

B 1,027,192

BERNICE  
PADARI  
RESEARCH  
MUSEUM  
OF  
POLYMER  
ETHIOLOGY  
AND  
NATURAL  
HISTORY

OCCASIONAL  
PAPERS

4

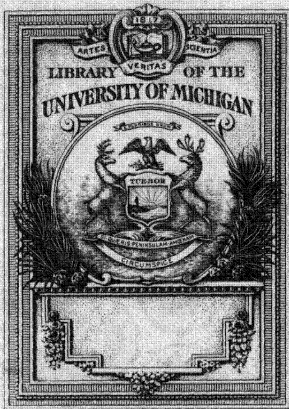
1906-11

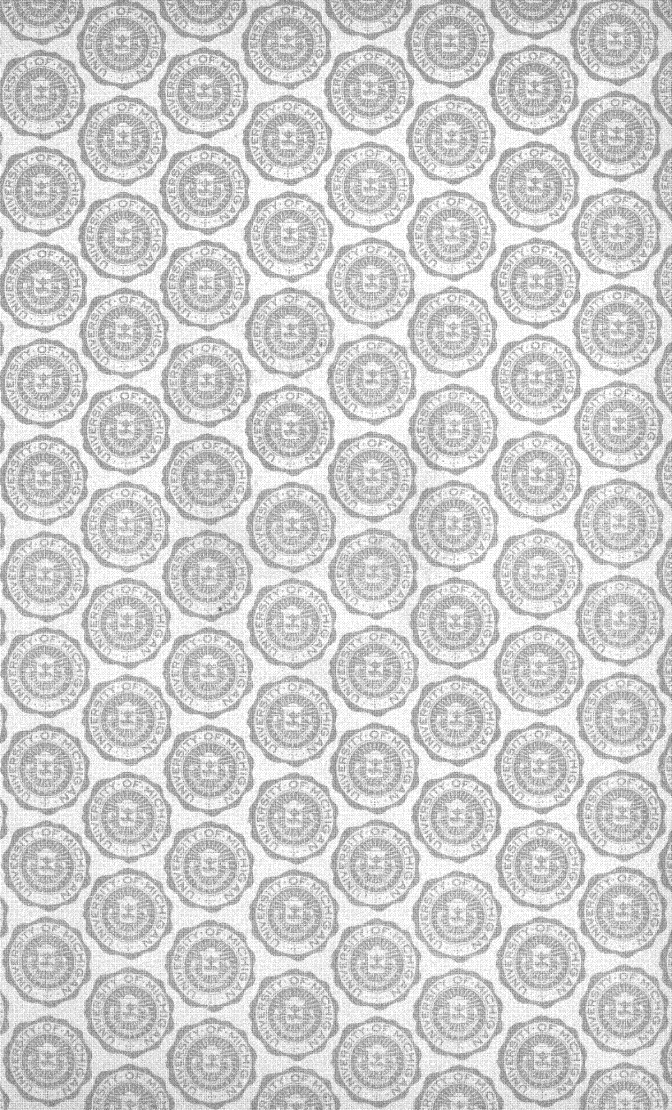
GN

670

.B.3











GN  
670  
B53



OCCASIONAL PAPERS

OF THE

BERNICE PAUahi BISHOP MUSEUM, <sup>Honolulu</sup> (OF  
POLYNESIAN ETHNOLOGY AND  
NATURAL HISTORY.)

---

VOLUME IV.

---

HONOLULU, H. I.  
BISHOP MUSEUM PRESS.  
1906-1911

## BOARD OF TRUSTEES

ALBERT F. JUDD ..... President  
E. FAXON BISHOP ..... Vice-President  
J. M. DOWSETT..... Treasurer  
ALFRED W. CARTER..... Secretary  
HENRY HOLMES,    SAMUEL M. DAMON,    WILLIAM O. SMITH

---

## MUSEUM STAFF

WILLIAM T. BRIGHAM, Sc.D. (Columbia) ..... Director  
WILLIAM H. DALL, Ph.D. .... Honorary Curator of Mollusca  
JOHN F. G. STOKES ..... Curator of Polynesian Ethnology  
C. MONTAGUE COOKE, Ph.D. (Yale)..... Curator of Pulmonata  
OTTO H. SWEZEY ..... Honorary Curator of Entomology  
CHARLES N. FORBES ..... Curator of Botany  
JOHN W. THOMPSON ..... Artist and Modeler  
MISS E. B. HIGGINS ..... Librarian  
JOHN J. GREENE ..... Printer  
AUGUST PERRY ..... Assistant Printer

---

JAMES KALEI ..... Janitor  
WILLIAM AIPU ..... Janitor

General

## CONTENTS.

---

### Number 1.

Fishes of the South Sea, by Alvin Seale.

### Number 2.

Director's Report for 1907.

A list of Casts of Hawaiian Fishes, made by John W. Thompson of the Museum Staff.

Stone Sculpturings in Relief from the Hawaiian Islands, by John F. G. Stokes.

Some Birds of Molokai, by William Alanson Bryan.

### Number 3.

Director's Report for 1908.

Walled Fish-traps of Pearl Harbor, by John F. G. Stokes.

Some New Hawaiian Plants, by Charles N. Forbes.

### Number 4.

Director's Report for 1909.

Hawaiian Curved Adzes, by William T. Brigham.

Notes on Hawaiian Petroglyphs, by John F. G. Stokes.

New Hawaiian Plants, II, by Charles N. Forbes.

Summary of the Collection of Insects in the Museum, by Otto H. Swezey, M. S.

### Number 5.

Director's Report for 1910.

Notes on the Naturalized Flora of the Hawaiian Islands, by Charles N. Forbes.



OCCASIONAL PAPERS

OF THE

BERNICE PAUHI BISHOP MUSEUM OF  
POLYNESIAN ETHNOLOGY AND  
NATURAL HISTORY.

VOL. IV.—No. 1.

---

**Fishes of the South Pacific.**

BY ALVIN SEALE.

---

HONOLULU, H. I.  
BISHOP MUSEUM PRESS.  
1906.





# FISHES OF THE SOUTH PACIFIC.

---

DURING the period from November 9, 1900 to September 21, 1903, it was the writer's privilege to make collections of fishes for the Bernice Pauahi Bishop Museum in the following islands: Tahiti and Raiatea, of the Society group; Tubuai, of the Austral group; Mangareva, of the Gambier group; Rarotonga, of the Cook group; Makatea, of the Paumotu group; Nukuhiva, of the Marquesas group; Fatè, of the New Hebrides; Shortland, of the Solomon group.

A total of 1550 specimens were secured, representing 375 species, 33 of which seem to be new to science.

I am indebted to President Jordan for various suggestions and for the permission to compare my specimens with those contained in his collections from Samoa and Hawaii.

The nomenclature adopted is essentially that adopted by President Jordan in his forthcoming report on the Fishes of Samoa, in the preparation of which the present writer has taken part.

ALVIN SEALE.

Stanford University, Cal.

August 12, 1904.

---

## LIST OF NEW SPECIES, WITH LOCALITY.

---

- Gymnothorax zonipectis*. Tahiti.  
*Gymnothorax tahitensis*. Tahiti.  
*Gymnothorax marquesensis*. Nukuhiva.  
*Hemirhamphus australensis*. Tubuai.  
*Cypselurus tahitensis*. Tahiti.  
*Sphyræna goodingi*. Nukuhiva.

- Myripristis sanguineus Jordan & Seale. Tahiti. (Samoa.)  
 Myripristis phæopus. Nukuhiva.  
 Upeneus aurantiacus. Tubuai.  
 Promethichthis pacificus. Nukuhiva.  
 Epinephelus zapyrus. Tahiti.  
 Lutianus nukuhivæ. Nukuhiva.  
 Lutianus tahitensis. Tahiti.  
 Lutianus melanesiæ. Solomon Ids.  
 Cæsius teres. Solomon Ids.  
 Abudedefduf jordani. Solomon Ids.  
 Abudedefduf cæsius. Tubuai.  
 Scarichthys rarotongæ. Rarotonga.  
 Callyodon waitei. Tahiti.  
 Callyodon ultramarinus Jordan & Seale. Mangareva. (Samoa.)  
 Siganus shortlandensis. Solomon Ids.  
 Siganus zoniceps. Solomon Ids.  
 Monacanthus fatensis. Solomon Ids.  
 Ostracion dexteri. Society Ids.  
 Ostracion chryseres. Tubuai.  
 Ostracion auricauda. Mangareva.  
 Scorpænopsis quiescens. Tahiti.  
 Deleastes dæctor. Tahiti.  
 Leptecheneis flaviventris. Mangareva.  
 Salaria azureus. Tubuai.  
 Salaria tubuensis. Tubuai.  
 Salaria cæsius. Tubuai.  
 Antennarius lutescens. Tahiti.

---

## LIST OF SPECIES.

---

### FAMILY CARCHARIIDÆ.

**Carcharias sorrah** Muller & Henle.

One specimen, No. 1284 B. M.<sup>1</sup> Length 29 inches. From Shortland Id., Solomons.

### FAMILY ELOPIDÆ.

**Megalops cyprinoides** (Broussonet).

One specimen, No. 741 B. M. From Tubuai, Austral Ids.

<sup>1</sup>The letters B. M. after a specimen number stand for B. P. Bishop Museum. All numbers followed by an \* have been duplicated in the manuscript.

FAMILY ALBULIDÆ.

**Albula vulpes** (Linnæus).

Depth 5; head 3.90 (without flap); eye 4.75; D. 17; A. 9; scales 79 in lateral line; interorbital space 3.95.

Body elongate, slightly compressed, scaled, the lateral line complete; a row of modified scales down the back; elongate axillary scales; head naked; snout conical, overlapping the small inferior mouth; maxillary short, forming lateral margin of upper jaw and reaching to below the eye; jaws, vomer and palatins with bands of villiform teeth; broad patches of coarse blunt pavement teeth on base of tongue and sphenoidal bones; eye covered with adipose membrane.

Color in spirits, silvery with about 10 narrow dusky longitudinal lines above the lateral line and several less distinct ones below; fins yellowish white, the caudal margined with dusky. Four specimens, from Tahiti, Nos. 716, 717, 1489 and 1490 B. M.

Two young specimens were taken at Fatè, New Hebrides, No. 833 B. M.

FAMILY CLUPEIDÆ.

**Sardinella kunzei** (Bleeker).

Two specimens, Nos. 866 and 867 B. M., from Fatè, New Hebrides.

Three specimens, Nos. 1092, 1093 and 1214 B. M., from Shortland Id., Solomons.

**Stolephorus delicatulus** (Günther).

One specimen, No. 1199 B. M., from Shortland Id., Solomons.

FAMILY SYNODONTIDÆ.

**Synodus varius** (Quoy & Gaimard).

One specimen, No. 829 B. M., from Mangareva, Gambier Ids.

**Trachinocephalus myops** (Forster).

Two specimens, Nos. 1094 and 1153 B. M., from Shortland Id., Solomons.

One specimen, No. 1980 B. M., from Rarotonga, Cook Ids.

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

One specimen, No. 1298 B. M., Shortland Id., Solomons.

FAMILY ANGUILLIDÆ.

**Anguilla megastoma** Kaup.

Depth 2.10 in head; head 2.80 in distance from snout to vent; length of head 1.75 in distance from gill openings to origin of dorsal; eye 2.10 in interorbital; snout from opening of posterior nostril

is 6 in head, its width at both nostrils much greater than depth; origin of dorsal nearer the snout than the tip of tail; the distance between the origin of anal and dorsal 3 in head; anterior part of snout and head flat, its width greater than its depth; angle of mouth 3.14 in head; upper jaw with fleshy lobes on sides equal in width to the eye; lower jaw slightly the longest; anterior nostrils prominent hollow tubes, situated on each side of tip of snout, their length 2 in the distance between their bases; posterior nostrils are two small round holes directly in front of upper part of eye; distance between round and tubular nostrils equal to the distance apart of the anterior nostrils; distance between posterior nostrils equal to interorbital space; gill openings are in front of pectorals, of moderate size, 2 in length of pectorals; mucus pores between nostrils and on lower jaw prominent; thick bands of small teeth in both jaws and vomer; no teeth on tongue; no fangs; pectoral fins prominent, rounded, of about 15 rays, length of the fin 3.20 in head, its base equal to distance between anterior nostrils; vertical height of dorsal slightly greater than vertical height of anal; origin of dorsal .75 of an inch in front of vent in specimen 16 inches long.

Color, a uniform dirty brown, fading into yellowish white on belly; anal fin a light drab with a broad yellowish white border which runs out on posterior part of fin, the tip and the tip of caudal and dorsal being much darker brown.

Three specimens from Tubuai island. No. 787, length 23 in.; No. 788, length, 16 in.; No. 789, length 14 in.

Three specimens from Rarotonga, Cook Ids., Nos. 1953-1955 B. M.

#### FAMILY MURÆNIDÆ.

##### **Gymnothorax pictus** (Ah1).

One specimen, No. 1159 B. M., from Shortland Id., Solomons.

One specimen, No. 2470\* B. M., from Makatea, Paumotu Ids.

One specimen (head), No. 804 B. M., from Mangareva, Gambier Ids.

One specimen, No. 1540 B. M., from Tahiti.

One specimen, No. 1955\* B. M., from Rarotonga, Cook Ids.

##### **Gymnothorax detactus** Bryan & Herre.

Ten specimens, Nos. 2389-2392, 2393-2398 B.M., from Nukuhiva, Marquesas Ids.

##### **Gymnothorax nebulosus** (Ah1).

One specimen, No. 1095 B. M., from Shortland Id., Solomons.

Two specimens, Nos. 2382 and 2383 B. M., from Nukuhiva, Marquesas Ids.

##### **Gymnothorax rhodocephalus** Bleeker.

(*Gymnothorax formosus* Bleeker.)

One specimen, No. 1057 B. M., Rarotonga, Cook Ids.

**Gymnothorax favagineus** Bloch & Schneider.

(*Muraena tessellata* Richardson.)

One specimen, No. 1079 B. M., from Fatè, New Hebrides.

**Gymnothorax tenebrosus** (Richardson).

One specimen, No. 1539 B. M., from Tahiti, Society Ids.

**Gymnothorax zonipectis** Seale, new species.

Depth 2 in head; head 3.50 in distance between vent and tip of snout; vent is nearer to tip of snout than to tip of tail by a distance equal to head; snout rather elongate, 4 in head; eye 2 in snout; interorbital space slightly greater than eye; tubes of anterior nostrils equal in length to eye; top of head wide and flat; the middle width and depth of snout equal; the head broadens rapidly from posterior margin of orbital; lower jaw from tip to angle 2 in head; the jaw curved and cannot be completely closed; a single row of sharp pointed teeth in each jaw, 14 on each side of each jaw; long sharp depressible teeth on vomer; a row of dull blunt teeth on palate; no scales; no pectoral fins.

Color in spirits, a light bistre brown; two rows of dendritic black spots along the sides, about 48 of these spots in each row; just above and below these spots are short black bands which extend through the fins and connect with its fellow of the opposite side; head mottled and flecked with white and brown; a white band extending from lower posterior margin of eye to above the angle of the jaws; another short white line from upper posterior margin of eye back, and up, over the sides of head; throat and under jaw with six white cross bands.

One specimen from Tahiti. Length 18 in. No. 1362\* (Fig. 1.) B. M.

**Gymnothorax nubilus** (Richardson).

This species has a single series of sharp-pointed flat teeth, 12 on each side of the jaws; a single row of small blunt teeth on palate, no teeth on vomer or palatine.

Color in spirits, a light bistre brown, with irregular dark brown blotches more or less confluent into bands which extend upon fins; no dark spot at gill openings; anal fin with a distinct white band along the margin, the width of the band being a third of the fin; angle of mouth with a brown spot, in front of which is a white blotch; under part of chin whitish.

Two specimens, Nos. 1364 and 1365 B. M., from Tahiti, Society Ids.

**Gymnothorax tahitensis** Seale, new species.

Depth 1.50 in head; head 3.20 in length in front of vent; the length of body less than tail by a distance equal to two-thirds the length of head; eye 8 in head, 1.75 in snout, it is slightly nearer

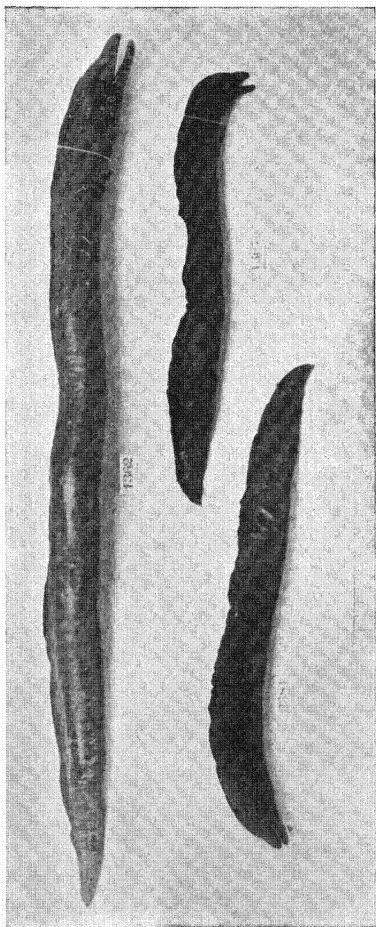


FIG. 1.—1362. *Gymnothorax zonipectis* Seale. 1367. *Gymnothorax tahitensis* Seale. 2384. *Gymnothorax marquesensis* Seale.



the angle of jaws than tip of snout; anterior nostrils tubular, short, equal to one-half the diameter of eye; posterior nostrils round holes over anterior half of eye; interorbital 1.20 in snout; a longitudinal groove on top of head; gill openings small, equal to eye; distance from angle of jaw to tip 2.10 in head; teeth in upper jaw biserial, the inner row the largest; a group of 9 enlarged canine-like teeth in anterior third of upper jaw of which three are on the vomer, the two posterior maxillary teeth are the largest and closely resemble fangs; a single series of blunt teeth on the palates; sides of lower jaw with a single series, except at tip where there are 6 enlarged canines, about 20 teeth on each side.

Color in spirits, a lamp black, lighter on belly which has some brownish reticulations and black spots; some lighter yellowish blotches on fins, intermingled with bluish black; head without markings, the under jaw is a shade lighter in color.

One specimen from Tahiti, No. 1367 (Fig. 1) B. M. Length 8.50 in.

***Gymnothorax thyrsoideus*** (Richardson).

One specimen, No. 1037 B. M., from Fatè, New Hebrides.

One specimen, No. 759 B. M., from Tubuai, Austral Ids.

***Gymnothorax flavomarginatus*** (Rüppell).

In life this eel is a pale yellowish, thickly marbled with light brown, as figured by Bleeker (Atl. Ichth. Tab. CLXXVIII, fig. 3) with a black spot at gill openings. In spirits it becomes a darker brown, but not densely marbled with black. (Günth. Cat. Fishes, Vol. VIII, p. 120.) Teeth are uniserial except vomerine series, which are forked in front.

One specimen, No. 762 B. M., from Tubuai, Austral Ids. Length 17 in.

One specimen, No. 1584 B. M., from Raiatea, Society Ids.

***Gymnothorax undulatus*** (Lacépède).

Depth 1.80 in head; head 2.25; eye 1.50 in snout, its snout is midway between snout and angle of jaws; interorbital equal to middle width of snout; jaws equal, their inner length from tip to angle 2.15 in head; greatest width of head 3.19 in its length; gill openings without black spot.

Body elongate, cylindrical; no scales; no lateral line; head swollen above; the lower jaw slightly curved; teeth in a single row in jaws; the six anterior teeth of upper jaws enlarged depressible canines, vomer with two or three depressible canines; palate with a single row of six small but sharp-pointed teeth; posterior half of upper jaw has about 13 short oblique teeth in each side; the lower jaw has 21 small sharp teeth in each side, and 4 big canines in front of these; tongue atrophied; anterior nostrils tubular, situated on the upper lip; posterior nostrils are circular holes

on top of snout in front of orbit; snout from the anterior margin of eye 5.50 in head. Fins: no pectoral fins; origin of dorsal is about the length of snout in front of gill openings; origin of anal directly posterior of vent, which is slightly nearer the snout than tip of tail.

Color in spirits, very blackish and shading into yellowish gray below and anteriorly; irregular, vertical white lines, more or less wavy and about a third as wide as interspaces, on side of body the lines becoming regular and band-like posteriorly, anteriorly the lines join more or less, forming irregular squares and polygons; thorax and belly yellowish white; snout and anterior half of lower jaw black; fins colored similar to body, but fewer lines.

One specimen from Tubuai Id., of the Austral group, No. 770 B. M. Length 21 in.

One specimen, No. 1583 B. M., from Raiatea, Society Ids.

***Gymnothorax marquesensis*** Seale, new species.

Depth 10 in total length; head 3 in length anterior of vent; length of body greater than length of tail by a distance equal to 2.50 in head; teeth biserial except in front where there is a group of about 7 enlarged depressible canines, two of which are on the middle of the vomer; the inner series consists of about 8 teeth on each side; teeth of the lower jaw are in a single series with a cluster of canines in front; eye equal to the distance apart of the posterior nostrils; snout 4.70 in head; angle of the jaw 2.30 in head.

Color in spirits, a dull yellowish or gray with blackish irregular cross bands wider than the interspaces; on the posterior part of the body and tail these bands are more broken into indistinct dots; the belly is powdered with a yellowish spray.

A short, thick moray. Nine specimens, from Nukukiva, Marquesas Ids., Nos. 2384-2388 B. M. No. 2384 (Fig. 1) is type of the species.

***Gymnothorax chalazius*** Waite.<sup>2</sup>

Depth 6 in distance from tip of snout to vent; head 2.50 in the same distance; eye 7.50 in head, 1.50 in snout; the vent is nearer tip of snout than tip of tail by about the length of head; middle of eye is midway between angle of mouth and tip of upper jaw; interorbital space slightly less than width of snout; anterior nostrils tubular, short, equal to one-half the width of eye; posterior nostrils not tubular, situated above and in line with anterior margin of eye; teeth in upper jaw in a double series the inner ones the longest, 14 on each side; in the front of upper jaw are 8 enlarged depressible canines, 2 on the vomer and 3 on each side, smaller teeth forming the outer row; a row of blunt teeth on the palate; lower jaw with a single series of teeth, the 2 or 3 anterior ones in each side enlarged, depressible canines.

<sup>2</sup>The type secured by Mr. Waite corresponds to the first specimen in the series No. 765 B. M.

Body is elongate, cylindrical; no pectoral fins. The 4 specimens of this species, secured at Tubuai Id., of the Austral group, form a series which show no structural differences,<sup>3</sup> and in which the color markings intergrade perfectly.

No. 765 B. M., a female, 11.75 in. in length, has the following color markings: In spirits, color dark brown, shading into black on the posterior half of the body; the body covered with minute white dots, like pin points, yellow in life, none of the dots are as large as the head of a pin, these dots very numerous on the anterior third of body and head, but gradually decreasing in number posteriorly, until on the posterior half of the body they are few and widely scattered; belly and throat yellowish white, being powdered with yellowish dots; in addition to the above there is on the anterior half of the body a number of round, indistinct black spots the size of eye, these show a tendency to form imperfect vertical, band-like arrangement; fins colored similar to body, caudal with a narrow white margin.

No. 763 B. M., a female, 10 in. long, is colored and marked exactly as above, except the dots are a trifle larger, being the size of pin heads; the yellow coloring on the belly showing a tendency to become reticulate.

No. 766 B. M., a male, 11.50 in. long, colored and marked as No. 763 except the dots are larger being the size of the pupil of the eye, the ground color is a shade less dark, and the anterior dots show a tendency to become less regular in their roundness.

No. 769 B. M. Length 10 in. Colored as No. 766, except the dots are still larger, and show a decided tendency to become reticulate, especially on the anterior part of the body.

All of the specimens show the round, indistinct black spots, the size of the eye on the anterior half of the body.

Four specimens, Nos. 763, 765, 766 and 769 B. M., from Tubuai, Austral Ids.

Another moray, No. 1566, from Tahiti, was provisionally but probably incorrectly identified with *Rabula marmorata* (Valenciennes) from the Galapagos Ids.

#### ***Uropterygius concolor* (Rüppell).**

One specimen, No. 2005\* B. M., from Nukuhiva, Marquesas Ids.

#### ***Scuticaria tigrina* (Rüppell).**

One specimen, No. 1362\* B. M., from Tahiti, Society Ids.

One specimen, No. 2381 B. M., from Nukuhiva, Marquesas Ids.

#### ***Europterygius xanthopterus* (Bleeker).**

Three specimens, Nos. 2006-2008 B. M., from Nukuhiva, Marquesas Ids.

<sup>3</sup>The male specimen, No. 766, has the head slightly swollen above, a longitudinal groove divides this swollen portion into two lobes.

**Scuticaria marmorata** (Lacépède).

Four specimens, Nos. 2399-2402 B. M., from Nukuhiva, Marquesas Ids.

## FAMILY MORINGUIDÆ.

**Moringua javanica** Kaup.

One specimen, No. 2003\* B. M., from Nukuhiva, Marquesas Ids.

**Echidna polyzona** (Richardson).

One specimen, No. 2001 B. M., from Nukuhiva, Marquesas Ids.

**Echidna amblyodon** (Bleeker).

Two specimens, No. 2003\* and 2004 B. M., from Nukuhiva, Marquesas Ids.

## FAMILY PLOTOSIDÆ.

**Plotosus anguillaris** (Lacépède).

Three specimens, Nos. 1256, 1326 and 1327 B. M., from Shortland Id., Solomons.

## FAMILY BELONIDÆ.

**Tylosurus giganteus** (Schlegel).

(*Belone annulata* Cuv. & Val.)

One specimen, No. 747 B. M., from Tubuai, Austral Ids.

**Tylosurus choram** (Forskål).

One specimen, No. 1357 B. M., from Tahiti. Length 28 in. It is referred to this species with some doubt.

**Belone platura** Bennett.

Three specimens, Nos. 1070, 1071, 1072 B. M., from Fatè, New Hebrides.

## FAMILY EXOCETIDÆ.

**Hemiramphus australensis** Seale, new species.

Depth 4.78 in head; head 2.75; beak anterior of the upper jaw 4.30 in length; eye 7.40 in head, 3.75 in beak; interorbital space slightly concave with two distinct grooves; D. 16; A. 15; scales 56.

Body elongate, covered with deciduous scales; the depth but slightly greater than the width; head with lower jaw prolonged into a beak; the upper jaw short, its shape like a triangular flap, its length equal to its width; the tip of the upper jaw is exactly midway between tip of lower jaw and posterior margin of the opercle; teeth in both jaws in villiform bands; the origin of the

dorsal fin is exactly over the origin of the anal and the bases of the two fins are of about equal length; base of anal equal to distance from origin of anal to the middle of the ventrals; the origin of the ventrals much nearer base of caudal than to the posterior margin of the opercles; length of ventrals 3.50 in head; pectorals short, equal to the distance from anterior margin of orbit to posterior edge of opercle; caudal forked, the lower lobe much the longest.

Color in spirits, silvery below, bluish above, a silvery band along the sides; fins all white.

One specimen, No. 746 (Fig. 2) B. M., from Tubuai, Austral Ids. Length 11.1 in.

**Hemiramphus affinis** Günther.

Three specimens, Nos. 851, 842 and 840 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 2489\*-2490\* B. M., from Makatea, Paumotu Ids.

**Hemiramphus commersonii** (Cuvier).

Two specimens, Nos. 1331 and 1332\* B.M., from Shortland, Solomon Ids.

**Hemiramphus eclancheri** Cuvier & Valenciennes.

Three specimens, Nos. 2121-2123 B. M., from Nukuhiva, Marquesas Ids.

**Hemiramphus platurus** Bleeker.

Two specimens, Nos. 1951-1952 B. M., from Rarotonga, Cook Ids.

**Hemiramphus melanurus** Cuvier & Valenciennes.

One specimen, No. 1221 B. M., from Shortland, Solomons.

**Cypselurus tahitensis** Seale, new species.

Depth 5.50; head 4.20; eye 3.10; D. 12; A. 10; scales 43; interorbital 3 in head.

Body elongate, slightly compressed, covered with large scales, 24 rows between occiput and origin of dorsal; head short and blunt; the interorbital space concave; snout short, 4 in head; mandible slightly protruding; villiform teeth in bands on anterior of jaws and on palatines, in single series along sides of premaxillary, no teeth on vomer or tongue; gill rakers small; base of dorsal fin 1.50 in head, its longest ray 1.70; anal short, the longest ray 2.10 in head; pectorals very long, reaching to base of caudal and used as an organ of flight; origin of the ventrals much nearer base of snout, they reach to base of sixth anal ray; caudal forked, the upper lobe 1.20 in head, the lower lobe about twice as long as upper.

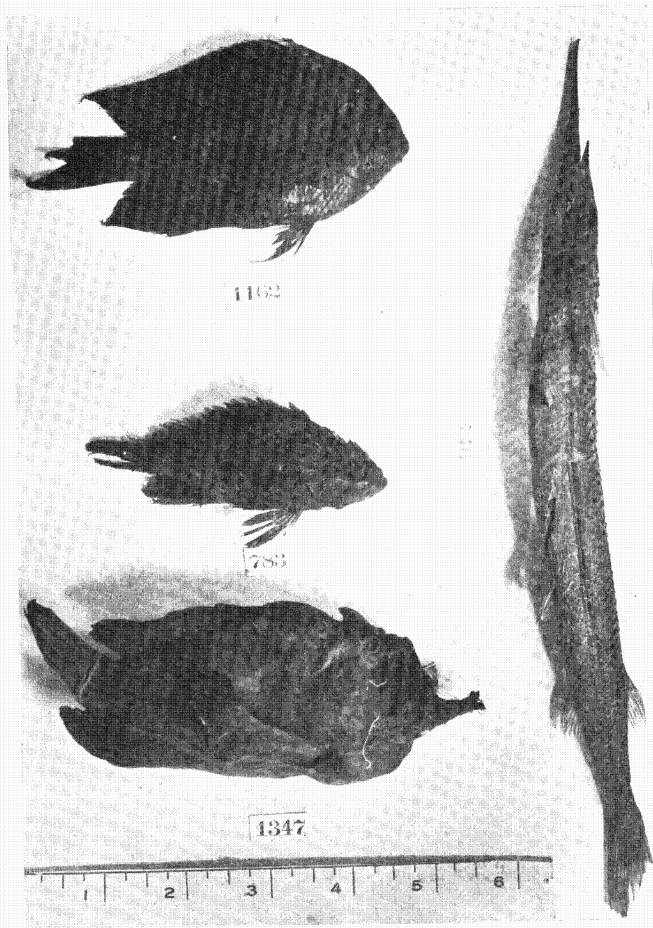


FIG. 2.—1162. *Abudefduf jordani* Seale. 783<sup>6</sup>. *Scorpaenopsis quiescens* Seale.  
1347. *Antennarius lutescens* Seale. 746. *Hemiramphus australensis* Seale.

Color in life, blue above, silvery below; iris yellow and black; fins bluish, except ventral and anal which are white.

Color in formalin, bluish above, white below; pectorals a deep uniform blue; dorsal dusky; ventral and anal white; caudal with a wash of dusky.

One specimen from Tahiti. No. 1413 (Fig. 3) B. M. Length 13 in.

**Exocætus volitans** Linnæus.

*Exocætus evolans* Linn.

Color in life, bluish above, white below, fins white, the pectorals with a few round dark spots.

One specimen, No. 1443 B. M., from Tahiti, Society Ids.

**Cypselurus oligolepis** (Bleeker).

One specimen, No. 1208\* B. M., from Shortland Id., Solomons.

#### FAMILY ATHERINIDÆ.

**Atherina lacunosa** Forster.

Ten specimens referred to this species were secured at Shortland Id., Solomons, Nos. 1280, 1299\*, 1309\*, 1311, 1316\*, 1323, 2226\*, 1234, 1246 and 1274 B. M. Four specimens from Fatè, New Hebrides, No. 865 B. M.

These fish swarm in countless millions about the shores of Shortland Id. during the months of June and July.

#### FAMILY MUGILIDÆ.

**Mugil kelaartii** Günther.

Two specimens, Nos. 1341, 1342 B. M., from Tahiti.

**Querimana crenilabris** (Forskål).

Two specimens, Nos. 702\* and 703\* B. M., from Tahiti.

**Myxus leuciscus** (Günther).

One specimen, No. 2484\* B. M., from Makatea, Paumotu Ids.

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

Two specimens from Mangareva Id., No. 806 B. M., L. 5.75, and No. 807 B. M., L. 6.50 in. These have black pectorals, C., A. and V. yellowish; spinous dorsal yellowish; soft dorsal dusky.

One specimen, No. 975 B. M., from Fatè, New Hebrides.

One specimen, No. 1131\* B. M., from Shortland Id., Solomons.

One specimen, No. 1599 B. M., from Raiatea, Society Ids.

Two specimens, Nos. 1958 and 1959 B. M., from Rarotonga, Cook Ids.



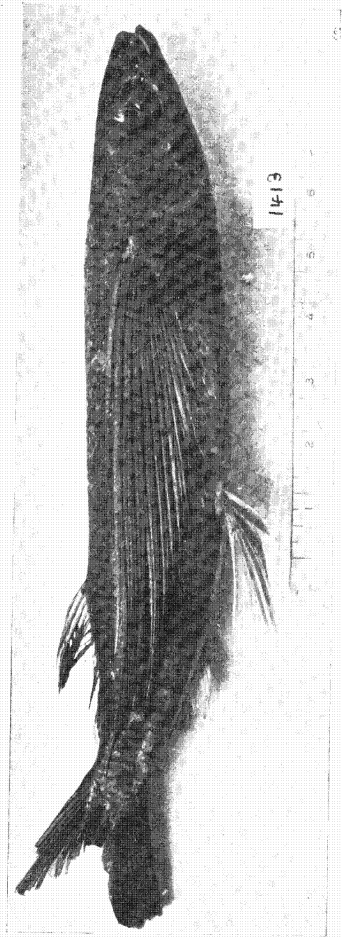


FIG. 3.—1413. *Cypselurus talitensis* Seale.

**Mugil cephalus** Linnaeus.

Two specimens of the common Polynesian mullet, Nos. 1532 and 1523 B. M., from Tahiti.

Two specimens, Nos. 1579\* and 1598 B. M., from Raiatea, Cook Ids.

One specimen, No. 2264 B. M., from Nukuhiva, Marquesas Ids.

Two specimens, Nos. 1960 and 1962 B. M., from Shortland Id., Solomons.

FAMILY AULOSTOMIDÆ.

**Aulostomus valentini** (Bleeker).

One specimen, a young, length 3 in., No. 1406 B. M., from Tahiti.

Depth 20; head 3; eye 9; snout 4.50 in length; interorbital 10.50 in head; caudal peduncle 2 in snout.

FAMILY FISTULARIIDÆ.

**Fistularia petimba** Lacépède.

(*Fistularia depressa* Günther).

One specimen from Mangareva Id., No. 803 B. M. Length 37 in.

One specimen, No. 1083 B. M., from Fatè, New Hebrides. Color light brown, yellowish below, fins yellowish white.

One specimen, No. 1226 B. M., from Shortland Id., Solomons.

One specimen, No. 1582 B. M., from Raiatea, Society Ids.

Seven specimens, Rarotonga, Cook Ids., Nos. 1944\*, 1945\*-1950 B. M.

Two specimens, Nos. 2281-2282 B. M., from Nukuhiva, Marquesas Ids.

Two specimens, Nos. 2487\*-2488\* B. M., from Makatea, Paumotu Ids.

FAMILY SYNGNATHIDÆ.

**Corythoichthys waitei** Jordan & Stark's MS.

One specimen, No. 1035 B. M., from Fatè, New Hebrides. The description of this species will appear in the report on the fishes of Samoa.

**Corythoichthys sealei** Jordan & Stark's MS.

One specimen, No. 1033 B. M., from Fatè, New Hebrides. The description of this species will appear in the report on the fishes of Samoa.

**Trachyrhamphus** species.

One specimen, No. 2283 B. M., from Marquesas Ids. This specimen is badly damaged, only the anterior half of the fish re-

maining, so the identification is quite problematic. It is allied to *T. longirostris* Kaup.

Interorbital space equal to eye, 5 in snout; a distinct ridge across opercle, with fine radiating ridges; occiput and neck with a median ridge; body deeper than broad.

This is probably a new species, but with the mutilated specimen before me the description could not be complete.

#### FAMILY SPHYRÆNIDÆ.

##### **Sphyræna obtusata** Cuvier & Valenciennes.

Six specimens, Nos. 911-914, 1084 and 1064 B. M., from Fatè, New Hebrides.

##### **Sphyræna goodingi**<sup>4</sup> Seale, new species.

Depth 7.89; head 3 in length; eye 6.20; D. v, 10; A. 10; scales 127.

Body elongate, rounded; head conical, the sharp point of the cone formed by the lower jaw; snout 2.30; lower jaw 1.60 in head; maxillary not quite reaching to anterior line with eye; teeth of the upper jaw in a single row; teeth of the lower jaw in a single row of 15 on each side; a pair of enlarged canine-like teeth in front; a row of large shark-like teeth on palatines; gill rakers short and tooth-like; opercles with the margin rounded, and ending in an oblique flap, there is an inconspicuous flat spine on the hardened portion; the upper fourth only is scaled; preopercle entirely scaled, the scales extending to below the eye onto the orbitals and on the base of the lower mandible; spinous dorsal fin, and the ventrals, are of equal length, 3.75 in head; origin of dorsal is slightly posterior to base of ventrals, the longest dorsal spine 3.80 in head; the distance between the soft and spinous dorsal 3.75 in length; last ray of dorsal extending as a short filament equal in length to width of eye; base of soft dorsal equal in length to base of anal, the last ray of anal is slightly prolonged; pectorals reaching to a line with base of dorsal, its length 3 in head; caudal deeply and evenly forked.

Color uniformly silvery with a slight wash of bluish on the dorsal surface.

One specimen from Nukuhiva, Marquesas Ids. Length 21 in. No. 2112 (Fig. 4) B. M.

#### FAMILY POLYNEMIDÆ.

##### **Polydactylus plebeius** Broussonnet.

Depth 3.90; head 3.25; eye 4, entirely covered with adipose membrane; D. VIII, 13; A. II, 12; five pectoral appendages; scales 60; interorbital 4.

<sup>4</sup>Named for Mr. Vie Gooding of Tahiti, whose kind assistance and interest in my work was greatly appreciated.

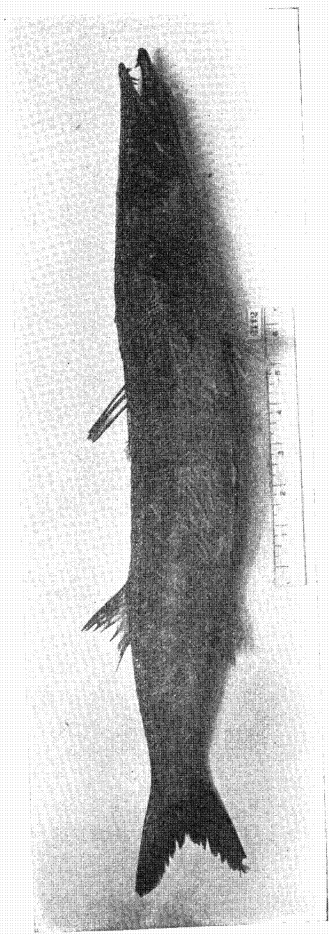


FIG. 1.—2112. *Sphyrna goodingi* Scale.

Body elongate, compressed, covered with small ctenoid scales; lateral line complete; depth of caudal peduncle 2.50 in head; the head is conical, the snout prominent and pointed, extending beyond the inferior mouth; maxillary reaching to posterior of eye, its length 2 in head; mandible 2.10 in head; lips thin; teeth filiform in jaws, vomer, palatine and pterygoids; preopercle serrated; pectoral appendages long, the longest 2.75 in length of fish, without caudal. Fins: Soft dorsal and anal of about equal length, their posterior margins emarginate, longest dorsal spine equal to length of pectorals 1.50 in head; ventrals equal to base of anal, 2.10 in head; caudal deeply forked, the lobes equal.

Color in spirits is yellowish white, with about 8 narrow longitudinal lines on the sides above the lateral line, and 10 below it; fins dusky, the dorsal, pectoral and caudal tipped with black.

One specimen from Tahiti, Society Ids., No. 1354 B. M.

Three specimens from Nukuhiva, Marquesas Ids., Nos. 2274-2276 B. M.

#### FAMILY ANOMALOPIDÆ.

##### **Anomalops palpebratus** (Boddaert).

One specimen, No. 928 B. M., from Fatè, New Hebrides.

One specimen, No. 1995 B. M., from Rarotonga.

#### FAMILY HOLOCENTRIDÆ.

##### **Holocentrus spinifer** Forskal.

Two specimens, Nos. 955 and 1003 B. M., from Fatè, New Hebrides.

One specimen, No. 1287 B. M., from Shortland Id., Solomons.

One specimen, No. 1619 B. M., from Raiatea, Society Ids.

##### **Holocentrus ensifer** Jordan & Evermann.

One specimen, No. 818 B. M., from Mangareva, Gambier Ids., is referred to this species. Length 13.50 in. Dorsal a uniform deep crimson.

##### **Holocentrus lacteoguttatus** Cuvier & Valenciennes.

Four specimens, Nos. 875, 1006, 1007 and 1008 B. M., from Fatè, New Hebrides, are referred to this species, with some doubt.

##### **Holocentrus praslin** (Lacépède).

One specimen, No. 2005\* B. M., from Fatè, New Hebrides.

##### **Holocentrus tiereoides** (Bleeker).

One specimen, No. 957\* B. M., from Fatè, New Hebrides.

One specimen, No. 1248 B. M., from Shortland, Solomons.

Seven specimens, Nos. 1461-1466, 1493 B. M., from Tahiti.

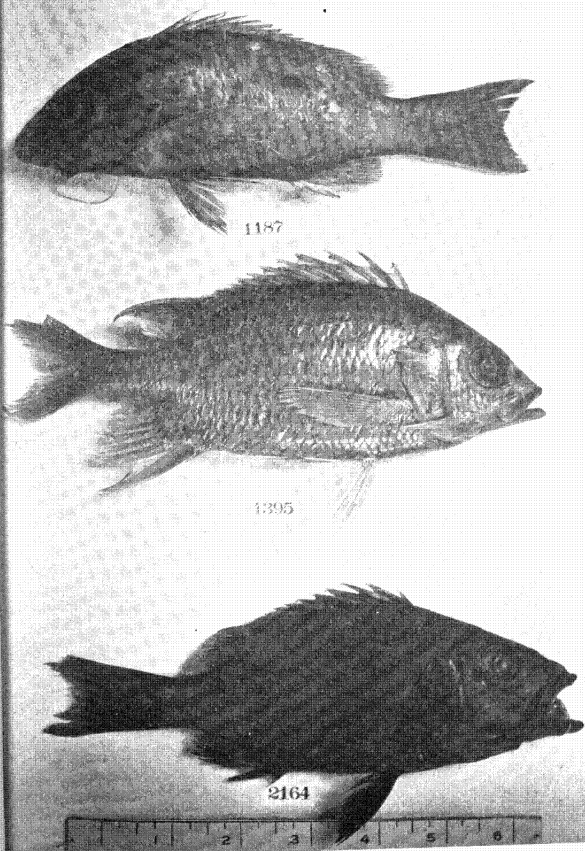


FIG. 5.—1187. *Lutianus melanesiae* Seale. 1395. *Holocentrus rubellio* Seale.  
2164. *Lutianus nukuhivae* Seale

**Holocentrus rubellio** Seale, new species.

Depth 2.75; head 3; eye 3.20 in head; D. XI, 14; A. IV, 9; scales 4-40-7; interorbital 4.90 in head, 1.40 in eye.

Body compressed, oblong, rather deep; caudal peduncle 1.85 in head, its depth 2 in its length; scales smooth except at edges which are finely toothed; a row of modified scales on nuchal region; some enlarged scales at base of anal fin; head compressed, rather short, its depth 1.15 in length; snout short, straight, the upper processes of the intermaxillaries end in a line with anterior margin of orbit; lower mandible two in head; posterior end of maxillary reaching to anterior edge of pupil; broad bands of villiform teeth on jaws, vomer and palatines; gill-rakers rather long, 12 on lower limb; opercles striate and toothed, two flat spines at angle, the upper slightly the longest; the large spine at angle of preopercle greater than width of orbit, 2.75 in head; orbital bones well toothed and spined, a strong spine extending over premaxillary, another on line with anterior margin of pupil, and 5 smaller ones between these two. Fins: dorsal spines rather strong, the fourth the longest, 2 in head; third anal spine very long and strong, 1.19 in head; pectorals reaching to line with fifteenth scale of lateral line; ventrals 1.20 in head; caudal moderately forked, the lobes equal.

Color in life, pink; fins pink, the webs along the spines a deeper red, this color becoming wider at the top, giving the appearance of a deeper red margin to the dorsal.

Color in spirits, yellowish white, with 10 pale yellow longitudinal lines; fins all yellowish white.

One specimen, No. 1395 (Fig. 5) B.M., from Tahiti, Society Ids.

**Holocentrus verticalis** Seale, new species.

Depth 2.75; head 3; eye 4.50; scales 4-47-8; D. XI, 15; interorbital 7.50 in head, 1.55 in eye.

Body compressed, oblong, deep; caudal peduncle 2 in head, its depth 1.90 in length. Head compressed, slightly longer than deep, the upper outline slightly concave; groove for the intermaxillary reaching to a line with anterior margin of pupil; lips thick; mandible 1.85 in head; maxillary short, not reaching to anterior margin of iris; bands of minute teeth on jaws, vomer and palatines; gill-rakers not long, 10 on lower limb; orbital bones with numerous spines and teeth; opercle striate and toothed, two rather prominent spines at angle, the upper slightly the longest, 1.20 in pupil; preorbital well toothed and scaled, the large spine at angle much longer than diameter of eye, 3 in head; just below this spine are 4 prominent teeth. Dorsal spines rather strong, the third the longest, 2 in head; rays of soft dorsal 1.90 in head; external rays of soft dorsal and anal slightly prolonged; third anal spine strong, 2.10 in head; pectorals reaching to a line with thirteenth scale of



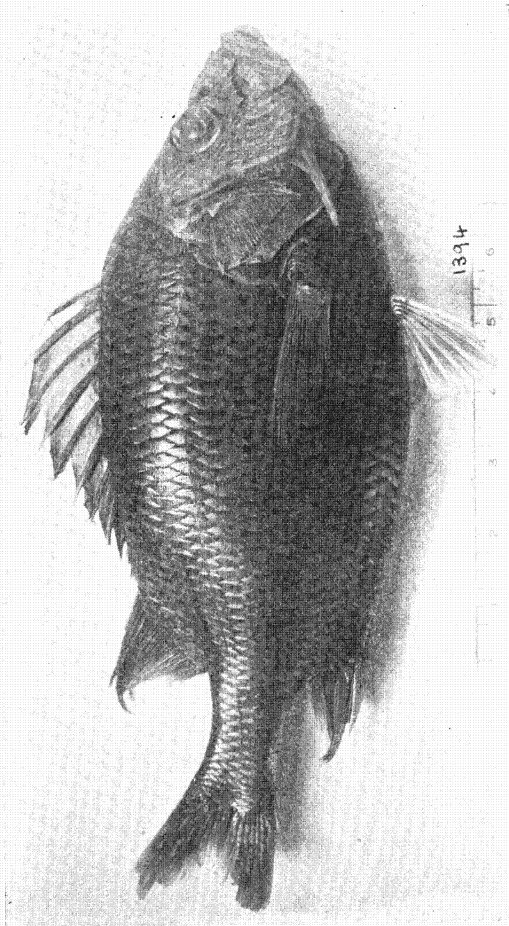


FIG. 6.—1394. *Holocentrus verticalis* Seale.

lateral line, 1.55 in head; caudal moderately forked, the lobes equal.

Color in life is bright red, each scale with a silvery vertical line through the centre; a white line under each eye and posterior edge of preopercle; dorsal fin uniform deep crimson; crimson in axis of pectorals; the remaining fins all pink with a wash of orange.

Color in spirits, yellowish white, with 13 darker yellow longitudinal stripes; dorsal fins yellowish, the other fins pinkish white.

Five specimens, Nos. 701\*, 1391-1394, B. M., from Tahiti, Society Ids. No. 1394 (Fig. 6) is type of the species.

**Holocentrus diadema** Lacépède.

Three specimens from Tahiti, Nos. 1458, 1459 and 1513\* B. M.

Three specimens, Nos. 879, 878 and 2279 B. M. from Fatè, New Hebrides.

One specimen, No. 2279\* B. M., from Nukuhiva, Marquesas Ids.

**Holocentrus microstomus** Günther.

Nine specimens, Nos. 1340, 1467-1472 B. M., from Tahiti.

Four specimens, Nos. 1608-1611 B. M., from Raiatea, Society Ids.

Two specimens, Nos. 732 and 761 B. M., from Tubuai, Austral Ids.

Two specimens, Nos. 1972-1973 B. M., from Rarotonga, Cook Ids.

**Holocentrus tiere** Lesson.

(*Holocentrum poecilopterum* Bleeker.)

Four specimens, Nos. 1396-1399 B. M., from Tahiti.

**Holocentrus opercularis** Cuvier & Valenciennes.

One specimen, No. 1456 B. M., from Tahiti.

**Holocentrus punctatissimus** Cuvier & Valenciennes.

(*Holocentrum diploxiphus* Günther.)

Six young specimens, No. 767 B. M., from Tubuai, Austral Ids.

One specimen, No. 819 B. M., from Mangareva, Gambier Ids.

Two specimens, Nos. 1969-1970 B. M., from Rarotonga, Cook Ids.

Two specimens, Nos. 877, 950\* B. M., from Fatè, New Hebrides.

Two specimens, Nos. 2485\*-2486\* B. M., from Makatea, Paumotu Ids.

One specimen, No. 1286 B. M., from Shortland Id., Solomons.

**Holocentrus sammara** (Forsk.)

Four specimens, Nos. 1457, 1510, 1528 and 1529 B. M., from Tahiti.

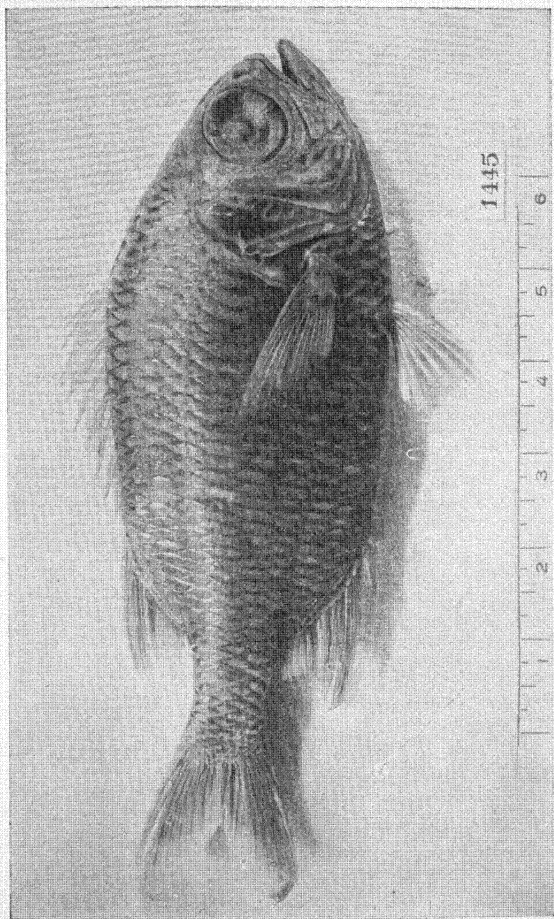


FIG. 7.—1445. *Myripristis sanguineus* Seale.

One specimen, No. 1328 B. M., Shortland Id., Solomons.

Five specimens, Nos. 1603-1607 B. M., from Raiatea, Society Ids.

One specimen, No. 1971 B. M., from Rarotonga, Cook Ids.

Two specimens, No. 2277-2278 B. M., from Nukuhiva, Marquesas Ids.

**Myripristis sanguineus** Jordan & Seale, new species.

Head 3.4; depth 2.50; eye 2.50 in head; D. x-1, 14; A. IV, 13; scales 4-38-7.

Body elongate, deep and compressed; head blunt, its length less than its depth; snout short, its length from the upper nostril equal to pupil; premaxillary slightly protracted; maxillary reaching to a line below the posterior edge of pupil, its distal end broad, 4.50 in head, its lower posterior margin armed with blunt teeth; lower mandible 1.50 in head; bands of small teeth in jaws, vomer and palatins; a patch of enlarged blunt outer teeth on each side of upper and lower jaw; gill-rakers numerous, long and strong; inter-orbital space 3.85 in head; opercles striate, and denticulate, with one small spine at angle; scales all striate and toothed; a row of modified scales over the nuchal region; origin of dorsal about even with base of ventrals and on line with the third scale of the lateral line; dorsal spines slender, the first 2.75 in head; the third is the longest, 2 in head; anterior dorsal and anal rays somewhat produced, their length 1.50 in head; the third anal spine the strongest, the fourth the longest being equal to orbit; caudal emarginate; pectoral reaching to the eleventh scale of the lateral line.

Color in life red, a black opercular spot; fins all red, the dorsal a pale red with the margin a deep crimson; the outer margin of the soft dorsal and the anal are also a darker red.

Color in spirits, pale yellowish, the fins are a brighter yellowish; a dusky blotch at posterior margin of opercles.

Two specimens, Nos. 1445 (Fig. 7) and 1446 B. M., from Tahiti, Society Ids. Another, the type of the species, was taken by Jordan & Kellogg at Apia, Samoa.

**Myripristis adustus** Bleeker.

Two specimens, Nos. 1447 and 1448 B. M., from Tahiti.

One specimen, No. 1195\* B. M., from Shortland Id., Solomons.

**Myripristis murdjan** (Forsk.)

One specimen, No. 1618 B. M., from Raiatea Id., Society Ids.

Two specimens, Nos. 1967 and 1968 B. M., from Rarotonga.

Five specimens, Nos. 1473-1476 and 1538 B. M., from Tahiti.

Four specimens, Nos. 996, 1000\*, 982 and 976 B. M., from Fatè, New Hebrides.

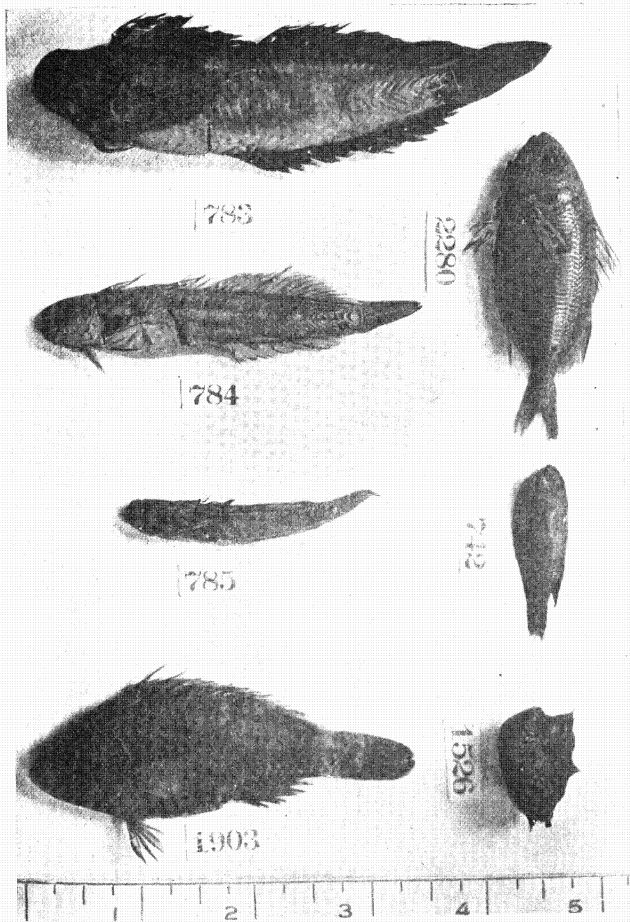


FIG. 8.—783. *Salarias azureus* Seale. 784. *Salarias tubuensis* Seale. 785. *Salarias cicsius* Seale.  
 1903. *Scaricthys rarotongæ* Seale. 2280. *Myripristis phaeopus* Seale.  
 742. *Abudefduf caesi* Seale. 1526. *Ostracion dexteri* Seale.

**Myripristis microphthalmus** Bleeker.

Two specimens, Nos. 937 and 1004 B. M., from Fatè, New Hebrides.

**Myripristis phæopus** Seale, new species.

Depth 2.70; head 2.10; eye 2.50; interorbital 3; D. x, 1, 16; A. III, 15; lateral line 44.

Body oblong, compressed; caudal peduncle, and the caudal fin small, the depth of the peduncle being one half of eye; snout extending somewhat over the mouth, the upper jaw being the longest; maxillary extending to the posterior margin of iris, its length 2.10 in head; bones of the head denticulate, the posterior margin of the opercles and preopercles with small teeth or spines; modified scales about the eye give the orbital margin a scalloped appearance; teeth small; the second and third dorsal spines are the longest, 1.50 in head; caudal small and short, its longest ray 1.50 in head; second anal spine is the longest, 2.50 in head; ventrals 1.50 in head; pectorals 1.60 in head.

Color in spirits, pinkish white without stripes; spinous dorsal dusky; ventrals broadly tipped with black; soft dorsal anal, pectorals, and caudal pinkish white.

One specimen, No. 2280 (Fig. 8) B. M., from Nukuhiva, Marquesas Ids. Length 2.50 in.

## FAMILY GEMPYLIDÆ.

**Promethichthys pacificus** Seale, new species.

Depth at origin of dorsal 2.50 in head, at origin of anal and soft dorsal 2.30, at tenth dorsal spine 2; head 3.75; eye 3.90 in head; snout 2.76; D. XVIII, 20, 11; A. 18, 11; lateral line continuous, with a big oblique curve downwards under the anterior end of dorsal; interorbital space with membrane, 1 in eye.

Body elongate, slender, covered with delicate scales, the scales also covering the head including the upper part of snout, maxillary, chin, and opercles; head compressed, the interorbital space flat, with a shallow groove; lower jaw extending slightly beyond the upper; the premaxillary reach to a line with the anterior margin of iris, the exposed length 3.20 in head, the width of the distal end is about equal to iris; mandible 1.90 in head; four long fang-like teeth in the upper jaw, with three smaller depressible ones near their bases, and a single row of 16 strong compressed triangular teeth in each side of the upper jaw; lower jaw with a single row of 10 similar teeth on each side, the two anterior teeth being separate, larger and fang-like; no teeth on vomer; a single row of fine teeth on the palatine; gill-rakers obsolete on anterior half of the lower limb, but with about 12 small rakers similar to the teeth on posterior half of the limb; eye large; opercles scaled, but without spines; origin of the dorsal fin is directly over the origin of pecto-



FIG. 9.—1358. *Promethichthys pacificus* Seale.

rals; length of eighth dorsal spine 3 in head; the longest soft dorsal ray 2.80 in head; base of anal 2.20 in head; the ventrals are represented by two minute spines just below the base of the pectorals, the length of these spines is less than one-half the distal width of the maxillary; pectorals 1.75 in head, the upper margin of their base on plane with the lower margin of orbit; caudal deeply forked, the lobes equal, their longest ray equal to the length of the pectorals.

Color, a sepia brown; webs of the spinous dorsal black; soft dorsal, anal, and caudal yellowish white with a slight wash of dusky; pectorals yellowish white anteriorly, their tips black.

One specimen, length 24 in., No. 1358 (Fig. 9) B. M., from Tahiti.

#### FAMILY SCOMBRIDÆ.

##### ***Scomber microlepidotus*** Rüppel.

Two specimens, Nos. 1130 and 1291 B. M., from Shortland, Solomons.

Two specimens, No. 849 and 845\* B. M. from Fatè, New Hebrides.

Color in life, silvery, with wash of greenish, and having obsolescent reflection, about 6 darker greenish or yellowish lines from head to caudal; top of head green.

#### FAMILY CARANGIDÆ.

##### ***Scombroides sanctipetri*** (Cuvier & Valenciennes).

Two specimens, Nos. 1508, 1509 B. M., from Tahiti.

##### ***Elagatis bipinnulatus*** (Quoy & Gaimard).

One specimen of this species was secured in Shortland, Solomon Ids. Length 23.50 in. No. 1209 (Fig. 10) B. M. It is very common and is much used as food.

Depth 4.90; head 4; eye 6.40; interorbital 3; snout 2.50; D. VI, 1, 25, 2; A. II, 18, 2.

##### ***Trachurops crumenophthalmus*** (Bloch).

One specimen, No. 1378 B. M., from Tahiti.

Seven specimens, Nos. 986, 988, 1031, 1032, 1034, 1058 and 1059 B. M., from Fatè, New Hebrides.

Four specimens, Nos. 1127, 1128, 1129 and 1292\* B. M., from Shortland Id., Solomons.

One specimen, No. 1992 B. M., from Rarotonga, Cook Ids.

One specimen, No. 2270 B. M., from Nukuhiva, Marquesas Ids.

##### ***Caranx forsteri*** Cuvier & Valenciennes.

Two specimens of the common "Ulua," No. 1376-1377 B. M., from Tahiti.



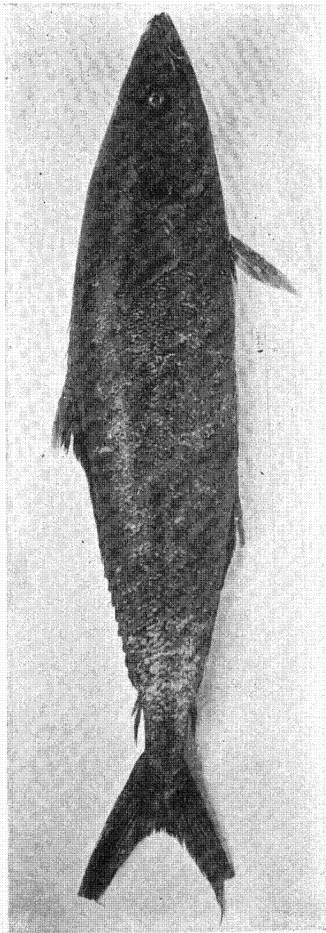


FIG. 10.—1:09. *Elagatis bipinnulatus* (Quoy & Gaimard).

**Caranx lugubris** Poey.

One specimen, No. 1991 B. M., Rarotonga, Cook Ids.

Four specimens, Nos. 2266-2269 B. M., from Nukuhiva, Marquesas Ids.

One specimen, No. 1274 B. M., from Shortland, Solomons.

One specimen, No. 1407 B. M., from Tahiti.

**Caranx melampygus** (Cuvier & Valenciennes).

Depth 2.75; head 3.50; eye 4, a posterior adipose lid; scutes 34; D. VII, 22; A. I, 19; interorbital space 3.50.

Body oblong, compressed, the back evenly curved. Head compressed, mouth low, oblique, the lower jaw slightly projecting; maxillary scarcely reaching to below anterior margin of eye; teeth of upper jaw in villiform bands, with an outer row of larger canine-like teeth; lower jaw with a single row of small teeth; teeth on vomer, palatine, and tongue; breast and cheeks scaly; lateral line arched, becoming straight under the fifth dorsal ray; a recumbent spine under the skin; soft dorsal and anal fins similar, falcate in front, the dorsal the highest; pectorals 3 in length of head and body; ventrals short, 2 in head; caudal well forked, the lobes equal.

Color in spirits, olivaceous, bluish above, opercular spot obsolete; caudal, dorsal, and anal tipped with dusky.

Three specimens from Tubuai Ids., of Austral Group, Nos. 742\*, 780, 782 B. M.

Two specimens, Nos. 1212 and 1213\* B. M., from Shortland, Solomon Ids.

One specimen, No. 2271 B. M., from Nukuhiva, Marquesas Ids.

Three specimens, Nos. 947, 943 and 948 B. M., from Fatè, New Hebrides.

## FAMILY PEMPHERIDÆ.

**Pempheris mangula** Cuvier & Valenciennes.

One specimen, No. 1511 B. M., from Tahiti.

## FAMILY APOGONICHTHYIDÆ.

**Amia amboinensis** Bleeker.

One specimen of this species was taken at Shortland Id., Solomons, No. 1307 B. M.

Color in life, pale yellow, with two bright yellow stripes, made up of round dots, along the sides; four golden dots on opercles; fins all yellowish; eye blue, with narrow blue line from eye around tip of snout.

**Amia novemfasciata** (Cuvier & Valenciennes).

Two specimens, Nos. 985 and 1016\* B. M., from Fatè, New Hebrides.

Color in life, silvery, with broad longitudinal streaks of brown which converge on the caudal; fins pinkish.

***Amia aroubiensis*** (Hombron & Jacquinot).

Two specimens taken on the reef at Papeete, Tahiti. Nos. 1674 and 1675 B. M.

Three specimens, Nos. 793, 794, 795 B. M., from Tubuai, Austral Ids.

One specimen, No. 1306 B. M., from Shortland Id., Solomons.

One specimen, No. 2254 B. M., from Nukuhiva, Marquesas Ids.

***Amia savayensis*** (Günther).

The following specimens of this species were secured:—

Nos. 1017 and 1029 B. M., from Fatè, New Hebrides.

Nos. 1156\*, 1160, 1198, 1145\*, 1186\*, 1153 B. M., from Shortland Ids., Solomons.

Nos. 1660-1666 B. M., from Raiatea, Society Ids.

***Pristiapogon koilomatodon*** (Bleeker).

Two specimens, Nos. 1191 and 1192 B. M., from Shortland Id., Solomons.

Color in life, a pale pinkish with short, dark lines; fins all pinkish.

***Pristiapogon snyderi*** Jordan & Evermann.

Depth 3; head 2.75; eye 3.75; interorbital 4.5; D. VII-1, 9; A. II, 8; scales 2-25-5.

Color in spirits, pinkish brown, a brown longitudinal stripe from snout to caudal, a brown spot on base of caudal peduncle at base of caudal; fins yellowish, anal with a dusky line at base; caudal with the outer rays dusky; spinous dorsal with a dusky line at base; soft dorsal with a dusky line on 1-3 webs; ventrals with dusky on anterior webs.

Four specimens from Tubuai, Austral Ids. Nos. 776-779 B. M. Lengths 2.50-5 in.

One specimen, No. 915 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1193 and 1282 B. M., from Shortland Id., Solomons.

Two specimens, Nos. 1667-1668 B. M., from Raiatea, Society Ids.

***Paramia quinquelineata*** (Cuvier & Valenciennes).

Five specimens, Nos. 1669-1673 B. M., from Raiatea, Society Ids.

One specimen, No. 2257 B. M., Nukuhiva, Marquesas Ids.

## FAMILY KUHLIIDÆ.

**Kuhlia malo** (Cuvier & Valenciennes).

Depth 2.85; head 3.30; eye 3; D. x, 11; A. III, 11; interorbitals 3.50; scales 6-54-14.

Body oblong, strongly compressed, scaled; head compressed; eyes large; mouth large, protractile, the lower jaw the longest; nuchal region, cheeks and opercles scaled; snout about equal to eye; maxillary exposed, without a supplemental bone, its distal end on a line with anterior of eye; teeth villiform in jaws, vomer, palatines, entopterygoids and ectopterygoids; six branchiostegals; pseudobranchiæ present; 24 gill-rakers on lower arch; opercles with 2 spines; caudal peduncle long, its depth 2 in length. Fins: dorsal notched, the fifth spine the longest, 3.50 in head; ninth spine much shorter than tenth; longest ray equal to fifth spine; base of anal equal to head; pectorals 1.50 in head; ventrals 1.75 in head; caudal deeply forked, the lobes equal.

Color silvery, the spinous dorsal and caudal tipped with dusky; the soft dorsal with a dusky submarginal patch, and a narrow margin of white.

Three specimens from Tubuai, Austral Ids., Nos. 737, 736, 738 B. M.

One specimen, No. 1537 B. M., from Tahiti.

One specimen, No. 2471\* B. M., from Makatea, Paumotu Ids.

**Kuhlia tæniura** (Cuvier & Valenciennes).

Three specimens, Nos. 870, 871 and 1020 B. M., from Fatè, New Hebrides,

## FAMILY SERRANIDÆ.

**Cephalopholis argus** (Bloch).

Four specimens, Nos. 696\*, 697\*, 1428 and 1429 B. M., from Tahiti, Society Ids.

One specimen, No. 773 B. M., from Tubuai, Austral Ids.

One specimen, No. 1998\* B. M., from Rarotonga, Cook Ids.

One specimen, No. 799\* B. M., from Mangareva.

Two specimens, Nos. 2165-2166 B. M., from Nukuhiva, Marquesas Ids.

Two specimens, Nos. 1238 and 1264 B. M., from Shortland Id., Solomons.

These specimens correspond in every respect with the description and with Bleeker's figure, Atl. Ichth. Tab. CCCXX, fig. 3.

**Cephalopholis urodelus** (Cuvier & Valenciennes).

Color in life, red, with two oblique white bands on caudal. One specimen shows some indistinct white dots over the body. No. 835 has a dark spot on the opercles; the others have not.

Two specimens, Nos. 835 and 817 B. M., from Mangareva.

**Cephalopholis miniatus** (Rüppell).

Two specimens, Nos. 1244 and 1265 B. M., from Shortland Id., Solomons.

Color in life, red, with blue spots; dorsal, anal and caudal red, with blue dots; eyes red.

**Variola louti** (Forskål).

One specimen, No. 843\* B. M., from Fatè, New Hebrides.

**Paracanthistius maculatus** (Cuvier & Valenciennes).

One specimen, No. 844\* B. M. (a head). The fish was 24 in. in length; D. VII, 11; A. III, 8.

Color brownish, with ocelli showing darker edges. Fatè, New Hebrides.

**Epinephelus merra** (Bloch).

Four specimens from Tahiti, Society Ids., Nos. 1344, 1381, 1382 and 1383 B. M.

Four specimens, from Mangareva (Gambier Ids.), Nos. 796, 797, 798 and 799\* B. M.

Color in life, brown, with hexagonal spots and lines, usually without distinct markings on pectoral or ventral fins, markings on ventral surface not distinct.

**Epinephelus corallicola** (Cuvier & Valenciennes).

One specimen, No. 1602 B. M., from Raiatea, Society Ids.

Five specimens from Tahiti, Society Ids., Nos. 1350, 1351, 1494, 1495, 1496 B. M.

Six specimens from Shortland, Solomon Ids., Nos. 1217, 1237, 1259, 1260, 1261 and 1308 B. M.

Two specimens from Makatea, Society Ids., Nos. 2468\* and 2469\* B. M.

Three specimens from Rarotonga, Cook Ids., Nos. 1982-1984 B. M.

One specimen, No. 848 B. M., from Fatè, New Hebrides.

Color in life is brown, with distinct hexagonal lines which cover the entire fish, including all the fins.

**Epinephelus undulosus** (Quoy & Gaimard).

One specimen, No. 1257 B. M., from Shortland Ids., Solomons.

**Epinephelus maculatus** (Bloch).

One specimen, No. 1249\* B. M., from Shortland, Solomons.

One specimen, No. 2473\* B. M., from Makatea, Paumotu Ids.

Color in life is a fine dark brown, with four distinct white lines along each side of body, and one on the median line of belly;

a white line obliquely down forward from the eye; some slight white dots on chin; eye golden; fins pinkish, without spots.

***Epinephelus pachycentrus*** (Cuvier & Valenciennes).

Two specimens, Nos. 1168 and 1169 B. M., from Shortland Id., Solomons.

Color in life is brown, with small blue dots on head; fins all dusky.

***Epinephelus dæmelii*** (Günther).

Two specimens, Nos. 1163 and 1285 B. M., from Shortland Id., Solomons.

Color in life, dark brown, covered with hexagonal lines and spots; a deep bluish-black spot on top of caudal peduncle.

***Epinephelus cæruleopunctatus*** (Bloch).

Two specimens, Nos. 1157 and 1247 B. M., from Shortland Id., Solomons.

***Epinephelus fasciatus*** (Schlegel).

Depth 3.50; head 2.34; eye 5.10; interorbital equal to eye. Teeth in bands, the four anterior ones of each jaw enlarged.

Color red, with small bluish white dots; dorsal with a broad tip of black; a deep red ring about eye. In spirits the white dots disappear.

Four specimens were secured from Mangareva Id. No. 821 B. M., length 11.50 in. No. 822 B. M., length 10 in. No. 839 B. M., length 7.75 in. No. 840\* B. M., length 6.50 in.

***Epinephelus zapyrus*** Seale, new species.

Depth 3.50; head with opercular flap 2.30; eye 6.20 in snout; D. XI, 16; A. III, 8; scales small, 17-100-36; interorbital flat, slightly less than eye, equal to length of first dorsal spine, 7.50 in head.

Body elongate, compressed; head compressed, rather blunt, the lower jaw slightly the longest; mouth big, maxillary with a small supplemental bone; premaxillary 2.75 in head, their posterior margin reaching to below anterior margin of eye; lower mandible 2 in head; nostrils conspicuous, a membranous flap over the lower opening; on the upper part of the snout, midway between the pairs of nostrils are two grooves; bands of fine short teeth in jaws, vomer and palatines, the outer ones slightly enlarged, the inner ones depressible; two small canines in each jaw; sphenoid and basi pteragoid also armed with fine teeth; gill-rakers rather strong, 13 on lower limb, their inner side with clusters of short sharp teeth; opercles scaled, and having a long flap and three flat spines from posterior part, the upper spine minute, the middle one prominent; posterior margin of preopercles serrate; cheeks minutely scaled; dorsal fin continuous, not notched, the rays longer than the spines,

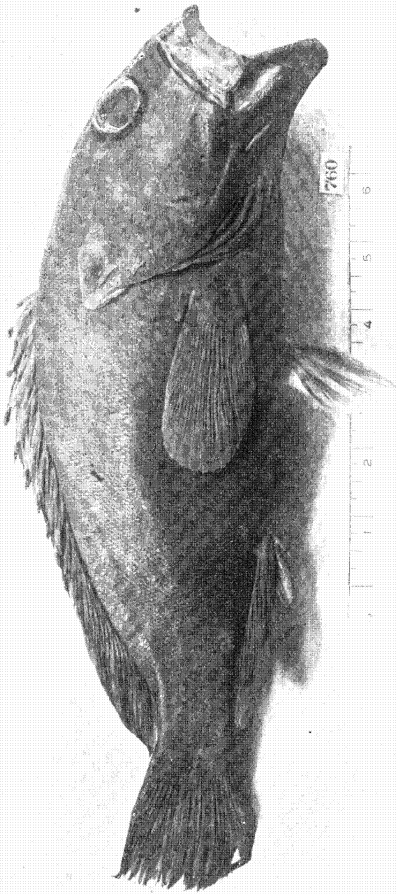


FIG. 11.—760. *Epinephelus zapyrus* Seale.

the fourth spine is the longest 3.90 in head, the longest ray is 2.60 in head; base of anal 3.40 in base of dorsal, the third anal spine 1.20 in base of fin; pectorals longer than ventrals, 1.20 in head, a membraneous covering over the axis; origin of dorsal and pectorals on a line and slightly anterior of ventrals whose origin is under the third dorsal spine; ventrals reaching to vent; caudal square, the middle ray 2.16 in head.

Color in life, a uniform scarlet vermilion, the fins tipped with orange, the spinous dorsal with a tip of deep crimson.

Color in formalin, pinkish white, the dorsal with tip of indian red, a dusky ring around orbit; fins yellowish white.

One specimen, No. 761 (Fig. 11) B. M. Length 12.50 in. From Tubuai Ids.

**Grammistes sexfasciatus** (Bloch).

Depth 2.75; head, without flap, 3; eye 4; D. VII, 1, 14; A. 11; scales minute, enveloped in the epidermis; interorbital equal to snout, 5.50 in head.

Body oblong, compressed, a slight dip in the profile above orbit; lateral line complete; caudal peduncle very little longer than deep; head compressed, conical; branchiostegals 7; a rudimentary barbule under chin; premaxillary reaching past the orbit, its length 1.90 in head; villiform teeth in jaws, vomer and palatine; preopercle with a small spine, three larger spines on the opercle; soft dorsal, anal and caudal fins rounded; pectorals and ventrals of about equal length, 1.90 in head, and equal in length to mid-ray of caudal.

Color in spirits, brown, with six yellowish white longitudinal bands, three of which are especially prominent; fins yellowish white, except the spinous dorsal, which is dusky.

One specimen, No. 1343 B. M., from Tahiti.

One specimen, No. 1249\* B. M., from Shortland Id., Solomons.

One specimen, No. 2255 B. M., from Nukuhiva, Marquesas Ids.

**Pharopteryx nigricans** Rüppell.

Two specimens, Nos. 1158 and 1201 B. M., from Shortland Id., Solomons.

FAMILY PRIACANTHIDÆ.

**Priacanthus hamruhr** (Forsk.)

Two specimens, Nos. 1266 and 1267\* (Fig. 12) B. M., from Shortland Id., Solomons.

**Priacanthus cruentatus** (Lacépède).

Two specimens, Nos. 1415 and 1450 B. M., from Tahiti.



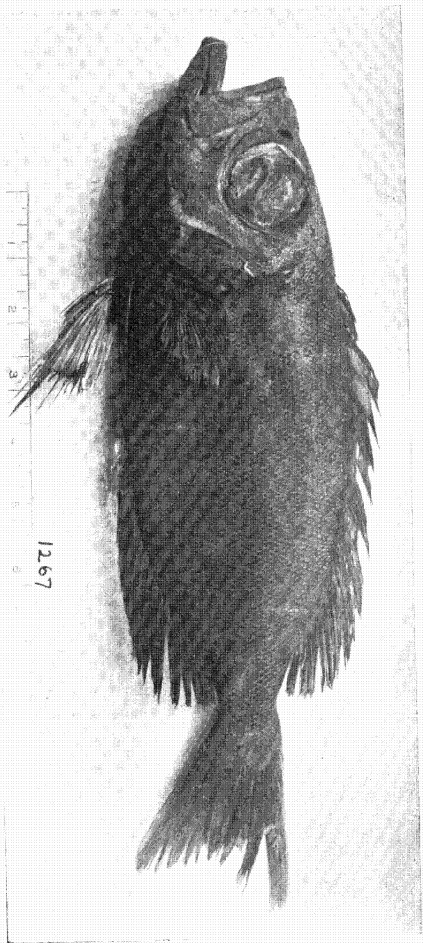


FIG. 12.—1267. *Pricanthus hamruhr* (Forsk.)

## FAMILY LUTIANIDÆ.

**Lutianus monostigma** (Cuvier & Valenciennes).

One specimen, No. 744 B. M., from Tubuai, Austral Ids.

Two specimens, Nos. 842\* and 1077\* B. M., from Fatè, New Hebrides.

One specimen, No. 2236 B. M., from Marquesas Ids.

**Lutianus fulvus** (Bloch).

Two specimens, Nos. 1431 and 1432 B. M., from Tahiti.

**Lutianus nukuhivæ** Seale, new species.

Depth 2.75; head 2.75; eye equal to interorbital, 4 in head; D. XI, 14; A. III, 8; scales small, 73 in lateral line.

Body oblong, compressed, lateral line complete; head conical, mouth large, maxillary reaching to line with anterior of eye; small teeth in jaws, vomer and palatines, two small curved canines in anterior of each jaw; posterior margin of preopercle with fine teeth, a distinct notch above the angle which receives the large notch of the interoperculum; no spines on the opercles; cheeks and opercles scaled; fourth dorsal spine the longest, 2.50 in head; ventrals 1.75 in head; pectorals 1.20; caudal emarginate.

Color in spirits: the anterior two-thirds of the body is dusky brown, the centre of the scales lighter, giving the appearance of narrow longitudinal streaks; posterior third of the body, including caudal, from a line with eighth dorsal ray and third anal ray, yellow; spinous dorsal, ventrals, spinous anal and anterior half of the soft dorsal and anal dusky; pectorals, caudal, posterior two-thirds of soft dorsal and soft anal yellow; the caudal has a dusky intermarginal wash on its upper and lower rays; axis of the pectoral and a line on its base dusky.

One specimen, No. 2164 (Fig. 5) B. M., from Nukuhiva, Marquesas Ids.

**Lutianus tahitiensis** Seale, new species.

Depth 2.75; head 2.75; eye 3.85 in head; D. X, 15; A. III, 9; scales in lateral line 79; interorbital 4.85 in head.

Body oblong, compressed, the upper outline quite convex; scales small, in oblique lines; caudal peduncle 2 in head. Head compressed, conical, the profile from nuchal region to tip of snout straight; snout 2.80 in head; lips rather thin; mandibles 2.20 in head; maxillary not reaching the anterior margin of orbit by the width of the pupil; all but the tip of the maxillary hidden under the wide preorbital; teeth in jaw, vomer and palatines; one, sometimes two, recurved sharp teeth on each side of the upper jaw; gill-rakers rather long, 20 on the lower limb; interopercle with a prominent knob which fits into a deep notch of the preopercle; preopercle, both above and below the notch well toothed; dorsal

fin continuous, not deeply notched, the third, fourth and fifth spines of equal length, 2.90 in head; the second anal spine 2.75 in head; ventrals 3, caudal deeply emarginate, the middle ray 2.75 in head, the longest ray 1.75.

Color in life, pinkish white, a deeper pink on top of head and about the mouth. Pectorals pink, with deep red in axis; anal pink, with a narrow margin of white and a deep red intermarginal line; ventrals pink, the first ray with a white margin; caudal yellowish with indistinct dusky centre; iris yellow.

Color in spirits, dorsal, caudal, anal, and ventral with intermarginal dusky areas; a dusky spot in axis.

Three specimens, Nos. 1384, 1390 (Fig. 13) and 1460 B. M., from Tahiti, Society Ids.

***Lutianus marginatus*** (Bloch).

Five specimens, Nos. 952, 953, 1026, 1850\* and 841\* B. M., from Fatè, New Hebrides.

Three specimens, Nos. 1184, 1185 and 1186\* B. M., from Shortland Id., Solomons.

Two specimens, Nos. 1491 and 1492 B. M., from Tahiti.

Color in life, silvery, with a wash of pinkish; dorsal pinkish, tipped with deeper red; caudal deep red, with a white tip; pectorals, ventrals and anal bright yellow.

***Lutianus gibbus*** (Bloch).

Depth 2.60; head 2.75, including flap; eye 5.30; D. x, 15; A. III, 9; scales 11-70-17; interorbital 4.25 in head, 1.75 in snout.

Body compressed, scales ctenoid and of moderate size; a row of modified enlarged scales over nape; depth of caudal peduncle equal to width of opercle. Head compressed, the upper profile concave; snout slightly elongate; maxillary scarcely reaching to orbit, all but its tip is hidden under the preorbital; premaxillary 2.75 in head; mandibles equal to length of snout, 2.30 in head; large curved canine teeth in each jaw; villiform teeth on vomer and palatine, and on jaws inside the canine teeth; gill-rakers rather elongate, 22 on the lower limb; vertical limb of preopercle with a deep notch; above the notch are a few small serrations, below the notch at angle the serrations are coarse; interopercular knob large; posterior margin of opercle ending in a sharp point. Fins: twelfth ray of soft dorsal the longest, but scarcely equal to sixth ray of anal; third anal spine the longest, 2 in length of pectorals, the sixth ray 2.75 in head; base of anal equal to its longest ray; pectorals 1.75 in base of dorsal, 1.75 in head, their tip reaching to a line between vent and origin of anal fin; ventrals 1.75 in head; caudal rather deeply emarginate, the upper lobe the longest, the middle ray is one-half length of longest lower ray.

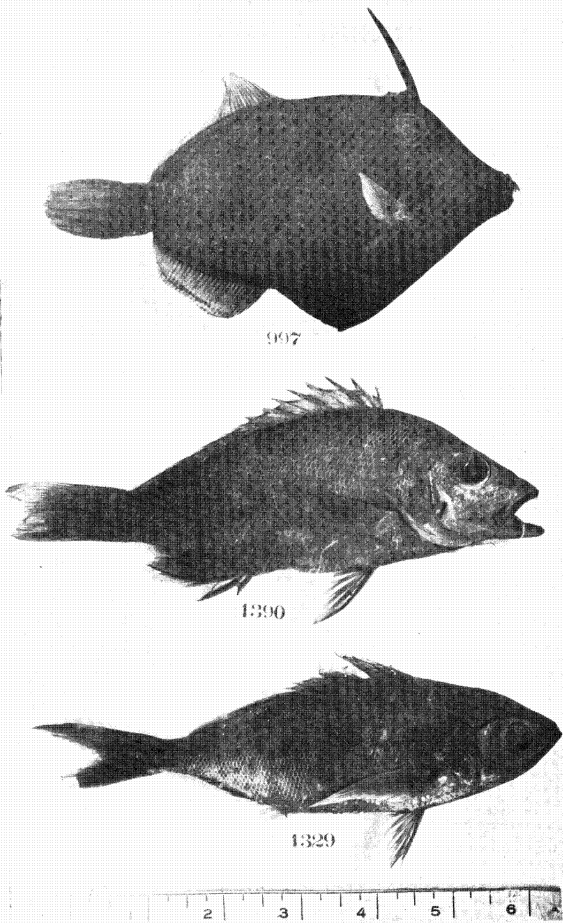


FIG. 13.—997. *Monacanthus fatensis* Seale. 1390. *Lutianus tahitiensis* Seale.  
1329. *Ctesio teres* Seale.

Color pinkish; dorsal, anal and caudal dusky, with a narrow marginal line of white; pectorals and ventrals yellow white with dusky tip.

Color in life, crimson, the middle of the scale with a vertical silvery line; head, belly and thorax deep red, with a wash of orange which extends over upper jaw, and from notch of preopercle to axis of pectorals; dorsal red, the lower half of first six webs with a wash of white near base; soft dorsal tipped with white, the webs more or less washed with dusky; caudal maroon red with a narrow margin of white; pectoral and ventral red, the webs of pectoral showing a slight wash of dusky; iris red, with orange blotch on upper part.

One specimen, No. 1344 B. M., from Tahiti. Length 15.50 in.

One specimen, No. 1215 B. M., from Shortland Id., Solomons.

Three specimens, Nos. 1024, 1025 and 1049 B. M., from Fatè, New Hebrides.

***Lutianus bohar*** (Forsk.)

One specimen, No. 1113 B. M., from Shortland, Solomons.

Interoperculum with distinct knob; preoperculum slightly notched.

Color is brownish with red wash; axis of pectoral, spinous dorsal anterior margin of soft dorsal; outer rays of caudal and anterior rays of anal blackish; numerous indistinct longitudinal streaks on body.

***Lutianus russellii*** (Bleeker).

Three specimens, Nos. 1171, 1172 and 1173 B. M., from Shortland Id., Solomons.

Color in life is light grayish above, with 4-5 yellow lines along the body; dorsal, anal, caudal and base of pectorals with a slight wash of yellowish.

***Lutianus fulviflamma*** Forskal.

Three specimens, Nos. 1188, 1189 and 1242 B. M., from Shortland Id., Solomons.

***Lutianus semicinctus*** Quoy & Gaimard.

One specimen, No. 1170 B. M., from Shortland Id., Solomons.

Color in life, the upper half of body is pale yellowish, with six dark half bands; the lower half is pinkish; a dusk blotch on sides of caudal peduncle; fins all with yellowish wash.

***Lutianus fuscescens*** (Cuvier & Valenciennes).

One specimen, No. 1523 B. M., from Tahiti, Society Ids.

***Lutianus melanesiæ*** Seale, new species.

Depth 3; head, including flap, 2.80; eye 4; scales 57; D. x, 14; A. III, 8.

Body oblong, compressed; the upper profile is an evenly rounded curve; teeth villiform in jaws with an outer row of small canines; villiform teeth on vomer and palatines; premaxillary reaching to below the middle of eye; preopercle serrated and with a distinct but not deep notch; opercle with a single flat spine; pectorals 1.15 in head; ventrals 1.60 in head; caudal emarginate.

Color in life is a dull silvery white, with about 12 pale yellowish longitudinal lines on sides; a distinct black blotch, larger than eye, on the lateral line under the anterior base of the soft dorsal fin; caudal fin, caudal peduncle, and soft dorsal a bright orange; pectoral, anal and ventral whitish, with a slight wash of orange; snout and top of head pinkish; a dull, dusky blotch on opercles; a wash of yellow on lower part of preopercles.

This species is near *Lutianus melanospilus*, but has a shorter head and the markings are quite different.

One specimen, No. 1187 (Fig. 5) B. M., from Shortland Id., Solomons. Length 7.50 in.

***Lutianus bengalensis*** Bloch.

Two specimens, Nos. 957\* and 1080\* B. M., from Fatè, New Hebrides.

Seven specimens, Nos. 2149-2155\* B. M., from Nukuhiva, Marquesas Ids.

Two specimens, Nos. 1430 and 1433 B. M., from Tahiti.

***Cæsius cæruleus*** (Lacépède).

Two specimens, Nos. 1111 and 1300 B. M., from Shortland Id., Solomons.

***Cæsius teres*** Seale, new species.

Depth 3.20; head 3.20; eye 4.10; interorbital 3.50; D. x, 15; A. III, 11.

Body cylindrical, slightly compressed, scaled; villiform teeth in jaws, none on palate or tongue; preoperculum entire; mouth moderate, somewhat protractile, the maxillary reaching to below the anterior line of eye; dorsal continuous, the spines feeble; caudal deeply forked; base of anal 1.50 in head; pectorals longer than head.

Color in life, upper two-thirds of the body deep blue; lower third yellowish white; caudal bright yellow without dusky tip; pectorals yellow, the upper base with a deep blue spot; ventrals and anal yellowish; dorsal yellow with the upper half bluish, becoming deep blue at tip; a wash of orange on the sides of head; no bands of color on sides.

One specimen, No. 1329 (Fig. 13) B. M., from Shortland Id., Solomons. This species is near *C. lunaris*, but it is a more cylindrical fish, with different markings.

**Cæsiolunaris** (Cuvier & Valenciennes.)

Three specimens, Nos. 1109, 1141 and 1330 B. M., from Shortland Id., Solomons.

FAMILY HÆMULIDÆ.

**Terapon jarbua** (Forsk.)

Four specimens, Nos. 1332\*, 1262, 1263 and 1321 B. M., from Shortland Id., Solomons.

**Scolopsis temporalis** Cuvier & Valenciennes.

One specimen, No. 1289 B. M., from Shortland Id., Solomons.

Color in life is silvery white, with 3-4 blotches of brighter silvery color on each side; a conspicuous bright blue band from front of eye, over snout to the other eye; this blue line is bordered above with a line of bright yellow; a bright yellow spot with a wide blue margin just above and behind the eye; a blue line runs from lower part of eye to maxillary; caudal yellow above, pink below; pectoral and ventral white.

**Scolopsis monogramma** Cuvier & Valenciennes.

Two specimens, Nos. 922\* and 925 B. M., from Fatè, New Hebrides.

**Scolopsis trilineata** Kner.

Three specimens, Nos. 949, 950\* and 1005 B. M., from Fatè, New Hebrides.

**Scolopsis trilineata** Quoy & Gaimard.

Four specimens, Nos. 859, 981, 847 and 1078 B. M., from Fatè, New Hebrides.

**Scolopsis bilineata** Cuvier & Valenciennes.

One specimen, No. 1114 B. M., from Shortland Id., Solomons.

**Gnathodentex aurolineatus** (Lacépède).

Depth 3; head, with flap, 3.20; eye 3; interorbital 3; D. x, 9; A. III, 9; snout 2.50.

Body oblong, compressed, scaled; head compressed, conical, the opercles and preopercles with 4-7 rows of scales; maxillary reaching to below the anterior nostril, its upper two-thirds with a prominent serrate ridge; villiform teeth in jaws, with some small canines, the two outer canines of lower jaw the largest; preopercle entire; opercle without spines; dorsal spines not strong, the fifth the longest, but considerably less than the longest ray which is 2 in head; base of anal 2.75 in base of dorsal; third anal spine the longest, 2.50 in head; pectoral 1.10 in head; ventral 1.20; caudal well forked.

Color in life, silvery; 5 broad yellow longitudinal lines below the lateral line, and 5 narrow yellow lines above it; a bright silvery mark in posterior axis of dorsal fin; base of pectoral and the axis dusky; naked part of head brown; dorsal pinkish white, the margin brighter red; anal, caudal and pectorals pinkish; ventrals white.

One specimen from Tubuai Id., No. 735 B. M., length 8.50 in. Five specimens from Mangareva Id.: No. 825 B. M., length 5.75 in.; No. 826 B. M., length 5.50 in.; No. 827 B. M., length 5.75 in.; No. 805 B. M., length 5.50 in.; No. 813 B. M., length 6 in.

**Pentapus vittatus** Cuvier & Valenciennes.

Four specimens, Nos. 1110, 1161, 1165, 1175 B. M., from Shortland Id., Solomons.

Color in life, pale grayish, with a white line on each side of dorsal; a white line below the lateral line; a blue line over forehead in front of eyes; fins white.

FAMILY SPARIDÆ.

**Monotaxis grandoculis** (Forsk.)

Depth 2.30; head 3; eye 3; D. x, 10; A. III, 9; scales 6-50-14; interorbital 3.10; snout 2.10.

Body oblong compressed, scaled; depth of caudal peduncle 1.50 in its length; head compressed, rather blunt, very convex above the anterior margin of eyes; snout straight, its angle about 45; mouth protractile; maxillary hidden; mandible 2.10 in head. Teeth: small conical canines in anterior of jaws, a single row of molars in sides of jaws; gill-rakers short and blunt, 7 on lower limb; opercles scaled, without spines or serrations; preopercle scaled and with fine serrations on the posterior part. The dorsal is received into a groove; the attachment of the membrane alternates from right to left side of spines: the fifth spine 2.10 in head, 3 in base of fin; the 6-7 dorsal rays the longest, 1.80 in head; base of anal 2.20 in base of dorsal, its longest ray 2.15 in head; the third anal spine is the longest, 2.30 in head; pectorals reaching to above anal fin, their length 1.40 in head; base of dorsal equal to head; caudal deeply emarginate, the middle ray 2.75 in outer ray.

Color, silvery, with three white bands over the back, the first on the nuchal region down the opercles and preopercles; the second below the basis of the 1-4 dorsal spines and sloping obliquely back; the third between the ninth spine and first ray, extending vertically down towards origin of anal; a black spot in axis of pectorals; a black splotch on upper part of eye; the modified scales on the nuchal region tinted with dusky; dorsal pinkish white, with a dusky margin and a dusky blotch on webs, and at base of anterior 5 rays of dorsal; the posterior portion of the soft dorsal and



anal pinkish white; ventrals pinkish, with dusky tip; pectorals and caudal pinkish white without markings.

One specimen from Tubuai, No. 752 B. M., length 8.75 in.

One specimen, No. 1380 B. M., from Tahiti, Society Ids.

Three specimens, Nos. 1125, 1126 and 1288 B. M., from Shortland Id., Solomons.

**Lethrinus mahsena** (Forsk.)

Two specimens, Nos. 675\* and 843\* B. M., from Mangareva.

**Lethrinus harak** (Forsk.)

One specimen, No. 951 B. M., from Fatè, New Hebrides.

One specimen, No. 1271 B. M., from Shortland Id., Solomons.

Color in life, whitish, with a big black blotch on lateral line below the seventh dorsal spine to third dorsal ray; above each blotch is an area of yellow; a short bright blue line from eye to lower opening of nostril; eyes yellow; inside of mouth red; fins pinkish.

**Lethrinus moensii** Bleeker.

One specimen, No. 2160 B. M., from Nukuhiva, Marquesas Ids.

**Lethrinus leutjanus** (Bloch).

One specimen, No. 1067 B. M., from Fatè, New Hebrides.

FAMILY KYPHOSIDÆ.

**Kyphosus cinerascens** (Forsk.)

One specimen, No. 1043 B. M., from Fatè, New Hebrides.

Four specimens, Nos. 1112, 1318, 1316\* and 1320 B. M., from Shortland Id., Solomons.

Color in life is dusky silvery, sides with long yellowish lines almost as wide as interspaces, these lines most distinct on the middle of the body, and becoming indistinct on the lower part; a yellow line from gape to opercles, another line through the eye; spinous dorsal bluish; soft dorsal slightly darker; pectorals bluish, with wash of yellow near base.

FAMILY MULLIDÆ.

**Mulloides samoensis** Günther.

Nine specimens, Nos. 872, 873, 930, 960, 962, 1018, 852\* B. M., and five young, from Fatè, New Hebrides.

In spirits the dark spot on the lateral line under the 6-7 dorsal spine shows more distinctly than in life, while the single lateral stripe seen in larger specimens disappears.

Eleven specimens, Nos. 2136-2140, 2141\*, 2142\*, 2143\*, 2144\*, 2145\*, 2146\* B. M., from Nukuhiva, Marquesas.

One specimen, No. 1477 B. M., Tahiti.

**Mulloides ruber** Klunzinger.

Depth 3.55; head 3.10; eye 3.20; D. VII, 9; A. 7; scales 3-42-7; interorbital 3 in head.

Body elongate, compressed; the under profile of the head almost straight, the upper is very convex; snout 2.20 in head; lips moderately thick; length of mandible 2.90 in head; the barbules very fleshy, granulate, scarcely reaching to below angle of preopercle, their length 1.50 in head; teeth minute, in several rows in each jaw; no teeth on vomer or palatine; opercle with a minute flat spine. Fins: base of spinous dorsal slightly greater than base of soft dorsal; first dorsal spine the longest, 1.30 in head, less than depth of body by half the width of eye; base of anal 3 in head, its longest ray 2.10; pectorals and ventrals of equal length, 1.15 in head; caudal forked, the lobes equal.

Color in life, red above, pinkish below; a yellow line from posterior part of eye to base of caudal; fins a pale orange, the pectorals pinkish; iris yellow; barbules white.

Color in spirits, uniform yellowish white; fins a little lighter.

One specimen, No. 1402\* B. M., from Tahiti. Length 9.50 in.

**Mulloides auriflamma** (Forskal).

Six specimens, Nos. 2143\*, 2144\*, 2145\*, 2146\*, 2147, 2148 B. M., from Nukuhiva, Marquesas Ids.

One specimen, No. 1478 B. M., from Tahiti.

One specimen, No. 767 B. M., from Tubuai.

**Mulloides flammeus** Jordan & Evermann.

One specimen, No. 1595 B. M., from Raiatea, Society Ids.

One specimen, No. 1479 B. M., from Tahiti.

**Pseudupeneus moana** Jordan & Seale.

(*Upeneus trifasciatus* Günther, not Cuv. & Val.)

Seven specimens, Nos. 718, 719, 720, 721, 1435-1437 B. M., from Tahiti.

One specimen, No. 727 B. M., from Tubuai, Austral Ids.

Three specimens, Nos. 811, 834\*, 841\* B. M., from Mangareva.

Three specimens, Nos. 1963-1965 B. M., from Rarotonga, Cook Ids.

One specimen, No. 1069 B. M., from Fatè, New Hebrides.

Three specimens, Nos. 2133-2135 B. M., from Nukuhiva, Marquesas Ids.

**Pseudupeneus aurantiacus** Seale, new species.

Depth 4; head 3.30; eye 6.75; D. VIII, 9; A. 7; scales 3-30-6; interorbital 4.20; snout 1.75.

Body oblong, compressed, scaled; lateral line complete; caudal peduncle rather long, its depth 2 in its length. Head compressed, rather elongate; barbules reaching to below the posterior margin of preopercle, their length 1.22 in head; opercles and top of head scaled; a small flat spine from the posterior margin of opercle; lips rather thick; maxillary short, scarcely reaching to the posterior third of snout; teeth small, in a single series in each jaw, no teeth on vomer, tongue or palatines; gill-rakers many, of moderate length. Fins: the third dorsal spine is the longest, 3.75 in head, its tip reaching base of soft dorsal; base of soft dorsal 2.20 in head, its longest ray 2.90 in head, its last ray equal in length to its fourth; base of anal equal to base of soft dorsal, its height equal to its length, its last ray equal to its fourth ray; pectorals 1.50 in head; ventrals longer, 1.30 in head, slightly shorter than the barbules; caudal well forked, the lobes equal, and equal in length to ventrals.

Color in life, a uniform bright orange yellow, no saddle of color on the caudal peduncle; three short blue lines through the eye, and one very short one just below the orbit; fins and barbules orange.

Color in formalin, a uniform yellowish white, with a slight wash of orange, the blue lines through eye scarcely showing; fins yellowish, the caudal, pectorals and ventrals with a wash of pinkish.

One specimen, No. 758 (Fig. 14) B. M., from Tubuai, Austral Ids. Length 10 in.

#### ***Pseudupeneus barberinus*** (Lacépède).

Depth 3.75; head 3 in length; eye 7; D. VIII, 9; A. 7; scales 3-31-7; interorbital 4.20 in head, 2.75 in snout.

Body compressed, elongate, scaled; snout convex; lips thick; mandibles 2.75 in head; premaxillary fan-shaped, its distal end equal in width to eye; a single row of fine teeth in each jaw; barbules reaching to below pupils, their length 1.55 in head; opercle with a small spine. Fins: base of soft dorsal equal to base of spinous dorsal; the third dorsal spine is the longest, being about equal in length to depth of fish; base of anal 2.75 in head; pectorals 1.75 in head; ventrals 1.50 in head; caudal forked, the lobes equal.

Color in life, white, with a blue tint on back; a dusky spot on caudal peduncle; a dusky line from eye to below posterior margin of dorsal; three yellow lines from top of head, through eye to half way down the snout, the interspaces between the lines bluish; dorsal white, the soft dorsal with yellowish lines; pectorals pinkish white; anal pinkish white, with three oblique yellow lines; caudal and its base pinkish; iris yellow; barbules white.



FIG. 14.—758. *Pseudupeneus aurantiacus* Scale.

Color in spirits, yellowish white, slightly darker above; a dusky spot on each side of caudal peduncle, a dusky line from eye along sides, uniting above the round spot on caudal peduncle; anterior third of spinous dorsal with a slight wash of dusky; other fins yellowish white.

Two specimens from Tahiti: No. 1410 B. M., length 12 in.; No. 1411 B. M., length 13 in.

Two specimens, Nos. 921 and 923 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1227\* and 1315 B. M., from Shortland Id., Solomons.

***Pseudupeneus chryserydros*** (Lacépède).

One specimen, No. 1036 B. M., from Fatè, New Hebrides.

In life there is a pinkish flush on lower half of fish; five or six bright blue lines on side of head, and a yellow saddle over caudal peduncle.

***Pseudupeneus bifasciatus*** (Lacépède).

One specimen, No. 1966 B. M., from Rarotonga, Cook Ids.

One specimen, No. 852\* B. M., from Fatè, New Hebrides.

***Pseudupeneus pleurospilos*** (Bleeker).

Two specimens, Nos. 1211 and 1240 B. M., from Shortland Id., Solomons.

***Pseudupeneus porphyreus*** Jenkins.

One specimen, No. 1594 B. M., from Raiatea, Society Ids.

***Upeneus vittatus*** Cuvier & Valenciennes.

One specimen, No. 1536 B. M., from Tahiti.

Two specimens, Nos. 2141\*, 2142\* B. M., from Nukuhiva, Marquesas Ids.

FAMILY GERRIDÆ.

***Xystæma argyreum*** (Forster).

Six specimens, Nos. 863, 864, 868, 869, 929 and 932 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1176 and 1268 B. M., from Shortland Id., Solomons.

FAMILY CIRRHITIDÆ.

***Paracirrhites forsteri*** (Bloch).

Five specimens, Nos. 2155\*-2159 B. M., from Nukuhiva, Marquesas Ids.

## FAMILY POMACENTRIDÆ.

**Pomacentrus pavo** (Bloch).

Four specimens, Nos. 1174, 1208\*, 1210 and 1219 B. M., from Shortland Id., Solomons.

Seven specimens, Nos. 1654, 1640-1645 B. M., from Raiatea, Society Ids.

**Pomacentrus lividus** (Forster).

(*Pomacentrus cyanospilus* Cuvier & Valenciennes.)

Eleven specimens, Nos. 1655-1657, 1646-1653 B. M., from Raiatea, Society Ids.

Seven specimens, Nos. 2206-2212 B. M., from Nukuhiva, Marquesas Ids.

**Pomacentrus nigricans** Lacépède.

(*Pomacentrus scolopsus* Quoy & Gaimard.)

Four specimens, Nos. 897-899 and 1030 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 2247-2248 B. M., from Marquesas.

Two specimens, Nos. 1179 and 1299\* B. M., from Shortland Id., Solomons.

Two specimens, Nos. 1658-1659 B. M., from Raiatea, Society Ids.

Two specimens, Nos. 2479\*-2476\* B. M., from Makatea, Pautomu Ids.

**Pomacentrus notophthalmus** (Bleeker).

One specimen, No. 991\* B. M., from Fatè, New Hebrides.

**Pomacentrus tæniurus** Bleeker.

Three specimens, Nos. 1520-1522 B. M., from Tahiti.

One specimen, No. 944 B. M., from Fatè, New Hebrides.

**Pomacentrus tripunctatus** Cuvier & Valenciennes.

Two specimens, Nos. 890\* and 896\* B. M., from Fatè, New Hebrides.

**Abudefduf cœlestinus** (Cuvier & Valenciennes).

Five specimens, Nos. 1014\*, 1021, 1022, 1060 and 1081\* B. M., from Fatè, New Hebrides.

Six specimens, Nos. 1140, 1146\*, 1147, 1177, 1178 and 1332 B. M., from Shortland Id., Solomons.

One specimen, No. 1636 B. M., from Raiatea, Society Ids.

Ten specimens, Nos. 2237-2246 B. M., from Nukuhiva, Marquesas Ids.

One specimen, No. 1517\* B. M., from Tahiti.

**Abudefduf multifasciatus** (Cuvier & Valenciennes).

One specimen, No. 1637 B. M., from Raiatea, Society Ids.

**Abudefduf septemfasciatus** (Bloch).

Two specimens, Nos. 909, 910 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1145\* and 1146\* B. M., from Shortland Id., Solomons.

One specimen, No. 1985 B. M., from Rarotonga, Cook Ids.

Three specimens, Nos. 2474\*, 2475\*, 2476\* B. M., from Makatea, Paumotu Ids.

One specimen, No. 1639 B. M., from Raiatea, Society Ids.

**Abudefduf sordidus** (Forsk.)

Two specimens, Nos. 936\* and 968 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 2477\* and 2478\* B. M., from Makatea, Paumotu Ids.

**Abudefduf curaçao** (Bloch).

Two specimens, Nos. 1194 and 1303 B. M., from Shortland Id., Solomons.

**Abudefduf jordani**<sup>5</sup> Seale, new species.

Depth 1.85; head 3.90; eye 3.25; snout 3; D. XVII, 16; A. II, 16; lateral line 26.

Body compressed, scaled; a single series of flat teeth in each jaw; margins of the preopercle smooth; the greatest depth of the interorbital equal to one-half the eye; caudal deeply forked, the lobes equal; dorsal and anal sharp-pointed.

Color in spirits: thorax, belly and sides of the head yellowish brown, growing into deep black on the posterior half of the body; dorsal, caudal and anal black; pectorals yellowish, ventrals yellowish, with dusky wash on outer rays.

Seven specimens, Nos. 1115-1119, 1162 (Fig. 2) and 1302 B. M., from Shortland Id., Solomons. No. 1162 is the type of species.

**Abudefduf behnii** (Bleeker).

One specimen, No. 1986 B. M., from Rarotonga, Cook Ids.

**Abudefduf cæsius** Seale, new species.

Depth 2.50; head 3.30; eye 2.75; interorbital 3.50; D. XIII, 13; A. II, 12.

Body compressed, rather short, scaled, the lateral line terminating under the soft dorsal, depth of caudal peduncle equal to its length; head compressed, equally rounded; mouth small; a single row of small teeth in each jaw; snout without scales, its length less than diameter of the eye; preopercle or inferior orbital not

<sup>5</sup> Named for President David Starr Jordan of the Leland Stanford Junior University.

denticulate, the posterior limb of the preopercle slanting obliquely forward so the angle is under the posterior third of eye; base of dorsal fin 1.75 in length of fish without caudal; the soft rays of dorsal and anal are of about equal length and longer than the spines; pectorals and ventrals are of about equal length, .2 in base of dorsal; caudal truncate.

Color in life, uniform blue, no black spot in axis or at base of fins. In spirits the color fades to a dull bluish; the dorsal is dusky, the webs between the first six spines white; anal and caudal dusky; pectorals and ventrals yellowish.

One specimen, No. 742\* (Fig. 8) B. M., from Tubuai, Austral Ids. Length 2 in.

**Abudefduf saxatilis** (Linnaeus).

One specimen, No. 613\* B. M., from Tubuai, Austral Ids.

One specimen, No. 1139\* B. M., from Shortland Id., Solomons.

**Abudefduf taupo** Jordan & Seale MS.

One specimen, No. 895 B. M., from Fatè, New Hebrides.

The species will be described in the forthcoming report on the fishes of Samoa.

**Abudefduf uniocellatus** (Quoy & Gaimard).

Four specimens, Nos. 843\*, 900, 1039 and 1040 B. M., from Fatè, New Hebrides.

Color in life, a deep violet blue, no spots on the scales; belly, thorax and chin a bright yellow; dorsal fin violet, with a submarginal band of yellow which broadens posteriorly until it occupies the upper half of the soft dorsal; anal yellow, except a violet blotch on the inner posterior part of the fin; caudal with the basal half violet, and the posterior half yellow; pectorals yellow, their base and axis violet; ventrals yellow, the elongate filament of the outer ray blue.

**Abudefduf leucopomus** (Cuvier & Valenciennes).

Color, bluish, a black spot in the posterior axis of the dorsal, and another distinct larger black spot on the upper part of caudal.

Two specimens, Nos. 2222 and 2223 B. M., from Nukuhiva, Marquesas Ids.

Three specimens, Nos. 708\*, 790 and 791 B. M., from Tubuai, Austral Ids.

Two specimens, Nos. 1993 and 1997 B. M., from Rarotonga, Cook Ids.

**Abudefduf amabilis** (De Vis).

Eight specimens, Nos. 901-906, 1038 and 1011\* B. M., from Fatè, New Hebrides.



**Abudefduf zonatus** (Cuvier & Valenciennes).

Nine specimens, Nos. 2226-2234 B. M., from Nukuhiva, Marquesas Ids.

**Chromis cæruleus** (Cuvier & Valenciennes).

Three specimens, Nos. 1120, 1121 and 1304 B. M., from Shortland Id., Solomons.

**Chromis axillaris** (Bennett).

Three specimens, Nos. 1682-1684 B. M., from Raiatea, Society Ids.

**Acanthochromis polyacanthus** (Bleeker).

One specimen, No. 907 B. M., from Fatè, New Hebrides.

**Dascyllus aruanus** (Linnæus).

Two specimens, Nos. 908, and 1015 B. M., from Fatè, New Hebrides.

Three specimens, Nos. 2172-2174 B. M., from Nukuhiva, Marquesas Ids.

One specimen, No. 1305 B. M., Shortland Id., Solomons.

Ten specimens, Nos. 1626-1635 B. M., from Raiatea, Society Ids.

**Dascyllus melanurus** (Bleeker).

Two specimens, Nos. 1122-1123 B. M., from Shortland Id., Solomons.

FAMILY LABRIDÆ.

**Chcerops macrodon** (Bleeker).

One specimen, No. 956 B. M. from Fatè, New Hebrides.

One specimen, No. 1309\* B. M., from Shortland Id., Solomons.

**Lepidaplois axillaris** (Bennett).

One specimen, No. 1926 B. M., from Rarotonga. Cook Ids.

**Epibulus insidiator** (Bloch).

One specimen, No. 1484 B. M., from Tahiti.

One specimen, No. 1624 B. M., from Raiatea, Society Ids.

One specimen, No. 971 B. M., from Fatè, New Hebrides.

**Hemigymnus melapterus** (Bloch).

Two specimens, Nos. 1182 and 1183 B. M., from Shortland Id., Solomons.

**Anampses cæruleopunctatus** Rüppell.

One specimen, No. 726 B. M., from Tubuai, Austral Ids.

One specimen, No. 1228\* B. M., from Rarotonga, Cook Ids.

**Stethojulis casturi** Günther.

One specimen, No. 1929 B. M., from Rarotonga, Cook Ids.

**Halichoeres centiquadrus** (Lacépède).

One specimen, No. 1254 B. M., from Shortland Id., Solomons.

One specimen, No. 1622 B. M., from Raiatea, Society Ids.

Nine specimens, Nos. 685\*, 698\*, 699\*, 700\*, 714, 715, 722, 723 and 1482\* B. M., from Tahiti.

**Halichoeres trimaculatus** (Quoy & Gaimard).

One specimen, No. 1516 B. M., from Tahiti.

One specimen, No. 768 B. M., from Tubuai, Austral Ids.

One specimen, No. 1625 B. M., from Raiatea, Society Ids.

Three specimens, Nos. 1250, 1251, 1252\* B. M., from Shortland Id., Solomons.

Two specimens, Nos. 1001 and 1002 B. M., from Fatè, New Hebrides.

**Halichoeres notophthalmus** (Bleeker).

One specimen, No. 1932 B. M., from Rarotonga, Cook Ids.

**Halichoeres scapularis** (Bennett).

Three specimens, Nos. 1101, 1272\* and 1319 B. M., from Shortland Id., Solomons.

General color, bluish and green; the posterior two-thirds of the body is a bright olive green; anterior of this the body is bluish, fading into white on lower half of sides and belly; an irregular line extending back from the eye to the caudal; a yellowish blotch on opercles; dorsal with pale pink and green wavy longitudinal lines; caudal tipped with green and having pink and bluish lines anteriorly; pectorals and ventrals white.

**Halichoeres solorensis** Bleeker.

Three specimens, Nos. 2261-2263 B. M., from Nukuhiva, Marquesas Ids.

**Halichoeres modestus** (Bleeker).

One specimen, No. 1041 B. M., from Fatè, New Hebrides.

**Macropharyngodon meleagris** (Bleeker).

One specimen, No. 1228\* B. M., from Shortland Id., Solomons.

**PlatyGLOSSUS marginatus** (Rüppell).

One specimen, No. 1623 B. M., from Raiatea, Society Ids.

**Coris aygula** Lacépède.

One specimen, No. 959 B. M., from Fatè, New Hebrides.

One specimen, No. 739 B. M., from Tubuai, Austral Id.

Three specimens, Nos. 705\*, 706\* and 707\* B. M., from Tahiti.

***Coris caudimaculatus*** (Quoy & Gaimard).

One specimen, No. 1930 B. M., from Rarotonga, Cook Ids.

***Julis pulcherrima*** (Günther).

Seven specimens, Nos. 708\*-713 and 1485\* B. M., from Tahiti.

***Hologymnosus semidiscus*** (Lacépède).

(*Coris annulatus* Lacépède.)

One specimen, No. 1924 B. M., from Rarotonga, Cook Id.

Two specimens, Nos. 1482\* and 1485\* B. M., from Tahiti.

***Thalassoma fuscum*** (Lacépède).

One specimen, No. 731 B. M., from Tubuai, Austral Ids.

Seven specimens, Nos. 1933-1938, 1943 B. M., from Rarotonga, Cook Ids.

One specimen, No. 2491\* B. M., from Makatea, Paumotu Ids.

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

Eight specimens, Nos. 1102-1106, and 1148-1150 B. M., from Shortland Id., Solomons.

***Thalassoma schwanefeldii*** (Bleeker).

One specimen, No. 1368 B. M., from Tubuai, Austral Ids.

***Thalassoma lunare*** (Linnaeus).

Two specimens, Nos. 1102 and 1203 B. M., from Shortland Id., Solomons.

***Thalassoma punctatum*** Seale.

Two specimens, Nos. 1939-1940 B. M., from Rarotonga, Cook Ids.

***Thalassoma duperreyi*** (Quoy & Gaimard).

One specimen, No. 800 B. M., from Mangareva Id.

***Thalassoma umbrostigma*** (Rüppell).

Four specimens, Nos. 2492\*, 2493\*, 2494\*, 2495\* B. M., from Makatea, Paumotu Ids.

***Thalassoma aneitense*** (Günther).

Three specimens, Nos. 830, 845\* and 810 B. M., from Nukuhiva, Marquesas Ids.

***Cheilio inermis*** (Forsk.)

Depth 5; head 3; eye 11.5 in head; D. x, 13; A. III, 12; scales 5-45-10; interorbital 4.85 in head.

Body elongate, slightly compressed; head conical; lips of moderate thickness; mandible 2.5 in head; a single row of short, rather blunt teeth in each jaw, the two anterior ones of the upper jaw slightly enlarged; gill-rakers short; opercle and preopercle un-

scaled, a few scales on the cheeks below the eye; dorsal fin continuous, its origin above the origin of ventral, the spines rather flexible; base of anal 2.75 in length of fish, 1.50 in base of dorsal; ventrals short, 2 in snout; pectorals 3 in head; caudal rounded.

Color in spirits: a dull gray, with slight wash of green; fins a little lighter; anal fin with mottlings of lighter lines; a black spot larger than eye on 11-14 scale of lateral line, a larger light spot touching this at the lower anterior margin, and a smaller one above on its upper anterior margin; a small light dot on the eighth scale of lateral line; no lateral band; caudal with wash of yellowish.

One specimen, No. 1427 B. M., from Tahiti, length 16 in.

**Gomphosus tricolor** (Quoy & Gaimard).

Two specimens, Nos. 809 and 837 B. M., from Mangareva Id., length 87.5 inches.

One specimen, No. 1927 B. M., from Rarotonga, Cook Ids.

**Thalliurus chlorourus** (Bloch).

Seven specimens, Nos. 801, 815, 824 and 828, 831, 832, 833 B. M., from Mangareva Id.

One specimen, No. 1486 B. M., from Tahiti.

Two specimens, Nos. 977 and 920 B. M., from Fatè, New Hebrides.

Three specimens, Nos. 1144, 1204 and 1281 B. M., from Shortland Id., Solomons.

One specimen, No. 2529 B. M., from Makatea, Paumotu Ids.

General color, greenish, red dots on the cheeks; dorsal fins mottled with darker green and pinkish; the soft dorsal with pink on posterior part; lower third of pectoral yellowish.

**Cheilinus fasciatus** (Bloch).

One specimen, No. 1027 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1154 and 1200 B. M., from Shortland Id., Solomons.

Two specimens, Nos. 1944\* and 1945\* B. M., from Cook Ids.

Color in life: the anterior third of the body is reddish, with a wash of orange, three orange oblique lines extending in front of eye, five light yellowish lines between the pale green of the body; some scattered scales of darker green over the body.

**Cheilinus digrammus** (Lacépède).

Five specimens, Nos. 1099, 1100, 1166, 1167 and 1255 B. M., from Shortland Id., Solomons.

Color in life, a pale green, with black oblique lines on the opercles; fins with small dots, a dash of yellow on the crescent of caudal fin.

**Cheilinus trilobatus** (Lacépède).

Two specimens, Nos. 725 and 1369\* B. M., from Tubuai, Austral Ids.

Two specimens, Nos. 945\* and 941 B. M., from Fatè, New Hebrides.

One specimen, No. 823 B. M., from Mangareva Id.

One specimen, No. 1369 B. M., from Tahiti.

FAMILY SCARICHTHYIDÆ.

**Scarichthys auritus** (Cuvier & Valenciennes).

Two specimens, Nos. 1917 and 1943\* B. M., from Rarotonga, Cook Ids.

**Scarichthys cœruleopunctatus** (Rüppel).

Two specimens, Nos. 1918 and 1942 B. M., from Rarotonga, Cook Ids.

**Scarichthys rarotongæ** Seale, new species.

Depth 3.50; eye 3.75 in head, 1 in preorbital portion of head, and 1 in interorbital space; D. X, 10; A. III, 9; scales of lateral line 24.

Body oblong, compressed; the lateral line interrupted, the tubules two-branched; teeth and nostrils generic; the profile of the head seems slightly different from other species of *Scarichthys*, being slightly concave above the posterior margin of the eye, and snout has a slope slightly greater than 45°; caudal peduncle 2.30 in head; the tubules on the orbitals and preopercles are quite prominent; base of anal fin 2.75 in base of dorsal; length of pectorals 1.40 in head; ventrals, 2.

Color in spirits is a dull coppery green without white dots; there are about five zones of darker greenish on the body, the first being above the base of the pectorals and over the shoulders, the second is below the seventh and eighth dorsal spines, the third is below the first and third dorsal rays, the fourth is below the fifth and seventh dorsal rays, and the fifth is below the axis of the dorsal; there is a dark blotch on the base of the pectorals, and another in the posterior axis of the dorsal; this dark spot occupies the base of the last four dorsal rays; the dark zones of color on the body, with the exception of the anterior one, invade the basal half of the dorsal fin; pectorals white, without marks; ventrals with indistinct darker markings; anal with five bands of dusky; caudal greenish, the tip white, and a white cross band near the tip.

One specimen, No. 1903 (Fig. 8) B. M., length 4 in., from Rarotonga, Cook Ids.

**Callyodon dubius** (Bennett).

One specimen, No. 1375 B. M., from Tahiti.

One specimen, No. 749 B. M., from Tubuai, Austral Ids.

One specimen, No. 1620 B. M., from Raiatea, Society Ids.

**Callyodon macrocheilus** (Bleeker).

Two specimens, Nos. 991\* and 992 B. M., from Fatè, New Hebrides.

**Callyodon pentazonus** (Bleeker).

One specimen, No. 1233 B. M., from Shortland Id., Solomons.

**Callyodon strongylocephalus** (Bleeker).

Two specimens, Nos. 1370 and 1527 B. M., from Tahiti.

**Callyodon lepidus** (Jenyns).

One specimen, No. 1921 B. M., from Rarotonga, Cook Ids.

**Callyodon dimidiatus** (Bleeker).

Three specimens, Nos. 1205, 1206 and 1229 B. M., from Shortland Id., Solomons.

**Callyodon cyanognathus** (Bleeker).

Six specimens, Nos. 1097, 1098, 1136, 1137, 1139\* and 1243 B. M., from Shortland Ids., Solomons.

One specimen, No. 994 B. M., from Fatè, New Hebrides.

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

Five specimens, Nos. 1180, 1181, 1235, 1244\* 1245 B. M., from Shortland Id., Solomons.

**Callyodon celebicus** Bleeker.

One specimen, No. 1919 B. M., from Rarotonga, Cook Ids.

**Callyodon bataviensis** Bleeker.

One specimen, No. 857\* B. M., from Fatè, New Hebrides.

**Callyodon pyrrhostethus** (Richardson).

One specimen, No. 1920 B. M., from Rarotonga, Cook Ids.

One specimen, No. 1045 B. M., from Fatè, New Hebrides.

**Callyodon tricolor** (Bleeker).

Four specimens, Nos. 1131\*, 1132, 1151 and 1152 B. M., from Shortland Id., Solomons.

**Callyodon balinensis** (Bleeker).

Three specimens, Nos. 1096, 1230 and 1231 B. M., from Shortland Id., Solomons.

One specimen, No. 2376\* B. M., from Tahiti.

**Callyodon waitei** Seale, new species.

Depth 2.80; head 3; eye 9 in head, 4 in interorbital; D. x, 10; A. 11, 10; scales 2-24-7; interorbital space 3 in head.

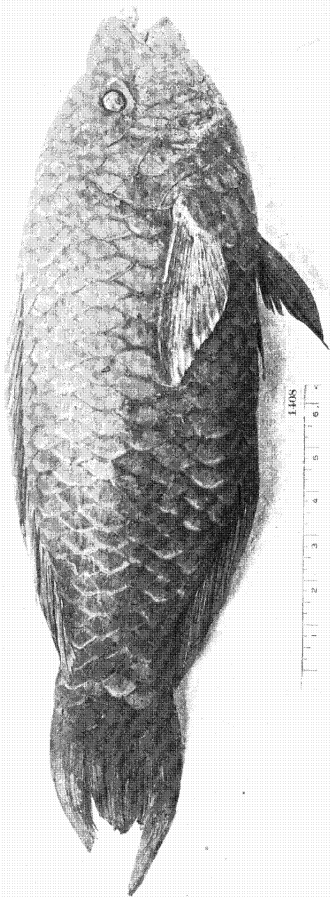


FIG. 15.—1408. *Callyodon waittei* Seale.

Body oblong, slightly compressed, covered with large striate scales; the lateral line is interrupted, the tubules with two or four branches; depth of the caudal peduncle equal to distance from eye to the posterior margin of the opercle; cheeks with three rows of scales, the first and second row with 6 scales each, the third row with only 3 scales; opercle with 8 large scales; the lower opercular limb with 7 scales; 7 scales in front of dorsal; upper lip double; the lip covering about a third of the dermal plate; upper dermal plate with 2 strong canine teeth on each side at angle of mouth; lower jaw with canine at angle; base of dorsal fin 2 in length of fish, without caudal, its longest ray 2.90 in base; base of anal equal length of pectorals, 1.25 in head; ventrals 1.70 in head; lobes of caudal much produced, the longest ray equal to distance from angle of jaws to posterior margin of opercles, the shortest ray a third shorter.

Color in life, green; chin and margin of lips red; dorsal bluish green with a margin of blue; a wide blue band around mouth; upper third of teeth green, the mid third whitish, the lower third green; teeth in lower jaw entirely greenish blue; inner half of anal fin red, the outer half bluish green; upper and lower margins of caudal deep blue, the mid part of fin green.

Color in spirits, dull green; margin of lips yellowish white, followed posteriorly by a broader green incomplete circle; posterior of this is another narrow white line; a broad greenish area on chin.

One specimen<sup>6</sup>, No. 1408 (Fig. 15) B. M., length 19.50 in., from Tahiti.

***Callyodon fasciatus*** Cuvier & Valenciennes.

(*Scarus rivulatus* Cuvier & Valenciennes.)

One specimen, No. 972 B. M., from Fatè, New Hebrides.

***Callyodon dussumieri*** (Cuvier & Valenciennes).

Two specimens, Nos. 993 and 995 B. M., from Fatè, New Hebrides.

***Callyodon quoyi*** (Bleeker).

One specimen, No. 1314 B. M., from Shortland Id., Solomons.

***Callyodon erythrodon*** Cuvier & Valenciennes.

(*Scarus sumbawensis* Bleeker.)

One specimen, No. 1374 B. M., from Tahiti, Society Ids.

Two specimens, Nos. 1923 and 1924 B. M., from Rarotonga, Cook Ids.

Two specimens, Nos. 927 and 979 B. M., from Fatè, New Hebrides.

<sup>6</sup>I take pleasure in naming this fine large *Scarus* for Edgar R. Waite, Zoologist and Curator of Fishes and Mammals at the Sydney Museum, Australia (now Curator of Christchurch Museum), in recognition of his important works on Pacific fishes.





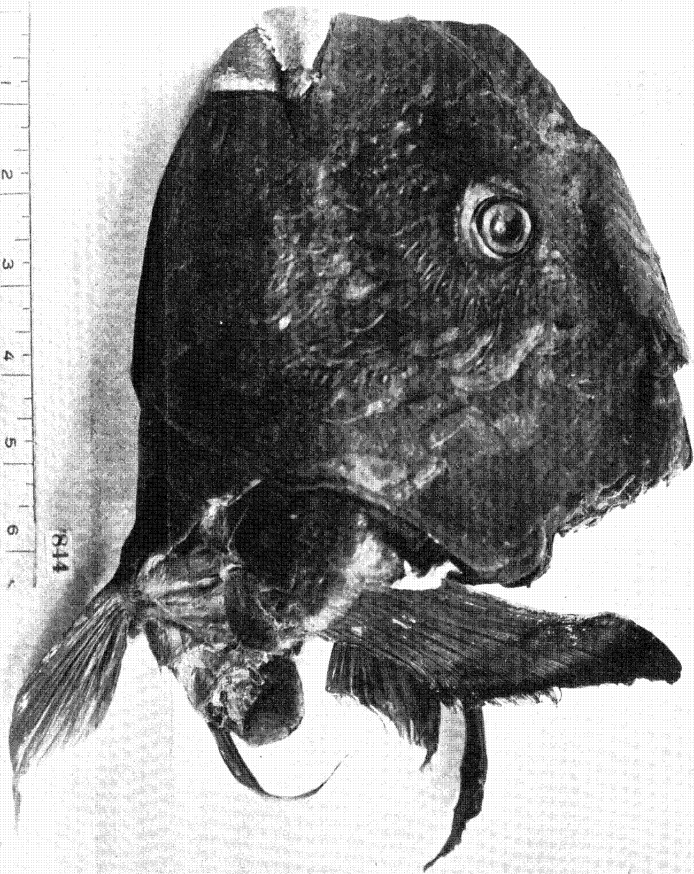


FIG. 16.—814. *Calliiodon ultramarinus* Jordan & Seale.

**Callyodon ultramarinus** Jordan & Seale, MS.

Head gibbous, its length less than depth; teeth pea green, the upper with a strong pointed tooth at angle; lips thin, single and very narrow, scarcely covering basal third of the teeth; eye small, 8.10 in head; snout from anterior of orbit to tip of teeth, 2 in head; interorbital space very convex, 2.85 in head; snout with a very prominent hump; cheeks with three series of scales, the lower series impinging upon the limb of the preopercle, but covering only its upper third; the lower limb of opercle with a single series of scales, gill-rakers very fine and numerous.

Scales of body large, a series of 4 in front of the ventral fins; the ventrals 1.55 in head, their origin is under the middle of the base of pectorals; pectorals 1.40 in head, their base is equal to the angle of the mouth, 2.75 in the longest ray.

Color: the upper half of head from a line with angle of jaws to lower base of opercular flap, a uniform drab; the lower half and the thorax are a uniform yellowish white, the line of demarcation between the two colors is quite distinct; a narrow yellow line covering lips; pectorals drab, the upper ray the axis and tip of lower rays yellowish.

One specimen (a head, length 6 in.), No. 844 (Fig. 16) B. M., from Mangareva Id.

This species, of which the type is from Apia, Samoa, will be described and figured in the forthcoming report of the collections of Jordan & Kellogg in Samoa.

**Callyodon oviceps** (Cuvier & Valenciennes).

One specimen, No. 1488 B. M., from Tahiti.

**Callyodon moensi** (Bleeker).

Three specimens, Nos. 1371-1373 B. M., from Tahiti.

Two specimens, Nos. 983 and 924 B. M., from Fatè, New Hebrides.

FAMILY TOXOTIDÆ.

**Toxotes jaculator** Pallas.

Four specimens, Nos. 1293-1296 B. M., from Shortland Id., Solomons.

FAMILY PLATÆIDÆ.

**Platax orbicularis** Forskal.

Seven specimens, Nos. 1086\*-1091 and 1155 B. M., from Shortland Id., Solomons.

<sup>7</sup>The head, with the pectorals and ventrals of this very large Parrot-fish, was brought me by a native.

## FAMILY CHÆTODONTIDÆ.

**Forcipiger longirostris** (Broussonet).

One specimen, No. 1562 B. M., from Raiatea, Society Ids.

**Chætodon setifer** Bloch.

One specimen, No. 740 B. M., length 8.16 in., from Tubuai, Austral Ids.

Three specimens, Nos. 893, 842\*, 945\* B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1901 and 1902 B. M., from Rarotonga, Cook Ids.

**Chætodon auriga** Forskal.

One specimen, No. 1564 B. M., from Tahiti.

**Chætodon vagabundus** Linnæus.

One specimen, No. 978 B. M., from Fatè, New Hebrides.

One specimen, No. 1275 B. M., from Shortland Id., Solomons.

Three specimens, Nos. 1552-1554 B. M., from Raiatea, Society Ids.

**Chætodon pelewensis** Kner.

One specimen, No. 1000\* B. M., from Fatè, New Hebrides.

**Chætodon trifasciatus** Bleeker.

One specimen, No. 1558 B. M., from Raiatea, Society Ids.

One specimen, No. 1190 B. M., from Shortland Id., Solomons.

**Chætodon lunula** Lacépède.

Three specimens, Nos. 1547-1549 B. M., from Raiatea, Society Ids.

Three specimens, Nos. 1888-1890 B. M., from Rarotonga, Cook Ids.

Five specimens, Nos. 2249-2253 B. M., from Nukuhiva, Marquesas Ids.

Two specimens, Nos. 2481\* and 2482\* B. M. from Makatea, Paumotu Ids.

One specimen, No. 1454 B. M., from Tahiti.

**Chætodon flavirostris** Günther.

One specimen, No. 958 B. M., from Fatè, New Hebrides.

**Chætodon lineolatus** Cuvier & Valenciennes.

One specimen and young, No. 946 B. M., from Fatè, New Hebrides.

**Chætodon ulietensis** Cuvier & Valenciennes.

Three specimens, Nos. 1555-1557 B. M., from Raiatea, Society Ids.

**Chaetodon unimaculatus** Bloch.

Two specimens, Nos. 894 and 936\* B. M., from Fatè, New Hebrides.

**Chaetodon ornatissimus** Cuvier & Valenciennes.

Seven specimens, Nos. 1891-1897 B. M., from Rarotonga, Cook Ids.

**Chaetodon citrinellus** Quoy & Gaimard.

One specimen, No. 1075 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1559 and 1560 B. M., from Raiatea, Society Ids.

Two specimens, Nos. 1898 and 1899 B. M., from Rarotonga, Cook Ids.

One specimen, No. 1338 B. M., from Tahiti.

**Chaetodon reticulatus** Cuvier & Valenciennes.

One specimen, No. 1563 B. M., from Raiatea, Society Ids.

One specimen, No. 1903\* B. M., from Rarotonga, Cook Ids.

**Chaetodon ephippium** Cuvier & Valenciennes.

Three specimens, Nos. 987, 989 and 990 B. M., from Fatè, New Hebrides,

Two specimens, Nos. 1550 and 1551 B. M., from Raiatea, Society Ids.

One specimen, No. 1900 B. M., from Rarotonga, Cook Ids.

**Chaetodon semeion** Bleeker.

One specimen, No. 1324 B. M., from Shortland Id., Solomons.

**Heniochus permutatus** Cuvier & Valenciennes.

(*Heniochus chrysostomus* C. & V.)

One specimen, No. 1546 B. M., from Raiatea, Society Ids.

One specimen, No. 642 B. M., from Fatè, New Hebrides.

**Holacanthus loriculus** Günther.

One specimen, No. 1455 B. M., from Tahiti.

**Holacanthus lineolatus** Quoy & Gaimard.

One specimen, No. 1301 B. M., from Shortland Id., Solomons.

**Holacanthus imperator** Bloch.

One specimen, No. 1452 B. M., from Tahiti.

**Holacanthus flavissimus** Cuvier & Valenciennes.

(*Holacanthus cyanotis* Günther.)

One specimens, No. 1074 B. M., from Fatè, New Hebrides.

**Holacanthus diacanthus** (Boddaert).

One specimen, No. 1561 B. M., from Raiatea, Society Ids.

## FAMILY ZANCLIDÆ.

**Zanclus canescens** (Linnæus).

One specimen, No. 1011\* B. M., from Fatè, New Hebrides.

One specimen, No. 1313 B. M., from Shortland Id., Solomons.

One specimen, No. 1515 B. M., from Tahiti.

Three specimens, Nos. 1543-1545 B. M., from Raiatea, Society Ids.

## FAMILY ACANTHURIDÆ.

**Hepatus lineatus** (Linnæus).

One specimen, No. 1576 B. M., from Raiatea, Society Ids.

Three specimens, Nos. 974, 1046, 1047 B. M., from Fatè, New Hebrides.

Three specimens, Nos. 1416-1418 B. M., from Tahiti.

**Hepatus nigricans** (Linnæus).

(*Chcetodon gahhm* Forskal.)

Two specimens, Nos. 1501 and 1502 B. M., from Tahiti.

One specimen, No. 938 B. M., from Fatè, New Hebrides.

One specimen, No. 1108 B. M., from Shortland Id., Solomons.

One specimen, No. 1575 B. M., from Raiatea, Society Ids.

**Hepatus achilles** (Shaw).

One specimen, No. 1910 B. M., from Rarotonga, Cook Ids.

One specimen, No. 2460\* B. M., from Makatea, Paumotu Ids.

**Hepatus olivaceus** (Forskål).

Eight specimens, Nos. 1400-1402\*, 1403-1406\* and 1500 B. M., from Tahiti.

**Hepatus elongatus** (Lacépède).

Depth 1.90; head 3.80; eye 4.20; D. IX, 22; A. III, 26.

Color in formalin, is a uniform brown, with a black spot in axis of anal and dorsal fin; fins darker than body.

Two specimens from Tubuai, Austral Ids.: No. 750 B. M., length 7 in.; No. 753 B. M., length 2.75 in.

Three specimens, Nos. 883, 967, 1028 B. M., from Fatè, New Hebrides.

**Hepatus triostegus** (Linnæus).

Twelve specimens, Nos. 1419-1426, 1571-1573\*, 1517\*, 1518 B. M., from Tahiti.

Five specimens, Nos. 884-886, 940 and 970 B. M., from Fatè, New Hebrides.

Three specimens, Nos. 1904-1907\* B. M., from Rarotonga, Cook Ids.

Twenty-four specimens, Nos. 2175-2177 and 2235 B. M., from Nukuhiva, Marquesas Ids.

**Hepatus guttatus** (Forster).

Four specimens, Nos. 1503-1506 B. M., from Tahiti.

**Ctenochætus striatus** (Quoy & Gaimard).

Three specimens, Nos. 1512, 1513\*, 1514 B. M., from Tahiti.

Two specimens, Nos. 1580-1581 B. M., from Raiatea, Society Ids.

One specimen, No. 1902 B. M., from Rarotonga, Cook Ids.

Three specimens, Nos. 980, 984 and 1048 B. M., from Fatè, New Hebrides.

One specimen, No. 754 B. M., from Tubuai, Austral Ids.

Two specimens, Nos. 1310\* and 1312 B. M., from Shortland Id., Solomons.

**Zebrasoma veliferum** (Bloch).

One specimen, No. 1507 B. M., from Tahiti.

One specimen, No. 1573\* B. M., from Raiatea, Society Ids.

**Zebrasoma flavescens** (Bennett).

Three specimens, Nos. 1577-1579\* B. M., from Raiatea, Society Ids.

**Acanthurus garretti** (Seale).

Three specimens, Nos. 1497\*-1499 B. M., from Tahiti.

Two specimens, Nos. 1567-1568 B. M., from Raiatea, Society Ids.

Three specimens, Nos. 1907\*-1909 B. M., from Rarotonga, Cook Ids.

**Acanthurus unicornis** (Forsk.)

Head 3.50; depth 2.10; length of horn measured from the orbit is slightly greater than width of eye.

Color, a uniform light gray; basis of the caudal peduncular keels blue; dorsal yellowish, with light blue oblique lines.

One specimen, No. 1442 B. M., from Tahiti.

Two specimens, Nos. 1569-1570 B. M., from Raiatea, Society Ids.

FAMILY SIGANIDÆ.

**Siganus rostratus** (Cuvier & Valenciennes).

One specimen, No. 748 B. M., from Tubuai, Austral Ids.

One specimen, No. 1601 B. M., from Raiatea, Society Ids.

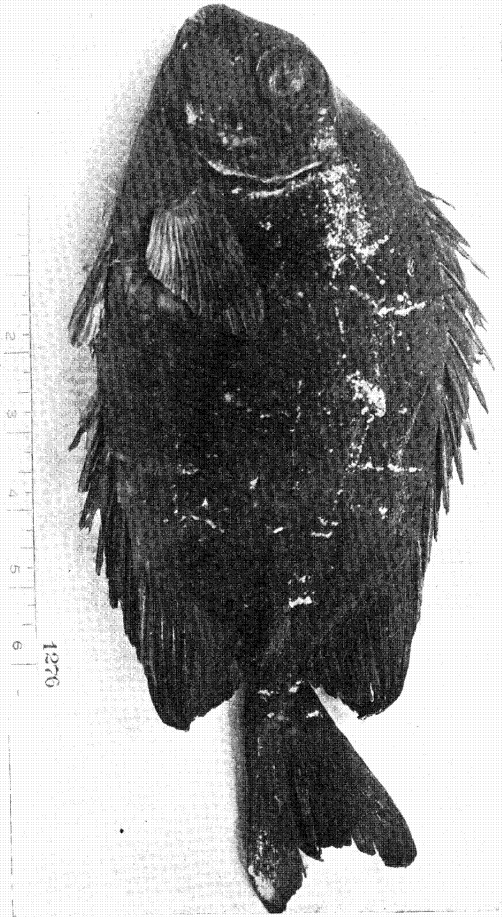


FIG. 17.—1276. *Sigannus shortlandensis* Seale.

1276



One specimen, No. 1068 B. M. from Fatè, New Hebrides.

Four specimens, Nos. 1133, 1134, 1135 and 1241 B. M., from Shortland Id., Solomons.

***Siganus striolatus*** (Günther).

One specimen, No. 1600 B. M., from Raiatea, Society Ids.

***Siganus vermiculatus*** (Cuvier & Valenciennes).

One specimen, No. 1277 B. M., Shortland Id., Solomons.

***Siganus doliatus*** (Cuvier).

One specimen, No. 926 B. M., from Fatè, New Hebrides.

***Siganus shortlandensis*** Seale, new species.

Depth 2.10; head 2.60; eye 3 in head; interorbital equal to eye; D. XIII, 10; A. VII, 9.

Body compressed, oblong, covered with fine scales; tail not armed; mouth moderate in size; a single row of fixed, sharp-pointed teeth, slightly flattened, 25 on each side; a decided convexity in the profile just in front of the eye; depth of caudal peduncle about equal to its length which is equal to the eye; the last dorsal spine is the longest, 2 in head, the second dorsal spine is equal to eye; the soft rays of both dorsal and anal are longer than the spines; pectoral 1.16 in head; ventrals 1.75 in head; base of anal 1.75 in base of dorsal; caudal is rather deeply emarginate, the middle ray 1.50 in the outer.

Color in life, bluish with yellow reticulating lines and dots, the lines are one-half as wide as the distal end of the maxillary; blue and yellow lines alternating on the cheeks; spinous dorsal and spinous anal with a yellowish wash; soft dorsal, soft anal and caudal with small brown dots.

Color in spirits is a dusky brown, the markings scarcely showing, the caudal, soft dorsal and anal are blackish, pectorals and ventrals have a bluish wash.

One specimen, No. 1276 (Fig. 17) B. M., from Shortland Id., Solomons.

***Siganus zoniceps*** Seale, new species.

Depth 2.50; head 3.85; eye 3.75; interorbital equal to eye; snout 2 in head; D. XIII, 10; A. VII, 9.

Body oblong, compressed, with fine scales, no spine on caudal peduncle, no spine on tail; a single row of fine, sharp-pointed teeth in jaws, about 26 on each side; width of the upper lip at centre equal to pupil, its distal end 1.50 in pupil; profile not very convex in front of eye; depth of caudal peduncle 1.50 in its length; the fifth dorsal spine is the longest, 2.10 in head; second dorsal spine fully a third longer than width of eye; base of anal 1.70 in

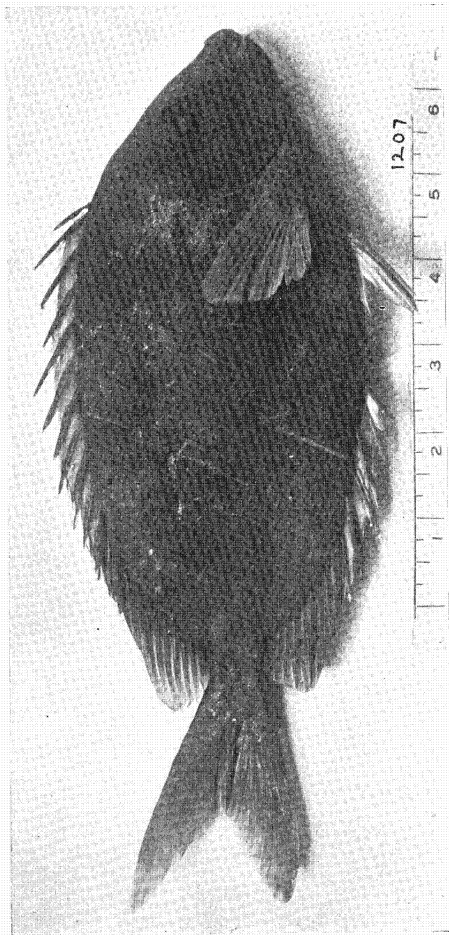


FIG. 18.—1207. *Siganus zomiceps*. Scale.

base of dorsal; pectorals 1.20 in head; caudal forked, the middle ray 2.25 in the outer.

Color in life, bright orange yellow with narrow blue lines and reticulations; a black band as wide as eye from the top of the head, through eyes and around the under jaw, small jet-black dots in the upper half of this band; dorsal, anal, caudal and pectorals bright yellow; ventrals whitish with a slight wash of yellow; some blue dots at base of caudal and on shoulders and thorax; snout a reddish brown.

Color in spirits, a dull grayish, the lower half yellowish, the upper half with a bluish wash; narrow bluish lines running longitudinally on the sides, vertically just back of the head, and forming circles on the belly; a black ocular band through the eye and around under jaw; upper part of head and snout dark; fins yellowish white, with a trace of blue.

Two specimens, Nos. 1207 (Fig. 18) and 1208 B. M., from Shortland Id., Solomons. No. 1207 is type of species.

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

One specimen, No. 1444 B. M., from Tahiti.

Four specimens from Fatè, New Hebrides.

**Lo** Seale, new genus.

This genus, typified by *Siganus vulpinus*, is characterized by greatly produced snout, which forms a short beak. The depth of the head is also much less than in *Siganus*, with which genus it agrees in general characters. The name *Lo* is used for the species of *Siganidæ* by the Samoans.

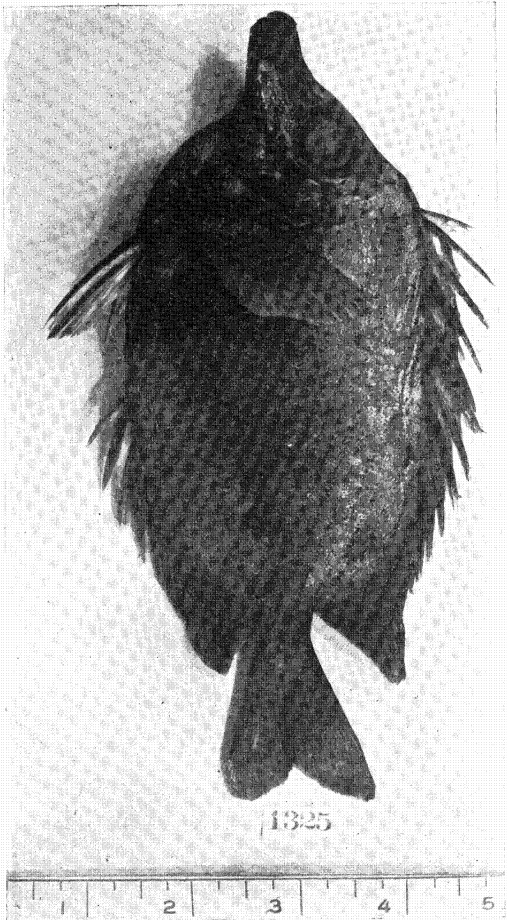
**Lo vulpinus** (Günther).

Depth 2.20; head 3.30; eye 4; interorbital equal to eye; snout 2 in head; scales minute; D. XIII, 10; A. VII, 9; V. 1-3-1.

Body compressed, snout produced, mouth small; a single row of small flat teeth fixed in each jaw, 12 on each side; opercles striate; none of the dorsal or anal spines greatly elongate; the dorsal spines, excepting the short anterior one, are of about equal length, the longest 2 in head; anal spines similar, the longest 2 in head; soft rays of dorsal 1.75 in head; ventrals 1.40 in head; caudal emarginate, the lobes rounded; caudal peduncle short, its depth equal to the eye.

Color in life is a light bistre brown; thorax and first ray of pectoral deep black; head and shoulders are a deeper brown than the body; caudal, dorsal and anal are orange; spines of ventrals and the first ray dusky; pectorals yellowish, with a slight dusky wash.

FIG. 19.—1325. *Lo vulpinus* (Günther).



Color in spirits, a dull grayish brown, thorax and head much darker; anterior ray of pectoral black; fins yellowish white.

One specimen, No. 1325 (Fig. 19) B. M., from Alu, one of the Solomon Ids. Length 7 in.

FAMILY BALISTIDÆ.

**Xanthichthys rivulatus** (Rüppell).

One specimen, No. 1085 B. M., from Fatè, New Hebrides.

In life the lines marking this species are bluish; in spirits they become light brownish.

**Balistes fuscus** Bloch.

Depth 2; head 3; eye 6 in head, 5 in snout, and 2 in interorbital space; D. III, 24; A. 23.

Body compressed, deep, covered with roughened scales, some osseous scutes behind gill openings; caudal peduncle without spines on its sides, its depth equal to interorbital space; a groove in front of eye; mouth rather small, teeth large, the anterior ones almost like canines. Fins: spinous dorsal with its first spine enlarged, its upper anterior half much roughened, its length 1.80 in base of soft dorsal; base of soft dorsal equal to head, base of anal not quite so long; pectorals equal in length to first dorsal spine; ventrals consisting of a single modified spine and some roughened corrugations; caudal deeply lunate, the margins greatly prolonged, the upper much the longest, the outer ray greater than length of head.

Color in life, blue, with a wash of green; dorsal blue, with a pink tip.

Color in spirits, uniform greenish brown, the soft fins tipped with white.

One specimen, No. 1359 B. M., from Tahiti. Length 21 in.

**Balistes vidua** Richardson.

One specimen, No. 2132 B. M., Nukuhiva, Marquesas Ids.

**Balistes flavimarginatus** Rüppell.

One specimen, No. 1290 B. M., from Shortland Id., Solomons.

**Balistes bursa** Bloch.

Two specimens, Nos. 2130, 2131 B. M., from Nukuhiva, Marquesas Ids.

**Balistes chrysopterus** Lacépède.

(*Balistes niger* Mungo Park.)

Three specimens, Nos. 1076, 1077\* and 933 B. M., from Fatè, New Hebrides.

**Balistes capistratus** Shaw.

Three specimens, Nos. 2124-2127\* B. M., from Nukuhiva, Marquesas Ids.

**Balistapus undulatus** (Mungo Park).

One specimen, No. 1480 B. M., was taken inside the reef at Papeete, Tahiti.

Three specimens, Nos. 965, 964 and 1050 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1141\* and 1164 B. M., from Shortland Id., Solomons.

Two specimens, Nos. 1588 and 1589 B. M., from Raiatea, Society Ids.

**Balistapus aculeatus** (Linnæus).

One specimen, No. 1336 B. M., from Tahiti. Length 4.75 in.

One specimen, No. 1987 B. M., from Rarotonga, Cook Ids.

Six specimens, Nos. 846, 889, 890\*-892, and 936\* B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1586 and 1587 B. M., from Raiatea, Society Ids.

Two specimens, Nos. 2127\* and 2128 B. M., from Nukuhiva, Marquesas Ids.

**Balistapus verrucosus** (Linnæus).

Two specimens, Nos. 1239 and 1216 B. M., from Shortland Id., Solomons.

**Balistapus rectangulus** (Bloch).

Two specimens, Nos. 876 and 882 B. M., from Fatè, New Hebrides.

One specimen, No. 2229\* B. M., from Nukuhiva, Marquesas Ids.

## FAMILY MONACANTHIDÆ.

**Monacanthus fatënsis** Seale, new species.

Depth 1.75; head 3.25; eye 4 in head; 3.75 in the first dorsal spine; interorbital very convex, 3 in head; snout 1.10 in head; D. 1, 34; A. 31.

Body compressed, without scales, velvety to the touch; upper profile of the snout concave; a single dorsal spine without barbs and scarcely roughened, its length 1.20 in head; the origin of the first dorsal spine is anterior of eye; snout somewhat produced, equal to length of the first dorsal spine; four rather long cutting teeth in lower jaw, six in the upper; base of soft dorsal 2.60 in length of fish without caudal; distance between anterior base of

dorsal spine and base of soft dorsal is equal to the base of anal; a small movable ventral spine present with about two barbs on each side; depth of caudal peduncle equal to its length.

Color in spirits is a dull brown, without darker mottlings, a bright blue spot about the vent; soft dorsal and anal yellow, caudal brown, pectorals yellowish, iris yellowish.

One specimen, No. 997 (Fig. 13) B. M., from Fatè, New Hebrides.

**Monacanthus spilosomus** (Bennett).

One specimen, No. 1916 B. M., from Rarotonga, Cook Ids.

FAMILY OSTRACIIDÆ.

**Ostracion cornutum** Linnæus.

Two specimens, Nos. 1333 and 1334 B. M., from Tahiti.

One specimen, No. 1156\* B. M., from Shortland Id., Solomons.

**Ostracion dexteri** Seale, new species.

Carapace expanded and rounded below; the lower lateral margin with three spines on each side; a prominent spine over each eye, another on the middle of the back, flanked on each side by two others, in all eleven large spines; eye equal to the spine above it; forehead and interorbital space concave.

Color, greenish above, yellowish below. Length 1 in.

One specimen, No. 1526 (Fig. 7) B. M., from Bellingshausen Id. of the Society group. Named for the donor, Captain George Dexter, of Tahiti.

**Ostracion chryseres** Seale, new species.

Depth 3.75; head 4; eye 3.50 in head, 2.50 in interorbital space; D. 10; A. 9; P. 10; C. 10; interorbital 1.20 in head; snout 1.50 in head.

Body a four-sided carapace without spines; back rounded; interorbital space slightly concave; ventral ridges more prominent than dorsal; length of carapace behind dorsal fin 2 in head; a hump on the snout above the mouth, and a fleshy hump of about equal size on the under jaw; teeth, 10 in each jaw, these are rather flat and weak, brownish in color; scutes large, 10 on each side; base of dorsal fin 2 in its height; base of anal 2.20 in its height; pectorals 1.20 in head; caudal 1.10 in head.

Color in life is olive brown, with dark round dots the size of pupil, in the centre of each scute of the back and the upper row of scutes of the side; sides of head with yellow margins to the scutes, some yellow lines back and above the pectorals, and a yellow line extending back from base of pectorals to the middle of the body; sides of the caudal peduncle a bright yellow, dusky on top; base of dorsal black; fins whitish, with dark dots.

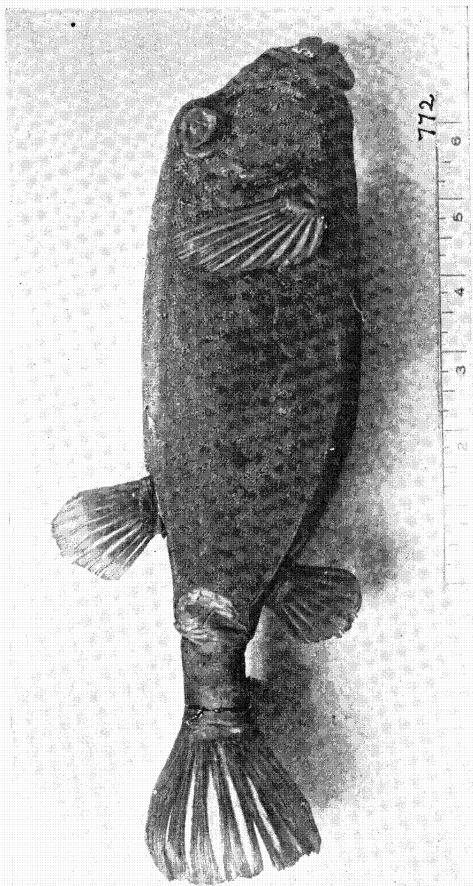


FIG. 20.—772. *Ostracion chryseres* Seale.



Color in spirits is a dull bistre brown, with slightly darker centres to the scutes; the yellow lines on cheeks and sides fading to a dull yellowish white; top of caudal peduncle dusky; there is also a slight wash of dusky on the base of caudal fin and on the ventral surface of the caudal peduncle; the lower half of dorsal has a few dark dots, otherwise fins yellowish white.

One specimen, No. 772 (Fig. 20) B. M., from Tubuai, Austral Ids. Length 10.50 in.

**Ostracion auricauda** Seale, new species.

Depth 3; head 4.50; ventral width 3.28; eye 3.10 in head; interorbital concave, 1.19 in head; snout 1.50; a very prominent hump above mouth; D. 10; A. 10.

Carapace four-ridged without spines, the lower ventral ridges most prominent; length of carapace behind dorsal fin 1.75 in head; depth of caudal peduncle 2 in its length; scutes large, 10 along upper lateral ridge, 7 from nuchal region to base of dorsal; a rather prominent convex swelling on carapace just in front of vent; the anterior tip of carapace at snout forms an angle of 60°; teeth consisting of 10 roundish brown teeth in lower jaw and 8 in upper; base of dorsal entirely in front of anal; base of dorsal 2.75 in head, its longest ray 1.20; base of anal equal to eye, its rays 1.45 in head; base of pectorals equal to eye, its longest ray 1.10 in head; caudal slightly rounded, its mid-ray greater than head.

Color in life, a light bistre brown, the plates of the back and upper row of sides with a single blue, dark-edged spot; caudal peduncle a bright golden yellow, four or five reticulating yellow lines on sides of head. Fins: all with a wash of orange, the base of dorsal only with a few small black dots.

Color in spirits, light brown, the fins yellowish white; ocelli of back dim and not showing blue centres; caudal yellowish white; the yellow lines on side of head faded to whitish; dots on base of dorsal conspicuous.

One specimen, No. 808 (Fig. 21) B. M., from Mangareva Id. Length 14 in.

**Ostracion sebae** Bleeker.

One specimen, No. 1073 B. M., from Fatè, New Hebrides.

One specimen, No. 1988 B. M., from Rarotonga, Cook Ids.

One specimen, No. 1335 B. M., from Tahiti.

**Ostracion renardi** Bleeker.

One specimen, No. 1996 B. M., from Rarotonga, Cook Ids.

One specimen, No. 2120 B. M., from Nukuhiva, Marquesas Ids.

**Ostracion tuberculatum** Linnæus.

Two specimens, Nos. 1590 and 1591 B. M., from Raiatea, Society Ids.

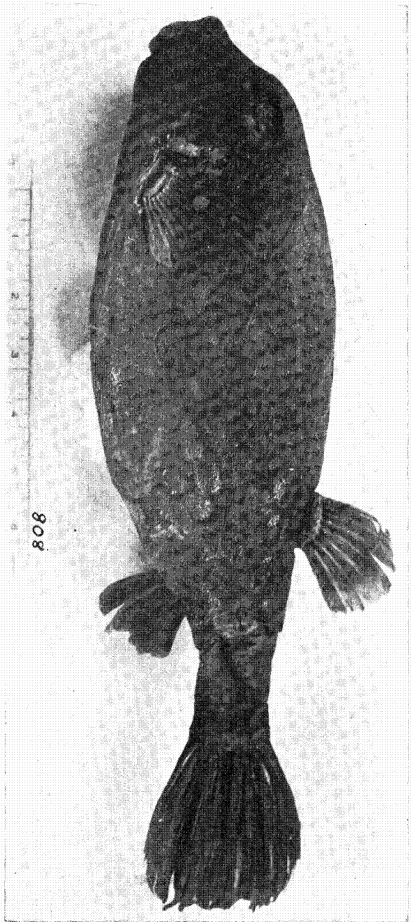


FIG. 21.—808. *Ostracion auricanada* Seale.

One specimen, No. 1989 B. M., from Rarotonga, Cook Ids.

Two specimens, Nos. 2118, 2119 B. M., from Nukuhiva, Marquesas Ids.

**Ostracion lentigenosum** Bloch & Schneider.

Two specimens, Nos. 969, 1051 B. M., from Fatè, New Hebrides.

Two specimens, Nos. 2116, 2117 B. M., from Nukuhiva, Marquesas Ids.

FAMILY TETRADONTIDÆ.

**Spheroides hypselogenion** (Bleeker).

One specimen, No. 888 B. M., from Fatè, New Hebrides.

**Spheroides oblongus** (Bleeker).

One specimen, No. 939 B. M., from Fatè, New Hebrides.

**Tetraodon setosus** Rosa Smith.

One specimen, No. 836 B. M., from Mangareva Id. Length 9 in.

This specimen is identified with some doubt with this species, which belongs to the Panama fauna.

**Tetraodon immaculatus** Bleeker.

One specimen, No. 881 B. M., from Fatè, New Hebrides.

One specimen, No. 1317 B. M., from Shortland Id., Solomons.

In life the specimen is a uniform bright yellow, with black on basis of the pectorals, a black spot on the upper part of dorsal and on middle of caudal.

**Tetraodon aerostaticus** Jenyns.

One specimen, No. 1057 B. M., from Fatè, New Hebrides.

**Tetraodon lacrymatus** (Quoy & Gaimard).

One specimen, No. 1592 B. M., from Raiatea, Society Ids.

**Canthigaster compressus** (Procé).

One specimen, No. 1065 B. M., from Fatè, New Hebrides.

**Canthigaster solandri** (Richardson).

One specimen, No. 1593 B. M., from Raiatea, Society Ids.

FAMILY SCORPÆNIDÆ.

**Merinthe haplodactyla** (Bleeker).

One specimen, No. 1012 B. M., from Fatè, New Hebrides.

**Scorpæna cooki** Günther.

Three specimens, No. 1681 B. M. (young), from Raiatea, Society Ids.

**Scorpaenopsis quiescens** Seale, new species.

Depth 3; head 2.50; eye 3.50; D. XIII, 19; A. III, 5; P. 18; V. I, 5; interorbital space concave, equal to the snout.

Body compressed, its greatest depth is between the first and fifth dorsal spines; lateral line complete, the tubules prominent; depth of the caudal peduncle equal to the orbit. Head large, slightly compressed and well armed with spines distributed as follows: three on the upper rim of orbit, one just above the posterior rim of orbit, four on the nuchal region, three on a line with the posterior end of the lateral line, two on the posterior margin of the opercles, four which constitute the bony stay across the cheeks, the posterior one of these four is a large one on the preopercle, and has two spines below it; there is a blunt spine on the sub-orbital overhanging the premaxillary; there are several dermal flaps, the largest one is branched and situated over the anterior nostril; snout short and rather blunt; lips equal; maxillary reaching to below the posterior margin of orbit, 1.90 in head, its distal end 1.50 in orbit; teeth in villiform bands on jaws and vomer, none on the palatines. Fins: the notch of the dorsal fin is one-half the depth of the fin, the fifth dorsal spine is the longest, 2.20 in head; second anal spine longest and strongest, 1.60 in head; pectorals 1.60 in head; length of ventrals and caudal equal.

Color: the fish is mottled all over with yellowish brown, and white, a dusky clotch on upper part of opercles. Fins colored like the body.

One specimen, No. 1352 (Fig. 2, No. 783\*) B. M., from Tahiti. Length 3.50 in.

**Sebastapistes strongensis** (Cuvier & Valenciennes).

Two specimens, Nos. 1054 and 1055 B. M., from Fatè, New Hebrides. Doubtfully referred to this species.

**Sebastapistes guamensis** (Quoy & Gaimard).

One specimen, No. 1524 B. M., from Tahiti.

One specimen, No. 2380 B. M., from Nukuhiva, Marquesas Ids.

Two specimens, Nos. 1014\* and 1016\* B. M., from Fatè, New Hebrides.

Two specimens, Nos. 1196 and 1223 B. M., from Shortland Id., Solomons.

**Sebastapistes baillieui** (Vaillant & Sauvage).

One specimen, No. 2379 B. M., from Nukuhiva, Marquesas Ids. Rather doubtfully identified.

Genus **Deleastes** Seale, new genus.

This genus, typified by *D. dactor*, is related to *Synanceia*, being distinguished by the much smaller ventrals, situated more

posteriorly than in *Synanceia*. The skin is smooth, and apparently free from dermal flaps and excrescences except at base of dorsal and anal fin.

**Deleastes dæctor** Seale, new species.

Depth at origin of dorsal 2.45; head 2.20; eye 8.05 in head, 2.20 in interorbital space, 2 in snout; D. XIII, 6; A. III, 5; interorbital space with a deep fossa, also a deep fossa just posterior of each eye.

Body compressed posteriorly; no scales and apparently no dermal flaps; head monstrous, without spines; mouth large, opening on the dorsal profile; villiform teeth in both jaws; no teeth on vomer or palatines; the distal width of the maxillary is slightly greater than orbit; dorsal fin continuous, its origin directly above the origin of ventrals; the base of the spinous portion of the dorsal is more than four times as long as the base of the soft dorsal; anal short, its base 2.10 in head, the spinous portion covered with fleshy excrescence; the posterior margin of the pectoral is twice the length of the fin, the upper axis of the fin is exactly over the middle of the posterior margin of the fin and its lower anterior origin is in advance of the origin of ventral, also in front of a line with eye; the posterior margin of the pectoral is slightly greater than length of head; ventrals very short, 2.15 in head; caudal small, rounded, its middle ray equal to length of ventrals; all the fins are fleshy.

Color in life, mottled everywhere with olive brown or dark green; caudal, pectorals and anal banded with whitish lines.

In this species the ventrals are smaller, and situated more posteriorly than in other species of *Synanceia*, the skin also is much smoother and is apparently free from fleshy excrescences except at base of dorsal and anal.

One specimen, No. 1360 (Fig. 22) B. M., from Tahiti. Length 10.5 in.

**Synanceia verrucosa** (Bloch).

Depth 2.75; head 2.50; eye 9; D. XIII, 6; A. III, 5; interorbital space 4 in head; snout less than width of the interorbital space.

Body subcylindrical, covered with lichen-like fleshy excrescences and dermal flaps; head monstrous; interorbital space very concave; a groove on cheeks below the eye and a deep fossa behind each eye; no spines on the head; premaxillary thin, its length 2.50 in head; distal width of the maxillary slightly greater than orbit; the anterior extremity of the lower jaw is on the dorsal profile; villiform teeth in jaws, none on the vomer or palatine; opercles without spines; the dorsal fin is continuous, the spinous portion with much the longest base, the origin of the dorsal is over the



FIG. 22.—1360. *Delcaestes dialector* Seal.

posterior third of opercle and about on a line with the middle of the ventrals; anal short, the base is less than length of ventrals, being 2.10 in head; the pectorals are very long, the lower posterior border being 1.80 in length of fish without caudal, the upper margin of fin is 1.50 in head, the upper part of the axis being over the middle of lower margin of the fin; the origin of the pectoral is anterior of the eye, being below the middle of the snout, its tip reaches to a line with the eleventh dorsal spine; ventral fins are of moderate size, 1.20 in head, their origin is on a line with the eye; caudal fin rounded, 2.30 in head.

Color in life, gray, with orange-colored spots on sides of body, in axis of pectorals, on chin, and a spot below each eye.

One specimen, No. 733 B. M., from Tubuai, Austral Ids.

**Amblyapistus tænianotus** (Cuvier & Valenciennes).

One specimen, No. 1258 B. M., from Shortland Id., Solomons.

**Pterois antennata** (Bloch).

One specimen, No. 1566 B. M., from Raiatea, Society Ids.

One specimen, No. 2480\* B. M., from Makatea, Paumotu Ids.

One specimen, No. 1531 B. M., from Tahiti.

**Pelor didactylum** Cuvier & Valenciennes.

One specimen, No. 963 B. M., from Fatè, New Hebrides.

#### FAMILY CEPHALACANTHIDÆ.

**Cephalacanthus orientalis** (Linnæus).

One specimen, No. 1361 B. M., from Tahiti.

#### FAMILY ECHENEIDIDÆ.

**Leptecheneis flaviventris** Seale, new species.

Depth 11.50; head 5.25; D. xxiv, 34; A. 33; eye 6.75; interorbitals 2.50 in disk; breadth between pectorals 8; disk 4.10 in length without caudal; width of disk 3 in its length; snout 2.20 in head; distance from angle of jaw to tip of lower jaw, 2.60 in head; pectorals 1.10; ventrals 1.40; mid caudal ray 1.60; longest anal ray 1.55; longest dorsal ray 1.75; caudal lunate.

Body elongate; head with a disk of 24 lamellæ on its dorsal surface; teeth consisting of bands of small teeth in jaws and palate; tongue roughened with asperites; pectorals pointed; inner rays of ventrals narrowly adnate to abdomen; dorsal and anal beginning and ending opposite to each other.

Color, brown, belly and under surface of head yellowish; a dark stripe around jaws which unites at angle into a single band as wide as eye and extends to base of pectorals; ventrals yellowish;

anterior base of anal yellowish; the lower part of pectorals and their axis yellowish; otherwise the fins are uniform with the color of the body.

This species is allied to *Leptecheneis naucrates* (Linnæus), but is easily distinguished by the yellow color of the belly, the smaller eye, the greater length of the anal and dorsal rays.

One specimen, Type No. 834\* (Fig. 23) B. M., from Manga-  
reva Id. Length 24.25 in.

**Periophthalmus barbarus** Gmelin.

One specimen, No. 1056 B. M., from Fatè, New Hebrides.

**Eleotris fusca** (Bloch).

One specimen, No. 1337 B. M., from Tahiti.

Two specimens, Nos. 743, 745, B. M., from Tubuai, Austral  
Ids.

One specimen, No. 2363 B. M., from Nukuhiva, Marquesas  
Ids.

**Gobius ornatus** Rüppell.

One specimen, No. 1253 B. M., from Shortland Id., Solomons.

FAMILY GOBIIDÆ.

**Gobius oligolepis** (Bleeker).

Three specimens, Nos. 856, 857\* and 1080\* B. M., from Fatè,  
New Hebrides.

**Mapo soporator** (Cuvier & Valenciennes).

Three specimens, Nos. 2496\*, 2497\*, 2498\* B. M., from Maka-  
tea, Paumotu Ids.

One specimen, No. 1525 B. M., from Tahiti.

Five specimens, Nos. 2374-2376\* and 2378 B. M., from Nuku-  
hiva, Marquesas Ids.

**Coryphopterus criniger** Cuvier & Valenciennes.

Two specimens, Nos. 1023, 1678 B. M., from Raiatea, Society  
Ids.

**Odontogobius phalaena** Bleeker.

Four specimens, Nos. 854, 1013, 1081\* and 1082 B. M., from  
Fatè, New Hebrides.

**Awaous crassilabris** (Günther).

Two specimens, Nos. 1195\* and 1207 B. M., from Shortland  
Id., Solomons.

**Awaous puntangoides** (Bleeker).

One specimen, No. 1283 B. M., from Shortland Id., Solomons.



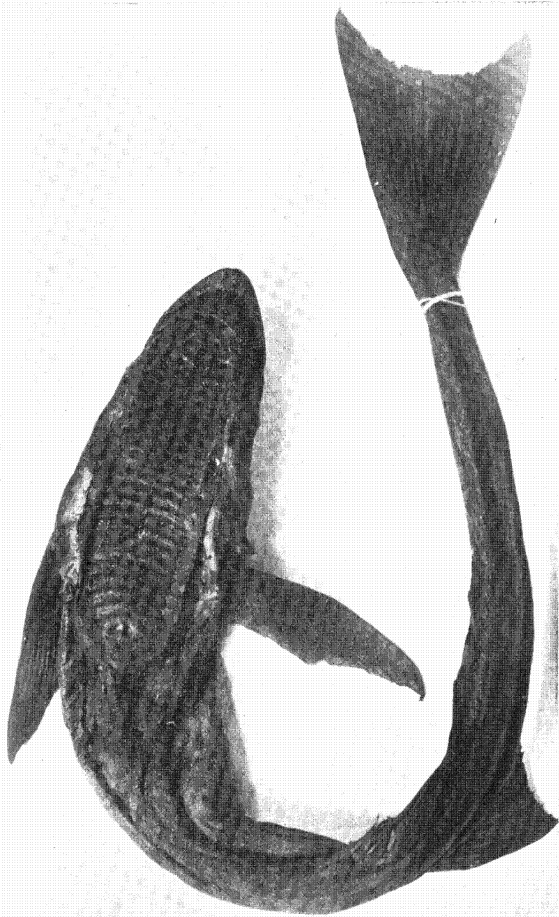


FIG. 23.—834. *Leptecheneis flaviventris* Seale.

## FAMILY PLEURONECTIDÆ.

**Platophrys mancus** (Broussonet).

- One specimen, No. 1353 B. M., from Tahiti.  
 One specimen, No. 1990 B. M., from Rarotonga, Cook Ids.  
 One specimen, No. 2499\* B. M., from Makatea, Paumotu Ids.  
 One specimen, No. 730 B. M., from Tubuai, Austral Ids.  
 Two specimens, Nos. 1292\* and 1218 B. M., from Shortland Id., Solomons.

## FAMILY SOLEIDÆ.

**Pardachirus pavonius** (Lacépède).

- One specimen, No. 898\* B. M., from Fatè, New Hebrides.

## FAMILY PTEROPSARIDÆ.

**Parapercis xanthozona** (Bleeker).

- One specimen, No. 1225 B. M., from Shortland Id., Solomons.

## FAMILY BLENNIIDÆ.

**Salarias edentulus** (Bloch).

- Two specimens, No. 855 B. M., from Fatè, New Hebrides.  
 One specimen, No. 2502\* B. M., from Makatea, Paumotu Ids.  
 Three specimens, Nos. 2341-2343 B. M., from Nukuhiva, Marquesas Ids.

**Salarias meleagris** Cuvier & Valenciennes.

- One specimen, No. 2338 B. M., from Nukuhiva, Marquesas Ids.

Eleven specimens, Nos. 2516-2526 B. M., from Makatea, Paumotu Ids.

**Salarias lineatus** Bleeker.

- One specimen, No. 1086\* B. M., from Fatè, New Hebrides.  
 This differs from Bleeker's description in having the orbital tentacle fringed instead of simple.

**Salarias coronatus** Günther.

- Two specimens, Nos. 2339-2340 B. M., from Nukuhiva, Marquesas Ids.

**Salarias quadricornis** Forster.

- One specimen, No. 802 B. M., from Mangareva Ids.  
 Three specimens, Nos. 1998\*2000 B. M., from Rarotonga, Cook Ids.

Forty-seven specimens, Nos. 2285-2331 B. M., from Nukuhiva, Marquesas Ids.

Thirteen specimens, Nos. 2503-2515 B. M. from Makatea, Paumotu Ids.

One specimen, No. 1679 B. M., from Rarotonga, Cook Ids.

***Salarias hasselti*** Bleeker.

One specimen, No. 1063 B. M., from Fatè, New Hebrides.

***Salarias caudolineatus*** (Günther).

One specimen, No. 2501\* B. M., from Makatea, Paumotu Ids.

One specimen, No. 2332 B. M., from Nukuhiva, Marquesas Ids.

***Salarias marmoratus*** Bennett.

Five specimens, Nos. 2333-2337 B. M., from Nukuhiva, Marquesas Ids.

***Salarias azureus*** Seale, new species.

Depth 4.50; head 4.30; eye 3.20; D. XII, 24; A. II, 22; interorbital 2 in eye; simple unfringed orbital tentacle slightly longer than width of interorbital, a similar one on nuchal region; a rather prominent tentacle at nostril with six fringes; no crest on head.

Body elongate cylindrical, without scales; lateral line strongly bent, 3.50 in length of fish without the caudal, it ends under the last dorsal spine; the anterior profile of head is almost vertical; mouth inferior; teeth numerous, pectinate, no canines; dorsal fin deeply notched, its origin is directly over the origin of the lateral line, the fin is attached to the caudal by a membrane, the longest spine is 1.75 in depth of fish; base of anal 1.90 in length of fish, its longest ray equal to longest dorsal spine; pectorals rounded, equal to length of head, tips of the rays free; caudal rounded, equal to the depth of the fish.

Color in life is uniform purplish, with a few scattered darker blotches.

Color in spirits, a striking livid blue, with six indistinct darker blue blotches along the back and sides; fins brown, with a slight wash of bluish; the dorsal with three lines of small brown dots along the margin and with fine oblique brownish lines on the soft dorsal; anal with a fine margin of pure white, and with a submarginal area of deep blue, two lines of blue dots along the middle of the fin; caudal, pectoral and ventral without markings.

One specimen, a female, No. 783 (Fig. 8) B. M., from Tubuai, Austral Ids. Length 4.50 in.

This species is nearly related to *S. quadricornis*.

***Salarias tubuensis*** Seale, new species.

Depth 5; head 5; eye 3.20; D. XIII, 21; A. 22; a fringed tentacle over nostril, and a simple orbital tentacle, less in length than width of interorbital space; no nuchal tentacle or crest.

Body elongate, cylindrical, without scales; lateral line but slightly curved, ending under the ninth dorsal spine, its length 3.50 in total length without caudal; profile and head slanting obliquely back to the inferior mouth, the opening of the mouth being below the eye; teeth fine, pectinate, no canines; dorsal fin deeply notched, its origin over the posterior margin of the opercles, longest dorsal spine 1.40 in head, the longest ray 1.20; base of anal 2.55 in length, its longest ray 1.70 in head; ventrals short, equal to the post ocular part of head; caudal square, equal to length of the head.

Color in spirits is a light blue, with seven bands of darker blue about as wide as interspaces, which extend over the back and down on sides, dividing below the median line into two; dorsal fin white with some indistinct pale blue spots on rays; anal white, with a pale blue intermarginal line, and a margin of white; pectorals and ventrals white.

One specimen, No. 784 (Fig. 8) B. M., from Tubuai, Austral Ids.

**Salarias cæsius** Seale, new species.

Depth 5.75; head 5.50; D. XIV, 17; A. II, 22; eye 3.50; orbital tentacle wide, with five fringes; its length less than eye; a dermal crest, the length of which is 2.30 in head.

Body elongate, cylindrical; lateral line short, slightly curved, ending under the sixth dorsal spine; depth of head equal to its width, 1.50 in its length; profile almost vertical, the upper portion not produced; mouth inferior; teeth numerous, small, pectinate, no canines; dorsal fin deeply notched, not continuous on to the caudal, its origin directly over the origin of the pectorals. base of anal 2.10 in length of head; ventrals 1.75 in length of head.

Color in spirits is a dull drab, with seven darker double bands which extend over the back and down the sides; three distinct oblique, brown lines on the side of throat; ventral surface with a slight tint of pale blue; a brown spot on the middle of the base of caudal, with a bluish band on the fin just posterior of the spot; six dusky blotches on the spinous dorsal, and four on the soft dorsal, these lines may extend as dots almost to the top of the fin; the anterior dark blotch at the base of first and third dorsal spines is the most distinct; anal white, with a pale blue intermarginal line; pectorals and ventrals white; iris blue.

The sexes are similar.

Five specimens, one male and four females. No. 785 B. M. is type of the species. From Tubuai, Austral Ids.

**Alticus saliens** (Lacépède).

Fourteen specimens, Nos. 2349-2362 B. M., from Nukuhiva, Marquesas Ids.

***Petroscirtes rhinorhynchus*** Bleeker.

One specimen, No. 1066 B. M., from Fatè, New Hebrides.

***Petroscirtes tapeinosoma*** Bleeker.

One specimen, No. 1044 B. M., from Fatè, New Hebrides.

One specimen, No. 1677 B. M., from Raiatea, Society Ids.

One specimen, No. 2265 B. M., from Nukuhiva, Marquesas Ids.

FAMILY ANTENNARIDÆ.

***Antennarius lutescens*** Seale, new species.

Depth 2; head 2.75; eye 8 in head, 3 in interorbital space; D. 1-1, 12; A. 8; P. 12; V. 5; skin rough; interorbital equal to the first dorsal spine (not tentacle).

Body compressed, caudal peduncle deep, 2.15 in head, its depth greater than length of the tentacle; head large, the upper profile roughened and with its anterior tip concave; mouth very large, wide open the distance between the tips of the jaws is equal to the length of the head; snout short, less than width of interorbital space; length of maxillary equal to distance from middle of eye to posterior margin of opercle; width of distal end of maxillary is greater than orbit; about two-thirds of the maxillary is exposed; length of mandible 1.20 in head, the knob at symphysis prominent; teeth in the jaws minute, those in the palatine slightly larger; two patches of cardiform teeth on upper and lower pharyngeals; the tentacle is of moderate length, 2.30 in head and reaching a little beyond the first dorsal spine, it has a single fleshy caruncle at the tip; the first dorsal spine (not tentacle) is equal to interorbital space and is less than depth of caudal peduncle, its origin is directly above middle of eye; the second dorsal spine is covered with a fleshy excrescence; length of the longest dorsal and anal rays about equal, 2 in head; length of ventrals 2.20 in head; caudal rounded, its length 3.20 in body.

Color in life, a uniform raw sienna yellow, no spots except a dusky blotch on inner side of pectoral fin.

One specimen, No. 1347 B. M., from Tahiti. Length 5.50 in.

This species is characterized by the large mouth, depth of caudal peduncle, shortness of tentacle, and more posterior location of the second dorsal spine, and the difference in coloring.

***Antennarius commersonii*** (Lacépède).

One specimen, No. 1220 B. M., from Shortland Id., Solomons.

***Antennarius hispidus*** Bloch.

One specimen, No. 1676 B. M., from Raiatea, Society Ids.





# INDEX TO VOLUME IV.

The pagination of the volume will be found at the bottom of the page.  
An asterisk denotes that the species or article is figured.

- Abudedefduf amabilis, 54.  
  behonii, 53.  
  caesio\*, 53.  
  coelestinus, 52.  
  Jordani\*, 53.  
  leucopomus, 54.  
  multifasciatus, 53.  
  saxatilis, 54.  
  septemfasciatus, 53.  
  sordidus, 53.  
  taupo, 54.  
  uniocellatus, 54.  
  zonatus, 55.  
Abutilon sp. (2), 329.  
Acanthochromis polyacanthus, 55.  
Acanthurus garretti, 67.  
  unicornis, 67.  
Acridotheres tristis, 147.  
Acrostichum calomelanos, 324.  
Æstrelata sandwichensis, 137.  
Alauda arvensis, 147.  
Albula vulpes, 5.  
Alticus saliens, 88.  
Amakihi, 160.  
Amaranthus spinosus, 324.  
Amblyapistus tænianotus, 83.  
Amia amboinensis, 32.  
  aroubiensis, 33.  
  novemfasciata, 32.  
  savayensis, 33.  
Anagallis arvensis, 330.  
Anampses cæruleopunctatus, 55.  
Anas wyvilliana, 144.  
Anethrum fœniculum, 330.  
Anguilla megastoma, 5.  
Anomalops palpebratus, 20.  
Anona cherimolia, 326.  
Antennarius commersonii, 89.  
  hispidus, 89.  
Antennarius leutescens\*, 89.  
Apapane, 158.  
Apium ammi, 329.  
  leptophyllum, 329.  
  petroselinum, 330.  
Arenaria rubra, 325.  
Asio accipitrinus sandwichensis, 146.  
Atherina lacunosa, 15.  
Attendance of visitors, 1907, 100.  
  1908, 182.  
  1909, 233.  
  1910, 305.  
Auku killed by mongoose, 145.  
Aulostomus valentini, 17.  
Australian coll., W. R. Castle, 235.  
Awaous crassilabris, 84.  
  puntangoides, 84.  
Balistes bursa, 73.  
  capistratus, 74.  
  chrysopterus, 73.  
  flavimarginatus, 73.  
  fuscus, 73.  
  niger, 73.  
  vidua, 73.  
Balistapus aculeatus, 74.  
  rectangulus, 74.  
  undulatus, 74.  
  verrucosus, 74.  
Belone annulata, 12.  
  platura, 12.  
Blackman, L. G., resigns, 93.  
Bone house at Moanalua, 130.  
Borabora petroglyphs, 294.  
Botanical accessions, 1909, 231.  
  1910, 305.  
Brassica campestris, 326.  
Brighan, W. T.:—  
  Annual Report, 1907, 93.



- Brigham, W. T.:—  
 1908, 179.  
 1909, 227.  
 1910, 303.  
 Curved adzes, 255.
- Bryan, W. A.:—  
 almost drowned, 150.  
 Birds of Molokai, 133.  
 departs, 93.  
 hunts the uau, 137.
- Buda marina, 325.  
 Buddleia asiatica, 330.
- Cæsalpinia sappan, 327.  
 Cæsio cæruleureus, 44.  
 Lunar, 44.  
 Cæsio teres\*, 45.  
 Callyodon balinensis, 60.  
 bataviensis, 60.  
 celebicus, 60.  
 cyanognathus, 60.  
 dimidiatus, 60.  
 dubius, 59.  
 dussumieri, 62.  
 erythron, 62.  
 fasciatus, 62.  
 lacerta, 60.  
 lepidus, 60.  
 macrocheilus, 60.  
 moensi, 63.  
 oviceps, 63.  
 pentazonus, 60.  
 pyrrhostethus, 60.  
 quoyi, 62.  
 strongylocephalus, 60.  
 ultramarinus\*, 63.  
 unicolor, 60.  
 waitei\*, 60.
- Canthigaster compressus, 79.  
 solandri, 79.
- Caranx forsteri, 32.  
 lugubris, 32.  
 melampygu, 32.
- Carcharias sorrah, 4.  
 Carduus lanceolatus, 332.  
 Carpodacus mexicanus, 148.
- Cartwright, B. Jr., loans collection,  
 309.  
 Carved stone lamp, 127.  
 Cassia chamæcrista, 327.  
 lævigata, 327.  
 Casts of fishes, 113.  
 Cephalopholis argus, 34.  
 miniatus, 35.  
 urodelus, 34.
- Ceremony at taking of fish, 210.  
 Ceropteris calomelanos, 324.  
 chrysophylla, 324.  
 Cestrum diurnum, 331.  
 Chætodon auriga, 64.  
 citrinellus, 65.  
 ephippium, 65.  
 flavirostris, 64.  
 gahhm, 66.  
 lineolatus, 64.  
 lunula, 64.  
 ornatissimus, 65.  
 pelewensis, 64.  
 reticulatus, 65.  
 semeion, 65.  
 setifer, 64.  
 ulietensis, 64.  
 unimaculatus, 65.  
 vagabundus, 64.
- Cheilinus digrammus, 58.  
 fasciatus, 58.  
 trilobatus, 59.
- Cheilio inermis, 57.  
 Chlorodrepanis kalaana, 160.  
 Chærops macrodon, 55.  
 Chromis axillaris, 55.  
 cæruleus, 55.
- Chrysanthemum leucanthemum, 333.  
 Cirsium lanceolatum, 332.  
 Cnicus lanceolatus, 332.  
 Conchological accessions, 1907, 104.  
 1908, 186.  
 1909, 231.  
 1910, 304.
- Connelly collection, 228, 235.  
 Convolvulus peltatus, 331.  
 Cooke, C. M.: Accessions of Pulmo-  
 nata, 231.

- Coris annulatus*, 57.  
     *ayula*, 56.  
     *caudimaculatus*, 57.  
*Coryphopterus criniger*, 84.  
*Corythoichthys sealei*, 17.  
     *waitei*, 17.  
*Crepis japonica*, 323.  
*Crotalaria saltiana*, 327.  
     *sericea*, 327.  
     *spectabilis*, 327.  
     *striata*, 327.  
*Ctenochaetus striatus*, 67.  
*Curved adzes*, Brigham, 255.  
*Cypselurus oligolepis*, 15,  
     *tahitensis*\*, 13.  
  
*Dascyllus aruanus*, 55.  
     *melanurus*, 55.  
*Deleastes dæctor*\*, 81.  
*Deverill collection purchased*, 99.  
     list of, 183.  
*Director's report*, 1907, 93.  
     1908, 179.  
     1909, 227.  
     1810, 303.  
*Dole, S. B.*, leaves the Board, 179.  
*Drepanorhamphus funereus*, 148.  
*Drymaria cordata*, 325.  
  
*Echidna amblyodon*, 12.  
     *polyzona*, 12.  
*Eleotris fusca*, 84.  
*Emilia flammea*, 333.  
*Epibulus insidiator*, 55.  
*Epilobium billardierianum*, 329.  
*Epinephelus cæruleopunctatus*, 36.  
     *corallicola*, 35.  
     *dæmelii*, 36.  
     *fasciatus*, 36.  
     *maculatus*, 35.  
     *merra*, 35.  
     *pachycentrus*, 36.  
     *undulosus*, 35.  
     *zapyrus*\*, 36.  
*Erodium cicutarium*, 328.  
*Erysimum officinale*, 326.  
  
*Erythræa centaurium*, 330.  
*Ethnological accessions*, 1907, 101.  
     1908, 183.  
     1909, 235.  
     1910, 306.  
*Eupatorium* sp., 333.  
*Euphorbia rockii*\*, 214.  
*Europterygius xanthopterus*, 11.  
*Exchange lists*, 1907, 110.  
     1908, 196.  
     1909, 251.  
     1910, 320.  
*Exocarpus luteolus*\*, 296.  
*Exocætus volitans*, 15.  
  
*Fish ponds*, 199, 207.  
*Fish traps*, Stokes, 199.  
*Fish weirs*, 199.  
     possible origin, 206.  
*Fishing by weirs*, 199, 206.  
*Fishing, superstitions*, 209, 211,  
*Fistularia depressa*, 17.  
     *petimba*, 17.  
*Fleminga abrupta*, 328.  
     *bracteata*, 328.  
     *fruticulosa*, 328.  
     *strobulifera*, 328.  
*Fœniculum vulgare*, 330.  
     *fœniculum*, 330.  
*Foot-prints cut in stone*, 278, 286, 289.  
*Forbes, Chas. N.*:—  
     Appointed, 179.  
     New plants, I, 213.  
     New plants, II, 296.  
     Naturalized plants, 323.  
     report herbarium, 305.  
*Forcipiger longirostris*, 64.  
*Fornander, Stokes index to*, 180.  
*Fregata aquila*, 144.  
*Fulica alai*, 145.  
  
*Gallinula sandvicensis*, 145.  
*Gentiana centaurium*, 330.  
*Geological specimens*, 237.  
*Geranium carolinianum*, 329.  
     *cutarium*, 328.

- Gnathodentex aurolineatus*, 45.  
*Gobius oligolepis*, 84.  
     *ornatus*, 84.  
*Gomphosus tricolor*, 58.  
*Grammistes sexfasciatus*, 38.  
*Gymnogramma calomelanos*, 324.  
*Gymnogramme calomelanos*, 324.  
*Gymnothorax chalazius*, 10.  
     *detactus*, 6.  
*Gymnothorax favagineus*, 7.  
     *flavomarginatus*, 9.  
     *marquesensis*\*, 10.  
     *nebulosus*, 6.  
     *nubilis*, 7.  
     *pictus*, 6.  
     *rhodocephalus*, 6.  
     *tahitensis*\*, 7.  
     *tenebrosus*, 7.  
     *thyrsoides*, 9.  
     *zonipectis*\*, 7.  
  
*Halichæres centiquadrus*, 56.  
     *modestus*, 56.  
     *notophthalmus*, 56.  
     *scapularis*, 56.  
     *solorensis*, 56.  
     *trimaculatus*, 56.  
*Halophylla ovalis*, 324.  
     *ovata*, 324.  
Hawaiian petroglyphs, 257, 284.  
*Heliosciadium leptophyllum*, 329.  
*Hemigymnus melapterus*, 55.  
*Hemiramphus affinis*, 13.  
     *australensis*\*, 12.  
     *commersoni*, 13.  
     *eclancheri*, 13.  
     *melanurus*, 13.  
     *platurus*, 13.  
*Heniochus chrysostomus*, 65.  
     *permutatus*, 65.  
*Hepatus achilles*, 66.  
     *elongatus*, 66.  
     *guttatus*, 67.  
     *lineatus*, 66.  
     *nigricans*, 66.  
     *olivaceus*, 66.  
     *triestegus*, 66.  
  
*Hesperomannia lydgatei*\*, 220.  
Higgins, Miss E. B., appointed Librarian, 304.  
Hilo petroglyphs, 278.  
*Himantopus knudseni*, 145.  
*Himatione sanguinea*, 158.  
Hina, 203, 210.  
*Holacanthus cyanotis*, 65.  
     *diacanthus*, 66.  
*Holacanthus flavissimus*, 65.  
     *imperator*, 65.  
     *lineolatus*, 65.  
     *loriculus*, 65.  
     *permutatus*, 65.  
*Holocentrus diadema*, 24.  
     *diploxiphium*, 24.  
     *ensifer*, 20.  
     *lacteoguttatus*, 20.  
     *microstomus*, 24.  
     *opercularis*, 24.  
     *pæcilopterus*, 24.  
     *praslin*, 20.  
     *punctatissimus*, 24.  
     *rubellio*, 22.  
     *spinifer*, 20.  
     *tiere*, 24.  
     *tiereoides*, 20.  
     *verticalis*, 22.  
     *Hologymnosus semidiscus*, 57.  
     *Holosteum cordatum*, 325.  
*Hypochæris radicata*, 333.  
  
Insect collections, 298.  
*Ipomæa cryseides*, 331.  
     *glaberrima*, 331.  
     *grandiflora*, 331.  
     *peltata*, 331.  
  
*Julis pulcherima*, 57.  
  
Kakawahia, 164.  
Kalaina wawae, 286.  
Kamalalawalu, 259, 269, 273.  
Kau petroglyphs, 273.  
Kauai petroglyphs, 257, 291.  
Kauaia, Kauaialua, 130.  
Kohala petroglyphs, 279.

- Kona petroglyphs, 259.  
*Kuhlia* malo, 34.  
     *tæniura*, 34.  
 Kuula, 203, 209, 211.  
*Kyphosus cinerascens*, 47.  
  
*Lapsana communis*, 333.  
*Lemna minor*, 324.  
*Leontodon taraxicum*, 333.  
*Lepidaplois axillaris*, 55.  
*Leptecheneis flaviventris*\*, 83.  
*Lethrinus* harak, 47.  
     *leutjanus*, 47.  
     *mahsena*, 47.  
     *moensii*, 47.  
*Leucanthemum vulgare*, 333.  
     Library accessions, 1907, 105.  
     1908, 186.  
     1909, 238.  
     1910, 310.  
*Liliuokalani* loans, relics of chiefs,  
     309.  
*Liza waigiensis*, 15.  
*Lo vulpinus*\*, 71.  
 Loko, 199.  
*Lophortyx californica*, 146.  
*Lutianus bengalensis*, 43.  
     *bohar*, 44.  
     *fulviflamma*, 43.  
     *fulvus*, 40.  
     *fuscescens*, 43.  
     *gibbus*, 41.  
     *marginatus*, 41.  
     *melanesiæ*\*, 43.  
     *monostigma*, 40.  
     *nukuhivæ*\*, 40.  
     *russellii*, 43.  
     *semicinctus*, 43.  
     *tahitiensis*\*, 40.  
*Lysimachia longispala*\*, 222.  
  
*Macropharyngodon meleagris*, 56.  
*Malva caroliniana*, 329.  
 Mapo soporator, 84.  
*Medicago apiculata* 328.  
     *denticulata*, 328.  
     *intertexta*, 328.  
  
*Megalops cyprinoides*, 4.  
*Melilotus indica*, 328.  
     *minima*, 328.  
     *parviflora*, 328.  
     *regulosa*, 328.  
*Merinthe haplodactyla*, 79.  
*Micranous hawaiiensis*, 137.  
*Modiola caroliniana*, 329.  
     *multifida*. 329.  
  
 Moho bishopi, 170.  
 Molokai birds, Bryan, 133.  
 Molokai petroglyphs, 257, 284, 290.  
*Momordica charantia*, 332.  
*Monacanthus fatensis*\*, 74.  
     *spilosomus*, 75.  
*Monotaxis grandoculis*, 46.  
 Moorings drilled in boulders, 273.  
*Moringua javanica*, 12.  
*Mugil cephalus*, 17.  
     *kelaartii*, 15.  
*Mulloides auriflamma*, 48.  
     *flammeus*, 48.  
     *ruber*, 48.  
     *samoensis*, 47.  
*Munia nisoria*, 148.  
*Myripristis adustus*, 26.  
     *microphthalmus*, 28.  
     *murdjan*, 26.  
     *phæopus*\*, 28.  
     *sanguineus*\*, 26.  
*Myxus leuciscus*, 15.  
  
 New Hawaiian plants, Forbes, 213.  
*Nicotiana tabacum*, 331.  
 Niihau petroglyphs, 293.  
*Nycticorax nycticorax* ~~nævius~~, 145.  
  
 Oahu petroglyphs, 257, 258, 290.  
*Odontogobius phalæna*, 84.  
 Olomao, 171.  
*Oreomystis flammea*, 164, 167\*.  
 Ornithological accessions, 1907, 103.  
*Ostracion auricauda*\*, 77.  
     *chryseres*\*, 75.  
     *cornutum*, 75.  
     *dexteri*\*, 75.

- Ostracion lentiginosum*, 79.  
     *renardi*, 77.  
     *sebae*, 77.  
     *tuberculatum*, 77.  
 Ou, 166.  
  
 Pakule, 201.  
*Palmeria dolei*, 158.  
*Pa makiawa*, 201.  
*Paracanthistius maculatus*, 35.  
*Paracirrhites forsteri*, 51.  
*Paramia quinquelineata*, 33.  
*Parapercis xanthozona*, 86.  
*Pardachirus pavonius*, 86.  
*Passiflora edulis*, 329.  
     *foetida*, 329.  
*Pelor didactylura*, 83.  
*Pempheris mangula*, 32.  
*Pentapus vittatus*, 46.  
*Periophthalmus barbarus*, 84.  
*Petroglyphs*, Borabora, 294.  
     cutting, 261.  
     Hawaii, 2575, 284.  
     Hilo, 278.  
     Kau, 273.  
     Kauai, 257, 291.  
     Kohala, 279.  
     Kona, Hawaii, 259.  
     Molokai, 257, 284, 290.  
     Niihau, 293.  
     Oahu, 257, 290.  
     Puna, 278.  
     Stokes, J. F. G., 257.  
     Tubuai, 293.  
*Petrosirtes rhinorhynchus*, 89.  
     *tapeinosoma*, 89.  
*Phæornis rutha\**, 171.  
*Phaëthon leptopus*, 144.  
*Phallic emblem*, 266.  
*Phallic stone* ♀, 101.  
*Pharopteryx nigricans*, 38.  
*Phasianus versicolor*, 146.  
     *torquatus*, 146.  
*Plantago lanceolata*, 332.  
*Platax orbicularis*, 63.  
*Platophrys mancus*, 86.  
*PlatyGLOSSUS marginatus*, 56.  
  
*Plotosus anguillaris*, 12.  
*Polycarpon tetraphyllum*, 325.  
*Polydactylus plebeius*, 18.  
*Pomacentrus cyanospilus*, 52.  
     *lividus*, 52.  
     *nigricans*, 52.  
     *notophthalmus*, 52.  
     *pavo*, 52.  
     *scolopsus*, 52.  
     *teinurus*, 52.  
*Pomacentrus tripunctatus*, 52.  
*Portulaca flava*, 325.  
     *lutea*, 325.  
*Priacanthus cruentatus*, 38.  
     *hamruhr*, 38.  
*Pristiapogon koilomatodon*, 33.  
     *snyderi*, 33.  
*Promethichthys pacificus\**, 28.  
*Prunella vulgaris*, 331.  
*Pseudupeneus aurantiacus*, 48.  
     *barberinus*, 49.  
     *bifasciatus*, 51.  
     *chryserydros*, 51.  
     *moana*, 48.  
     *pleurospilos*, 51.  
     *porphyreus*, 51.  
*Psittirostra psittacea*, 166.  
*Pterois antennata*, 83.  
*Pueo nesting*, 146.  
*Puffinus newelli*, 143.  
*Puna petroglyphs*, 278.  
  
*Querimana crenilabris*, 15.  
  
*Ranunculus hawaiiensis*, 326.  
     *mauiensis*, 326.  
     *parviflorus*, 326.  
*Rhaphanus sativus*, 326.  
*Relics of chiefs*, 238, 309,  
*Reports, Director's*, 1907, 93.  
     1908, 179.  
     1909, 227.  
     1910, 303.  
*Rosa* sp., 327.  
*Rubus jamaicensis*, 327.  
*Rumex acetosella*, 324.  
     *patentia*, 325.

- Salarias azureus\**, 87.  
   *cæsius\**, 88.  
   *caudolineatus*, 87.  
   *coronarius*, 86.  
   *edentulus*, 86.  
   *hasselti*, 84.  
   *lineatus*, 86.  
   *marmoratus*, 87.  
   *meleagris*, 86.  
*Salarias quadricornis*, 86.  
   *tubuensis\**, 87.  
*Sardinella kunzei*, 5.  
*Saurida gracilis*, 5.  
*Scarichthys auritus*, 59.  
   *cæruleopunctatus*, 59.  
   *rarotongæ\**, 59.  
 Schupp, Miss E.—  
   appointed, 93, 98.  
   resigns May, 1910, 304.  
*Scolopsis, bilineata*, 45.  
   *monogramma*, 45.  
   *temporalis*, 45.  
   *trilineata*, 45.  
*Scorpæna cooki*, 79.  
*Scorpænopsis quiescens*, 80.  
 Sculpture in relief, Stokes, 221.  
*Scuticaria marmorata*, 12.  
   *tigrina*, 11.  
 Seale, A., Fishes of S. Pacific, 3.  
*Sebastapistis, baillieui*, 80.  
   *guamensis*, 80.  
   *strongensis*, 80.  
*Senecio vulgaris*, 334.  
 Shark pen, 201, 212.  
*Sherardia arvensis*, 332.  
*Siganus doliatus*, 69.  
   *marmoratus*, 71.  
   *rostratus*, 67.  
   *shortlandensis\**, 69.  
   *striolatus*, 69.  
   *verrucosus*, 69.  
   *zoniceps\**, 69.  
*Sison ammi*, 329.  
*Sisymbrium officinale*, 326.  
   Skylark common on Molokai,  
   147.  
*Solanum sodomæum*, 332.  
*Spergularia media*, 325.  
   *salina*, 325.  
*Spheroides hypselogenion*, 79.  
   *oblongus*, 79.  
*Sphyræna goodingi\**, 18.  
   *obtusata*, 18.  
*Spilopelia chinesis*, 146.  
*Stethojulis casturi*, 56.  
 Stokes, J. F. G.:—  
   Hawaiian Petroglyphs, 257.  
   Stone sculpture in relief, 121.  
   Walled Fish-traps of Pearl Har-  
   bor, 199.  
*Stolephorus delicatulus*, 5.  
 Stone sculpture in relief, 121.  
 Sturtevant, H. F. dies, 93.  
 Superstitions of fishermen, 209, 211.  
 Swezey, O. H.:—  
   Insect collections in Museum, 298.  
   appointed, 93.  
*Synanceia, verrucosa*, 81.  
*Synodus varius*, 5.  
  
*Taraxicum dens-leonis*, 333.  
   *officinale*, 333.  
*Terapon jarbua*, 45.  
*Tetragonia cornuta*, 334.  
   *expansa*, 334.  
   *halimifolia*, 334.  
   *inermis*, 334.  
   *quadricornis*, 334.  
*Tetraodon aerostaticus*, 79.  
   *immaculatus*, 79.  
   *lachrymatus*, 79.  
   *setosus*, 79.  
*Thalassoma, aneitense*, 57.  
   *dorsale*, 57.  
   *duperreyi*, 57.  
   *fuscum*, 57.  
   *lunare*, 57.  
   *punctatum*, 57.  
   *schwanefeldii*, 57.  
   *umbrostigma*, 57.  
*Thalliurus chlorourus*, 58.  
*Thunbergia alata*, 332.  
   *aurantiaca*, 332.  
*Tissa marina*, 325.

- Trachinocephalus myops, 5.  
 Trifolium indicum, 328.  
     melilotus, 328.  
     repens, 328.  
 Toxotes jaculator, 63.  
 Trachurops crumenophthalmus, 30.  
 Trachyrhamphus sp., 17.  
 Tubuai petroglyphs, 293.  
 Tylosurus choram, 12.  
     giganteus, 12.  
  
 Uau, 137.  
 Upeneus vittatus, 51.  
 Uropterygius concolor, 11.  
  
 Variola louti, 35.  
 Vestiaria coccinea, 155.  
  
 Viola helena\*, 218.  
     oahuensis\*, 216.  
 Walled Fish-traps, 199.  
 Westervelt, Rev. W. D., gives Mexi-  
     can antiquities, 304.  
  
 Xanthichthys rivulatus, 73.  
 Xystæma argyreum, 51.  
 Yap money\*, 102.  
  
 Zanclus canescens, 66.  
 Zebrasoma flavescens, 67.  
     veliferum, 67.  
 Zinnia pauciflora, 333.







N  
70  
53

OCCASIONAL PAPERS

OF THE

BERNICE PAUHI BISHOP MUSEUM OF  
POLYNESIAN ETHNOLOGY AND  
NATURAL HISTORY.

VOL. IV.—No. 5.

Director's Report for 1910.

WITH

INDEX TO VOL. IV.

---

HONOLULU, H. I.  
BISHOP MUSEUM PRESS.

1911

## BOARD OF TRUSTEES

ALBERT F. JUDD..... President  
E. FAXON BISHOP..... Vice-President  
J. M. DOWSETT..... Treasurer  
ALFRED W. CARTER..... Secretary  
HENRY HOLMES, SAMUEL M. DAMON, WILLIAM O. SMITH

---

## MUSEUM STAFF

WILLIAM T. BRIGHAM, Sc.D. (Columbia)..... Director  
WILLIAM H. DALL, Ph.D. .... Honorary Curator of Mollusca  
JOHN F. G. STOKES ..... Curator of Polynesian Ethnology  
C. MONTAGUE COOKE, Ph.D. (Yale)..... Curator of Pulmonata  
OTTO H. SWEZEY ..... Honorary Curator of Entomology  
CHARLES N. FORBES ..... Curator of Botany  
JOHN W. THOMPSON ..... Artist and Modeler  
MISS E. B. HIGGINS ..... Librarian  
JOHN J. GREENE ..... Printer  
AUGUST PERRY ..... Assistant Printer

---

JAMES KALEI ..... Janitor  
WILLIAM AIPC ..... Janitor

# PUBLICATIONS OF THE BERNICE PAUAAHI BISHOP MUSEUM

(All previous price lists are hereby cancelled.)

**A Handbook for the Bishop Museum.** Oblong octavo, 94 half-tone illustrations. Price 25 cts., postage 9 cts.

**Index to Abraham Fornander's "Polynesian Race."** By John F. G. Stokes. Price \$1.75, postage 5 cts.

**Occasional Papers, Vol. I.** Octavo.

**No. 1. Director's Report, 1898.** Visits to Ethnological museums in a journey around the world. [Out of print.]

**No. 2. Director's Annual Report, 1899.** Mat Sails of the Pacific—Stokes. Ray-skin Rasps—Walcott. Notes on the Birds of Oahu—Seale. Price 50 cts., postage 4 cts.

**No. 3. Director's Annual Report, 1900.** Visit to the American museums—Stokes. Mission to Guam—Seale. Notes on the Birds of Kauai—Bryan and Seale. Price \$1.00, postage 8 cts.

**No. 4. New Hawaiian Fishes—Seale.** Price 75 cents, postage 2 cts.

**No. 5. Director's Annual Report, 1901, and Index to Vol. I.** Illustrations of sperm whale and bird groups. Price 50 cts., postage 4 cts.

**Occasional Papers, Vol. II.**

**No. 1. Director's Annual Report, 1902.** Noteworthy Hawaiian Stone Implements—Brigham. Fibres of the Hawaiian Islands—Blackman. Distribution and Variation of *Achatinella multizonata*—Cooke. Monograph of Marcus Island—Bryan. Price \$1.00, postage 7 cts.

**No. 2. Director's Annual Report, 1903.** Remarks on Phallic Stones from Rapanui—J. L. Young. Aboriginal Wooden Weapons of Australia—Blackman. Price 40 cts., postage 4 cts.

**No. 3. Director's Annual Report, 1904.** Australian Bark Canoe—Brigham. A Stone Dagger for Duelling—Brigham. Notes on the Birds of the Waianae Mountains—Bryan. Additional Notes on the Nesting Habits of the Hawaiian Owl—Bryan. Description of the Nest and Eggs of *Chlorodrepanis virens* (Gmel.)—Bryan. Notes on the American Birds Collected in the Hawaiian Islands by Mr. Gerrit Wilder—Bryan. A Bird's Nest of Pele's Hair—Bryan. Two Undescribed Nests and an Egg of a Hawaiian Bird—Bryan. Price 50 cts., postage 4 cts.

**No. 4. Director's Annual Report, 1905.** Three New Hawaiian Fishes—Bryan. Report of a Visit to Midway Island—Bryan. Nest of Hawaiian Hawk—Bryan. Price 50 cts., postage 3 cts.

**No. 5. Director's Annual Report, 1906, and Index to Vol. II.** Dr. Cooke's Report on Types of Hawaiian Land Shells. Price 20 cts., postage 3 cts.

**Occasional Papers, Vol. III.**

**No. 1.** Reprint of Original Descriptions of *Achatinella*. By E. W. Thwing. Price \$1.50, postage 9 cts.

**No. 2.** Notes on Hawaiian Land Shells—Pilsbry and Cooke. Price 25 cts., postage 2 cts.

(OVER)

## PUBLICATIONS—Continued.

### Occasional Papers, Vol. IV.

- No. 1.** Fishes of the South Pacific—Scale. Price \$1.00, postage 5 cts.
- No. 2.** Director's Annual Report, 1907. Casts of Hawaiian Fishes, made by John W. Thompson. Stone Sculpturings in Relief—Stokes. Some Birds of Molokai—Bryan. Price 75 cts., postage 5 cts.
- No. 3.** Director's Annual Report, 1908. Walled Fish Traps of Pearl Harbor—Stokes. Some New Hawaiian Plants—Forbes. Price 40 cts., postage 3 cts.
- No. 4.** Director's Annual Report, 1909. Hawaiian Curved Adzes—Brigham. Notes on Hawaiian Petroglyphs, I—Stokes. New Hawaiian Plants, II—Forbes. Summary of the Collection of Insects in the Museum—Swzey. Price 85 cts., postage 4 cts.
- No. 5.** Director's Annual Report, 1910, and Index to Vol. IV. Notes on the Naturalized Flora of the Hawaiian Islands—Forbes. Price 25 cts., postage 5 cts.

### Memoirs, Vol. I. Quarto.

- No. 1.** Hawaiian Feather Work. By Wm. T. Brigham. Price \$2.50, postage 14 cts.
- No. 2.** Index to the Islands of the Pacific. By Wm. T. Brigham. Price \$1.50, postage 20 cts.
- No. 3.** Key to the Birds of the Hawaiian Group. By Wm. Alanson Bryan. Price \$1.50, postage 13 cts.
- No. 4.** Ancient Hawaiian Stone Implements. By Wm. T. Brigham. Price \$2.50, postage 20 cts.
- No. 5.** Supplement to Hawaiian Feather Work, with Index to Vol. I. By Wm. T. Brigham. Price 75 cts., postage 8 cts.

### Memoirs Vol. II.

- No. 1.** Hawaiian Mat and Basket Weaving. By Wm. T. Brigham.—Hawaiian Nets and Nettings. By J. F. G. Stokes. Price \$3.00, postage 20 cts.
- No. 2.** Old Hawaiian Carvings—By Wm. T. Brigham. Price 50 cts., postage 5 cts.
- No. 3.** The Ancient Hawaiian House. By Wm. T. Brigham. Price \$3.00, postage 25 cts.
- No. 4.** The Volcanoes of Kilauea and Mauna Loa. By Wm. T. Brigham. Price \$3.50, postage 30 cts.

### Memoirs, Vol. III.

- Ka Hana Kapa: The Making of Bark-Cloth in Hawaii.** By Wm. T. Brigham. With 29 color plates. Price \$12.50, postage 60 cts.









**THE UNIVERSITY OF MICHIGAN  
GRADUATE LIBRARY**

**DATE DUE**

~~APR 19 1977~~  
APR 19 1977

BOUND

UNIVERSITY OF MICHIGAN



3 9015 03472 7126

JUL 18 1933

UNIV. OF MICH.  
LIBRARY

*Filed by* Preservation

BOOK CARD  
DO NOT REMOVE

A Charge will be made  
if this card is mutilated

M-B11634

or not returned  
with the book

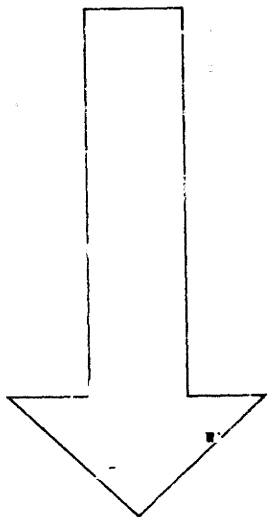


GRADUATE LIBRARY  
THE UNIVERSITY OF MICHIGAN  
ANN ARBOR, MICHIGAN

BERNICE-PAJG  
SERIALS

**GL**

001  
N-670-553-VU4



6L

BERNICE  
PULAH  
BISHOP  
MUSEUM  
OF  
POLYNESIAN  
ETHNOLOGY  
AND  
NATURAL  
HISTORY  
OCCASIONAL  
PAPERS

4

1906-11

GN

670

.B.3

