

NOTES ON FISHES OF HAWAII, WITH DESCRIPTIONS OF NEW
SPECIES.

By DAVID STARR JORDAN and JOHN OTTERBEIN SNYDER.

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In the month of March, 1905, the senior author made a brief visit to Honolulu. The markets were inspected each day, and a number of species of fishes were collected. Since the date of the collections of Jordan and Evermann in 1901 and of Gilbert and Snyder in 1902, the markets of the city have become very greatly extended. The business of fishing has fallen more fully into the hands of Japanese, and the results of line-fishing in deep water off the coast of Molokai have become a prominent feature of the market. Among the species formerly rare, but now commonly seen in the market, are the following:

Etelis evurus.
Etelis marshi.
Chaetopterus dubius.
Rooseveltia brighami.
Erythrichthys schlegeli.
Merinthe macrocephala.
Mulloidés pflugeri.

The following species in this collection, listed with the numbers under which their respective types are registered in the U. S. National Museum, seem to be new to science:

Caranx dasson, no. 57782.
Ariomma evermanni, no. 57783.
Rooseveltia aloha, no. 57784.
Thalassoma neanis, no. 57785.
Scaridea aërosa, no. 57786.

The accompanying drawings of these species are the work of Mr. William Sackston Atkinson.

Family OPHICHTHYIDÆ.

1. *Microdonophis polyophthalmus* (Bleeker).

Head 4.5 in the trunk, 4.9 in tail; depth 2.4 in head; snout 5; eye 1.8 in snout; cleft of mouth about 3 in head; teeth sharp, in a single row on jaws and vomer; origin of dorsal above base of pectoral, height of fin equal to width of interorbital space or length of snout; anal about half as high; pectoral rounded, about equal in length to snout. Tail sharply pointed. Color brownish above, white on ventral surface; side with 3 rows of large alternating dark-brown spots, those of the upper row and

many of the median ones with white centers (in one specimen 2 or 3 spots of the lower row have white centers, while in another only those of the upper and the anterior ones of the median row are so marked); ventral surface with 2 rows of spots, indistinct on belly, prominent along base of anal; head with many well-defined ocelli, which grow smaller anteriorly, those on the snout being minute and densely crowded; dorsal with a row of ocelli along its base, each ocellus corresponding in position with the spots along lateral line; above the ocelli and alternating with them a row of narrow dark bars; anal immaculate; pectoral dusky at base.

Two specimens, each about 21 inches long. This species is new to Hawaii.

2. *Microdonophis fowleri* Jordan & Evermann.

One specimen. Head 3.8 in in trunk, not 4.8, as stated in the original description.

Family MURENIDÆ.

3. *Echidna tritor* (Sauvage).

Several large eels of the type of *Echidna zonata* Fowler were seen in the market together, evidently taken at the same time. Two of them were preserved. One of these has many bands on the body, corresponding to the type of *Echidna psalion*. The other showed 2 or 3 bands on the tail only, and corresponds nearly to *Echidna leihala*. Specimens not preserved showed various intermediate characters. These comparisons leave little doubt of the identity of the nominal species of *Echidna zonata*, *vineta*, *psalion*, *zonophica*, *leihala*, and *obscura*, and probably all are forms of the species without bands, still earlier described as *Pacitophis tritor* by Sauvage. It is not improbable that all are again identical with *Echidna polyzona* (Richardson) of the East Indies.

Family SPHYRÆNIDÆ.

4. *Sphyræna helleri* Jenkins.

This species, known as *kawalea*, never as *kaku*, grows to a length of about 3 feet. Its scales are small, 130 to 135 in number. The back is steely olive, with 2 light yellow stripes along each side, which fade with age. In the recent report of Jordan & Evermann^a, this species is stated to abound in the mullet ponds. The statement is not correct. It should be applied to the young of *Sphyræna snodgrassi*, which is called *kaku* and which does great injury to the mullet.

5. *Sphyræna snodgrassi* Jenkins.

This species, called *kaku*, is known by its large scales, there being about 85 in lateral line. It reaches a much larger size than the *kawalea*, often attaining the length of 6 feet. The young of small size are often taken near shore, especially in the mullet ponds.

This huge barracuda is allied to the giant barracuda of the West Indies, *Sphyræna barracuda*. It is probably not the same as the East Indian *Sphyræna commersoni*.

Family MUGILIDÆ.

6. *Chænomugil chaptalii* (Eydoux & Souleyet).

Myrus pacificus Steindachner appears to be the young of this species. The teeth are in narrow bands, in some cases there being but 2 or 3 irregular rows, or occasionally but 1 row on parts of the lower jaw. The teeth are trilobed.

Family HOLOCENTRIDÆ.

7. *Ostichthys pillwaxi* (Steindachner).

One fine specimen of this rare species.

8. *Holocentrus sammara* (Forskål).

Two examples, measuring each 4 inches long, have the spots on the scales so faint as to be hardly discernible.

^a Bull. U. S. Fish Commission, vol. XXIII, 1903, pt. 1, p. 143, 1905.

Family PSEIIDÆ

9. *Ariomma evermanni* Jordan & Snyder, new species. (Fig. 1, text.)

A second species of this peculiar genus is represented by one badly preserved specimen. It differs from *Ariomma lurida* in having a smaller head, shorter snout, smaller eyes, shorter gillrakers, and larger scales. The head is apparently naked and the caudal is forked, characters which both species may, however, possess in common. The anal rays are evidently preceded by two spines in *A. evermanni*.

Head 3.4 in length measured to base of caudal; depth 4; depth of caudal peduncle 5.5 in head; eye 3.7; snout 3.3; interorbital space 3.3; dorsal XI-1, 15; anal II, 15; pectoral 25; scales in lateral series about 38.

Snout blunter and slightly more rounded than that of *A. lurida*; caudal peduncle short and cylindrical; interorbital space very convex; eyes with thin adipose lids; maxillary not freely protractile, rounded posteriorly, about equal in length to diameter of eye, almost entirely concealed beneath a broad, pendant, preorbital flap; jaws equal, each with a single row of minute teeth; vomer and palatines without teeth; tongue large and smooth; gillrakers 7-19, short, slender, and pointed; pseudo-branchie present; nostrils near tip of snout.

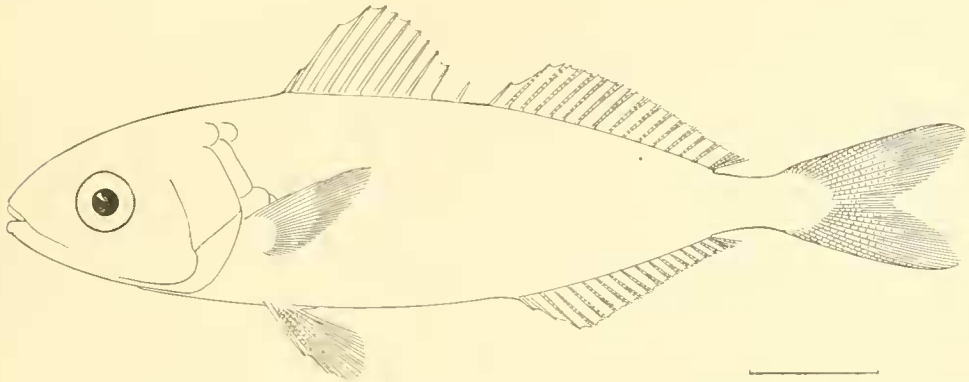


FIG. 1.—*Ariomma evermanni* Jordan & Snyder, new species. Type.

Head naked; scales of body large, cycloid, very small on caudal peduncle, extending forward on occipital part of head almost to a point above posterior margin of eye.

Origin of dorsal above posterior edge of base of pectoral; the spines slender, the longest (third or fourth) contained 2.2 times in length of head; spinous and soft dorsals apparently connected by membrane; base of anal long, nearly equal to length of head; first 2 rays small and spine-like; last ray of dorsal and anal pencillated, nearly disconnected like the finlets of *Oligoplites*, these fins extending an equal distance posteriorly; pectoral 2 in head; ventrals pointed, 2.3 in head; caudal forked, the lobes pointed, 1.4 in head.

Color, probably dusky; opercle with a large blackish patch; lining of gill-chambers black; mouth light.

Type, no. 57783 U. S. National Museum, measuring 8 inches in length; from the market at Honolulu.

Named for Dr. Barton Warren Evermann, assistant in charge, Division of Scientific Inquiry, U. S. Bureau of Fisheries, in recognition of his work on Hawaiian fishes.

This genus does not belong to the *Apogonichthyida*. It seems rather to be an ally of *Cubiceps*, in the group usually called *Nomeida*; but as the generic name *Nomeus* ought properly to give way to *Gobionomus*, we may call the group *Pseida*. It differs from *Stromateide* chiefly in the separation of the dorsal fins.

We may note here that the Hawaiian species of *Gerano*, described on page 174 of the Hawaiian report, is *Gerano macropterus* (Schlegel), not *Gerano gerano*. The figure is of the latter species.

Family CARANGIDÆ.

10. *Caranx dasson* Jordan & Snyder, new species.^a (Fig. 2, text.)

Head 3.5 in length to base of caudal; depth 3.1; depth of caudal peduncle 7 in head; eye 4; snout 2.6; interorbital space 3.2; dorsal VII-1, 25; anal II-1, 21; scutes 22.

Dorsal contour not greatly elevated, the outline rather gently curved from snout to origin of dorsal; interorbital region elevated, with a rather sharp ridge; snout long, pointed; lower jaw somewhat shorter than the upper; maxillary with supplemental bone, extending posteriorly to a point below anterior margin of eye, its free edge concave; premaxillary protractile; teeth in jaws minute, sharply pointed, rather widely spaced; those of vomer and palatines in villiform bands; a narrow band on tongue; lips thick, their surfaces covered with short, stumpy papillæ; edge of preorbital sharp, overhanging upper edge of maxillary and part of lip, its width posteriorly less than that of maxillary; lateral line arched somewhat more than dorsal contour; 22 scutes on straight portion, the scutes largest on caudal peduncle where they form a high, sharp ridge; opercles and sides of occipital region scaled; throat, chin, snout, upper part of head and a narrow space extending backward to base of dorsal fin naked; body completely

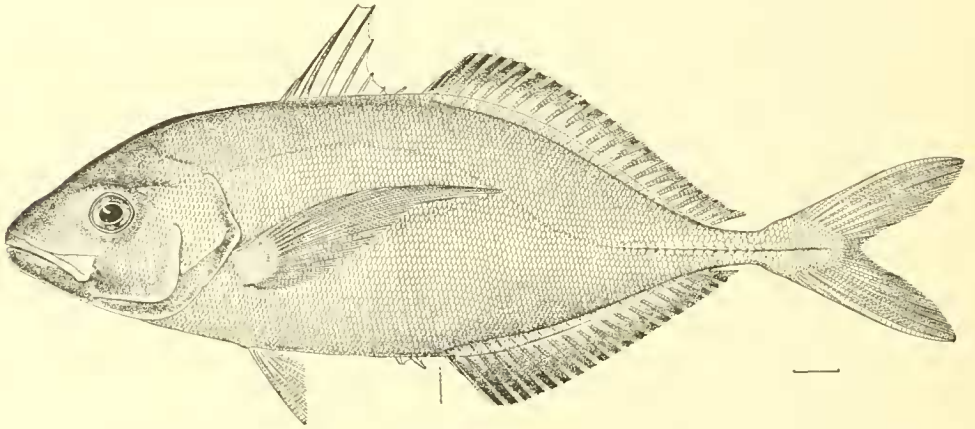


FIG. 2.—*Caranx dasson* Jordan & Snyder, new species. Type.

scaled; eye surrounded with a broad rim of adipose tissue; opercle and preopercle with membranous edges; third dorsal spine longest, 2.1 in head; first and second spines very weak, the second almost as long as third; soft dorsal and anal of nearly equal length, the rays not greatly elongate, the longest 3.2 in head, each fin with a posterior finlet which is not detached; a high membranous, finely scaled sheath along bases of fins; pectoral falcate, 2.8 in length, extending to a point above base of seventh anal ray; tip of fin formed by fourth and fifth rays; ventral pointed, 2.6 in head; caudal deeply forked, lobes sharply pointed, the membrane scaled, 1.2 in head. Color silvery, dorsal and anal dusky, anterior part of soft dorsal and anal blackish.

One specimen, 21 inches long, type no. 57782, U. S. National Museum; from Honolulu market.

In the report on the Fishes of Samoa (p. 230) a *Caranx thompsoni* Seale is listed from Hawaii. This is a manuscript name only and should have been suppressed.

11. *Decapterus pinnulatus* (Eyraud & Souleyet).

(*Decapterus canonicoides* Jenkins.)

The common *Decapterus* of Hawaii has no golden shades whatever in life. It is not identical with the Japanese *Decapterus muroadsi*, and it is very doubtful whether either is the same as the Atlantic species, *Decapterus sonata-helena*.

^aListed in Jordan & Seale, Fishes of Samoa, Bull. U. S. Bureau of Fisheries, vol. xxv, 1905 (Dec. 15, 1906), p. 231, but not hitherto described.

Family BRAMIDÆ.

12. *Collybus drachme* Snyder.

A fine cast of this species is in the Bishop Museum.

Family SERRANIDÆ.

13. *Caprodon schlegeli* Günther. (Pl. XII, fig. 1.)

A single example from Honolulu, measuring 17.25 inches. On comparing this with a specimen about 10 inches long from Misaki, Japan, we find no differences except that the Honolulu example has a broader maxillary and stronger teeth, characters probably due to age.

Head 3.5 in length to base of caudal; depth 2.8; depth of caudal peduncle 2.9 in head; eye 4.1; interorbital space 3.2; snout 3.4; maxillary 1.9; dorsal x, 21; anal III, 8; scales 7-70-22.

Dorsal outline evenly curved and considerably elevated; interorbital space convex, extending to a point below posterior edge of pupil; width of maxillary contained 4.7 times in head, its free edge rounded; cleft of mouth oblique; lower jaw very strong, projecting beyond the upper, so that the anterior teeth are exposed; premaxillaries freely protractile; upper jaw with bands of minute, strong teeth, a group of large canines in front and a single row of smaller ones extending posteriorly; toothed area narrow along sides of jaw, but abruptly broadening into large pads on either side anteriorly; teeth of lower jaw in a narrow band posterior to edges of valve, in 2 large elevated pads on each side anteriorly; a naked space between upper pads of teeth, the lower ones more closely apposed; broad patches of fine teeth on tongue, vomer, and palatines; edge of preopercle feebly denticulate, almost smooth; opercle with 2 broad, flat spines; gillrakers 23-6, the longest contained 2 times in longitudinal diameter of eye, their tips blunt; lateral line continuous, evenly curved from upper edge of gill opening to a point below posterior dorsal ray, where it rather abruptly turns backward, much as usual in scienoid fishes, extending along caudal peduncle a little above the middle; head and body, except lips, throat, and edges of maxillary, completely covered with ctenoid scales; many scales on head and upper parts of body, with a minute scale at base; small scales on bases of fins and extending far out on the membranes, those at base of spinous dorsal forming a distinct sheath; dorsal spines strong, the fourth to seventh longest, 2.8 in head; posterior rays longest, 2.1 in head; second and third anal spines very heavy, their length 3.6 in head, the longest ray 2.2 in head; caudal truncate or slightly concave, its length 1.5 in head; pectoral unsymmetrical, the upper rays shortened and the eighth to thirteenth rays markedly elongate, slightly longer than head, their tips broad and flat, the free edge of upper half of fin concave; ventral rounded, the length 1.6 in head.

Color, in formalin: Yellowish with a slight tinge of olive; scattered scales on upper parts orange or pinkish, in places clustered so as to form clouds of either tint; a well-defined pink bar extending from eye to tip of snout; a similar bar passing over interorbital area; rays of caudal pink; membrane yellow; dorsal and anal yellow, the scaled portion of former clouded with pink and yellow, of the latter with pink; ventral spine pink; rays yellow; pectoral light.

When fresh this specimen was fine crimson mixed with yellow; a crimson stripe before eye, one between eyes; preorbital crimson; space before dorsal golden; caudal, anal, ventrals, and pectorals bright yellow, with some crimson mixed in on the base of caudal, of anal, and on sides; lower jaw crimson; crimson mottling on sides of back conspicuous.

The genus *Caprodon* is distinguished from *Odontanthias* and other *Anthias* with teeth on the tongue by the unsymmetrical pectoral, the truncate caudal, the presence of a scaly dorsal sheath, and by the many-rayed soft dorsal. The dorsal spines are none of them elevated, and the dentition offers some peculiarities.

Family LUTIANIDÆ.

Genus ROOSEVELTIA Jordan & Evermann.^a

Rooseveltia Jordan & Evermann, in Jordan & Seale, Fishes of Samoa, Bull. Bureau Fisheries, vol. xxv, p. 265, 1907; No description (type, *Serranus brighamii* Seale).

This genus related to *Apsidus* and *Lutjanus*, from which it differs in having the top of the head without the elevated crests characteristic of those genera. The top of the cranium is narrow and

^aName occurs in Jordan & Seale, Fishes of Samoa, but no description hitherto published.

convex, the skull is thick, with three obtuse, longitudinal ridges and two grooves separating them; back elevated; no teeth on tongue. The genus contains two known species, *Apsilus brighami* (Seale), and the new species *Rooseveltia aloha* Jordan & Snyder.

This new genus is named for Theodore Roosevelt, eminent as a naturalist and as a promoter of the scientific work of the various scientific bureaus of the Government of the United States.

The genera of *Eleina*, distinguished by the uncrested cranium, may be thus compared:

- I. Dorsal fin continuous
 Canine teeth strong; body fusiform, no teeth on tongue (*Pristipomoides*, *Sparopsis*, type *virescens*).....APRION.
 Canine teeth very weak; back more elevated.
 a. Top of cranium broad, flattish, becoming more convex with age.
 c. Tongue toothless.
 d. Body subfusiform, the depth 4 in length (*crioboscus*).....BOWERSIA.
 dd. Body deeper, compressed, the depth 3 in length (*macrophthalmus*).....PLATYNIUS.
 e. Tongue with a patch of villiform teeth; body subfusiform (*dubius*).....CHLETOPTERUS.
 f. Top of cranium narrow, convex, the skull thick, with three obtuse longitudinal ridges separated by shallow grooves;
 no teeth on tongue; back elevated.....ROOSEVELTIA.
 II. Dorsal fin divided
 c. Cranium not cavernous; skeleton firm; color red.
 f. Maxillary scaly.
 a. Opercle without spine (*carboaculus*).....ETELIS.
 g. Opercle with spine (*dycooides*).....ETELISUS.
 h. Maxillary naked; opercle with a spine (*oporbionaris*).....ETELIDES.
 c. Cranium cavernous; skeleton soft; color black.....VERILUS.

In *Apsilus* and *Tropidinius*, as in *Lutjanus*, the top of the cranium has three sharp ridges. No species of *Apsilus* is known from Hawaii.

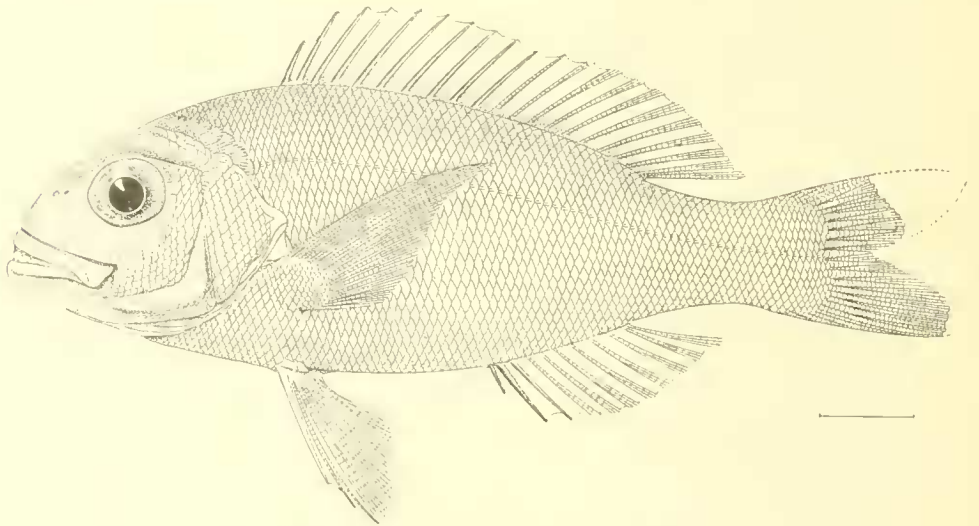


FIG. 3.—*Rooseveltia aloha* Jordan & Snyder, new species. Type.

14. *Rooseveltia aloha* Jordan & Snyder, new species.^a (Fig. 3, text.)

This species differs markedly from *R. brighami* in having a much larger eye and a very narrow preorbital, the width of the latter being somewhat less than half the diameter of eye. *R. aloha* is without the transverse yellow bands characteristic of *R. brighami*.

Head 2.9 in length to base of caudal; depth 2.7; eye 3.5 in head; snout 2.7; interorbital space 4; preorbital 7.5; maxillary 2.5; dorsal x, 11; anal iii, 8; scales 7-67-16.

Body deeper, the dorsal contour more elevated, the snout shorter, than in *R. brighami*; eye large, high up, with a swollen cutaneous rim above; interorbital area somewhat convex; suborbital narrow-

^aListed in Jordan & Seale, Fishes of Samoa, Bull. U. S. Bureau of Fisheries, vol. xxv, 1905 (Dec. 15, 1906), p. 265, but not hitherto described.

est above corner of mouth; maxillary extending to a point below anterior edge of pupil; lower jaw projecting slightly beyond upper; jaws each with a row of enlarged canines, behind which is a band of villiform teeth, among which are a few slightly enlarged ones; narrow bands of minute teeth on vomer and palatines; tongue smooth; gillrakers 3-10, long, slender, and pointed; dorsal inserted directly above tip of opercular spine, the spines slender, stiff and pungent, the first spine not quite half the height of second; longest (third to fifth) spine 2.7 in head; no notch between spinous and soft dorsal, rays about equal to spines in length; anal not quite so high as dorsal, the spines heavier and shorter; first spine slightly more than one-third length of the third, the latter 3.5 in head; ventral pointed, extending slightly beyond vent; dorsal, anal, and ventral without scales; pectoral falciform, extending to a point above origin of anal, its base with minute scales; caudal deeply forked, the rays with scales (the rays being broken, their length can not be determined). Scales finely ctenoid; a row of enlarged soft scales extending from upper edge of opercle to nape; a row of similar scales below eye; cheeks and opercles with scales; maxillary, preorbital, snout, and interorbital naked; preopercle smooth, the edge serrated; opercle with a flat, pointed spine at the upper angle; lateral line curved much like the contour of back. No distinctive color-markings in an alcoholic specimen, except numerous obscure mottlings and minute spots of a deeper color, which may have been greenish on a red background, and a subdued dark dash on opercle. The appearance of the specimen, extended stomach, etc., indicates that it came from deep water.

Type, no. 57784 U. S. National Museum, about 11 inches long, collected by Jordan and Evermann at Honolulu, 1901, and by some oversight not distinguished at the time from *Rooseveltia brighami*.

15. *Rooseveltia brighami* (Seale). *Ukikiiki; Kalikali.*

Scorpaenus brighami Seale, Occasional Papers Bishop Museum, vol. 1, no. 4, 1901, 7, Honolulu.

Apsilus brighami, Jenkins, Bull. U. S. Fish Comm., vol. XXII, 1902 (Sept. 23, 1903), 152; Honolulu. Snyder, *Ibid.* Jan. 19, 1904, 527; Honolulu. Jordan & Evermann, Bull. U. S. Fish Comm., vol. XXIII, 1903 (July 29, 1905), 233, pl. XVI; Honolulu; Kailua.

This species, having the top of the head without the elevated crests characteristic of *Lutjanus* and *Apsilus*, should not have been referred to *Scorpaenus* nor to *Apsilus*.

16. *Chaetopterus dubius* Günther.

(*Aprion microdon* Steindachner.)

(*Bowersia ulaula* Jordan and Evermann.)

A specimen 15 inches long, from the market at Honolulu, seems to differ in no way from a Japanese example collected at Fukauro.

Head 3.4 in length; depth 3.6; snout 3.8; interorbital 3.3; preorbital 10.5; maxillary 2.9; dorsal x, 11; anal III, 8; scales in lateral series 70; between lateral line and anal 14. Basihyal with an oval patch of villiform teeth on its posterior half.

This specimen corresponds evidently to *Bowersia ulaula* of Jordan and Evermann; and the number of scales in the lateral line in *Aprion microdon*, as described by Steindachner, shows that his species is *C. dubius* rather than *Bowersia violescens*. This species is known as *opukapuka* in the markets, not being distinguished from the equally common *Bowersia violescens* by the fishermen. *Ulaula*, very red, is the name of *Etelis evurus* and *Etelis marseh*.

17. *Bowersia violescens* Jordan & Evermann.

(*Apsilus microdon* Jordan & Evermann, young; not *Aprion microdon* Steindachner.)

The small specimens described by Jordan and Evermann as *Aprion microdon* are the young of *Bowersia violescens*. We find no teeth on the tongue in any of these and none in a cotype of *Bowersia violescens*. The genus *Bowersia* is therefore to be separated from *Chaetopterus* by the absence of these teeth, not by their presence, as originally stated. The teeth are present in *Chaetopterus dubius*. The absence of lingual teeth, therefore, the smaller mouth, and especially the larger scales, separate *Bowersia violescens* from *Chaetopterus dubius*.

18. *Etelis evurus* Jordan & Evermann.

This species, with its congener, *Etelis marseh*, is common in the winter markets, and both are known as *ulaula* (very red). The two species differ widely from each other and a study of the skeletons will probably place them in different genera.

Family MULLIDÆ.

19. *Mulloides pflugeri* Steindachner.

Many very large specimens of 3 to 4 pounds weight were seen in the market. These were uniform deep crimson red in color, without yellow or black shadings or markings. They were called *wake-ula*, or red mullet. It is possible that *Mulloides flammens* of Jordan and Evermann, with crimson cross-bands, may be the young of *Mulloides pflugeri*.

We may here note that *Upeneus preorbitalis* Smith & Swain (p. 263, Hawaiian report), is identical with *Mulloides samensis* Günther.

Family LABRIDÆ.

20. *Thalassoma neanis*, Jordan & Evermann, new species. (Pl. XII, fig. 2.)

Head 3.5 in length to base of caudal; depth 3.7; depth of caudal peduncle 7; eye 5.5 in head; snout 2.6; interorbital space 4.2; dorsal VIII, 13; anal III, 11; scales 3-27-8.

Interorbital space convex; snout somewhat pointed; tip of snout to occiput 4.3 in length; lips large and comparatively thick, the lower one with two thin lateral, pendent folds; jaws each with a single row of closely apposed, sharp, conical teeth, which grow successively smaller from before backward, the anterior tooth on each side enlarged and directed forward; cleft of mouth equal to width of preorbital; gillrakers, 6-14, sharply pointed, small, those near ends of arches very minute; head naked, except a small patch of 4 or 5 scales on upper limb of opercle; scales thin, with soft membranous edges; lateral line complete, following contour of back to a point below tenth dorsal ray, where it abruptly bends downward, passing along middle of caudal peduncle, and ending on base of caudal fin; origin of dorsal above base of pectoral, the distance between base of first spine and naked portion of head equal to half the distance between the latter point and tip of snout; soft dorsal slightly higher than the spinous, the length of longest ray contained about 2.3 in head; dorsal and anal extending an equal distance posteriorly, the latter with three strong spines, the rays slightly shorter than those of the dorsal; caudal about equal to head in length, lunate, the lobes acutely pointed; ventral pointed, 2 in head; pectorals rounded, 1.3 in head.

Color, in formalin, when first received, almost fresh; head dark bluish gray, or purplish, becoming yellowish on occiput and opercle, marked with irregular stripes about equal in width to diameter of pupil; the upper stripe passing from snout to eye, above which it curves, then extending backward and fading out on fifth or sixth scale of lateral line; another extending from corner of mouth to eye, curving below it and passing obliquely downward and backward to a point on opercle below its angle, from which point it borders the edge of the latter, then curves forward and reaches preopercle; cheek with a round spot, apparently an interruption of the same stripe; another stripe begins near this and continues forward and downward to a point posterior to corner of mouth, returning along ventral region of side of head to edge of subopercle; a median stripe extends from middle of orbit backward, curving downward to angle of opercle; chin with a transverse stripe; all these stripes are light green on side of head, bluish on ventral parts, all narrowly bordered with blackish violet; lips pale reddish yellow; breast blackish with two faint dark-edged greenish stripes on each side below pectorals; body bright citron yellow, dusky on breast; a broad area of sky blue extending downward from bases of first to seventh dorsal spines, narrowing somewhat on side, then growing broader posteriorly and extending backward to end of anal fin so that most of the belly is blue; basal portion of dorsal and anal bright yellow, the distal part sky blue, the tips of the rays again tinged with yellow, the blue and yellow areas separated by a narrow blue-black streak; a small dark spot behind second dorsal spine; pectoral yellow, greater part of posterior half of fin black, a narrow triangular blackish blotch at base; ventrals pale yellow; caudal yellow, the upper and lower edges greenish; no vertical markings on the individual scales.

The specimen is an adult male. Type no. 57785 U. S. National Museum, 7 inches long, from the market at Honolulu.

21. *Thalassoma lutescens* (Solander).

In the collections of 1901 was obtained a fine male specimen of a *Thalassoma* in form almost exactly like *T. neanis*, but quite different in color. This specimen, in Jordan and Evermann's report (Bull. U. S. F. C., XXIII, p. 303), is described as *Thalassoma lunare*, but on comparison with the true *lunare*

from the Philippines we feel sure that it can not be the same. It evidently corresponds to *Thalassoma lutescens* (Solander) from Tahiti, a species which we think certainly distinct from *Thalassoma lunare*. *Thalassoma neanis* and *Thalassoma lutescens* have much in common, but they seem to be distinct species, differing in the arrangement of colors. *T. neanis* lacks entirely the dark cross streaks on the scales characteristic of *T. lunare* and *T. lutescens*.

22. *Anampses godeffroyi* Günther. (Pl. XIII, fig. I.)

(*Anampses evermanni* Jenkins.)

Several specimens of a large blue *Anampses* were seen in the market, and one of these was preserved. This is evidently the species called *Anampses godeffroyi* by Günther from a drawing made at Hilo by Mr. Garrett. The bluish reticulations of the head are finer, more numerous, and not broken as figured by Garrett, the vertical bars on the scales are more elongate, the stripes of blue on dorsal and anal narrower, and those on the caudal more elongate. The entire head and body blue or greenish-blue in life, strongly suffused with a tinge of reddish brown; head covered with dark greenish blue reticulations, each about one-third the width of pupil; lips reddish; each scale with a vertical blue bar slightly narrower than the reticulations on opercle, the bars generally connected, forming lines extending across the body; bars reduced on caudal peduncle forming oval or round spots; dorsal and anal same color as body, broadly edged with deep blue, the membrane with 4 longitudinal narrow stripes, those of the dorsal somewhat irregular; caudal reddish orange with stripes which are more or less broken up into oval and circular spots, the fin broadly edged above and below with deep blue; pectoral and ventrals reddish orange, the former greenish blue at base and along upper edge, the latter having the spine greenish blue and the membrane sparsely marked with elongate blue spots.

The specimens called *Anampses godeffroyi* by Jordan & Evermann, and thought to be distinct from *A. evermanni*, differ somewhat in color from the above and may possibly be distinct, as was supposed when they were first taken. After the specimen here described had been in formalin a short time the pale horizontal stripes described by Jordan & Evermann made their appearance. Other alleged color differences between *A. evermanni* and *A. godeffroyi* are relative, the vertical lines on the scales varying somewhat in width and length, and the caudal stripes being broken up into variously elongated spots.

It is probable therefore that *Anampses evermanni* is a synonym of *Anampses godeffroyi*, and that the reddish shades on the body, seen in life, fade with removal from the water, the blue being more permanent.

23. *Gomphosus sandwichensis* Günther.

In the Bishop Museum is a specimen of *Gomphosus*, with a colored cast of the same specimen. The species is much like *Gomphosus tricolor*, but it is apparently not the same, and the black opercle indicates that it is *Gomphosus sandwichensis* Günther, a doubtful species referred by Jordan & Evermann to the synonymy of *Gomphosus tricolor*.

The cast is green, the upper part of the snout pink-red; a sharp red line behind eye; a black blotch on opercle; base of pectoral yellow; the fin green with a blue-black distal area; dorsal green, a narrow sharp red stripe along its middle; base of caudal purple, the rest green.

Family SCARICHTHYIDÆ.

24. *Scaridea arosa* Jordan & Snyder, new species. (Fig. 4.)

This species differs markedly from the other Hawaiian members of the genus in having a broad, vertical brassy band posterior to the pectoral fin, and also in the character of the anterior profile, which is decidedly elevated over the eye.

Head 3.3 in length to base of caudal; depth 2.8; depth of caudal peduncle 2.2 in head; eye 4.5; snout 2.8; interorbital space 4.2; scales 23, 8; dorsal 1x, 10; anal 11, 9.

Snout blunt, the anterior outline steep between tip of snout and interorbital space, then sloping gently backward to origin of dorsal; jaws equal; cleft of mouth extending to a point below anterior edge of orbit; upper lip double for nearly half its length, the lower one for only about one-fourth;

teeth of upper jaw on outer edge of dental plate, alternating, in 2 series for about half length of jaw, where they are followed by a single strong curved canine which projects outward and backward; below and posterior to the canine the dental plate bears on its surface a row of small blunt teeth; lower jaw with 3 rows of teeth anteriorly, 2 laterally, and 1 posteriorly, all on outer edge of dental plate, which has a rather rough flat surface within the rows of teeth; dorsal spines stiff and sharp, the first (longest) contained about 2.5 times in head, rays somewhat shorter, there being but little difference in the height between the spinous and soft dorsals; anal spines 3, small and slender, the soft rays nearly equal in height, 2.6 in head; dorsal and anal extending an equal distance posteriorly; ventral rounded, 1.7 in head; pectoral 1.5 in head; upper lobe of caudal slightly concave, the lower rounded, the middle and upper rays longest, basal portion of fin with large scales; lateral line following contour of back to a point below posterior end of dorsal, where it is abruptly bent downward, passing along middle of caudal peduncle; scales on occiput and on opercles, a single row passing obliquely downward on cheek below eye; a series of 4 scales anterior to origin of dorsal fin.

Color dusky, indistinctly mottled with lighter and darker shades; a broad diffuse band of bright brassy yellow, extending obliquely across the side from between the third and seventh dorsal spines

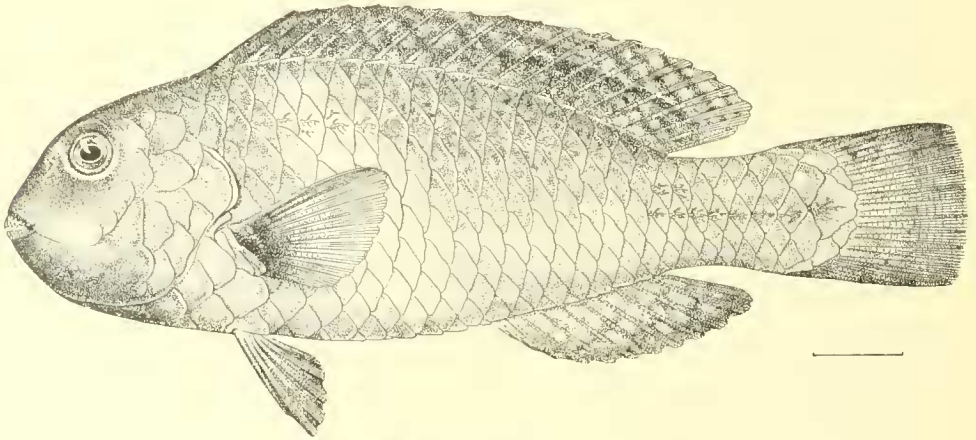


FIG. 4.—*Scatidion arosia* Jordan & Snyder, new species. Type.

to the anterior end of base of anal; dorsal mottled with blackish; other fins dusky; base of pectoral and chin blackish.

The type no. 57786, U. S. National Museum, from the market at Honolulu, measures 11.5 inches in length. Another specimen 13.5 inches long, does not differ from the type, except that the teeth are somewhat worn, the canines being broken off; the yellow cross-band is less distinct.

25. *Callyodon perspicillatus* (Steindachner). (Pl. xiii, fig. 2.)

We present a colored plate of this handsome species, taken from a fresh specimen, in which, however, certain evanescent shades, as of golden on the opercular flap and rosy on the base of the dorsal, had faded.

Family CHÆTODONTIDÆ.

26. *Chaetodon ephippium* (Bloch).

A cast of this most handsome species, which is rather common in the South Seas, is in the Bishop Museum. The specimen came from Honolulu, and this is the first Hawaiian record.

Probably the name *Zauchus cornutus* should be retained for the common species of *Zauchus*, as *Z. canescens* is probably a distinct species.

Family ACANTHURIDÆ.

27. *Hepatus leucopareius* (Jenkins).

Of this rare species several specimens were in the aquarium at Waikiki. It is called *mai koiko*.

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

Renewed comparison of specimens leads us to regard *H. guntheri*, *H. canthopterus* (Cuvier & Valenciennes) and *H. blochi* (Cuvier & Valenciennes) as identical with *Hepatus matoides*. The dark stripes on the dorsal and anal, the yellow on the pectoral, and the pale ring at the base of the caudal all fade more or less in spirits. Renewed comparison of fresh specimens is necessary to settle this point finally.

A fresh specimen corresponding to *H. guntheri* has the body plain brown, a pale ring about tail, yellow on pectoral and about eye; blue and yellow streaks on preorbital; dorsal and anal black with four narrow blue stripes.

Family BALISTIDÆ.

29. *Xanthichthys lineopunctatus* (Holland).

A specimen from Honolulu, the first ever noticed in the market, collected by Mr. Berndt. Our previous specimens came from the island of Hawaii.

Family DIODONTIDÆ.

30. *Diodon nudifrons* Jenkins.

Seen in the aquarium at Waikiki. A black bar from eye downward, meeting its fellow across the throat.

Family SCORPENIDÆ.

31. *Merinthe macrocephala* (Sauvage).

This large scorpionoid fish is common in the winter markets, reaching a weight of 3 to 5 pounds. It is brilliant orange in life, with sparse dots and mottlings.

32. *Pierasfer homei* (Richards).

While engaged in a study of the holothurians recently collected near Honolulu by the *Albatross*, Mr. W. K. Fisher found a well-preserved specimen of *Pierasfer homei* in the cloacal chamber of a specimen of a new holothurian of the genus *Stichopus*. It was translucent with many scattered pale brownish spots on the head and body; teeth in narrow bands on the jaws, palatines and vomer; central teeth of the latter elongate, and closely apposed, forming a short ridge. Writers generally have overlooked the presence of a minute though well-developed caudal fin, which is evidently confluent with the dorsal and anal. The specimen measures 5.75 inches in length.

Family GOBIIDÆ.

33. *Quisquilius eugenius* Jordan & Evermann.

In the Hawaiian Report of Jordan & Evermann, p. 483, and in the later Samoan Report of Jordan & Seale, this species is placed by error in the genus *Gobiomorphus* Gill. *Quisquilius eugenius* has the ventrals united. They were, in the type, accidentally torn apart. Canine teeth are present. The genus is related to *Drombus* and to *Amblygobius*, not to *Gobiomorphus* or *Asterropteris*.

In this connection it may be noticed that the genus *Paragobiodon* Bleeker (*echinocephalus*) was named *Ruppellia* (*Ruppellia*) by Swainson in 1839, and that the original type of the genus *Apocryptes* of Osbeck and of Cuvier and Valenciennes, was *Gobius pectinirostris* of Linneus. The species called *Bolcephthalmus chinensis* or *pectinirostris* should therefore stand as *Apocryptes pectinirostris*. The genus commonly called *Apocryptes* should probably stand as *Gobileptes* Swainson.

34. *Oxyurichthys lonchotus* (Jenkins).

The Hawaiian species called *Gobionellus lonchotus* by Jenkins and *Gobiichthys lonchotus* by Jordan & Evermann should apparently stand as *Oxyurichthys lonchotus*. *Gobionellus* differs in the notched tongue, and *Gobiichthys* (= *Pselaphias*), by the presence of a cirrus on the upper part of the eyeball.

Family CIRRHITIDÆ.

35. *Goniistius vittatus* (Garrett).

The species called in the Hawaiian report (p. 447), *Cheilodactylus vittatus* should stand as *Goniistius vittatus* (Garrett).