral line complete; lower margin of preopercle finely denticulate; teeth minute, two minute spines above upper anterior margin of orbit; second dorsal and second anal spines greatly elongate, the third and fourth dorsal spines rugose on sides. Color silvery, with indications of irregular vertical streaks on body. One specimen from Cavite, length 4.12 inches.

75. *Leiognathus dussumiéri* (Cuvier & Valenciennes).

Head 3 in length; depth 1.60; eye 3 in head; dorsal *vii*, 16; anal *iii*, 14; lateral line complete; two small spines above anterior margin of eye; teeth villiform; thorax naked. Color silvery, bluish above; axil of pectoral black. Two specimens from Cavite, length 2 and 7 inches.

GAZZA Rüppell.

76. *Gazza minuta* (Bloch).

Head 3 in length; depth 2; eye 3 in head; dorsal *viii*, 16; anal *iii*, 14. Color silvery bluish above, a slight yellowish wash above the head, a dusky spot in axil; iris yellow. Eight specimens from Cavite, length 4 to 5.50 inches.

Family STROMATEIDÆ.

APOLECTUS Cuvier & Valenciennes

77. *Apolectus niger* (Bloch).

Head 2.75 in length; depth 1.75; eye 3.30 in head; dorsal *vi*, 42; anal 37; 5 or 6 rudimentary spines in front of dorsal; minute teeth in jaws, apparently none on vomer or palatines; scales minute, breast apparently naked; scales of lateral line very slightly modified into feeble plates on caudal peduncle. Color grayish brown; dorsal and anal bluish; young with about 4 indistinct vertical bluish bands, a dusky ocular band.

A specimen 2.75 inches long has ventral fins 0.75 of an inch long, while a larger specimen, length 3.75 inches, has the ventrals but 0.30 of an inch long; these fins disappear in the adult.

Two specimens (young) from Cavite.

Family APOGONICHTHYIDÆ.

AMIA Gronow.

78. *Amia quadrifasciata* (Cuvier & Valenciennes).

Head 2.75 in length; depth 3; eye 3.75 in head; dorsal VII-1, 9; anal II, 8; scales 25. Color in spirits yellowish, with 2 longitudinal brown stripes, one from tip of snout thru eye and along median line of body to tip of caudal, the other from upper part of snout back to base or near base of caudal; about 11 indistinct vertical bands on side of body; a black band through the basal portion of soft dorsal and anal; anterior part of spinous dorsal marked with dusky; tip of ventrals dusky; anal also indistinctly tipped with dusky; no black spot at base of caudal. Six specimens from Cavite, length 2.50 to 3 inches. Three of these, which differ in no other respect, have the colors much less distinct, not showing any trace of the vertical bands, and a very indistinct trace of bands through anal and dorsal.

Amia fasciata (White), from Sydney, as represented by specimens sent by Mr. Edgar R. Waite, seems to be distinct from this species, and equally so from *Amia novemfasciata* (Cuvier & Valenciennes) and *Amia aroubiensis* (Hombrom & Jacquinet), with both of which Dr. Günther confounds it in *Fische der Südsee*.

79. *Amia cavitensis* Jordan & Seale, new species.

Head 2.90 in length without caudal; depth 3.05; dorsal VII-1, 9; anal II, 8; eye 3 in head; scales 2-26-5; maxillary 2 in head, its distal end under posterior third of eye; posterior limb of preopercle serrated; snout 1.35 in eye; interorbital equal to snout.

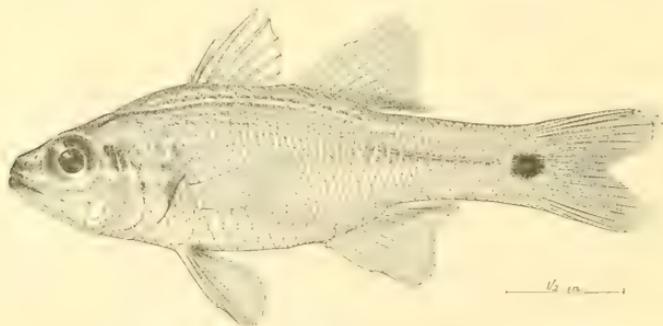


FIG. 5.—*Amia cavitensis* Jordan & Seale, new species. Type.

Body compressed, of moderate depth, the profile from origin of dorsal to tip of snout almost straight; depth of caudal peduncle 2.20 in head; small teeth on jaws, vomer, and palatines; lateral line complete; origin of spinous dorsal directly over origin of ventrals, third dorsal spine 1.90 in head; second less than half as long, the first very minute; the spine of soft dorsal 2.20 in head, the longest dorsal ray 1.50; base of anal 2.75 in head, longest ray of anal 1.75 in head; ventrals 1.75 in head; pectorals 1.50; caudal slightly emarginate, with lobes rounded.

Color in spirits yellowish, a distinct dusky line on median line of nuchal region; a distinct dusky line from snout over eye, extending to upper base of caudal, very indistinct posteriorly; a wide dusky line from snout thru eye to opercle; about 5 indistinct shadowy, longitudinal lines on side of body; tips of fins dusky; a distinct round spot on middle of base of caudal, dorsal fins yellowish, with slight wash of dusky more distinctly dusky on posterior rays of soft dorsal, other fins yellowish-white with slightly dusky wash, the anal with indistinct dusky line at base.

One specimen from Cavite, the type, 2.75 inches long, no. 9241, Museum Stanford University.

This species seems related to *A. hartfeldii* (Bleeker).

80. *Amia novæ-guineæ* (Bleeker).

Head 2.50 in length; depth 3; eye 3.75 in head; dorsal VII-1, 9; anal II, 8; scales 25; lateral line complete; outer limb only of preopercle denticulate, and that very minutely; maxillary reaching to below posterior margin of pupil; teeth in jaws, vomer, and palatines. Color yellowish; anterior spines of spinous dorsal dusky, tip of soft dorsal dusky and a dusky line thru its lower third; caudal with dusky tip; other fins without markings. Three specimens, apparently young and faded, the smallest two showing an indistinct banded appearance; length 2.25 to 3.25 inches.

MIONORUS Kreff.**81. *Mionorus glaga* (Bleeker).**

Head 2.45 in length; depth 2.75; eye 4.12 in head; dorsal VII-1, 9; anal II, 8; scales 27; maxillary 2 in head, its end under posterior margin of orbit. Color yellowish, with about 8 irregular dusky longitudinal stripes, no spot on caudal peduncle; upper half of spinous dorsal black; soft dorsal with about 4 irregular oblique dusky bands; caudal margined and tipped with dusky; anal with 2 or more dusky bands on basal half; ventrals and pectoral yellow. Four specimens from Cavite, length about 1.50 to 4 inches.

82. *Mionorus mydrus* Jordan & Seale.

One young example from Manila.

FOA Jordan & Evermann.**83. *Foa fo* Jordan & Seale.**

Head 2.55 in length; depth 2.30; dorsal VII-1, 9; anal II, 8; scales 22; opercle and preopercle entire; lateral line strongly developed on anterior 9 scales, connected with a broken line of points on caudal peduncle; villiform teeth in jaws, vomer, and palatines; maxillary 2 in head, its distal and under posterior margin of eye. Color in spirits yellowish, with dark mottlings, ventrals dusky. Three specimens from Cavite, length 2 to 2.25 inches, identical with the original type from Samoa.

Foa differs from *Mionorus* in the incomplete lateral line.

ARCHAMIA Gill.**84. *Archamia lineolata* (Ehrenberg.)**

(*Apogon lineolatus* Günther, Cat., 1, p. 244.)

Head 2.50 in length; depth 2.25; eye 3.10 in head; maxillary 2, reaching to below posterior margin of pupil; scales 23; lateral line complete; cheek scaled, lower limb of preopercle only denticulate; teeth in jaws and on vomer, none on palatines; second dorsal spine 2.75 in depth; dorsal VI-1, 10; anal II, 17. Color in spirits yellowish white, slightly shaded with minute black dots which are largest and most abundant on cheek; fins unmarked; some have a spot at base of caudal and on opercle; others do not. Six specimens from Cavite, length 1.50 to 3.50 inches.

PSEUDAMIA Bleeker.

Pseudamia is apparently well distinguished by its small scales.

85. *Pseudamia polystigma* (Castelnau).

Apogonichthys polystigma, Bleeker, Atlas, pl. CCCXLVIII, fig. 2.

Head 2.75 in length; depth 4.12; eye 4.75 in head; dorsal VI-1, 8; anal II, 10; scales 42, a distinct membranous flap at each anterior nostril; maxillary reaching to below posterior margin of eye. Color grayish, each scale with dark specks which form irregular rows, a large black blotch on base of caudal; dorsal fins dusky, with submarginal area of deep black on soft dorsal; caudal blackish; anal dusky; ventrals yellowish; top of head black; a black dot on posterior maxillary. One specimen from Cavite, length 4.25 inches.

Family AMBASSIDÆ.

86. *Ambassis kopsi* (Bleeker).

Head 2.75 in length; depth 2.50; eye 2.75 in head; scales 30, two rows of scales on cheek; lateral line curved, continuous, $2\frac{1}{2}$ rows of scales above it, 9 or 10 scales before dorsal; preorbital and lower limb of preopercle serrated; first dorsal spine 3.50 in length. Color yellowish white, uniform or with indistinct silvery line down middle of body; a black tip to second to fifth dorsal spines and membranes. Two specimens from Cavite, length 3 and 3.50 inches.

The generic name *Chanda* Hamilton-Buchanan, 1822, has priority over *Ambassis* Cuvier, 1828. The name *Ambassis* is not used in a generic sense by Commerson or by Lacépède. The first reviser of *Chanda*, Fowler (Proc. Ac. Nat. Sci. Phila. 1905, p. 500), has chosen *lala* as type, and as this is a species of the group called *Pseudambassis*, *Chanda* would replace the latter name, thus allowing *Ambassis* to stand for the original type, *Ambassis ambassis*.

PRIOPIS Kuhl & Van Hasselt.

87. *Priopis buruensis* (Bleeker).

Head 2.75 in length; depth 2.25; second dorsal spine 3.40; preorbital serrated; two rows of scales on cheek; lateral line interrupted; maxillary 2.75 in head, its tip under anterior margin of eye. Color yellowish white, slightly shaded above with minute dots, a silvery band along median line; membrane between third and fourth spines dusky, between third and fourth anal spines white. Two specimens from Cavite, length 3.25 and 4 inches.

88. *Priopis interruptus* (Bleeker).

Head 2.75 in length; depth 2.20; eye 2.75 in head; scales 26; second dorsal spine very strong, equal to head, scales on cheek in 2 rows of 5 scales each. Color yellowish white; membrane between second and third dorsal spines dusky; a dusky line on a silvery band from base of caudal forward, fading out under anterior of spinous dorsal. One specimen from Cavite, length 2.75 inches.

89. *Priopis lungi* Jordan & Seale, new species.

(*Ambassis urotænia*, Day, not of Bleeker.)

Head 2.75 in length without caudal; eye 2.85 in head; dorsal VII-1, 9; anal III, 9; scales 3-24-6; a single row of scales on cheek; snout 1.85 in eye; interorbital 1.50 in eye; lateral line interrupted under third dorsal

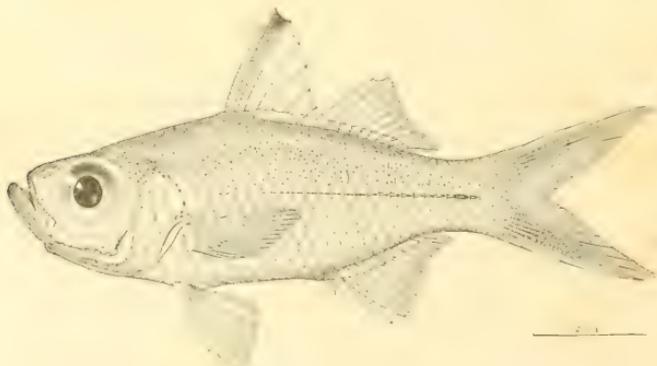


FIG. 6.—*Priopis lungi* Jordan & Seale, new species. Type.

ray and turned downward to middle of side, where it is continued to base of caudal; anterior portion with 14 pores, oblique portion one complete pore and one partial pore, posterior portion 12 pores.

Body moderately elongate, compressed; depth of caudal peduncle 2.50 in head; snout pointed, lower jaw the longer; upper anterior profile from origin of dorsal to tip of snout with a low angle and almost straight;

maxillary 2.85 in head; minute teeth on jaws, vomer, and tongue; preorbital and lower limbs of preopercle serrated; gillrakers rather long, sharp-pointed; second dorsal spine strong, 1.50 in head; spine of second dorsal 2.35; base of anal 1.90; third anal spine the longest, 2.10; pectoral 1.60; ventral 1.60, its origin directly below origin of pectoral; caudal deeply forked, its length greater than head.

Color in spirits yellowish white; a narrow dark line along median line of side, becoming more distinct posteriorly; a dark line along base of dorsal fins; membrane between second and third dorsal spines dusky; membrane between second and third anal spines slightly tinted with dusky; upper and lower margin of caudal white, the submarginal area dusky; a dusky blotch on upper part of orbit; eye golden.

Two specimens from Cavite. Type, no. 53060, U. S. National Museum, length 2.85 inches. Cotype, no. 9242, Museum Stanford University.

This species is characterized by the single row of scales on cheek, the broken lateral line, and by the marking of the fins. *Priopis urutania* Bleeker, with which Day confounds this species, has a double row of scales on cheek.

Family SERRANIDÆ.

PLECTROPOMUS (Cuvier) Oken.

90. *Plectropomus calcarifer* (Bloch).

Head 2.60 in length; depth 3.20; eye 4.20 in head; dorsal VII-1, 12; anal III, 9; scales 46 to base of caudal; preopercle serrated, with a strong spine at angle; opercle with a small flat spine; maxillary reaching to below posterior third of iris; minute teeth on jaws, vomer, palatines, and tongue; no canines. Color dusky brownish, with numerous indistinct longitudinal dusky stripes; fins brownish; tips of ventrals, anal, caudal, and soft dorsal with slight wash of dusky. One specimen from Cavite, length 5 inches.

The generic name *Plectropomus*, later called *Plectropoma*, belongs apparently to this species as the *chef de file* of Cuvier, *calcarifer*.

CEPHALOPHOLIS Bloch & Schneider.

91. *Cephalopholis stigmatopomus* (Richardson).

Head 2.50 in length; depth 2.75; eye 5 in head; dorsal IX, 15; anal III, 8; scales about 187; teeth in several series in jaws, with 4 outer anterior canines in each jaw; small teeth on vomer and palatines; opercle with 3 strong spines, the upper the longest, the lower two closer together; preopercle with small denticulations; mouth long; maxillary 2 in head. Color uniform brown, becoming blackish posteriorly, fins black, unmarked. One specimen from Manila, length 7.50 inches.

CROMILEPTES Swainson.

92. *Cromileptes altivelis* (Cuvier & Valenciennes).

Head 2.75 in length; depth 2.75; eye 4 in head; dorsal X, 18; anal III, 10; scales 136; teeth in jaws, vomer, and palatines; preopercle serrated and rounded; opercle with 3 spines, the middle one the largest. Color light brown, with scattered round deep black spots, about size of eye on fins and body, small on head, a few running together on belly. One specimen from Manila, length 4.50 inches.

EPINEPHELUS Bloch.

93. *Epinephelus malabaricus* Bloch.

Head 2.60 in length; depth 3; eye 4.75 in head; dorsal XI, 17; anal III, 8; scales about 100 in lateral series; gillrakers 14; preopercle serrated, with about 3 of the teeth at angle enlarged; opercle with spines, the two lower ones nearer together than upper and middle, the middle one largest and most posterior; canines in anterior of jaw. Color dull brownish, apparently without stripes or markings. Two specimens from Cavite, length 3.75 and 4.50 inches.

94. *Epinephelus diacanthus* (Cuvier & Valenciennes).

Head 2.85 in length; depth 3.20; eye 5 in head, 1 in snout, and 1 in interorbital; preopercle serrated, the serrations larger at angle; dorsal XI, 16; anal III, 8; scales about 100. Color brownish, with 6 dark bands over back, which slope obliquely forward; numerous vermiculating brownish lines with some spots on side of body; dark bands of body extending into dorsal fin. Fourteen specimens from Cavite, length 3 to 8 inches.

Two of these specimens have the eye much larger and the body slightly more elongate, and may prove to be a different species.

95. *Epinephelus megachir* (Richardson).

Head 2.30 in length; depth 3.10; eye 3.75 in head; preopercle serrated, the serrations larger at angle; dorsal xi, 16; anal iii, 8; scales 85; 14 gillrakers. Body with extremely large brown spots which also cover the fins. One specimen from Cavite, length 5 inches.

96. *Epinephelus tauvina* (Forskål).

Head 2.60 in length; depth 3; eye 5 in head; scales 110. Grayish dusky above, with 6 indistinct bands and scattered large brown spots; preopercle serrated, the serrations much larger at angle. Three specimens from Cavite, length about 5 inches.

Family **PRIACANTHIDÆ**

PRIACANTHUS Cuvier.

97. *Priacanthus cruentatus* (Lacépède).

Head 3 in length; depth 2.5; eye 2 in head; dorsal x, 12; anal iii, 13; scales about 75; maxillary reaching to below anterior of pupil, 2 in head; preopercle serrated, with long spines at angle, the spine reaching to below middle of base of pectoral, tenth dorsal spine 2 in head, the ninth about as long. Color in spirits dull brown, margin of dorsal dusky, tips of ventrals dusky, also tip of caudal. Two specimens from Cavite, length 3 and 3.50 inches.

Family **LUTIANIDÆ**.

LUTIANUS Bloch.

98. *Lutianus dodecantheoides* (Bleeker).

Head 2.50 in length; depth 2.30; dorsal xi, 12; anal iii, 9; scales 11-55; eye 4.75 in head; snout 2.75. Color in spirits yellowish white, with narrow oblique dusky lines above lateral line and about 10 longitudinal lines below; a silvery white blotch in posterior axil of dorsal; a broad black saddle over caudal peduncle; dorsal tipped with black; a dusky wash on anal; tips of ventrals black. One specimen from Manila, length 7 inches.

99. *Lutianus vittæ* (Quoy & Gaimard).

Head 2.50 in length; depth 3; dorsal x, 13; anal iii, 8; scales 11-66; eye 4.50 in head; snout 3.10. Color yellowish white, center of scales above lateral line with dark spots, forming dark oblique lines one-fourth as wide as interspaces, a broader brown band from eye along side to below posterior axil of soft dorsal; no color on fins; notch and knob of opercle small but distinct. Eighteen specimens from Cavite, length 3.25 to 9 inches.

100. *Lutianus quinquelineatus* (Cuvier & Valenciennes).

One specimen from Cavite. Five blue stripes along side; a large dusky lateral blotch.

101. *Lutianus russelli* (Bleeker).

Head 2.75 in length; depth 2.75; eye 3.50 in head; snout 3.50; dorsal x, 14; anal iii, 8; scales about 47. Two young examples from Cavite, length 3 inches.

102. *Lutianus gibbus* (Forskål).

Head 2.75 in length; depth 2.75; eye 4 in head, 1.50 in snout; preopercular knob and notch large, acute; dorsal x, 14; anal iii, 8; scales 8-65. Color yellowish white, with many (35 to 40) narrow oblique dusky lines following the oblique lines of scales entirely across the body. Spinous dorsal with dusky margin, soft dorsal dusky with white upper margin; ventrals tipped with dusky; anal with margin of white and intramarginal area of dusky; caudal dusky with white margin. One specimen, 7 inches long, from Cavite.

As compared with *Lutianus gibbus* of the same size from Samoa, the maxillary is shorter, the depth of body is less, and the snout is less pointed.

103. *Lutianus decussatus* (Cuvier & Valenciennes).

Head 2.75 in length; depth 3; dorsal x, 13; anal III, 8; scales 7-65; snout 3 in head; eye 4.50 in head; maxillary 2.75, reaching to below anterior half of eye; no distinct preopercular notch. Color yellowish white, with 5 wide brown longitudinal bands on side, the 3 upper ones with 7 vertical bands extending through them; a black spot on caudal peduncle. One specimen from Manila, length 5.50 inches.

PINJALO Bleeker.

104. *Pinjalo typus* Bleeker.

Head 3 in length; depth 2.50; dorsal XI, 13; anal III, 9; scales about 60; preopercle serrated; mouth moderate; maxillary ending under anterior margin of eye; teeth in jaws and vomer, none on palatines or tongue. Color uniform yellowish white, the dorsal fins with dusky edges, middle of caudal margin dusky. Nine specimens from Cavite, length 2.75 to 5 inches.

NEMIPTERUS Swainson.

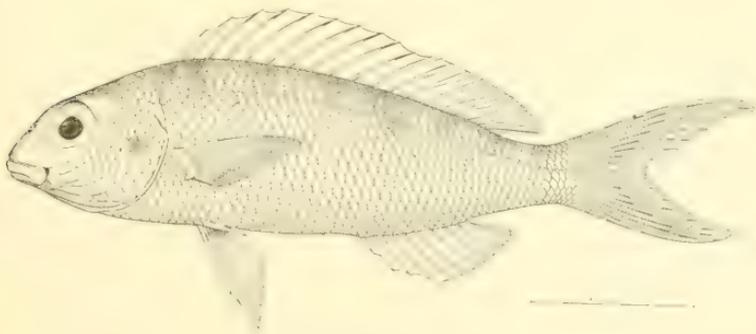


FIG. 7.—*Nemipterus luteus* (Bloch).

105. *Nemipterus luteus* (Bloch).

Head 3.20 in length; depth 4; eye 3 in head; 3 rows of scales on cheek; dorsal x, 9; anal III, 7; scales about 44. Color yellowish, with 9 dark bands over back and down to lateral line. One specimen from Cavite.

106. *Nemipterus tæniopterus* (Cuvier & Valenciennes).

Head 3.10 in length; depth 3.50; eye 3.50 in head, slightly less than snout; 3 rows of scales on cheek; canine teeth in each jaw; membranes of dorsal slightly incised. Color yellowish white; upper half of body with slight wash of light brownish, a reddish band on fifth row of scales below lateral line; some indistinct lighter longitudinal bands below lateral line; fins not elongate. One specimen from Manila, 5.25 inches long, and one from Cavite, 10.25 inches long.

107. *Nemipterus ovenii* (Bleeker).

Head 3.50 in length; depth 3.50; eye 3 in head; canine teeth in outer row in each jaw; dorsal x, 9; anal III, 7. Color yellowish white, with 5 dusky vertical bands over back and down to middle of side. One specimen from Cavite, length 3.25 inches.

108. *Nemipterus japonicus* (Bloch).

Head 2.85 in length; depth 3.14; eye 3.80 in head; snout slightly greater than eye; canines in upper jaw and some slightly enlarged teeth in sides of lower mandible; maxillary ending under anterior third of eye; the upper ray of caudal much prolonged; membrane of dorsal but little incised; three rows of scales on cheek; traces of minute denticulations on the limb of preopercle. Color yellowish white, with indistinct lighter lines. Eight specimens from Cavite, length 3.50 to 5.50 inches.

109. *Nemipterus metopias* (Bleeker).

Head 3.20 in length; depth 3.50; eye 3 in head; canines in both jaws; preorbital smooth; 3 rows of scales on cheek; dorsal spines not prolonged; ventral rays prolonged; caudal rays slightly elongate. Color yellowish white; some dusky on opercle. One specimen, 5.95 inches long, from Cavite.

110. *Nemipterus tolu* (Cuvier & Valenciennes).

Head 3.15 in length; depth 3.75; eye 3.20 in head; dorsal x, 9; anal III, 7; the first two dorsal spines very close together; jaws with bands of small teeth; preopercle entire; three rows of scales on cheek; dorsal fins rather elongate, with the membranes deeply incised; lateral conical teeth in each jaw. Color in spirits yellowish white, with indistinct longitudinal lighter lines. One specimen from Cavite, length 5 inches.

Family HÆMULIDÆ.

EUELATICHTHYS Fowler.

The genus or subgenus *Euelatichtys* Fowler is separated from *Plectorhynchus* Lacépède by its large scales.

111. *Euelatichtys crassispinus* (Rüppell).

Head 2.75 in length; depth 2.20; eye 3 in head; dorsal XIV, 15; anal III, 6; the second anal spine very long and strong; preopercle strongly denticulate; minute teeth in jaws. Color brown, uniform; tip of soft dorsal, anal, and all of caudal white. One specimen from Cavite, length 3.75.

SPILOTICHTHYS Fowler.**112. *Spi otichthys pictus* (Thunberg).**

Head 3.05 in length; depth 2.50; eye 4 in head; dorsal x, 23; anal III, 7. Color (specimens 6 inches long) yellowish, a broad dusky band from eye extending on caudal; above this band a longitudinal row of spots with another brown band above it; an additional band or row of spots at base of dorsal; below the broad median brown band 2 or 3 rows of spots more or less bandlike; spinous dorsal black, with whitish at anterior base; soft dorsal with dusky margin; a dark band thru the middle with brown spots on each side; caudal with margins dusky, with white markings forming irregular circles; anal dusky without spots; ventrals tipped with dusky; dusky on base of pectoral. In young examples the color pattern is very different; specimens 3 inches long show no spots, but the side of body is taken up by the wide median stripe of black; this type of coloration intergrades perfectly with that of the adult.

In 2 specimens still larger, 6.25 inches, the adult coloration, spots without bands, is shown. These spots are not connected, but arranged in longitudinal series; belly plain; dorsal and caudal with brown spots and margined with black; anal and ventrals dusky, without spots; caudal very slightly emarginate.

We have no occasion to question Bleeker's determination of this species. In all its changes with age, it may be known by the presence of but 10 (or 9) dorsal spines, the distinctive character of the genus *Spilotichtys* of Fowler.

A fine series of 11 specimens from Cavite, length 1.50 to 6.25 inches.

113. *Scolopsis vosmeri* Bleeker.

Two young examples from Cavite, 2 and 2.25 inches in length, and 4 from Manila, 3.50 inches long. Young with the color in spirits yellowish brown, the characteristic silvery band over the opercular spot and dark in axil of pectoral

114. *Scolopsis luzonia* Jordan & Seale, new species.

Head 3.18 in length without caudal; depth 3.18; eye 2.75 in head; snout 3.25; interorbital equal to snout; dorsal x, 9; anal III, 7; scales 42; preopercle serrated; a rather strong spine on preorbital; head scaled; a prominent serrated ridge on the maxillary.

Body oblong, slightly compressed; depth of caudal peduncle equal to orbit; mouth rather small, the maxillary ending under the anterior margin of eye; bands of villiform teeth in jaws, none on vomer or palatines; gillrakers very short and blunt, about 5 on lower limb; origin of dorsal somewhat in advance of origin of

ventrals; distance from tip of snout to origin of dorsal 1.45 in base of dorsal; third dorsal spine 2.10 in head, longest dorsal ray 2; base of anal 2; pectoral 4 in length without caudal; caudal moderately forked.

Color in spirits yellowish; upper part with a slight wash of light brown; upper and lower parts of iris dusky; fins all yellowish white.

One specimen from Cavite, the type, 3.2 inches long, no. 9243, Museum Stanford University.

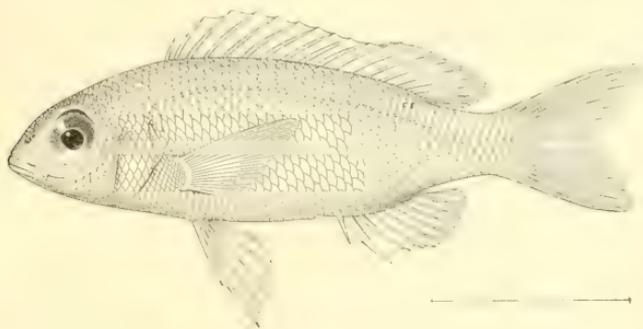


Fig. 8.—*Scolopsis luzonia* Jordan & Seale, new species. Type.

115. *Scolopsis ciliata* (Lacépède).

Head 3.20 in length; depth 3; eye 3 in head; dorsal x, 9; anal III, 6; spine of preorbital of moderate strength; preopercle distinctly serrated. Color yellowish; a single silvery white line between lateral line and spinous dorsal. One specimen from Manila, length 3.75 inches.

POMADASIS Lacépède.

116. *Pomadasis argenteus* (Lacépède).

Head 2.75 in length; depth 2.90; eye 3.50 in head; dorsal XII, 14; anal III, 7; preopercle denticulate. Color grayish, silvery below; the upper half of body with dark spots forming sinuous lines, a dusky blotch on opercle; dorsal fin with black spots forming more or less regular dusky lines. One specimen from Cavite, length 3.35 inches.

117. *Pomadasis maculatus* (Bloch).

Head 3 in length; depth 2.75; eye 4 in head; dorsal XII, 13; anal III, 6; scales 50; patches of small teeth in jaws; mouth small; maxillary ending under nostril, preopercle serrated; opercle entire. Color yellowish, with 5 oblique dusky bands descending to about median line; spinous dorsal with a dusky blotch, soft dorsal dusky at tip; other fins yellowish. Nine specimens from Cavite, length 3 to 8 inches.

PENTAPUS Cuvier.

118. *Pentapus vittatus* (Bloch).

Head 3.50 in length; depth 3.75; eye 3.25 in head; scales 45; dorsal x, 9; anal III, 6. Color brownish; 3 whitish stripes on upper half of body from eye, the upper along base of dorsal, the middle along anterior half of lateral line, the lower from side of snout through lower part of orbit to caudal; below this line a dusky band parallel with it, forming a dusky axil to pectoral.

TERAPON Cuvier.

119. *Terapon jarbua* (Forskål).

Head 3 in length; depth 3; eye 3.75 in head; dorsal XII, 10; anal III, 9; scales 85. Color silvery, with brownish bands; dorsal spine with a large dusky blotch; soft dorsal with 2 dusky blotches. Four specimens from Cavite, length 4 to 6.75 inches.

120. *Terapon puta* (Cuvier & Valenciennes).

Head 3.10 in length; depth 3.95; eye 3.25 in head; dorsal x, 12, 10; anal III, 9; scales numerous; maxillary extending to below anterior margin of eye. Color grayish, with 4 dusky longitudinal lines, one from tip of snout to tip of caudal, the other from superior orbit to posterior axil of dorsal; caudal with a median central line and 2 oblique lines; spinous dorsal with a large dusky blotch.

Another example: Head 3.20 in length; depth 3.50; dorsal XII, 10; anal III, 8; scales 54. Color grayish, with 4 longitudinal brown lines, the upper one indistinct, running along base of dorsal and over top of head, the 3 broader lines below this, 2 or more oblique brown bands on tail apparently the continuation of the lines on side; dorsal with black blotch.

Four specimens from Manila, length about 1.3 inches, and 3 specimens from Cavite, length about 2.75 inches.

The species is easily distinguished by the very strong tooth-like spines at angle of preopercle.

121. *Terapon quadrilineatus* (Bloch).

Head 3.12 in length; depth 3.12; dorsal XII, 10; anal III, 10; eye 3.25 in head; serration at angle of preopercle rather strong, but even. Color grayish, with 5 dusky longitudinal lines; a dusky spot, not very distinct, on the shoulder; spinous dorsal with small dusky blotch. Six specimens from Manila, length about 1.50 to 3 inches.

122. *Terapon theraps* (Cuvier & Valenciennes).

Head 3.50 in length; depth 2.75; eye 3.50 in head; dorsal XII, 10; anal III, 8; scales 54; preopercle strongly but evenly serrated. Color dull grayish, with 3 longitudinal dusky bands, caudal with 2 oblique dusky bands; spinous dorsal with a large dusky blotch; soft dorsal with 2 dusky blotches; anal and ventrals with dusky blotches. One specimen from Iloilo, length 3.50 inches.

Family SPARIDÆ.

LETHRINUS Cuvier.

123. *Lethrinus mahsenoides* Bleeker.

Head 3 in length; depth 2.50; dorsal x, 9; anal III, 8; scales 48 to end of vertebræ; eye 1.90 in snout; maxillary thin, its median width 2 in pupil. Color, dull yellowish white. One specimen 9.20 inches long; 4 young examples, length 3 to 4 inches. The young have slight indications of dark blotches.

Easily distinguished from *Lethrinus ramak* by the narrow maxillary.

124. *Lethrinus amboinensis* Bleeker.

Head 3 in length; depth 2.50; dorsal x, 9; anal III, 8; scales 52; eye 1.95 in snout; maxillary at middle equal to pupil. Color yellowish silvery, a black blotch below lateral line above middle of pectoral. Upper profile of head convex. One adult example, 7.50 inches in length; 1 young example from Cavite 2 inches long.

Family GERRIDÆ.

XYSTÆMA Jordan & Evermann.

125. *Xystæma punctatum* (Cuvier & Valenciennes).

(*Gerres filamentosus* Cuvier & Valenciennes.)

Head 3 in length; depth 2.20; dorsal IX, 10; scales 49; first dorsal ray elongate, reaching to posterior dorsal ray. Color light yellowish brown above, with about 7 vertical bands on side down to median line; silvery below; dusky spot on axil; in old examples these bands take more or less the form of bands of spots. Nine specimens from Cavite, length 2 to 5.25 inches.

PENTAPRION Bleeker.

126. *Pentaprion longimanus* (Cantor).

Head 3.40 in length; depth 2.75; eye 2.75 in head; dorsal IX, 14; anal v, 13; scales deciduous. Color yellowish white; a dusky opercular spot; a slight shade of dusky on anterior membranes of spinous dorsal, otherwise fins unmarked. Six specimens from Cavite, length 2.75 to 3.5 inches.

Family SCLÆNIDÆ.

PSEUDOSCIÆNA Bleeker.

127. *Pseudosciæna anea* (Bloch).

Head 3 in length; depth 3.20; eye 4.10 in head; dorsal XI, 24; anal II, 7; canines in jaws; maxillary 2.10, ending on line with middle of eye, posterior limb of preopercle serrated; opercle with two small spine-like points. Color yellowish; a yellow streak from opercle to caudal along median line; a dusky blotch on opercle and on upper part of orbit; spinous dorsal dusky, otherwise fins unmarked. Two specimens from Cavite, length 4.23 and 5 inches.

UMBRINA Cuvier.

128. *Umbrina russelli* Cuvier & Valenciennes.

Head 3.25 in length; depth 3.25; eye 3.25 in head; dorsal XI, 25; anal II, 7; scales 52; snout overhanging, no enlarged canines; teeth in outer half of maxillary slightly larger; barbel half length of eye. Color yellowish; a dark blotch on opercle; spinous dorsal dusky; other fins unmarked. Four specimens from Cavite, length about 3.25 inches.

129. *Umbrina dussumieri* Cuvier & Valenciennes.

Head 3.10 in length; depth 3.75; eye 4.20 in head; dorsal XI, 25; anal II, 7; barbel at symphysis, short, less than one-half of eye, small teeth in jaws, with anterior ones of maxillary slightly enlarged; spinous dorsal high, 1.20 in depth. Color dull yellowish, shaded with brownish, more or less blotched; lower half of body brighter; spinous dorsal shaded with dusky; caudal with some dusky; other fins unmarked. One specimen from Cavite, length 7 inches.

Family SILLAGINIDÆ.

SILLAGO Cuvier.

130. *Sillago sihama* (Forskål)

Head 3.45 in length; depth 5.75; eye 4.75 in head; scales 73. Color yellowish, with a longitudinal silvery band; an indistinct blotch of dusky on upper part of opercles. Seven specimens from Cavite, length 3.50 to 6 inches.

Family MULLIDÆ.

PSEUDUPENEUS Bleeker.

(*Upeneus* Günther; *Parupeneus* Bleeker.)

131. *Pseudupeneus barberinus* (Lacépède).

Head 3 in length; depth 5; eye 4 in head; scales 31; barbels reaching to below middle of opercle. Color yellowish, a brown line along side of snout through eye to below middle of soft dorsal fin; a black spot on base of caudal peduncle; fins without markings. One specimen from Iloilo, length 3.75 inches.

132. *Pseudupeneus indicus* (Shaw).

Head 3.20 in length; depth 4; eye 5 in head; snout rather pointed; barbels reaching to below angle of preopercle. Color dull yellowish white, a golden elongate blotch on and above lateral line between the 2 dorsal fins; a distinct brown spot on each side of caudal peduncle; fins unmarked. Two specimens from Iloilo, length about 5 inches.

UPENEUS Cuvier. (*Upeneoides* Bleeker.)133. *Upeneus luzonius* Jordan & Seale, new species.

Head 3.60 in length without caudal; depth 4.05; eye 4 in head; dorsal VIII-1, 8; anal I, 6; scales 34; barbels reaching to below angle of preopercle; first dorsal fin high, its height equal to or greater than depth of body; snout 2.40 in head; interorbital 1.75 in snout.

Body moderately elongate and compressed; depth of caudal peduncle 2.25 in head; mouth moderate the maxillary 2.35 in head; upper jaw slightly the longer; a band of small teeth in jaws, teeth on vomer and palatines; gillrakers small, sharp-pointed, 12 developed on lower limb, the longest 2.5 in orbit; dorsal fin high, length of second dorsal spine greater than depth of body, about equal in length to head; 5 rows of scales, between the dorsal fins: height of second dorsal 1.75 in head, none of its rays elongate; base of anal 2.50, its longest ray 2; origin of anal slightly nearer origin of ventrals than base of caudal; pectoral 1.40 in head; ventrals 1.20; caudal well forked, equal to length of head.

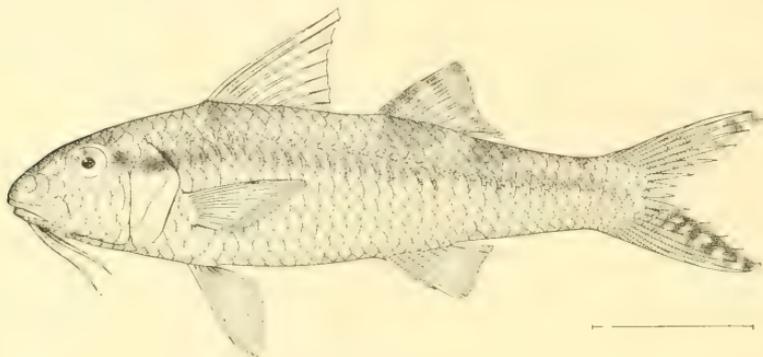


FIG. 9.—*Upeneus luzonius* Jordan & Seale, new species. Type.

Color in spirits dull yellowish, with tint of brown; a brown line from eye along median line to caudal; a brown saddle over anterior half of caudal peduncle, a second less distinct band of brown extending down on side from anterior two-thirds of soft dorsal; some brownish indistinct markings on top of head and side of snout; upper and lower lobes of caudal with 4 oblique cross-bands as in *Upeneus vittatus*; spinous and soft dorsals with 3 rather indistinct dusky bands; remaining fins unmarked.

Seven specimens from Cavite. The type, 4.75 inches long, is no. 53067, U. S. National Museum. Cotypes, no. 9244, Museum Stanford University.

134. *Upeneus sulphureus* (Cuvier & Valenciennes).

Head 3.40 in length; depth 3.40; eye 3.75 in head; scales 38. Color yellowish; spinous dorsal with 3 dark bands, the upper one forming the tip of fin and being most distinct; soft dorsal with 3 indistinct cross-bands, the top dusky; tip of caudal dusky, other fins yellowish. Fourteen specimens from Cavite, length 2 to 6.75 inches.

135. *Upeneus tragula* (Richardson).

Head 3.50 in length; depth 4.25; eye 4 in head; scales 2-32-7; barbels reaching to angle of preopercle. Color dull silvery, much blotched and spotted with brown; the caudal fin with 4 oblique brown bands; spinous dorsal tip with dusky, with some brown spots; soft dorsal with 2 brown bands; anal and ventrals with brown markings. One specimen from Manila and 2 specimens from Iloilo, length about 4 inches.

Family ANABANTIDÆ.

ANABAS Cuvier.

136. *Anabas scandens* (Daldorf).

Head 2.9 in length; depth 2.3; eye 5.25 in head; dorsal XVIII, 10; anal X, 9; strong serrations on opercle, and very strong spine-like teeth on subopercle. Color olive brown, a lighter blotch on posterior of opercle. Two specimens from Cavite, length 5.25 inches.

Family OPHIOCEPHALIDÆ.

OPHIOCEPHALUS Bloch.

137. *Ophiocephalus striatus* (Bloch).

Head 3.85 in length; depth 5.50; dorsal 45; anal 26; scales 55; scales on top of head large and irregular. Color in spirits dusky above, this color forming dark longitudinal lines which extend to the white of the belly; two dark lines backward from angle of mouth. Two specimens from Cavite, length 8.50 and 9 inches.

Family CEPOLIDÆ.

ACANTHOCEPOLA Bleeker.

138. *Acanthocepola abbreviata* (Cuvier & Valenciennes).

Head 6 in length; depth 9; eye 3.50 in head; dorsal 70; anal 73; teeth in a single row in both jaws; scales small but distinct; dorsal and anal continuous with caudal; a strong spine at angle of preopercle followed by 4 spinelets on its lower limb. Color yellowish, with indistinct traces of numerous vertical bands on back; anal and dorsal tipped with dusky. Nine specimens from Cavite, length 5 to 7.25 inches.

Family POMACENTRIDÆ.

DASYLLUS Cuvier.

139. *Dasyllus aruanus* (Linnæus).

Head 3 in length; depth 1.75; eye 2.50 in head; dorsal XII, 11; anal II, 11. Color in spirits yellowish, with 3 deep black cross-bands, one covering nuchal region and snout, the second from fifth to seventh dorsal spines to ventrals; the third covering posterior dorsal down to posterior of anal; caudal yellow. Five specimens of this well-known species from Cavite, length 1 to 2.25 inches.

140. *Dasyllus trimaculatus* (Rüppell).

Head 3.75 in length; depth 1.60; eye 3 in head; dorsal XII, 14; anal II, 12; scales 3-27-11; anterior of head and snout bluntly and evenly rounded, the snout and mouth not projecting. Color blackish, tip of soft dorsal yellowish, a yellowish white spot under middle of dorsal fin, the one on nuchal region apparently obsolete; fins black. One specimen from Manila, length 3.50 inches.

POMACENTRUS Lacépède.

141. *Pomacentrus tripunctatus* Cuvier & Valenciennes.

(*Pomacentrus trilineatus* Ehrenberg.)

Head 3.40 in length; depth 2; eye 3.50 in head; dorsal XIII, 15; anal II, 15; scales 3-27-9; preopercle and orbital strongly denticulate. Color in spirits rich brown; caudal yellow; fins blackish.

Two fine specimens from Cavite, length about 4 inches, colored as above.

A specimen 3 inches long, from Cavite, is dull brown with dark spot in axil of pectoral and on top of caudal peduncle; caudal yellow; anal and ventral black; some bluish on snout.

Another specimen from Cavite, 2.50 inches long, is dull yellowish brown, a black spot at origin of lateral line and in axil of pectoral; fins yellowish-brown, except dusky wash on dorsal; some bluish on snout; caudal yellow.

A small specimen, length 2.50 inches, from Cavite, is brown, with yellow caudal, a black dot at origin of lateral line; a narrow blue line from snout over top of head on each side; another along side of snout through eye, a slight dusky blotch in soft dorsal.

ABUDEDFUF Forskål.**142. *Abudefduf turchesius* Jordan & Seale, new species.**

Head 3.25 in length; depth 2.40; eye 3 in head; snout 4; interorbital 3.50; dorsal XIII, 13; anal II, 12; scales 2-28-9; preopercle entire; opercle with a small but distinct spine at its posterior margin.

Body oblong, compressed; jaws even, angle of mouth under anterior third of eye; head and body firmly scaled; depth of caudal peduncle equal to its length, which is 2 in head; a single row of blunt pointed teeth in each jaw; suborbital above angle of mouth equal to one-half width of pupil; gillrakers slim and sharp, about

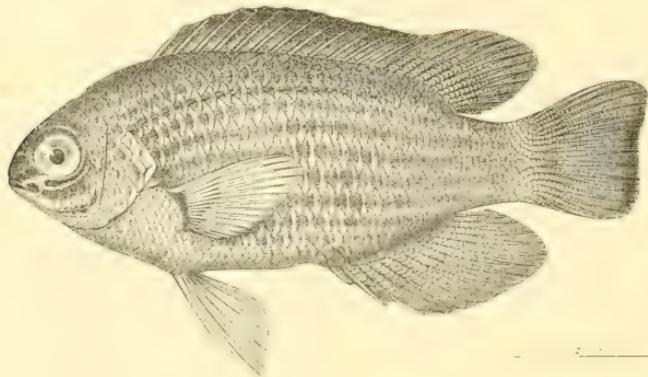


FIG. 10.—*Abudefduf turchesius* Jordan & Seale, new species. Type

12 on lower limb; spinous dorsal rather low, the longest spine 2.50 in head; dorsal rays longer, 1.20; base of anal 2.50 in base of dorsal, its longest ray 1.20; pectoral equal to head; ventrals with outer rays prolonged, reaching to base of anal; caudal rounded, equal to head.

Color in spirits uniform deep blue, slightly lighter, with yellowish wash on thorax and belly; fins all uniform blue except pectorals and ventrals, which are gray.

One specimen from Cavite, type no. 9245, Museum Stanford University, length 2 inches.

143. *Abudefduf saxatilis* (Linnaeus).

Head 3.20 in length; depth 2; eye 3.20 in head; dorsal XIII, 13; anal II, 13. Color dull grayish white; 5 wide black vertical bands on side; a black spot at axil of pectorals; fins dusky, no black lines extending into caudal; lower part of body with yellowish wash. One specimen from Manila, length 4.35 inches.

Family LABRIDÆ.

CHÆROPS Ruppell.**144. *Chærops anchorago* (Bloch).**

Head 3 in length; depth 3; eye 5 in head; dorsal XIII, 7; anal III, 9; scales 30; cheek with imbricate scales; preopercle serrated. Color in spirits yellowish with the upper anterior two-thirds of body black, invaded at middle of pectoral by a yellow band; posterior part of body, belly, soft dorsal caudal, anal, pectoral and ventrals yellow, dusky at axil of pectoral. One specimen from Manila, length 4.75 inches.

LEPIDAPLOIS Gill.

145. *Lepidaplois macrurus* (Lacépède).

Head 3 in length; depth 2.95; dorsal XII, 9; anal III, 12; scales 32. Color in spirits yellowish white; 1 red bands through interorbital space over nuchal region and back over upper half of body; 2 similar lines through eye and 2 or 3 below eye, these extending back on body; a wide deep black area below soft dorsal, at the lateral line sending an oblique band-like projection of black downward and backward, running out on lower caudal rays to tip; ventrals black; margin of anal black, a dusky wash on belly. One specimen from Manila, length 10 inches.

HALICHERES Ruppell.

146. *Halicheres nigrescens* (Bloch & Schneider).

Head 3.20 in length; depth 3; eye 6 in head; dorsal IX, 12; anal III, 12; a strong canine at angle of jaw; scales 28. Color in spirits yellowish, with bluish gray on upper two-thirds of body more or less distinctly arranged in 8 or 9 cross-bands; a blue-black yellow-edged ocellus between the fifth to seventh dorsal spines; margins of caudal bright yellow, the inner part with blue and yellow cross-bands, dusky below; a black spot in axil of pectoral; outer edge of dorsal and anal bluish, the inner half of these fins with roundish yellowish markings; head with blue lines. Three specimens from Manila, length 3.75 to 5.20 inches.

147. *Halicheres hyrtli* (Bleeker).

Head 3.50 in length; depth 4; dorsal IX, 12; anal III, 11; scales 29; teeth in a single row in each jaw, with a distinct posterior canine. Color in spirits yellowish, the scales with a tint of brown; a wide distinct brown band from snout through eye to base of caudal; a black yellow-edged ocellus at posterior end of this line on base of caudal; a brown band along base of caudal; the lines of each side uniting at tip of snout; a black spot between the first and second dorsal spines at base sometimes extending back to third spine; dorsal, anal, and caudal with indistinct reticulating lines or white spots; base of pectorals with a black spot. Three specimens from Manila, length 2.50 to 3.10 inches.

148. *Halicheres scapularis* (Bennett).

Head 3 in length; depth 4; eye 4 in head; snout 3.75; interorbital 1.75 in snout; dorsal IX, 11; anal III, 11; scales 3-27-9; a distinct canine at angle of jaws.

Body oblong, moderately compressed; depth of caudal peduncle 2.30 in head; snout rather sharp-pointed, the lips thick; sharp-pointed teeth in a single series in each jaw; the anterior canines of each jaw slightly enlarged; posterior canines distinct; gillrakers short, sharp-pointed, 11 on lower limb; scales in front of dorsal and on thorax small, 9 series in front of dorsal; dorsal fin low, its longest spine 2.50 in head, the rays slightly longer; base of anal equal to length of head, its longest ray 2.50 in head; pectorals 1.60; ventrals 2.10; caudal rounded, 1.75.

Color in spirits dull gray; a distinct black stripe from eye along side to upper base of caudal; a narrow narrow indistinct light line on the median line from lobe of opercle to middle of caudal; fins yellowish white without markings; no black spot in axil of pectoral or on base of caudal.

Two specimens from Panay, length 2.75 inches.

A specimen from Manila which was 5.50 inches long had head 4 in length; depth 4; eye 5.50 in head; a blunt tooth at angle of mouth; some small scales behind the eye. Color in spirits (specimen much faded), above grayish green, the scales with darker centers, yellowish below; caudal banded; dorsal and anal with 2 or 3 longitudinal bands of dusky and yellowish; cheek with bands and dots, especially a band behind eye and 2 spots on upper part of opercle; a dusky oblique band on each side of belly from inner axil of pectoral.

149. *Halicheres binotopsis* (Bleeker).

Head 3.20 in length; depth 3.75; dorsal IX, 11; anal III, 11; scales 28. Color in spirits (badly faded) yellowish, with indistinct dusky spots and 4 or 5 indistinct cross-bands; a black dot on upper base of caudal; a dusky ocellus between first and second dorsal spines and another between first and second dorsal rays; some lines on head, one of which forms a short but rather wide vertical dark line behind eye.

Another specimen has the head 3 in length; depth 3.50; eye 4 in head. Color in spirits bluish, with 5 dark bands with white lines between them; dorsal with ocelli; anal with a row of ocelli; caudal with ocelli; a black bar behind eye; lines on cheek not forming a complete circuit.

Numerous specimens from Cavite, length 2.25 to 3.25 inches.

150. Halichæres miniatus (Kuhl & Van Hasselt).

Head 3.95 in length; depth 3.50; eye 4.50 in head. Anal fin with fine black dots; dorsal with spot in middle; a black bar behind eye and a black dot in front; about 5 dark bars over back and 5 along side, these more or less united by longitudinal dark band; dorsal with oblique dusky lines. Several specimens from Manila and Cavite.

151. Halichæres argus (Bloch & Schneider).

Head 3.35 in length; depth, 3.35; eye, 4.20 in head. Each scale with a round spot on a blue field; dorsal and anal with round spots on blue field; caudal dusky at tip, with round rings on rest of fin; stripes on thorax; blue lines on head; a lighter line above lateral line; six white marks each side of dorsal. Three specimens from Cavite.

152. Halichæres pœcilus (Richardson).

(*Halichæres annulatus* Fowler.)

Head, 2.55 in length; depth, 3.75; eye, 3.75 in head. Three bands of color along side; about six dark bands over back; a dark bar behind eye with a dark line from its upper and lower part; a dark line from eye to snout, a large black ocellus in middle of dorsal; another between anterior spines, the fin with markings extending into it from the body; anal with row of rings at base followed by a line; markings on cheek variable the dark sometimes forming complete rings. Numerous specimens from Cavite.

153. Halichæres pseudominiatus (Bleeker).

Head 3 in length; depth 3.50; eye 4.75 in head. One specimen from Cavite, with which *H. opercularis* of the South Seas may prove to be identical, but in the latter the silver band under eye always curves back near posterior edge of opercle and extends forward across lower part of cheek, while in *H. pseudominiatus* it ends at opercle or at its base, not doubling back sharply as in *H. opercularis*.

STETHOJULIS Günther.**154. Stethojulis phekadopleura** Bleeker.

Head 3 in length; depth 3.10. Color brownish above, white below with 3 rows of brown dots along lower part of side; a brown spot at base of caudal. Three specimens from Cavite.

155. Stethojulis bandanensis (Bleeker).

Head 2.95 in length; depth 3. Color drab, light brown above, yellowish below; a white spot above axil of pectoral; base of pectoral brown; 3 small black dots on caudal peduncle, and a black spot between posterior rays.

Other specimens show the following coloration: Drab above, yellowish white below, the colors not meeting sharply on body, but on head the division sharply marked by a white line extending from snout to a little past posterior of opercle, where it forms a white characteristic spot just above axil of pectoral; 3 black dots on caudal peduncle, 1 between posterior rays of dorsal and one, or a slight indication of one, between the last rays of anal.

Numerous specimens from Cavite. This species, found also at Samoa, is very near *Stethojulis axillaris* of Hawaii, but apparently distinct.

156. Stethojulis kalosoma Bleeker.

Head 3.98 in length; depth 4, eye 4.50 in head. A black line from posterior orbit to about tip of pectoral very indistinct; 4 lines of dots along lower side with fine specks between them, no black dot on fin; dorsal with indistinct oblique lines. Several specimens from Cavite.

THALASSOMA Swainson.**157. Thalassoma lunare** (Linnaeus).

Head 3.20 in length; depth 3.50; eye 5 in head; dorsal VIII, 13; anal II, 11; scales 26; a single row of teeth in jaws. Color in spirits, body olive-brown, the center of each scale with a short vertical stripe; head deep blue; caudal yellow, outer rays with dusky; dorsal and anal blue with the outer third yellow; 2 brown





longitudinal stripes on each side of thorax below pectoral; a blue line around under jaw from angle to angle, with a median blue line to tip of under jaw; pectoral with deep blue on upper part; caudal rays prolonged. One specimen from Cavite, length 4.55 inches.

158. *Thalassoma dorsale* (Quoy & Gaimard).

Head 3 in length; depth 3.10; eye 5.75 in head; dorsal VIII, 13; anal III, 11; scales 29; caudal lunate. Color in spirits yellowish white, with 7 black bands over side and down almost to median line on side; head with broad red bands; dorsal with dusky longitudinal band through middle, the outer part yellow, tip of caudal dusky, anal yellow with dusky black. One specimen from Manila, length 5 inches.

CHEILINUS Lacépède.

159. *Cheilinus trilobatus* Lacépède.

Head 2.50 in length; depth 2.85; dorsal IX, 10; anal III, 8; scales 20. Color in spirits brownish, with 4 wide dark bands on side; a black spot at base of eighth to ninth dorsal rays; 3 black spots on median line on posterior half of body; some black spots in anal; soft dorsal whitish; numerous light colored dots and short lines on head. One specimen from Manila, length 4.75 inches.

160. *Cheilinus rostratus* Cartier.

Head 3 in length; depth 2.60; eye 5 in head; dorsal IX, 10; anal III, 9; scales 24; preopercle serrated; caudal rounded; profile of head above snout concave, the snout slim and conical, its length 3 in head. Color in spirits yellowish white; 4 rather irregular dusky blotches or bands on side of body; a dusky band from eye vertically down to throat; upper lip with dusky spots; some dusky blotches on dorsal and anal; caudal with some dusky bars. One specimen from Iloilo, length 4 inches.

HEMIPTERONOTUS Lacépède.

161. *Hemipteronotus pentadactylus* Lacépède.

Head 4 in length; depth 3.25; eye 4.50 in head; dorsal II-VII, 12; anal III, 12; scales 28. The first 2 dorsal spines elongate and separate from rest of fin; cheek scaly. Color in spirits yellowish white, a black blotch on side of body above posterior third of pectoral fin, a longer light yellowish blotch just below this black spot; fins unmarked. Two specimens from Manila, length 3.75 and 4.20 inches.

Family SCARICHTHYIDÆ.

CALLYODON Gronow (*Seturus* Forskål.)

162. *Callyodon lacerta* (Cuvier & Valenciennes).

A young example 3.75 inches long, probably of this species, from Iloilo has the following characteristics: Head 3 in length; depth 3; eye 4 in head; 3 rows of scales on cheek, the middle row of 6 scales, the lower of 2; lips entirely covering the white teeth; caudal rounded. Color uniform yellowish brown, no bars or markings; dorsal with slight tip of dusky; anal with 2 indistinct bands.

163. *Callyodon eleræ* Jordan & Seale, new species.

Head 3.10 in length; depth 2.95; eye 6.50 in head 2.50 in snout; dorsal IX, 10; anal II, 8; scales 2-25-6, 3 rows on cheek, the lower row of 4 scales covering the lower limb of preopercle; lips narrow, covering about two-thirds of upper jaw; teeth green, with 2 strong canines at angle.

Body oblong, rather deep; depth of caudal peduncle 2.75 in head; head bluntly but evenly pointed; seven rows of scales in front of dorsal; dorsal fin rather low, its longest ray 2.75 in head; base of anal fin 1.30 in head, 2.20 in base of dorsal; pectoral 1.30 in head; ventral 1.55; caudal rather deeply lunate, the lobe almost equal to length of head.

Color in spirits dull yellowish, the upper half with a wash of brown darker on shoulders and upper half of head, the colors being distinctly separated on cheek, on line with lower part of orbit; lips yellow, followed by a broader green line which extends back to eye, the yellow margin on lower lip very narrow; a slightly darker

band extending across part of interorbital space; dorsal fin yellowish with a slight wash of green, a narrow line of dark green at margin; anal yellow with a broad green margin; ventral yellow; pectoral yellow, with wash of dull green; caudal green with the upper and lower intramarginal rays yellowish.

One specimen from Cavite, length 12.50 inches, type no. 9246, Museum Stanford University.

This species is named for the late Fra Castro de Elera, professor in the college of Santo Tomas in Manila, author of a catalog of the fauna of the Philippines.

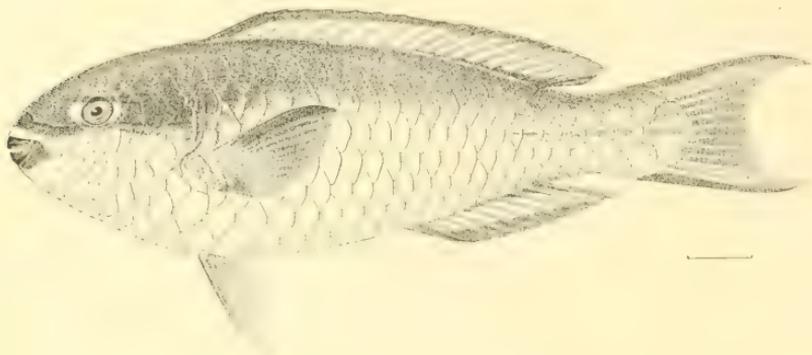


Fig. 11.—*Callyodon elera* Jordan & Seale, new species. Type.

Family SCORPIDÆ.

MONODACTYLUS Lacépède (*Psettus* Cuvier).

164. *Monodactylus argenteus* (Linnaeus).

Head 3 in length; depth 1.10; eye 2.50 in head; dorsal VIII, 30; anal III, 29; teeth villiform in jaws, vomer, palatines, and tongue. Color silvery, with purplish reflections; a black ocular band through eye; another dusky band over shoulders to posterior margin of opercle; anterior portion of dorsal and anal fins dusky. Four young examples from Cavite, length 1.50 to 4.75 inches.

Family PLATYCHTHIDÆ.

PLATAX Cuvier.

165. *Platax orbicularis* (Forskål).

Head 3 in length; depth slightly less than length; dorsal V, 37; anal III, 27. Color grayish in spirits; a black ocular band which extends down and out on the long ventral fin; another black band at posterior margin of opercle and at base of caudal fin; anterior rays of dorsal and anal dusky; caudal yellow. One specimen, 2.75 inches long, from Iloilo.

Family EPHIPPIDÆ.

EPHIPPUS Cuvier (*Scatophagus* Cuvier & Valenciennes).

166. *Ephippus argus* (Gmelin).

Head 3.05 in length; depth 1.75; pectoral fins short; dorsal XI, 17; anal IV, 13. Color brownish, white on belly, thorax, and chin; scattered black spots over upper half of body; some spots on caudal peduncle; fins dusky. Five specimens from Cavite, length 2 to 5 inches.

169. The specimens sent to the Nat. Mus., agree with the typical specimens of *P. ocellatus* in having 6 and not 12 dorsal spines, the fin formula for this species being D.VI, 29 or 30.

Family DREPANIDÆ.

DREPANE Cuvier & Valenciennes.

167. *Drepane punctata* (Gmelin).

Head 2.75 in length; depth 1.10; eye 3.50 in head; dorsal ix, 20; anal iii, 18; scales 50; spine pointing forward under the skin in front of dorsal, second dorsal spine long; pectoral long, reaching about to base of caudal; all specimens have small barbels on each side of throat, with a cluster of about 6 on chin. Color silvery, with about 7 vertical dusky bands made up of black spots, these bands more distinct in young, being less broken up into spots; ventrals partly dusky; head without bands. Five specimens from Cavite, length 2.50 to 6.75 inches.

Family CHÆTODONTIDÆ.

CHELMO Cuvier.

168. *Chelmo rostratus* (Linnaeus).

Head 2.35 in length; depth 1.70; dorsal ix, 30; anal iii, 21; snout pointed, 2 in head. Color yellowish, with 4 yellow dark-edged vertical bands, the anterior one forming the ocular band; a large black white-edged ocellus in middle of soft dorsal, at upper part of fourth band; a dark band on caudal peduncle.

The largest example shows: Head 2.50 in length; depth 1.25; snout 4.25 in head; eye 3 in snout. Color in spirits yellowish, with 5 vertical darker bands, the anterior one forming the ocular band; in addition there are numerous longitudinal lines; a large blue-edged ocellus of black on the soft dorsal.

Three specimens from Cavite, length 1.50 to 6.25 inches.

PARACHÆTODON Bleeker.

169. *Parachætodon ocellatus* (Cuvier & Valenciennes).

Head 3 in length; depth 1.10; dorsal xii, 24; anal iii, 20. Color yellowish, with 3 oblique broad bands of light brown on side of body; another similar band occupying posterior portion of dorsal and anal fins, crossing the caudal peduncle, where it has a white line at its margins; a brown ocular band with black margins; the third band of body has a round black ocellus at its upper portion, a dusky line down middle of forehead and snout, ventrals dusky. Nine specimens from Cavite, length 1.50 to 3.50 inches.

GONOCHEÆTODON Bleeker.

170. *Gonochætodon triangulum* (Cuvier & Valenciennes).

Head 2.75 in length; depth 1.10; eye 2.80 in head; dorsal xi, 26; the posterior of dorsal fin is almost straight with the angle directed inward. Color brownish, darker on posterior of body, with numerous white lines on body forming blunt angles with the point toward the head; 3 dark bands on head, extending on ventral fin; inner half of caudal black; tip of caudal white; a narrow intramarginal black line on anal.

CHÆTODON Linnaeus.

171. *Chætodon trifasciatus* Park.

Head 3.35 in length; depth 1.50; dorsal xiii, 12; anal iii, 20. Color dull yellowish, with narrow longitudinal black lines from head to caudal; a black band on caudal; a black wedge-shaped area on posterior part of dorsal and anal; 3 black bands on head, the middle one forming the ocular band; the anterior one on tip of snout; 2 narrow dusky lines on soft dorsal; anal dusky with white margin. One specimen from Cavite, length 4 inches.

172. *Chætodon ornatissimus* Cuvier & Valenciennes.

Head 3.25 in length; depth 1.25; dorsal xii, 25; anal iii, 22. Color yellowish, with grayish wash; 7 wide oblique dusky bands on side of body, about 5 vertical lines on head, the middle one forming the ocular band; 2 black bands on tail; 2 dark lines on dorsal and anal. One specimen from Manila, length 3.25 inches.

173. *Chætodon punctatofasciatus* Cuvier & Valenciennes.

Head 3.60 in length; depth 1.30; dorsal XII, 23; anal III, 17. Color yellowish, with 8 dusky vertical bands from dorsal to middle of body; a white ocular band with dusky margin; a lunate dusky band in caudal; an intramarginal line of black in dorsal and anal; a black spot in front of dorsal fin; lower half of body with distinct round black dots which seem gradually to fade out on upper third of body. Three specimens from Manila, length 3.25 to 3.50 inches.

174. *Chætodon kleini* Bloch.

Head 3.50 in length; depth 1.30; eye 2.75 in head. Color yellowish or grayish, with a wide ocular band from the rather gibbous origin of dorsal thru eye out on ventral fins, which are black; dorsal and anal with narrow intramarginal dusky lines, caudal yellowish; very indistinct indications of dusky on posterior part of body and above middle of pectoral. One specimen from Manila, length 3.20 inches.

HOLACANTHUS Lacépède.

175. *Holacanthus bicolor* (Bloch).

Head 3.75 in length; depth 2; eye 2.50 in head. Anterior third of body bright yellow, posterior two-thirds deep black; a black band between eyes; caudal bright yellow. One specimen of this well-marked fish from Manila, length 4.75 inches.

176. *Holacanthus diacanthus* (Boddært).

Head 3.85 in length; depth 1.85; dorsal XIV, 19; anal III, 19; spine of preopercle reaching to below posterior margin of opercles. Color in spirits yellowish, with about 16 dusky bands from dorsal curving orward and back to ventral surface of body and to anal; curved lines in dorsal and anal; caudal yellow; soft dorsal dusky; 2 deep blue lines on head, one from shoulder behind and below the eye, the other in front of eye. One specimen of this well-known fish from Manila, length 7.50 inches.

Family ACANTHURIDÆ.

HEPATUS Gronow (*Tuthis* Linnaeus).177. *Hepatus celebicus* (Bleeker).

Head 3.25 in length; depth 2; eye 3 in head; dorsal VIII, 25; anal II, 24. Color brown; deep black at posterior margin of opercle; a white band around under jaw; fins blackish; tip of snout black; caudal lunate. One specimen from Manila, length 4.75 inches.

178. *Hepatus matoides* (Cuvier & Valenciennes).

Head 3.20 in length; depth 2; dorsal IX, 28; anal II, 27. Color brown; 4 longitudinal bluish bands in dorsal fin; anal blackish; younger examples with white band on posterior part of caudal peduncle. Two specimens from Iloilo, length 3 and 5.30 inches.

This species is probably identical with *Hepatus guntheri* (Jenkins) and *Hepatus blochii* (Cuvier & Valenciennes).

ZEBRASOMA Swainson.

179. *Zebrasoma rhombeum* (Kittlitz).

Head 3 in length; depth 1.50; snout 1.50 in head; base of caudal spine white, with a large mass of small setæ in front of spine; lower part of body with indistinct longitudinal bluish lines; fins blackish, caudal square. This is probably a color-form of the yellow *Zebrasoma flavescens*. One specimen from island of Panay; length 4.25 inches.

Family SIGANIDÆ.

SIGANUS Forskål.

180. *Siganus javus* (Linnæus).

Head 4 in length; depth 2.20; eye 3 in head; snout 2.75; dorsal XIII, 10; anal VII, 9. Color brown, with numerous small white dots on shoulder and upper part of body and head, becoming larger on side and forming longitudinal lines; on side and below, these lines more or less broken up; belly yellowish; fins yellowish with irregular spots of brownish or with grayish wash; caudal emarginate. Nine specimens from Cavite, length 3 to 4.50 inches.

181. *Siganus virgatus* (Cuvier & Valenciennes).

Head 3.50 in length; depth 2; eye 2.75 in head; dorsal XIII, 10; anal VIII, 9. Dull grayish, tinted with blue, a dusky band from fourth and sixth dorsal spines to axil of pectoral; a black ocular band through eye; narrow cross-bands on top of head and some narrow oblique lines on shoulder; fins yellowish; anal and ventrals with slight wash of dusky. In older examples the cross lines of black on top of head and snout become more distinct and a number of black dots appear behind the second dusky band. Two specimens from the island of Panay, length about 4 inches; one fine specimen 7 inches long from Manila.

182. *Siganus marmoratus* (Quoy & Gaimard).

Head 3.85 in length; depth 2.50; eye 2.75 in head; dorsal XIII, 10; anal VII, 9. Color in spirits brownish, with bluish vermiculating lines about half as wide as iris, inclined to run longitudinally on side, more reticulate on back; caudal banded; soft dorsal and anal with dusky spots on rays forming 2 or more bands. One specimen from Manila, about 3.5 inches long.

183. *Siganus fuscescens* (Houttuyn).

Head 3.50 in length; depth 2.50; eye 3.50 in head; dorsal XIII, 10; anal VII, 9; caudal emarginate. Color in spirits pale bluish; usually with a dusky opercular spot; some scattered dots of light and also of dusky over body; caudal banded. Three specimens from Cavite, 3 to 4 inches in length, and 2 specimens from island of Panay, 2.50 and 3 inches long.

184. *Siganus lineatus* (Cuvier & Valenciennes).

Head 3.75 in length; depth 2; eye 3 in head; dorsal XIII; anal VII, 9. Color in spirits bluish gray with brown dots or lines, the lines on upper part of body usually surrounding light bluish spots, some specimens (not all) showing a yellowish blotch at base of soft dorsal, and corresponding in every respect to the figure of Cuvier & Valenciennes (Hist. Nat. Poiss., pl. 286); belly yellowish white; fins with grayish wash. One specimen from Manila, length 5.75 inches.

185. *Siganus tetrazonus* (Bleeker).

Head 3.50 in length; depth 2.10; eye 3.10 in head; snout 2.50. Color in spirits bluish white, with 4 broad cross bands of dusky over back and down on side; base of caudal dusky; fins spotted with dusky. Three young examples from Manila, length 1.50 to 3 inches, and 2 from Cavite, 2.25 and 5 inches long.

Family BALISTIDÆ.

BALISTAPUS Tilesius.

186. *Balistapus undulatus* (Park).

One fine specimen of this well-known species from Cavite.

Family MONACANTHIDÆ.

MONACANTHUS Cuvier.

187. *Monacanthus chinensis* (Bloch).

Head 2.30 in length; depth 1.10 equal to length without caudal peduncle; dorsal 1, 28; anal 28. Color brownish gray, with numerous small dots of brown, caudal with dusky tip. One small specimen an inch long from Manila.

188. *Monacanthus nemurus* (Bloch).

Head 3.10 in length; depth 2.12; eye 4.20 in head; dorsal spine with a row of spinules on each side, 1.75 in head; dorsal 28; anal 29. Color brownish gray, mottled with darker blotches; caudal with 2 dusky bands. Three specimens from Manila, length 3 inches, and 2 specimens from island of Panay, 1.50 and 3.50 inches long.

ALUTERA Cuvier.

189. *Alutera monoceros* (Osbeck).

Head 3 in length; depth 2.25; eye 4.75 in head; dorsal 48; anal 50; dorsal spine feeble, without barbs, situated over middle of eye, its length 3.50 in head; caudal 1.30. Color uniform brownish, posterior part of caudal shaded with dusky. One specimen from Manila, length 5 inches.

Family OSTRACIIDÆ.

OSTRACION Linnæus.

190. *Ostracion cornutum* Linnæus.

Head 3 in length; depth 2.10; eye 2.05 in head. This well-known species is easily distinguished by the long cow-like orbital spines, about equal to length of head. Color grayish or yellowish white, without dots. Five specimens from Cavite, length 1 to 2.50 inches.

191. *Ostracion gibbosum* Linnæus.

Head 3 in length; depth 2. Four ridges to carapace, the 2 upper much closer together and surmounted by a very large strong spine; 4 strong spines along lower lateral ridge. Color yellowish white, with about 4 dusky oblique bars on side. Eleven specimens from Cavite, length 1 to 2.50 inches.

192. *Ostracion tuberculatum* Linnæus.

Head 2.10 in length; depth 1.20; eye 2.20 in head; carapace four-ridged, without sharp spines; a ridge with blunt short spine on middle of carapace. Each plate with a round brown spot about size of pupil. Three specimens from Cavite, length 0.50 to 1 inch.

Family TETRAODONTIDÆ.

SPHEROIDES (Lacépède) Duméril.

193. *Spheroides lunaris* (Bloch).

Head 3.20 in length; depth 3.10; caudal lunate. Color grayish above, white below; top of caudal peduncle dusky. Five specimens from Cavite, length 2 to 4.50 inches, and 2 from Manila, 4 inches long.

The Japanese species called *Spheroides spadiceus* (Richardson) is probably not distinct from *Spheroides lunaris*.

194. *Spheroides ocellatus* (Osbeck).

Back covered with small spines from interorbital space to dorsal fin, side naked, belly spiny. Brownish above; one or more wide blackish cross-bands, one on middle of back, one very indistinct from base of dorsal; tip of head and snout dusky; whitish spots over back and side separated by narrow brownish network, tip of caudal dusky. Two specimens from Manila, length 2.75 and 3.75 inches.

TETRAODON Linnæus.

195. *Tetraodon immaculatus* Bloch.

Entire body excepting lips and tail covered with spines. Color grayish green, with narrow brown longitudinal stripes over back, side, and belly; caudal with upper, lower, and posterior margin black. One specimen from Cavite, length 3.75 inches.

196. *Tetraodon reticulatus* Bloch.

Entirely covered with small spines. Color dusky; under part of body covered with numerous brown lines, descending obliquely from cheek posterior of body and caudal fin with bluish spots; dorsal, anal, and pectoral unspotted. One specimen from Cavite, length 4.75 inches.

197. *Tetraodon hispidus* Linnæus.

Above grayish-green, white below, large round white spots over back; sides of belly with dusky lines, distinct and extending entirely over belly in young. Three specimens from Manila, length about 2 to 3 inches; 1 specimen from the island of Panay, length 4.75 inches.

CANTHIGASTER Swainson.

198. *Canthigaster compressus* (Procé).

Head 3 in length; depth 2.75. A large black blue-edged ocellus at base of dorsal fin; blue lines on forehead; belly white. Four specimens from Cavite, length 2 to 3.50 inches.

Family SCORPENIDÆ.

GENNADIUS Jordan & Seale, new genus.

Gennadius Jordan & Seale, new genus of Scorpenidæ (*Sebastes stoliczæ* Day)

This genus is separated from *Sebastes* and *Sebastes* by the absence of cranial spines. Dorsal spines XIV; scales large.

199. *Gennadius stoliczæ* (Day).

Head 2.50 in length; depth 2.80; eye 3.50 in head; dorsal XIV, 10; anal III, 6; scales 40; teeth villiform in jaws, vomer, and palatines; head scaled but without spines except a single spine on opercle; preopercle serrated. Color in spirits yellowish, marbled with brown dusky bars across all the fins and dark bands radiating from eye and on lips. One specimen from the island of Panay, length 4.50 inches.

This species is well figured by Dr. Francis Day (Fishes of India, 148, pl. xxxvi, fig. 1).

SEBASTOPSIS Gill.

200. *Sebastopsis scabra* (Ramsay & Ogilby).

Head 2.20 in length; depth 3; eye 3.50 in head; interorbital 1.50 in eye; an orbital tentacle; dorsal XII-1, 9; anal III, 5; second anal spine long, about equal to longest ray; dark bands over body; caudal peduncle lighter, with dark bar at base of caudal; a dark spot on opercle. Several specimens from Cavite, identical with others from Samoa.

SEBASTAPISTES Gill.

201. *Sebastapistes tristis* (Klunzinger).

Head 2.20 in length; depth 2.50; dorsal XII, 9; anal III, 4; second anal spine 2.20 in head, prominent compound orbital tentacle about equal to eye. Color in spirits grayish, mottled with brown; brown band on lips and chin. One specimen from the island of Panay, length 1.20 inches.

The species is very close to our *Sebapistes laotale* from Samoa, but the latter lacks the orbital tentacle.

SCORPÆNOPSIS Bleeker.

202. *Scorpænopsis cirrhosa* (Thunberg).

Head 2.75 in length; depth 3.20; dorsal x, 1, 10; anal III, 5; second anal spine 2 in head; interorbital space less than eye, 1.50 in snout; numerous large dermal flaps or tentacles over head, body, and fins; very large dermal flaps on chin. Color in spirits grayish, marbled with dusky in the form of black bands over back; fins with dusky bands and marblings. A single fine specimen of this well-known species from the island of Panay, length 6.25 inches.

203. *Scorpænopsis nova-guinææ* (Cuvier & Valenciennes).

Head 2.50 in length; depth 3.12; eye 5.12 in head; dorsal XI, 1, 9; anal III, 5; the second anal spine about equal to length of longest anal ray; interorbital less than eye; an orbital tentacle; several tentacles on lower jaw and over body. Color reddish, mottled with brownish; fins more or less barred with brown; no black spot between fifth and sixth spines of dorsal; no black spots in axil of pectoral. Numerous specimens from Cavite, apparently identical with a specimen from Samoa.

DECTERIAS Jordan & Starks.

204. *Decterias pusillus* (Schlegel).

Head 2.20 in length; depth 3.20; interorbital space 1.50 in eye; preorbital spine of moderate strength; dorsal spines slender, extending above membrane; lower pectoral ray separate from rest of fin. Color grayish, with dusky markings above; pectoral black; ventrals black; anal with outer half black; caudal mottled with dusky on outer two-thirds. Two specimens from island of Panay, length 1.75 and 1.90 inches. These are identical with Japanese examples.

Family PLATYCEPHALIDÆ.

PLATYCEPHALUS Bloch.

205. *Platycephalus insidiator* (Forskål).

Head 3.10 in length; depth 3.10; dorsal I-VII, 13; anal 13; lateral line smooth, scales about 120; head almost smooth. Color in spirits brownish above, white below, side of head and body with numerous brown spots; caudal with 3 black stripes; dorsal fins barred with brown dots; pectoral dotted with brown; ventrals and anal white. Two specimens from Cavite, length 6 and 9 inches.

206. *Platycephalus isacanthus* (Cuvier & Valenciennes).

Head 3 in length; depth 7; eye 4 in head; interorbital 3 in eye; dorsal I-VIII, 12; anal 12; ventral long, 1.20 in head, its tip reaching beyond origin of anal; 2 spines at angle of preopercle, the upper slightly the larger, its length about equal to pupil of eye; no spine bent forward; lateral line unarmed; about 60 series of scales on body, head spinous. Color brownish, mottled; fins all, except anal, with rows of brown spots. Two specimens from Cavite, length 2.75 and 5.20 inches.

207. *Platycephalus macracanthus* Bleeker.

Head 3 in length; depth 9; eye 4 in head; scales 70; dorsal I VIII, 11; anal 12; 2 spines at preopercle, the upper one very long and strong, reaching to posterior margin of opercle; interorbital 3 in eye. Color in spirits nearly uniform, mottled with brown; ventrals, pectorals, and first dorsal dusky; second dorsal and caudal with bands of dots; dots also showing in upper part of pectorals and in spinous dorsal. One specimen from Manila, length 3.35 inches.

208. *Platycephalus punctatus* Cuvier & Valenciennes.

Head 3 in length; depth 2.50; eye 4.50 in head; lateral line unarmed; scales 110; 2 spines at angle of preopercle, the upper the larger; alternating wide and narrow black bands over back; anterior dorsal dusky; ventrals and pectoral dusky; caudal dusky at base, with about 4 dusky longitudinal bands. Two specimens from Cavite, length 2 and 5 inches.

ELATES Jordan & Seale, new genus.

Elates Jordan & Seale, new genus of *Platycephalidae* (*thompsoni*).

This genus is characterized by the single spine at the angle of the opercle, the small scales and the large, elongate upper caudal lobe. It is allied to *Platycephalus*.

209. *Elates thompsoni* Jordan & Seale, new species.

Head 3.30 in length without caudal; depth 4 in head; eye 5; snout 2.75; dorsal 1-v, 13; anal 12; about 125 scales in lateral line to end of vertebrae; lateral line smooth, except 2 small spines at its anterior end.

Body elongate, slightly compressed, the width greater than depth; under surface of body rather flat; body and cheek firmly scaled; caudal peduncle narrow and flat, its width greater than depth; snout flat, its width at angle of mouth 1.50 in length; maxillary short, 3.50 in head, its distal end scarcely reaching second nostril; lower jaw projecting; a single long saber-like spine at angle of preopercle, this spine considerably longer than diameter of eye, being 4 in head; no spine directed forward; 3 very small spines on bony stay of cheek, one on a line with middle of pupil and another with posterior margin of eye, the third with posterior nostril; distance between distal ends of preopercular spines 2.10 in head; width of head at base of these spines 2.75 in head; a rather distinct spine on upper anterior margin of orbit and about 10 small spines at upper and posterior margin of orbit; 2 small nuchal spines; interorbital space narrow, concave, less than width of

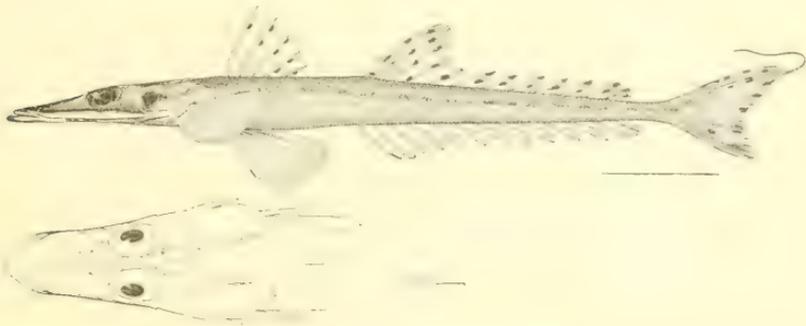


FIG. 12.—*Elates thompsoni* Jordan & Seale, new species. Type.

pupil; minute bands of teeth on jaws, vomer, and palatines; tongue broad, rounded, spatulate, free; gillrakers rather sharp and slim, the longest equaling one-half of eye, 18 on lower limb; first dorsal spine small, somewhat separated from second, which is the longest and strongest spine, being 2.60 in head; first soft dorsal ray 2.10; seventh to eleventh rays rather wide and separated from other rays except at base, origin of soft dorsal slightly nearer base of caudal than tip of snout; origin of anal slightly in advance of soft dorsal, its base slightly greater in length than base of soft dorsal; pectorals 2.10 in head; ventrals 2, their spine strong, their origin below middle of pectoral; caudal slightly forked, the upper lobe much the larger and longer, usually prolonged into a filament which is about equal in length to remaining portion of fin.

Color in spirits yellowish, with wash of brownish above; an indistinct broken longitudinal brown band along side; a dusky splotch on anterior of opercle; spinous dorsal with 3 rows of dark spots; soft dorsal and upper lobe of caudal with spots; lower lobe of caudal with spots larger, about 3 in number, the posterior one being a rather large blotch; pectorals and ventrals yellow.

Three specimens from Manila, length 6 to 7 inches. The type is no. 5306S, U. S. National Museum. Cotype no. 9247, Museum Stanford University.

Named for Dr. Joseph C. Thompson, surgeon, U. S. Navy.

Family CEPHALACANTHID.E.

CEPHALACANTHUS Lacépède.

210. *Cephalacanthus macracanthus* (Bleeker).

Head (without spine) 3.75 in length; depth 5.10; dorsal 1-1-v, 8; anal 6; interorbital spine 2 in head and much less than length of preopercular spine, which extends considerably beyond base of pectoral fin, its length being about equal to head; distance between the two scapular spines 1.50 in depth of notch between them, which about equals length of preopercular spine; a black spot on pectoral. Two specimens from Manila, 3.75 and 4.20 inches in length, one specimen 3 inches long from island of Panay, and one 2.50 inches long from Cavite.

Family ECHENEID.E.

LEPTECHENEIS Gill.

211. *Leptecheneis naucrates* (Linnaeus).

Head 5.30 in length; depth 2.25 in head; disk of 24 laminae; dorsal 35; anal 34; a dark stripe on side. Two specimens from Manila, length 14 and 8 inches.

Family GOBID.E.

BUTIS Bleeker.

212. *Butis serrifrons* (Rutter).

Head 3 in length; depth 3.75; eye 4.50 in head; interorbital concave, 3 in postocular part of head; dorsal vi; anal 8; scales 27; cheeks and nuchal region sealed; entire upper half of orbit with a row of short but distinct, rather stiff spine-like projections, forming a very marked character; two longitudinal rows of similar projections on each side of snout just above the nostrils; cheeks and jaws with minute barbels; bands of villiform teeth in jaws; mouth rather large, the maxillary extending to below anterior of eye; ventrals separate; caudal rounded; dorsal spines not prolonged. Color in spirits olive brown, with darker mottlings; about 4 indistinct bands over back; dorsal, ventrals, and anal black; pectoral and caudal grayish; a black spot on base of lower pectoral rays; throat bluish. One specimen from Cavite, length 2.30 inches.

Rutter's original type specimen is from China.

213. *Butis leucurus* Jordan & Seale.

Head 3 in length; depth 5; eye 6 in head; dorsal vi-1, 9; anal 9; scales 28; 19 scales in front of dorsal; counting only to interorbital space; sides of head and snout covered with minute scales; tongue free, rounded, teeth in bands, no canines, no teeth on vomer or palatines; opercle and preopercle entire; maxillary scarcely reaching anterior margin of eye; caudal rounded; ridges on head scarcely serrated. Color in spirits dusky, with indistinct lighter lines along middle of scales; a distinct black spot edged above and below with yellow on base of pectoral; soft dorsal with outer half yellowish; top of caudal yellowish; tip of anal and ventral yellowish; pectoral yellow; two black lines through eye. Several specimens from Cavite, larger and more deeply colored than the original type from Negros.

PERIOPHTHALMODON Gill.

214. *Periophthalmodon schlosseri* (Bloch).

Head 3.50 in length; depth 6.50; dorsal xii, 12; anal 13; scales 50; ventral fins united for almost half their length; about 20 teeth in each jaw. Color in spirits brownish, with 8 bands over back which extend obliquely down and forward to a little below median line of side; second dorsal with black band through upper half of fin; first dorsal with tip yellow and a wide submarginal black band. One specimen from Cavite, length 3.50 inches.

PERIOPHTHALMUS Bloch & Schneider.

215. *Periophthalmus chrysospilus* Bleeker.

Head 3.75 in length; depth 4.80; dorsal ix, 12; anal 12; scales about 76; about 24 teeth in each jaw; first dorsal spine prolonged. Color in spirits bluish, whiter below; first dorsal with a broad submarginal black band, the margin yellow, the basal two-thirds of fin with yellowish spots; soft dorsal with a wide black band margined with yellow through its upper third, the lower two-thirds with yellowish blotches; caudal with black and yellow dots, the middle portion darker; ventral fins united about one-third of their length. Four specimens from island of Panay, length 2.50 to 3.75 inches.

RHINOGOBIUS Gill.

216. *Rhinogobius nebulosus* (Forskål).

Head 3.30 in length; depth 4.50; eye 3.75 in head; dorsal vi-10; anal 10; scales 27; depth of head slightly greater than its width, about one-fourth less than its length; caudal rounded; head unscaled; tongue rounded; teeth in several rows in each jaw; lips thick; the second and third dorsal spines prolonged, filiform, greater than length of head, 2.75 in length of fish without caudal; no silky or detached rays on pectorals. Color yellowish, three wide dark bands over back which extend obliquely forward and down on side; a dusky blotch at base of caudal; two dusky bands across nuchal region between base of dorsal and eyes; dorsal and caudal with rows of rather large dusky spots; other fins yellowish white, with a dusky margin to anal. One specimen from Cavite, length 4 inches.

As the type of *Utenogobius* is said to have a notched tongue, the name *Rhinogobius* may be used for the Asiatic species called *Utenogobius* by Jordan and Snyder. *Coryphopterus* is a later synonym.

217. *Rhinogobius lungi* Jordan & Seale, new species.

Head 3.30 in length without caudal; depth 4.50; eye 3.75 in head; dorsal vi-10; anal 10; scales 32; head and nuchal region naked, except a line of 3 or 4 rows of scales from posterior margin of orbit between opercle and nuchal region; snout 3 in head; interorbital about equal to pupil. Body moderately elongate, compressed; head bluntly rounded, the lower jaw slightly the longer; mouth rather small, the angle being

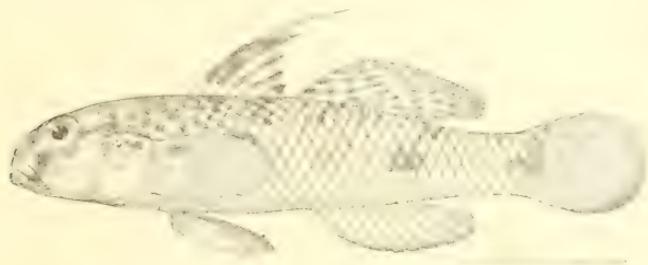


FIG. 13.—*Rhinogobius lungi* Jordan & Seale, new species. Type.

on line with anterior margin of eye; teeth in jaws in several rows, the outer row slightly the largest; tongue free at tip, bluntly rounded, entire; scales on anterior of body smaller than on posterior, about 7 rows of rudimentary scales in front of dorsal; second and third spines of dorsal elongate, the second longer, extending when depressed to middle of base of soft dorsal, its length greater than distance from origin of ventrals to origin of anal; longest dorsal ray 2.15 in head; base of anal 1.50, its longest ray 2.50; caudal rounded, 1.15; pectorals 1.30, no silk-like rays at upper margin; ventrals united, 1.50, tips not reaching vent.

Color in spirits yellowish-brown with 6 irregular dark double bands over back; about 5 dusky blotches along the side, the last forming a dusky blotch at base of caudal; dusky mottlings intermingled with lighter areas on the upper half of body; dorsal and caudal with rows of black spots; lower margin of caudal dusky;

pectorals yellowish without distinct black mark at base; ventrals grayish with dusky tip; anal yellow, with black tip; some indistinct brown blotches on cheek and opercle; a dusky blotch from eye to mouth.

Three specimens from the island of Panay, length 1.50 to 3.90 inches. The type is no. 53069, U. S. National Museum. Cotype, no. 9248, Museum Stanford University.

218. *Rhinogobius ocyurus* Jordan & Seale, new species.

Head 3.60 in length without caudal; depth 4.05; eye 3.20 in head; dorsal vi-1, 10; anal i, 9; second dorsal spine elongate, filiform; scales about 28; snout 4 in head; interorbital somewhat less than pupil; top of head scaled, otherwise cheek and head naked. Body moderately elongate, slightly compressed; depth of caudal peduncle 2 in head; mouth moderate in size, the angle under middle of eye; lower jaw slightly longer; small sharp-pointed teeth in jaws, the outer row larger; tongue rounded; origin of ventrals directly

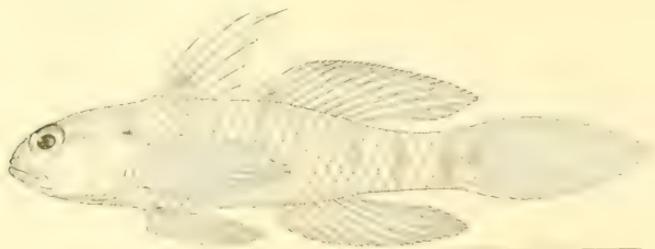


FIG. 14.—*Rhinogobius ocyurus* Jordan & Seale, new species. Type.

opposite origin of spinous dorsal; base of soft dorsal about equal to head; base of anal slightly less than head, its origin nearer base of caudal than tip of snout, its longest ray 1.10 in head; pectorals 1.60 in length of body without caudal; ventrals extending to anal, their length equal to head; caudal long, sharp-pointed, 2.20 in length of fish without caudal.

Color in spirits yellowish white with 8 rather broad brownish bands over back and sides, extending to ventral surface; a dark spot at base of caudal, another just above the upper posterior margin of opercle; dorsal fins slightly shaded with dusky; pectoral yellowish; caudal with slight tint of dusky; ventrals and anal dusky.

One specimen from Cavite, length 1.75 inches, type no. 53070, U. S. National Museum.

GOBIOUS Linnæus.

219. *Gobius panayensis* Jordan & Seale, new species.

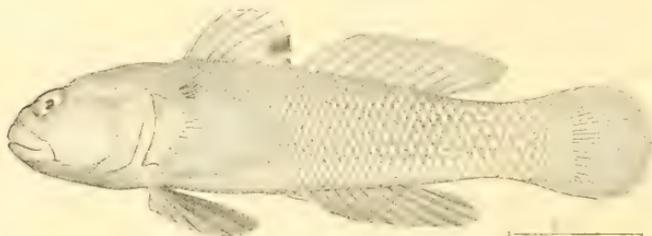


FIG. 15.—*Gobius panayensis* Jordan & Seale, new species. Type.

Head 3.40 in length without caudal; depth 4.25; the width of head greater than its depth; dorsal vi-11; anal 9, scales 41; head naked; some detached silky rays at upper part of pectorals; snout 3.60 in head; interorbital about equal to pupil; tongue not at all emarginate, free at tip, bluntly rounded, entire.

Body moderately elongate, compressed; snout bluntly pointed, the jaws equal; mouth moderate, the angle under middle of eye; wide bands of minute teeth in each jaw; no canines; origin of first dorsal slightly

posterior to origin of ventrals; none of the dorsal spines elongate, the longest spine being 2 in head; base of soft dorsal 1.10, its longest ray 2.50; base of anal 1.50, its posterior ray 2; pectorals 1.30; ventrals united, short, 1.50, their tips falling far short of the distinct anal papilla; caudal rounded, 1.15.

Color in spirits grayish, without distinctive markings; spinous dorsal with black spot on upper posterior part; ventrals and anal dusky; pectorals and caudal uniform gray.

One specimen from the island of Panay, length 2.45 inches, type no. 9250, Museum Stanford University.

MAPO Smitt.

220. *Mapo fuscus* (Rüppell).

Head 3.20 in length; depth 4; dorsal vi-11; anal 9; scales 38; no scales on head; teeth in bands in jaws; no canines; ventrals united; none of the dorsal spines prolonged; some separate filamentous rays at upper part of pectoral; depth of head less than width; length of head greater than width; caudal rounded. Color in spirits grayish; indistinct brownish bands over the back alternating with blotches on the side; indistinct dusky blotches on the upper part of spinous dorsal; caudal barred with brown; ventrals and anal dusky; pectorals grayish. Two specimens from Cavite, length 1.20 and 2 inches.

CREISSON Jordan & Seale, new genus.

Creisson Jordan & Seale, new genus of Gobiidae (*validus*).

This genus is characterized by the naked lower half of cheek and the scaleless interorbital region. There are several rows of teeth in each jaw, the outer row enlarged; scales on anterior part of body and head small.

221. *Creisson validus* Jordan & Seale, new species.

Head 3.50 in length without caudal; depth 3.50; eye 4.75 in head; dorsal vi-11; anal 9; scales 32; upper half of cheek and nuchal region scaled, no scales on interorbital region, snout, or lower third of head; snout 3.75 in head; interorbital 1.20 in eye; cheek tumid; head broader than deep, its breadth 1.08 in its length.

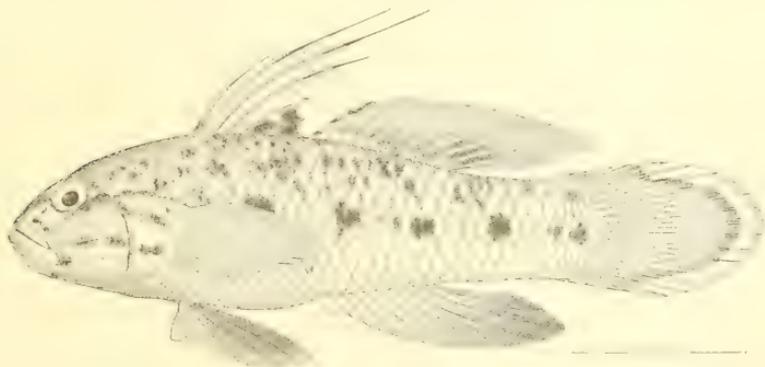


FIG. 16.—*Creisson validus* Jordan & Seale, new species. Type.

Body robust, moderately elongate and compressed, the anterior profile bluntly rounded, the lower lip slightly the longer; depth of caudal peduncle 1.85 in head; mouth small, the angle under the anterior of orbit; tongue free at tip, rounded, entire; several rows of minute teeth in each jaw with one outer row of larger teeth, somewhat curved and canine-like in lower jaw; tongue rounded or subtruncate, not notched; scales on anterior part of head and body much smaller than the posterior ones; origin of spinous dorsal somewhat posterior to origin of ventrals; 17 rows of scales in front of dorsal; the second, third, and fourth dorsal rays greatly elongate, filiform, extending, when depressed, to posterior axil of soft dorsal; base of soft dorsal equal to width of head, the posterior rays the longest, about equal in length to base of fin; anal base 1.50 in head,

much less than length of its longest ray; pectorals 1.13, no silky rays at upper part; ventrals a broad united disk which extends to the prominent anal papilla, their length 1.40 in head; caudal slightly acuminate.

Color in spirits light brownish, with about 7 indistinct dusky bands over back and about 6 dusky blotches along side; a dusky line on cheek marking off the sealed and unsealed portion; a dusky dot on lower posterior margin of orbit, some dusky dots on nuchal region, and a dusky line on upper part of opercle; spinous dorsal grayish, with some indistinct darker spots; soft dorsal gray, with some darker spots on outer portion; anal and ventrals dusky, pectorals grayish; caudal gray with broad posterior margin of white and a distinct intramarginal line of black, the lower rays slightly tipped with dusky.

One specimen from Cavite, length 4.75 inches, the type, no. 9251, Museum Stanford University.

OPLOPOMUS Steindachner.

222. *Oplopomus vergens* Jordan & Seale, new species.

Head 3.50 in length without caudal; depth 4.30; eye 4 in head; dorsal vi-1, 10; anal 10; scales 32; cheek and opercle sealed; 2 stoutish spines at angle of preopercle; snout 3.50 in head; interorbital equal to pupil. Body moderately elongate, slightly compressed; depth of caudal peduncle 2.25 in head; anterior profile of head rather blunt, lower jaw slightly the longer; mouth rather small, the angle below anterior margin of iris; tongue free at tip, rounded, entire; 2 rows of small sharp-pointed teeth in upper jaw, several rows in lower jaw, no canines; origin of ventrals on line with dorsal, the anterior dorsal spines not elongate; fourth spine the longest, 1.75 in head; base of soft dorsal equal to head, its longest ray 1.60 in head; base of anal 1.10, its longest ray 2; pectorals 1.05; caudal rounded, 1.10; ventrals large, united, extending to anal papilla



FIG. 17.—*Oplopomus vergens* Jordan & Seale, new species. Type.

Color in spirits yellowish brown, 6 dusky spots along median line of side, the sixth forming a black spot at base of caudal; a row of small ocellated dark spots just below the median line; similar small ocellated spots on upper half of body arranged more or less in irregular longitudinal bands; about 7 indistinct short dusky bands over back; a more or less distinct dusky area below and also in front of eye, a rather wide irregular dusky area from angle of mouth to opercle; a dusky spot on upper base of pectorals, with a small dot on lower part of base; a dusky spot at upper margin of opercle and above axil of pectorals; spinous dorsal with 10 black cross-lines, one at base of fin, the other on distal third, a more prominent dusky area on posterior of fin; soft dorsal with 2 or 3 irregular dusky lines; caudal with about 5 dusky bands; pectorals, ventrals, and anal gray, the ventrals slightly darker, and the anal sometimes with a slight dusky wash.

Six specimens from Cavite, length 2.75 to 3.20 inches. Type no. 53071, U. S. National Museum. Cotype no. 9256, Museum Stanford University.

OXYURICHTHUS Bleeker.

223. *Oxyurichthys cristatus* (Day).

Head 4 in length; depth 5.20; eye 4.20 in head; dorsal vi-14; anal 14; scales about 55; no canine teeth; head naked; ventrals united; anterior dorsal rays longest, filiform, about equal to elongate middle ray of caudal, 2.20 in length without caudal; no tentacle above eye; a black spot on upper part of eye, one also below the eye; caudal acuminate.

Color in spirits yellowish with some dusky bands over back and extending obliquely down to median line of side in form of about 5 dusky bars or blotches; a dark spot at base of caudal; caudal fin thickly dotted with black; area above pectoral fin with numerous black dots; a short nuchal crest with black margin; caudal gray with white margin; pectorals and ventrals gray.

224. *Oxyurichthys tentacularis* (Cuvier & Valenciennes).

Head 4 in length; depth 5.20; eye 4.50 in head; dorsal vi-13; anal 14; small sharp-pointed teeth in each jaw; a small tentacle over eye, in young this tentacle equal to length of eye, in the adult less; a crest on nape.

Color in spirits whitish, with dull wash of gray; about 5 indistinct dusky bands over back and same number of blotches on side; a more or less distinct dusky spot at base of caudal on midline of caudal peduncle, also 2 indistinct dusky spots at base of axil of pectorals; a black area on top of caudal peduncle just posterior to soft dorsal; anterior dorsal rays the longest, about equal to length of head; caudal lunate, grayish; dorsal with brown spots, more numerous and distinct on soft dorsal; anal, pectorals, and ventrals grayish.

Four specimens from Cavite, length 3.75 to 4.80 inches.

PARAGOBIODON Bleeker.**225. *Paragobiodon melanosomus* (Cuvier & Valenciennes).**

Head 3.30 in length; depth 3; eye 3.20 in head; dorsal v-vi-9; scales 22; ventrals very short, cup-shaped; head about as high as long, its surface much roughened by excrescences; caudal rounded; 3 large curved canine teeth in lower jaw. Color in spirits uniform dark brown, almost black. One specimen from Manila, 1.10 inches long.

This species is very near *Paragobiodon xanthosomus*, differing apparently only in the color, which is black, not yellow.

Family PLEURONECTIDÆ.**PSETTODES Bennett.****226. *Psettodes erumei* (Bloch).**

Head 3.10 in length; depth 2.25; dorsal 54; anal 38; scales about 72; long sharp canines in each jaw; maxillary extending far beyond eye, about 1.45 in head; eyes and color on the left side. Color in spirits uniform brown; fins dusky, except pectorals, which are yellowish; ventrals and caudal round; interorbital less than eye. One specimen, 4.75 inches long, from Cavite.

PSEUDORHOMBUS Bleeker.**227. *Pseudorhombus polyspilus* (Bleeker).**

Head 3 in length; depth 2.05; dorsal 70; anal 52; scales 73; a single row of sharp teeth in jaws; maxillary scarcely reaching middle of eye; lateral line strongly curved, sending a branch to the tenth dorsal ray; eyes close together, sinistral. Color in spirits brownish, with numerous blue spots having black margins; a large black spot at curve of lateral line, another just below. Six specimens from Cavite, length 2.50 to 5 inches.

228. *Pseudorhombus arsius* Bleeker.

Head 3.25 in length; depth 2.05; eyes sinistral; dorsal 72; anal 57; scales 77 in lateral line, which is strongly bent, sending a branch to nuchal region; rather strong sharp teeth in jaws; maxillary extending to posterior third of eye; anterior dorsal rays wide. Color in spirits brownish, with numerous small black spots; a dark spot at point where lateral line becomes straight, another midway between the first blotch and caudal. One specimen, 4 inches long, from Cavite.

SCÆOPS Jordan & Starks.**229. *Scæops orbicularis* (Bleeker).**

Dorsal 84; anal 63; scales large, about 34; eyes sinistral, wide apart; interorbital space concave, scaled, equal to eye; maxillary short, ending under anterior margin of orbit; numerous small sharp-pointed teeth in jaws. Two small specimens from Cavite, length 2 and 2.50 inches.

Family SOLEIDÆ.

CYNOGLOSSUS Hamilton-Buchanan.

230. *Cynoglossus puncticeps* (Richardson).

Head 4.75 in length; depth 3.75; two lateral lines on colored side; dorsal 89; anal 70; scales about 110. Color in spirits yellowish, with reddish-brown markings on left side, these taking more or less the form of vertical bands. Three specimens from Manila, length 2.75 to 3.50 inches.

MICROBUGLOSSUS Gänther.

231. *Microbuglossus humilis* (Cantor).

Eyes on right side; head 3.75 in length; depth 2.20; dorsal 56; anal 41; scales 100; numerous fringes on upper and lower portion of head on the blind side; upper eye one-half diameter in front of lower; eyes about one diameter apart. Color in spirits dark gray, with numerous fine dark points and irregular lines; pectoral black. Two specimens from Cavite, length 2 inches.

Family PTEROPSARIDÆ.

PARAPERCIS Gill.

232. *Parapercis hexophthalmus* (Bleeker).

Head 3.50 in length; depth 7; dorsal v, 22; anal 11, 17; scales 60. Color in spirits brownish above, yellowish below; about 11 brown bands on side; dusky blotches on caudal, about 10 oblique lines from lower part of eye; anterior dorsal black; posterior dorsal with 3 rows of black dots; anal with a single row of black dots.

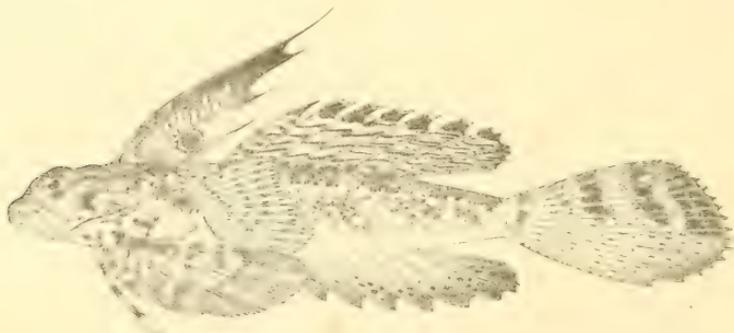


FIG. 18.—*Dactylopus dactylopus* (Bennett).

Family CALLIONYMIDÆ.

DACTYLOPUS Gill.

233. *Dactylopus dactylopus* (Bennett).

Head 3.50 in length; depth 6.50; eye 4.20 in head; first dorsal elongate; ventrals in front of pectorals, with a single free ray in front; a single opercular spine. Color brownish, with dusky blotches; pectoral banded; caudal with 4 half bands on upper part; anal with dusky outer half; belly white. Three specimens from Cavite, length about 4.50 inches.

Family BLENNIIDÆ.

BLENNIUS Linnæus.

234. *Blennius thysanius* Jordan & Seale, new species.

Head 3.50 in length without caudal; depth 3.50; eye 5.50 in head; dorsal XI, 15; anal 19; lateral line bent down to middle of side under posterior part of spinous dorsal and continued as a row of distinct bars to base of caudal; snout 2.60; interorbital 1.50 in eye; a wide, fan-like orbital tentacle with about 10 fringes, these tentacles about equal in height and width to width of eye; a simple short tentacle at nostril; no nuchal crest or tentacles; gill membranes broadly united, free from the isthmus. Body of greater depth than usual in blennies, the profile of head blunt, the eye being about on line with middle of side of mouth; depth of caudal peduncle 2.70 in head; each jaw with a single row of immovable small, sharp-pointed teeth, the lower jaw with 2 strong, curved canines on each side, the upper with a single posterior canine. Dorsal fin continuous, not incised, the membrane not extending to caudal fin; origin of dorsal on nuchal region slightly in advance of posterior margin of preopercle; base of anal fin 1.75 in base of dorsal; 2 anterior rays of anal modified into enlarged fleshy bulbs, probably of sexual significance; ventrals 1.80 in head; pectorals 1.40; caudal rounded, 1.90.

Color in spirits pale bluish, with some very indistinct indications of 5 or 6 slightly darker bands made up of spots over back and down sides; dorsal bluish, with slightly darker margin; anal bluish, a narrow white margin with intramarginal dusky shading on lower third; ventrals bluish with tint of dusky; some indistinct bluish dots or mottlings on nuchal region and at upper part of opercle.

Two specimens from Cavite, length 2.50 and 2.90 inches. The type is no. 53072, U. S. National Museum. Cotype, no. 9252, Museum Stanford University.

PETROSCIRTES Rüppell.

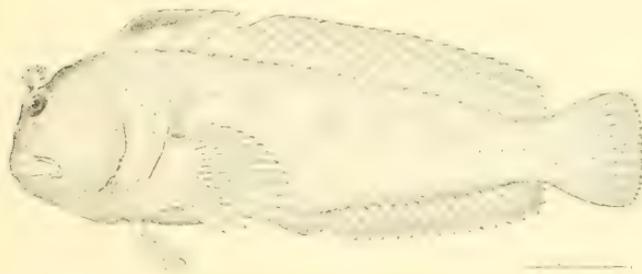
235. *Petroscirtes eretes* Jordan & Seale.

FIG. 19.—*Blennius thysanius* Jordan & Seale, new species. Type.

Head 3.75 in length; depth 5; eye 3.75 in head; dorsal 30; anal 20; a dermal flap on lower jaw, one on upper part of each eye, one on posterior part of supraorbital, and one on each side of nuchal region. Color in spirits grayish, with a wash of bluish; indistinct specks and mottlings on side; a dusky blotch at base of caudal. One specimen 2 inches long from Iloilo. The original type is from Negros.

236. *Petroscirtes vulsus* Jordan & Seale, new species.

Head 4 in length without caudal; depth 5; eye 3 in head; dorsal 27; anal 16; teeth about 50 in each jaw, with large canines in lower and small canines in upper; a single wide barbel on each side of chin; a rather wide barbel on upper part of eye, another just posterior to eye, and one on each side of nuchal region; a short flap at nostril; snout 3.20 in head, interorbital space 4 in head.

Body elongate, compressed; depth of caudal peduncle 2.50 in head; snout broad to the tip; angle of mouth under anterior of orbit; gill-opening a small pore at upper posterior margin of opercle; origin of dorsal opposite origin of ventrals; base of anal 2.75 in length of fish without the caudal; origin of anal midway between middle of eye and base of caudal; pectorals 1.75 in head; ventrals 2; caudal rounded, 1.15.

Color in spirits uniform pale bluish without markings; no dusky blotch at base of caudal; dorsal fin with rows of black spots; anal fin with 4 dusky bars; caudal yellow, with 5 or 6 indistinct dusky bars; pectorals and ventrals yellowish.

One specimen from Manila, the type, 2.2 inches long, no. 9253, Museum Stanford University.

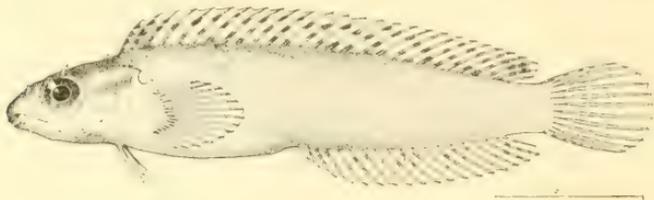


FIG. 23.—*Petrosirtes vulsus* Jordan & Seale, new species. Type.

Family FIERASFERIDÆ.

FIERASFER Cuvier

237. *Fierasfer homei* Richardson.

Head 7.10 in length; depth 12; eye 5 in head; maxillary extending beyond posterior margin of eye, its length 2.15 in head; pectoral 1.75; sharp-pointed teeth in jaws, enlarged teeth on vomer. Color in spirits uniform white. One specimen, 4 inches long, from Cavite.

Family ANTENNARIIDÆ.

PTEROPHRYNE Gill.

238. *Pterophryne histrio* (Linnaeus).

Head 1.75 in length; depth 1.80; dorsal III, 12; anal 7; body smooth with dermal flaps on belly; caudal rounded. Body mottled with dusky and white, with numerous small white dots; fins barred with dusky; belly with dark cross-bars. Four specimens from Manila, length 3.50 to 7.25 inches.

This species agrees fairly with the Japanese form called *Pterophryne ranina* by Jordan, except that the belly has distinct cross-bars. Probably *Pterophryne ranina* is merely a color variation of the Chinese-Japanese species *Pterophryne histrio*.

ANTENNARIUS (Commerson) Lacépède.

239. *Antennarius hispidus* (Bloch).

Head 1.75 in length; depth 63; dorsal III, 12; anal 7. Color in spirits gray, marked with black lines running obliquely on body and radiating from eye; fins barred more or less with rows of black dots. One specimen, 4.55 inches long, from Cavite; one 3.75 inches long from Manila, and one 4.5 inches from island of Panay.

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