

# ON A COLLECTION OF FISHES FROM FIJI, WITH NOTES ON CERTAIN HAWAIIAN FISHES.

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On returning from New Zealand in 1907 the senior author made a small collection of fishes from the coral reef at Suva, the capital of Fiji. A larger collection from the same place was sent later by Dr. Bolton Glanville Corney, surgeon of the British Government, resident at Suva, to whom we are indebted for special favors. A series of specimens is in the United States National Museum and in Stanford University.

The fish fauna of the Fiji Islands is evidently in the main identical with that of Samoa. But even in this small collection certain differences appear, and these distinctions approximate it to the fauna of New Guinea and of the East Indies. *Lutianus aurcorittatus* and *Leiognathus smithursti* have been hitherto known only from New Guinea, while *Xystama kopus* and *Rastrelliger brachysomus* have been recorded from the East Indies only. A single species, *Abudefduf corneyi*, seems to be new to science. A few notes on rare Hawaiian fishes, taken on the same trip, are included. These are not numbered in the series.

## Family CARCHARIIDÆ.

### 1. CARCHARIAS INSULARUM Snyder.

Two partly grown sharks, each about 8 feet long, were taken with a hook from the steamer *Moana* near the equator in the open sea between the atoll called Mary Island and Fiji.

They were gray in color, with conspicuous whitish tips to all the fins. Snout very short and blunt, broader than long; teeth strongly serrate, not notched on the outer margin; pectoral very long, reaching the posterior axis of the very high dorsal; anal and second dorsal small, subequal.

The snout in these specimens seems more blunt than in the figure published by Professor Snyder, but they seem to belong to no other known species.

## Family PLOTOSIDÆ.

## 2. PLOTOSUS ANGUILLARIS (Bloch).

One large specimen, brown, without distinct stripes.

## Family MURÆNESOCIDÆ.

## 3. MURÆNESOX CINEREUS (Forskål).

Common in the Suva market.

## Family MURÆNIDÆ.

## 4. GYMNOTHORAX PICTUS (Ahl).

One specimen.

## 5. ECHIDNA NEBULOSA (Ahl).

One specimen.

## MURÆNA KAILUÆ Jordan and Evermann

(*Muræna kailua* and *Muræna lampra* JENKINS.)

Of this species (not seen at Fiji) we have one specimen from the market of Honolulu by Mr. Louis Berndt. It has broad, irregular, white bands on ventral region of throat and belly, their width somewhat less than diameter of eye. The brown interspaces posteriorly are about twice as wide as the bands; anteriorly they grow narrower, appearing on the throat as dark bands on a white background. The white spots on the sides are like those of the type of *M. kailua*, round and bordered by dark rings, and they do not become elongate until near end of tail. On the sides the dark spots are distinct as in *M. kailua* Jenkins. This example embodies the characters of *M. kailua* and *M. kailua*, leaving no doubt as to their identity.

## Family EXOCÆTIDÆ.

## 6. CYP SILURUS OGILBYI Jordan and Snyder, new species.

Head measured to end of opercular flap,  $4\frac{1}{2}$  in length to base of caudal; width of body at base of pectorals  $7\frac{1}{2}$ ; depth  $5\frac{2}{3}$ ; depth caudal peduncle  $3\frac{1}{2}$  in head; eye 3; interorbital space  $3\frac{1}{8}$ ; snout  $3\frac{5}{8}$ ; D. 13; A. 9; P. 16; scales in lateral series 50; between occiput and base of dorsal, 27.

Tip of pectoral fin formed by branches of third ray, reaching when depressed to tip of posterior ray of dorsal and anal, but falling considerably short of base of caudal. First ray simple, half as long as fin; second ray branched, the lower branch exceeding the upper in length by a distance equal to a third of the first ray, the

upper branch extending beyond tip of first ray, a distance which is contained two and one-half times in length of the latter; ventrals inserted midway between base of caudal and posterior margin of eye; reaching posteriorly almost to end of base of anal; tip of fin formed by end of third ray. Insertion of dorsal anterior to that of anal, almost midway between the latter and bases of ventrals; the second ray longest,  $2\frac{1}{10}$  in head; the other rays consecutively shorter; the last when depressed reaching a point midway between its base and that of caudal; base of fin contained  $1\frac{1}{4}$  in head. Anal similar in shape to dorsal, the longest (second) ray contained three times in head. Gillrakers on lower half of arch, 15, flat and acutely pointed, the anterior four or five very small or rudimentary. Lateral line apparently ending midway between anal and caudal. Teeth on jaws very weak, scarcely evident; none on palatines.

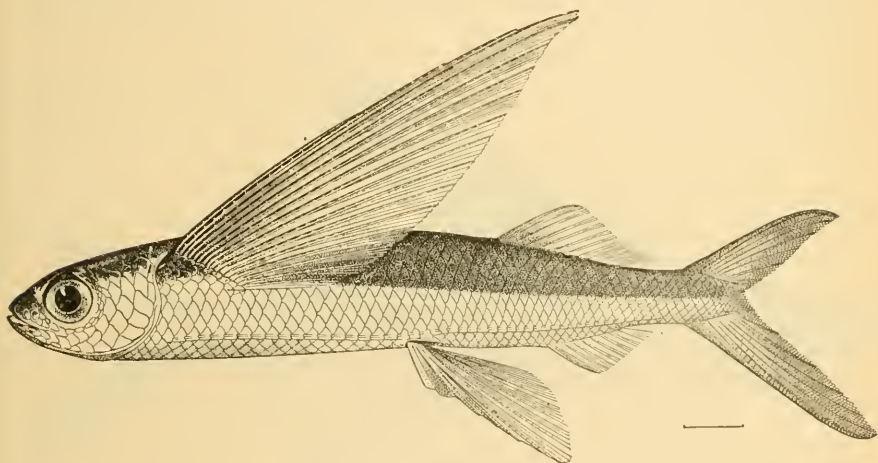


FIG. 1.—*CYPSILURUS OGILBYI*.

Color metallic steel blue above, sides and lower surfaces pearly white; dorsal edges of upper four or five pectoral rays dusky; the lower ones dusky at bases and toward tips, the middle portions light, giving the effect of a median light area on ventral surface of fin; upper edge of base of pectoral dusky; dorsal and anal immaculate; caudal dusky, with a broad, slightly darker margin; anterior rays of ventral slightly dusky above; upper part of axil of fin dusky.

One specimen, the type, Cat. No. 62229, U.S.N.M., measuring 350 mm., was obtained by Doctor Jordan, it having flown aboard the steamer *Moana* some miles to the westward of Walpole Island, the nearest land otherwise being the New Hebrides.

Named for James Douglas Ogilby, of Brisbane, Australia, who assisted us in comparison of this example with the flying fishes known from Australia.

## CYPSILURUS SPILONOPTERUS (Bleeker).

(*Cypsilurus bahiensis* JORDAN and EVERMANN, Fishes Hawaii, p. 136, perhaps not *Erocatius bahiensis* RANZANI, an Atlantic species.)

Head measured to end of opercular flap,  $4\frac{1}{6}$  in length to base of caudal; width of body at base of pectorals  $6\frac{1}{5}$ ; depth  $5\frac{1}{2}$ ; depth of caudal peduncle  $3\frac{1}{2}$  in head; snout  $3\frac{1}{2}$ ; D. 13; A. 10; P. 13; scales in lateral series 43; above origin of ventral, counting upward and forward 10; between occiput and base of dorsal 29.

Interorbital region concave, the width contained two and one-half times in head. Teeth present on jaws and palatines. Gillrakers on lower half of arch 17, the length of longest contained about one and two-thirds times in longest filaments. First pectoral ray simple, its length contained  $1\frac{2}{3}$  in fin,  $2\frac{2}{5}$  in head and body; second ray branched, the lower part almost equal in length to third ray, which forms the

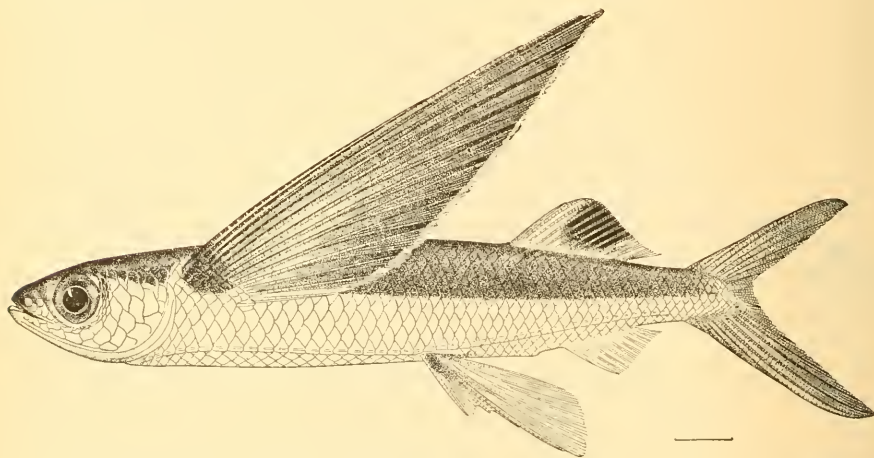


FIG. 2.—CYPSILURUS SPILONOPTERUS.

tip of fin, the latter extending beyond tips of posterior rays of depressed dorsal and anal, but not reaching base of caudal; branches of second ray simple, the lower exceeding the upper in length by a distance contained six and one-half times in length of ray, four times in length of first ray; branches of third ray divided. Longest (third) ray of ventral extending to base of sixth anal ray, the second branch of second ray somewhat shorter. Anal inserted below base of seventh dorsal ray; height of longest ray  $3\frac{1}{3}$  in head. Longest (third) dorsal ray  $2\frac{1}{10}$  in head; last ray not produced; neither dorsal nor anal reaching base of caudal when depressed. Dorsal lobe of caudal, measured along upper edge,  $3\frac{1}{3}$  in the length.

Color in spirits, brownish above, silvery below; pectorals with a broad, brown border and a light edge; basal portion of fin brownish, the broad space in middle of fin light. Dorsal with a large black spot

between third and tenth rays, extending upward to the edge but not reaching downward to base of fin. First, second, and third ventral rays dusky above, the color deepening toward their bases. Anal immaculate. Caudal brownish, with a rather darker edge. Seen at Hawaii and southward in the sea.

The species described by Bleeker from the East Indies has been identified by Bleeker, by Lütken, by Günther, and Jordan and Evermann, with *Exocætus bahiensis* Ranzani, from Bahia, Brazil. No one has yet made a comparison of specimens. No good description of *Cypsilurus bahiensis* exists, and in the best of these accounts (that of *Exocætus vermiculatus* Poey, from Havana) shows some discrepancies. Meanwhile it seems best provisionally to regard the Pacific species as distinct. We here present a good figure of it.

We may here note that the species figured by Jordan and Seale (Fishes of Samoa, p. 209, fig. 121), as *Cypsilurus unicolor* is probably not the *Exocætus unicolor* of Cuvier and Valenciennes (XIX, p. 97), which is more like *E. oxycephalus* Bleeker. We are, however, unable to separate the Samoan species from *Exonautes* or *Cypsilurus gilberti* Snyder, from Hawaii.

#### Family MUGILIDÆ.

##### 7. LIZA MELINOPTERA (Cuvier and Valenciennes).

In the market at Suva.

##### 8. LIZA CÆRULEOMACULATA (Lacépède).

One specimen, common in the market at Suva.

#### Family POLYNEMIDÆ.

##### 9. POLYDACTYLUS PLEBEIUS (Broussonet).

Common in the market at Suva.

#### Family HOLOCENTRIDÆ.

##### 10. HOLOCENTRUS PUNCTATISSIMUS (Cuvier and Valenciennes).

*Holocentrus diplocephalus* GÜNTHER.

One specimen from Suva.

#### Family SCOMBRIDÆ.

##### RASTRELLIGER Jordan and Starks, new genus.

The mackerel called *Scomber brachysomus* by Bleeker is the type of a distinct genus, *Rastrelliger* Jordan and Starks, distinguished

from *Scomber* by the excessively long and numerous gillrakers (*rastrella*), longer than eye, the mouth looking as if "full of feathers," by the compressed, deep body, and by the feeble dentition, the teeth in the jaws being very minute, and the vomer and palatines toothless.

*Scomber kanagurta* Cuvier and Valenciennes seems to be a second species of this genus and *S. microlepidotus* Rüppell a third. *Scomber loo* (Cuvier and Valenciennes), another South Sea species, with a row of dark spots on the side, is also a species of *Rastrelliger*. It is distinct from *Rastrelliger brachysomus* and apparently from *R. kanagurta* also. The following osteological differences separating *Rastrelliger* from *Scomber* have been worked out by Professor Starks:

The cranium in *Rastrelliger* is less depressed than in *Scomber*, though it does not differ in the crests and ridges of the cranium from that genus. The epiotics appear to meet very broadly posteriorly, but close examination reveals a slender spur from the supraoccipital extending down between them to the exoccipital suture. The top of the cranium in front of the oblique ridge that runs from the supraoccipital to the supraorbital rim is finely sculptured and thickened by a network of fine ridges where in *Scomber* the bone is smooth. The foramen magnum forms a long tunnel of the exoccipitals, as in *Scomber*, and the condition of the exoccipitals over the basioccipital and their condyles is the same.

The mandible and maxillary elements are much weaker than in *Scomber*. The premaxillary is a long slender bone from which the maxillary arches widely away, being attached to it only at each end; auxiliary maxillary is small. The most striking difference between this genus and *Scomber* lies in the arrangement of the lateral bones of the skull and the basibranchials. The pterygoid normally (as in *Scomber*) is attached along the anterior edge of the quadrate, at the upper end of which it bends at an angle forward to support the palatine; the metapterygoid is behind and a little above the quadrate. In *Rastrelliger* the metapterygoid is above and somewhat in front of the quadrate, and the pterygoid borders the entire front of both the quadrate and metapterygoid, turning at an angle at the upper edge of the latter.

The basibranchials form a high, sharp, knife-like ridge, while the hypobranchials are deep and compressed and help to elevate the basibranchials still higher. The second and third superior pharyngeals are joined into a single plate a little more firmly and completely than in *Scomber*. The branchial arches are crowded backward against and between the shoulder girdle, and all of the bones of the head give the impression of having been drawn downward and backward and compressed.

There are 14 abdominal vertebrae and 16 caudal, or a total of 31 with the hypural. The vertebral elements are arranged as in *Scomber*, as are the other elements with the above exceptions.

*Type of the genus.*—*Scomber brachysomus* Bleeker.

11. RASTRELLIGER BRACHYSOMUS (Bleeker).

*Scomber brachysomus* BLEEKER, Makruele, p. 356.

Two large specimens.

Head  $3\frac{3}{4}$  in length to end of caudal; depth  $3\frac{1}{4}$ ; eye  $4\frac{1}{4}$  in head. D. IX, I-11-V; A. I-11-V. Scales 130, small (though larger than in *Scomber*), not forming a corselet; irregular in arrangement above the ventral fins, enlarged below axillary region. Body compressed, deep; head pointed, unsealed; adipose eyelid conspicuous, covering the anterior and posterior third of the eye and extending forward and backward over the head; preorbital three-fourths diameter of eye; mouth large, the maxillary slipping under the preorbital and

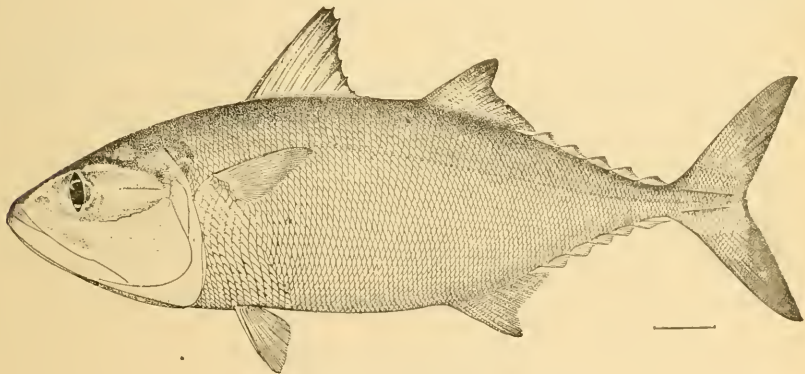


FIG. 3.—RASTRELLIGER BRACHYSOMUS.

reaching to a perpendicular from a point somewhat beyond the middle of the eye; lower jaw projecting; teeth minute, in a single row on the jaws, lacking on vomer and palatines. Opercle short, its posterior border relatively straight; gill rakers  $23+44$ , unusually long, the longest  $2\frac{1}{8}$  in head (nearly equal to length of pectoral fin).

Dorsals not connected by a groove; second and third dorsal spines  $1\frac{1}{2}$  in head, nearly one-half the depth of the body; pectoral short, one-half head, slightly longer than ventrals; caudal peduncle with two small keels on each side; depth of caudal fin 4 in width.

Color in alcohol dark with silvery reflections above lateral line, light and coppery below; dorsal fins, pectorals, and caudal margined with black; ventrals and anals yellowish, unmarked.

12. *SCOMBEROMORUS COMMERSONII* (Lacépède).

In the market at Suva.

## Family CARANGIDÆ.

13. *CARANX FORSTERI* (Cuvier and Valenciennes).

Common in the market at Suva.

## Family LEIOGNATHIDÆ.

14. *LEIOGNATHUS EDENTULA* (Lacépède).

Two large examples.

15. *LEIOGNATHUS SMITHURSTI* (Ramsay and Ogilby).

One large specimen of this well-marked species.

Head  $3\frac{1}{4}$  in length to base of caudal; depth  $2\frac{1}{6}$ ; eye  $3\frac{1}{6}$  in head. D. VIII, 16; A. III, 14; V. I, 5. Scales 64.

Body greatly compressed and conspicuously arched dorsally from a point above the middle of the eye. Interorbital cavity twice as long as broad; two small spines above the eye anteriorly. First dorsal and anal spines minute, second elongate, the length of the second dorsal spine exceeding the depth of the body.

Color in alcohol, silvery, dark along base of dorsal and on upper surface of caudal peduncle; snout black, also the opercle above the angle of the flap and the base of the pectoral fin posteriorly.

## Family GERRIDÆ.

16. *XYSTÆMA KAPAS* (Biecker).

Three fine specimens.

This species has not been previously recorded from the South Seas. Our species agree fully with Günther's description.

## Family KUHLIIDÆ.

17. *KUHLIA MALO* (Cuvier and Valenciennes).

Common in the market at Suva.

## Family SERRANIDÆ.

18. *EPINEPHELUS MERRA* (Bloch).

Common at Suva.

19. *EPINEPHELUS STELLANS* (Richardson).

Two specimens.



## 20. EPINEPHELUS MACULATUS (Bloch).

One specimen.

## Family LUTIANIDÆ.

## 21. LUTIANUS AUREOVITTATUS (Macleay).

*Mesoprion aureovittatus* MACLEAY, Proc. Linn. Soc. N. S. W., 1879, p. 61; Solomon Islands.

Two specimens from Suva.

Head  $2\frac{1}{2}$  to base of caudal; depth  $3\frac{1}{5}$ ; eye 4 in head. D. X, 13; A. III, 8. Scales 7-50-12. Preorbital less than diameter of eye; maxillary reaching to middle of orbit; two canines in front of upper jaw. Dorsal spines slender and long, fourth to sixth subequal, nearly one-half depth; anal spines stout.

Color (in spirit) greenish brown, paler below lateral line and white ventrally. A black oval blotch occupies the lateral line below the junction of spinous and soft dorsals. There are four horizontal yellow stripes along the body below the lateral line. Fins yellowish, unmarked.

Specimen described  $7\frac{2}{3}$  inches long.

## APHAREUS FLAVIVULTUS Jenkins.

One specimen from Honolulu market, not seen in Fiji.

## Family THERAPONIDÆ.

## 22. THERAPON JARBUA (Forsk.).

Common in the river mouth near Suva.

## Family SPARIDÆ.

## 23. LETHRINUS HARAK (Forsk.).

Two specimens from Suva.

## Family APLODACTYLIDÆ.

## GONIISTIUS VITTATUS (Garrett).

One example of this very rare species, measuring 400 mm. in length, was obtained by Doctor Jordan at Honolulu. It had been previously found rather common about these islands.

## Family POMACENTRIDÆ.

## 24. AMPHIPRION CHRYSOPTERUS (Cuvier and Valenciennes).

*Amphiprion chrysopterus* CUVIER and VALENCIENNES, Paris, V, 1830, p. 401; locality unknown; from a drawing.

Head  $3\frac{1}{2}$  in length to base of caudal; depth 2. D. XI, 15; A. II, 13. Scales 7-44-20.

Dorsal spines short, considerably shorter than the posterior rays of soft dorsal and of anal. Ventral reaching the vent; pectorals extending to the posterior border of the second pearl-colored band; caudal emarginate, with lobes somewhat prolonged.

Blackish-brown with two pearl-colored cross-bands edged with black; the first passes from in front of the spinous dorsal obliquely forward and downward over the opercle; the second is parallel to this, starting from the last two dorsal spines and ending at the vent. The forehead, lips, lower parts of cheeks, and the chin are orange-colored; the line of demarkation between the black ground color and the orange of the face extends across the interorbital space and obliquely downward and backward along the anterior margin of the eye, across the cheek to the angle of the preopercle and on to the lower border of the opercle. All of the fins are yellow and unspotted; spines of the ventral and anal fins dark.

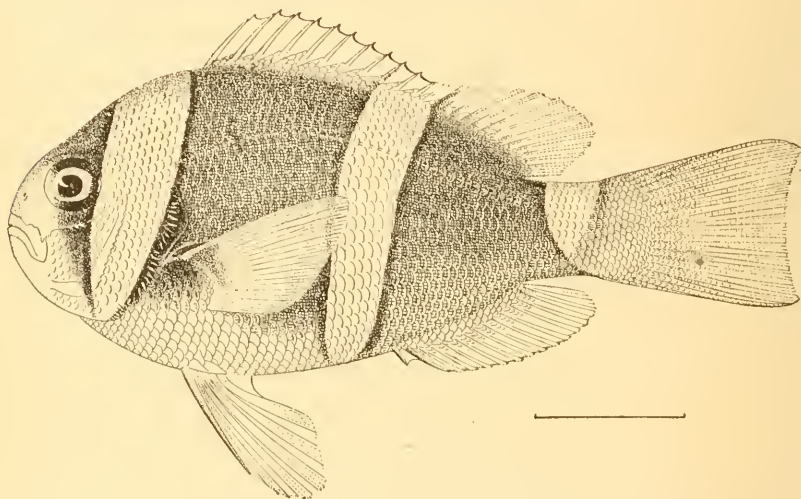


FIG. 4.—AMPHIPRION CHRYSOPTERUS.

The specimen described is  $4\frac{3}{4}$  inches long.

A younger specimen ( $2\frac{5}{6}$  inches) here figured has a third pearl-colored band across the body at the base of the caudal. Of this we present a figure. This band seems to disappear with age, as the specimen evidently belongs to the same species as the first.

This species has been known hitherto only from a drawing from unknown locality.

25. *DASCYLLUS ARUANUS* (Linnaeus).

Common in the reefs.

26. *CHROMIS CÆRULEUS* (Cuvier and Valenciennes).

*Heliastes lepisurus* CUVIER and VALENCIENNES.

Very common on the reef at Fiji.

27. *ABUDEFDUF CORNEYI* Jordan and Dickerson, new species.

Head  $3\frac{1}{3}$  in length to base of caudal; depth  $2\frac{1}{4}$ ; eye  $3\frac{1}{2}$  in head,  $1\frac{1}{4}$  in snout. D. XII, 15; A. 11, 12. Scales 3-28-11, lateral line pores 20.

Body compressed; interorbital space somewhat arched; preorbital two-thirds diameter of eye; maxillary not reaching vertical from front of orbit; cheeks and opercle scaled, snout unscaled; margins of suborbital, preopercle, and opercle entire, a single flat spine on the opercle. Teeth, compressed, entire, in a single row.

Dorsal spines subequal, first and twelfth shortest, fifth to seventh longest; spinous dorsal covered one-half its length with large scales, soft dorsal and anal scaled similarly but scales minute; pectorals and

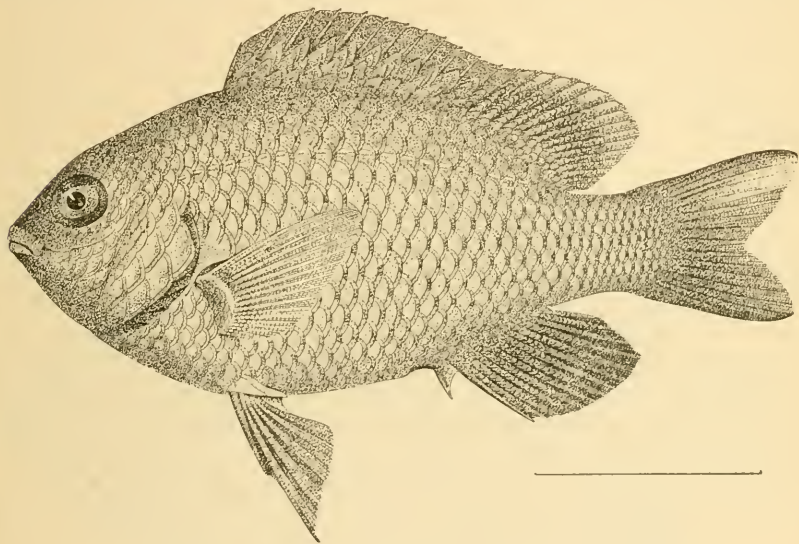


FIG. 5.—*ABUDEFDUF CORNEYI*.

ventrals equal (three-fourths head), the ventrals scarcely reaching vent; caudal forked, its lobes rounded and the upper lobe the longer.

Color in alcohol deep blackish brown with a conspicuous, though small, black axillary spot; snout black; fins black except the pectorals, which are merely dusky, and the ends of soft dorsal and upper lobe of caudal, which are not pigmented.

This species differs markedly from all the descriptions accessible to us. *Glyphidodon limbatus* from Ile de France, scantily described by Cuvier and Valenciennes, may be the same, but the ventral is said to reach the middle of the second anal spine and no mention is made of the conspicuous axillary spot. Furthermore, Sauvage claims that *G. limbatus* is really from St. Helena, and that it belongs to the group

called *Stegastes*. The number of fin rays, D. XII, 15, well separates *Abudefduf corneyi* from *A. melas* and *A. bahni*, the only black species of similar form. *Abudefduf filholi* (Sauvage), also from the reef at Suva, is one of the blue species.

*Abudefduf jordani* Seale, from the Solomon Islands, is similar to *A. corneyi*, but with the body considerably deeper, depth  $1\frac{1}{2}$  in length. The paired fins in this species are yellowish.

The type is No. 61678, U.S.N.M., collected on the reef at Suva by Dr. Bolton Glanville Corney, for whom the species is named. One specimen,  $3\frac{1}{2}$  inches long.

We may here note that the figure of *Pomacentrus ellipticus* published by Jordan and Seale<sup>a</sup> is incomplete. The artist has omitted the scales on the preorbital and the serrations on the proopercle.

28. ABUDEFDUF UNIOCELLATUS (Quoy and Gaimard).

Abundant on the reef at Suva.

29. ABUDEFDUF CYANEUS (Quoy and Gaimard).

A small fish of the most intense blue, allied to *Abudefduf taupou*, abounds about the reefs of Suva. We were unable to obtain any specimens. The species is unlike any seen at Samoa, and is probably the *cyaneus* (later called *azureus*) of Quoy and Gaimard.

Family LABRIDÆ.

30. HALICHERES DÆDALMA Jordan and Seale.

Two specimens.

31. NOVACULICHTHYS TÆNIURUS (Lacépède).

Common at Suva.

32. PSEUDOCHEILINUS HEXATÆNIA Bleeker.

On the reef at Suva.

Family SCARICHTHYIDÆ.

33. CALLYODON UPOLENSIS Jordan and Seale.

One specimen, agreeing well with the original account.

<sup>a</sup> Fishes of Samoa, p. 283, fig. 50.

## Family CHÆTODONTIDÆ.

## 34. CHÆTODON SETIFER Forskal.

One specimen.

## CHÆTODON EPHIPIUM Cuvier and Valenciennes.

Two specimens from Honolulu market. The species was not obtained by Jenkins or by Jordan and Evermann in Hawaii. Not seen in Fiji.

## 35. HOLACANTHUS NICOBARIENSIS (Bloch and Schneider).

Two specimens of this exquisite species.

## 36. HOLACANTHUS MARIANAS Seale.

*Holacanthus marianus* SEALE, Occas. Papers Bishop Mus., 1, no. 3, 1901, p. 104, Guam; good description.

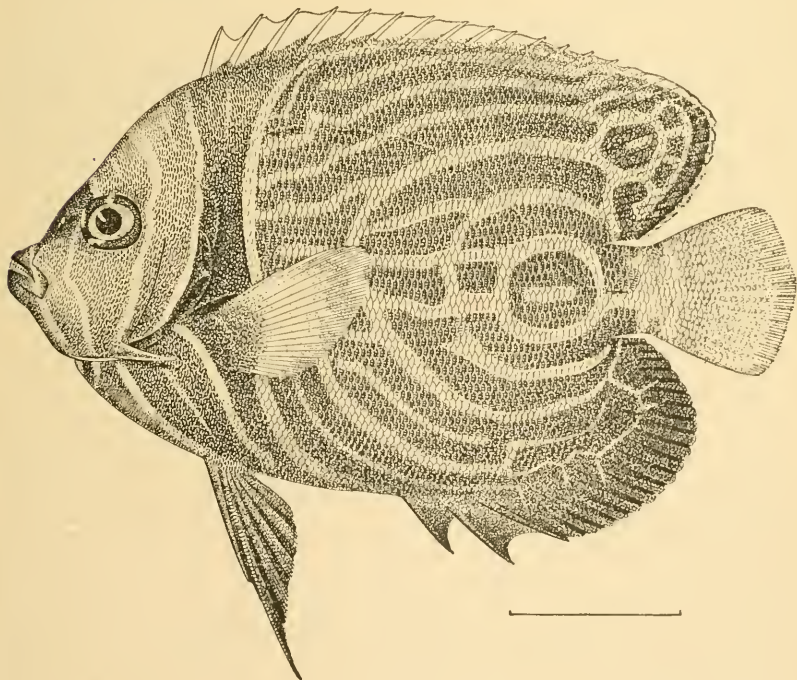


FIG. 6.—HOLACANTHUS MARIANAS.

One specimen, agreeing perfectly with Seale's description. It is conceivable that this may be the young of *Holacanthus imperator*, although the markings are quite differently arranged, as the figure which we here present clearly shows.

## Family HEPATIDÆ.

## 37. HEPATUS TRIOSTEGUS (Linnæus).

Six specimens from Suva.

## Family TETRAODONTIDÆ.

## CANTHIGASTER RIVULATUS (Schlegel).

*Eumyeterias biteniatus* JENKINS, Bull. U. S. Fish Com., XIX, 1899, p. 400, fig. 12.

A single specimen of a *Canthigaster* collected by Mr. Berndt, when compared with examples of *C. rivulatus* of Misaki, Japan, leaves little doubt as to its identity with that form. A young individual of the same species, small and brightly colored, was described from Honolulu under the name *Eumyeterias biteniatus*, by Doctor Jenkins. The second example from the same locality measures  $6\frac{1}{4}$  inches in length. The stripes extending from the pectoral to the caudal are very indistinct, as is usually the case with adult Japanese examples, although this character is subject to a considerable amount of variation. Radiating lines extending forward, downward, and backward from the eye, and dark vermiculations on the back are usually present in adults and absent in the young. Not seen in Fiji.

## 38. TETRAODON HISPIDUS Linnæus.

A large specimen taken on the reef at Fiji.

## Family BALISTIDÆ.

## 39. BALISTAPUS ACULEATUS (Linnæus).

One specimen.

## XANTHICHTHYS LINEOPUNCTATUS (Hollard).

One example from Honolulu market.

## Family SCORPÆNIDÆ.

## 40. SYNANCEJA VERRUCOSA (Bloch and Schneider).

One specimen.

## 41. PTEROIS SAUSAULELE (Jordan and Seale).

Two specimens.

The group called *Dendrochirus*, to which this species belongs, is probably not distinct from *Pterois*. Its chief character is the absence

of free rays on the upper edge of the pectoral, a character present in the young of *Dendrochirus*, but lost with age. The species of *Pterois* proper are larger fishes with longer fins. In Morita's plate of this species (Fishes of Samoa, Plate IV, fig. 1) the artist has, from a young example, represented the upper rays of the pectoral as detached and has made them much longer than in the adult. In the adult these rays are fully united with the rest of the fin, and the rays are gradually longer to the sixth. The ventrals reach the base of the last dorsal spine. The pectorals reach the base of the last dorsal ray, as in the adult types of *Dendrochirus sausaulele*. Morita's drawing was taken from a young example in which pectorals and ventrals are notably longer than in the adult and the upper rays of the pectoral are more elongate and partly free. The free tips are apparently broken off with age.

#### Family ECHENEIDÆ.

##### 42. REMORA REMORA (Linnaeus).

Numerous specimens were taken attached to the shark, *Carcharias insularum*. When the shark was taken out of the water these fishes still kept their hold. The larger sucking fish, *Echeneis naucrates*, lets go its hold the moment the shark is raised out of the water.

#### Family GOBIIDÆ.

##### 43. RUPPELLIA XANTHOSOMA (Bleeker).

Taken in the crevices of corals at Fiji. The generic name *Ruppellia* of Swainson (1839), based on *Gobius echinocephalus*, has priority over *Paragobiodon* Bleeker.

#### Family BLENNIIDÆ.

##### 44. SALARIAS LINEATUS Bleeker.

On the reef at Suva.