

*Hab.*—Waimea Kauī, Sandwich Islands (*V. Knudsen*). (Types, Nos. 41949 and 41950, coll. U. S. Nat. Mus.)

This fourth species of *Cymochorea* is very different from *C. leucorrhoea* (the only other having white on the tail-coverts), in several very important particulars, as follows: (1) The upper tail-coverts are pure white, terminated by a band of black .35-.50 of an inch wide; (2) the rectrices (except the middle pair) are distinctly white at the base, though this white is concealed by the coverts; (3) the greater wing-coverts and outer webs of the tertials are much darker, offering less decided contrast with the general color of the wings; (4) the tail is much less deeply forked, the depth of the fork not exceeding .30 of an inch, whereas in *C. leucorrhoea* it amounts to about .75 of an inch. In other respects the two species are much alike.

This bird is a true *Cymochorea*, having very prominent nasal tubes, the outer toe longer than the middle, the tarsus about equal to the middle toe (with claw), and the first primary shorter than the fourth as in the typical species of that genus.

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**DESCRIPTIONS OF THIRTY-THREE NEW SPECIES OF FISHES  
FROM MAZATLAN, MEXICO.**

**By DAVID S. JORDAN and CHARLES H. GILBERT.**

During the fall and winter of 1880-'81, Mr. Gilbert spent ten weeks at Mazatlan, on the west coast of Mexico, in making collections of fishes for the United States National Museum. One hundred and seventy species were obtained, of which the following appear to be new to science:

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|-------------------------------------|---------------------------------------|
| 1. <i>Chupea stolifera</i> .        | 18. <i>Lutjanus prieto</i> .          |
| 2. <i>Pristigaster lutipinnis</i> . | 19. <i>Micropogon ectenes</i> .       |
| 3. <i>Stolephorus ischanus</i> .    | 20. <i>Sciæna icistia</i> .           |
| 4. <i>Stolephorus lucidus</i> .     | 21. <i>Scarus perrico</i> .           |
| 5. <i>Stolephorus exiguus</i> .     | 22. <i>Pomacanthus crescentalis</i> . |
| 6. <i>Stolephorus curtus</i> .      | 23. <i>Gobiesox zebra</i> .           |
| 7. <i>Stolephorus niarchus</i> .    | 24. <i>Gobiesox eos</i> .             |
| 8. <i>Synodus scituliceps</i> .     | 25. <i>Gobiesox erythrops</i> .       |
| 9. <i>Muraena pinta</i> .           | 26. <i>Gobiesox adustus</i> .         |
| 10. <i>Muraena pintita</i> .        | 27. <i>Gobiosoma zosterurum</i> .     |
| 11. <i>Ophichthys xysturus</i> .    | 28. <i>Clinus zonifer</i> .           |
| 12. <i>Ophichthys zophochir</i> .   | 29. <i>Tripterygium carminale</i> .   |
| 13. <i>Muraenox coniceps</i> .      | 30. <i>Salarias chiostictus</i> .     |
| 14. <i>Atherinella eriarcha</i> .   | 31. <i>Fierasfer arenicola</i> .      |
| 15. <i>Caranx vinctus</i> .         | 32. <i>Etropus crossotus</i> .        |
| 16. <i>Serranus calopteryx</i> .    | 33. <i>Malthe elater</i> .            |
| 17. <i>Lutjanus colorado</i> .      |                                       |

1. *Clupea stolifera*, sp. nov. (28125.)Allied to *Clupea lile*, C. & V.

Body deep, much compressed; the dorsal outline with a slight curve; ventral outline more strongly arched; body deepest immediately before dorsal fin. Head short, preopercular margin subvertical; opercle but little oblique, evenly curved. Mouth very small, oblique; maxillary reaching to below front of pupil; lower jaw longer than the upper, which is scarcely emarginate; tip of lower jaw not reaching level of upper profile of snout. Both jaws with a few very small, weak, deciduous teeth; none on vomer or palatines; tongue with a very distinct linear patch. Gill-rakers slender and numerous, the longest about three-fifths diameter of orbit; about 29 on anterior limb of arch. Eye large, longer than snout and more than one-third length of head.

Dorsal fin inserted anteriorly, its origin nearer end of snout than base of caudal, by a distance equalling one-half length of head; the first long rays are much longer than base of fin, which is about three-fifths length of head. Anal fin short and low; distance of its origin from base of caudal equals height of body. Caudal scarcely longer than head, the lower lobe longer than the upper. Pectorals reaching two-thirds distance to root of ventrals,  $1\frac{1}{3}$  in head. Ventrals inserted nearly under first dorsal ray, their length  $1\frac{2}{3}$  in head.

Scales smooth, firm, closely adherent, their edges entire; a very narrow sheath of scales along bases of dorsal and anal fins; caudal fin scaled for one-half its length. Ventral scutes very strongly developed, running from thorax to front of anal, the posterior with strong spines; 17 in front of ventral fins, 12 behind them.

Head,  $4\frac{3}{4}$  in length to base of caudal; depth,  $3\frac{1}{2}$ . D. 14; A. 16; L. lat. 40; L. transv. 11.

Color translucent; sides with silvery luster; each scale on back with marginal half black-punctate; a dark line along median line of back, becoming distinctly blackish on tail; snout greenish above, its tip and the end of the lower jaw dusky; a very bright, well-defined, silvery band along sides (as in *Atherina* and *Stolephorus*), margined above with a narrow bluish line; this band is constantly widest at middle of body, tapering slightly towards head and caudal peduncle, abruptly expanding at the end of the latter and covering nearly the entire breadth of the end of the tail. The width of this band is just the depth of one scale, a little more than the depth of the pupil. Dorsal and caudal fins light yellowish-green, the tips of anterior rays of dorsal and of upper and lower caudal lobes usually jet-black. The base of each anal ray marked by black dots. Paired fins immaculate.

Many specimens of this beautiful, well-marked species were obtained at Mazatlan, where it is very common. It does not reach a greater length than 5 or 6 inches, and usually escapes through the coarse meshes of the fishermen's seines.

The numerous types of *C. stolifera* are numbered 28125 on the register of the National Museum.

2. *Pristigaster lutipinnis*, sp. nov. (28126, 28209, 28320.)

Body elongate, very strongly compressed, especially towards ventral outline; profile nearly straight from origin of dorsal to occiput, where it forms a slight angle; head small, its upper outline but little descending, the lower rapidly rising. Mouth large, very oblique, the lower jaw longest, its tip almost entering upper profile of head; maxillary reaching to or slightly beyond vertical from anterior margin of pupil, its length a little more than half head. Teeth large, in a single series in each jaw; in the upper jaw numerous and comparatively close-set, in the lower few and distant, but considerably larger; margin of maxillary with minute, close-set teeth; palatines and pterygoids toothed, vomer smooth. Eye very large, much longer than snout, and more than one-third length of head. Gill-rakers not longer than pupil, about 18 in number; pseudobranchiæ developed.

Dorsal small, posterior, its origin constantly slightly nearer base of caudal than occiput. Pectorals long, not nearly reaching vent, slightly shorter than head. Anal shorter than in other species, its origin midway between middle of caudal base and front of eye, its base contained  $2\frac{3}{4}$  in body; anterior anal rays highest, a little longer than eye. Lower caudal lobe longest.

Scales thin, very readily deciduous; ventral scutes very strong, running from throat to origin of anal fin. D. 13; A. 53; L. lat. 44; L. tr. about 11; ventral scutes, 29; head,  $4\frac{1}{2}$  in length; depth,  $3\frac{1}{2}$ .

Color: Greenish-olive above, on sides silvery with a tinge of yellow; a small black spot on upper angle of preopercle, and a larger very distinct black humeral spot; a black line along dorsal ridge; end of snout and tip of lower jaw black. Anal and caudal golden yellow on basal portions, the tips transparent, dotted with black; pectorals and dorsal with a yellow blotch on middle of first rays, sometimes largely yellow.

This species is rare at Mazatlan and but few specimens were obtained. It is very closely related to *P. macrops* and *P. dovii*, differing from them chiefly in the fewer rays and backward position of the anal fin. The types are about 6 inches long and are numbered 28126, 28209, and 28320 in the United States National Museum.

3. *Stolephorus ischanus*, sp. nov. (28246.)

Closely related to *Stolephorus browni*.

Body elongate, little compressed and scarcely elevated, nearly as high at nape as at front of dorsal; belly compressed, its edge usually rounded. Head long and slender, its height at occiput but little greater than half its length; opercular margin very oblique, forming a more or less evident angle at junction with subopercle; cheeks triangular, moderately broad; opercle short. Maxillary slender, tapering to a blunt point, not quite reaching opercular margin; teeth small, evident for entire length of both jaws, those near symphysis of lower jaw slightly enlarged. Gill-rakers numerous, of moderate length,

the longest about two-thirds diameter of orbit. Snout long, about three-fourths length of orbit, which is large and contained three and three-fourths times in length of head. Dorsal fin with upper margin straight, the posterior rays not prolonged; origin of dorsal about equidistant from base of median caudal rays and front of orbit. Origin of anal under base of posterior dorsal rays, midway between front of orbit and tip of caudal; its base very short, less than two-thirds length of head. Caudal very short, much less than length of head, the lower lobe the longest. Pectorals broad and short, not nearly reaching base of ventrals, which reach about one-half distance to front of anal. Scales thin, moderately deciduous.

Head,  $3\frac{3}{4}$  in length; depth, 5; eye,  $3\frac{1}{2}$  in head. D. 13; A. 16; Lat. 1.  $39+2$ ; L. tr. 7.

Color: Translucent, with silvery luster; a sharply-defined, bright silvery band on sides, broadest opposite middle or end of anal, and tapering each way; the streak is confined to a single series of scales (being distinctly narrower than in *S. browni*); sides of head bright silvery; top of head blackish above orbits; two large, well-defined clusters of black dots behind occiput, one on each side of median line; between dorsal and occiput from one to three series of scales black margined; behind dorsal the median series only thus margined. Median line of back with a black streak the entire length; tip of snout, median line of head anteriorly, and region behind orbits black-specked.

This species is very common in the harbor at Mazatlan, reaching a length of  $2\frac{1}{2}$  to 3 inches. The types are numbered 29246 U. S. Nat. Mus. This is apparently the species recorded by Steindachner from the west coast of Mexico as *Engraulis browni*. The latter species has a deeper body, distinctly broader silvery stripe, and a larger number (19-20) of rays in the anal fin.

#### 4. *Stolephorus lucidus*, sp. nov. (28121.)

Body closely compressed but not greatly elevated, the dorsal outline with a very weak arch; belly more curved, carinate in front of anal fin, but not serrate. Head short, rather pointed, the margin of opercle and subopercle forming an even curve which is but little oblique.

Maxillary narrow, pointed, reaching to or slightly beyond mandibular joint, but not to gill-opening; teeth very evident along entire length of maxillary and mandible, becoming larger towards symphysis of lower jaw; snout short, projecting, about one-half diameter of orbit, which is about one-third length of head; cheeks oblique, V-shaped, the length more than half head; opercle moderate; gill-rakers not very numerous and rather short, the longest not more than one-half diameter of orbit.

Origin of dorsal fin midway between base of middle rays of caudal and front of orbit; upper margin of dorsal straight, the last rays not prolonged. Dorsal much higher than long, its base equaling about one-

half head. Origin of anal under middle of dorsal, its base a little longer than head. Caudal short, the lower lobe longer than the upper; the median rays about one-third the longest. Pectorals three-fifths length of head, nearly or quite reaching base of ventrals, which are short and do not reach the vent. Scales moderately adherent; dorsal sheath very low; that of anal fin higher.

D. 12; A. 27; Lat. 1. 36 + 2; L. transv. 6. Depth,  $3\frac{3}{4}$  in body; head,  $3\frac{1}{5}$ ; eye, 3 in head; B. 11-12.

Color: Body translucent; scales with a silvery luster; dorsal region much punctate with black and with some yellow speckling which broadly covers the margins of the scales; a distinct dark median line, composed of minute dark specks, along entire length of back; sides with a rather diffuse silvery band, broadest anteriorly, becoming very narrow on caudal peduncle, then expanding to base of fin; it covers less than one row of scales, and is narrower than diameter of orbit; top of head, symphysis of lower jaw, and snout, with much black speckling, the snout yellowish; anal fin thickly speckled at base; anterior rays of dorsal and anal, and lower rays of caudal, with some faint greenish-yellow and more or less black dotting; tip of caudal blackish, more distinctly so at end of lobes.

Common in the harbor of Mazatlan and called *Sardina* in common with the other species of this genus, and *Clupea stolifera*. It reaches a length of 4 to 5 inches. The many types are numbered 28121 in the United States National Museum.

##### 5. *Stolephorus exiguus*, sp. nov. (28120.)

Allied to *S. curtus*, but with much slenderer body and shorter anal fin.

Body not greatly compressed and not elevated; belly compressed, subearinate, serrulate; head rather short, its height at nape more than two-thirds its length; opercular margin not much oblique; cheek narrowly triangular; snout longer than two-thirds diameter of orbit; eye large, three and one-fourth in head; maxillary tapering to an acute point, reaching to or nearly to opercular margin; teeth present in both jaws; in the lower minute and developed on anterior half only; in upper jaw small, but easily perceptible. Gill-rakers short, the longest not more than one-half diameter of orbit.

Origin of dorsal fin midway between base of median caudal rays and middle of pupil; base of fin but little more than one-half length of head. Origin of anal under anterior third of dorsal fin; its base about four-fifths length of head. Caudal short, not nearly equaling length of head. Pectorals not nearly reaching ventrals.

Scales very deciduous.

D. 12; A. 17; L. lat. 38; L. transv. 5. Head,  $3\frac{3}{4}$  in length; depth, 5.

Color translucent; scales with silvery luster; a faint silvery streak along sides, widest and most distinct posteriorly, becoming faint anteriorly, and usually disappearing before reaching head. Scales on back

with dotted margins, no median dark line on back; sides of head bright silvery; top of head dusky posteriorly; caudal and dorsal fins dotted with black, these dots forming two faint blotches at base of caudal; a series of black dots between anal and caudal fins.

About 10 specimens were obtained in the Astillero at Mazatlan, the largest  $2\frac{1}{2}$  inches long. It is apparently less abundant than the other species of this genus in company with which it is found.

The types are numbered 28120 on the register of the National Museum.

6: *Stolephorus curtus*, sp. nov. (29242.)

Body more compressed and elevated than in *S. ischavus*; dorsal outline nearly straight, the ventral scarcely curved except anteriorly; caudal peduncle deep; belly in front of ventral fins sharply compressed, carinate and serrulate. Head short and high, its depth at occiput seven-tenths its length; snout blunt, not much produced; tip of lower jaw in front of eye; maxillary tapering to a sharp point, which usually does not quite reach gill-opening; both jaws with very minute teeth, perceptible towards symphysis of lower jaw, but not laterally. Opercle shortish; cheeks broadly triangular. Gill-rakers on upper limb longest, about two-thirds diameter of orbit. Eye large, contained  $2\frac{3}{4}$  to  $3\frac{1}{4}$  times in length of head.

Origin of dorsal fin midway between base of middle rays of caudal and middle of pupil; the fin short and rather high, its base but little more than one-half length of head; the last rays not produced. Origin of anal fin under middle or anterior third of base of dorsal; the base of the fin moderate, varying from nearly as long as, to a little longer than, head. Caudal short, less than length of head; the lower lobe longest; the fin moderately forked; the middle rays about two-fifths the length of the longest. Pectorals very short and rounded, variable in length, but usually not reaching base of ventrals. Scales thin, caducous.

D. 11 or 12; A. 22 or 23; L. lat. 35; L. transv. 5. Head,  $4\frac{1}{5}$  in length; depth,  $4\frac{2}{3}$ .

Color translucent; sides with a silvery luster; top of head dusky; sides of head and a faint streak along sides of body with silvery pigment; the streak is somewhat indistinct, especially forwards, where it often disappears; basal half of dorsal fin punctate with black and yellow dots; a double series of these dots along base of fin, running back to base of caudal; caudal not black margined; base of anal thickly punctate, a series of dots usually extending back to caudal fin; paired fins immaculate; tip of snout yellowish, without black specks; no dark line in front of dorsal fin.

Many specimens  $2\frac{1}{2}$  inches long were obtained at Mazatlan, where it is common in the muddy waters of the Astillero. The types are numbered 29242 on the register of the National Museum.

7. *Stolephorus miarchus*, sp. nov. (28119.)

A slender species, distinguished by the very small anal fin. Known to us from immature specimens only.

Body very slender, not strongly compressed (perhaps becoming deeper with age); belly not trenchant. Snout sub-conic, compressed. Teeth rather large, distinct in both jaws; maxillary reaching to edge of preopercle. Lower jaw much overlapped by the snout, its tip extending little in front of the eye, which is not especially large.

Insertion of dorsal fin midway between snout and caudal; anal fin extremely short, its first ray inserted under last of dorsal, the length of its base less than that of the caudal peduncle behind it. Scales lost.

Color perfectly translucent in life, with a diffuse silvery lateral shade, but no distinct stripe; clusters of dark points on occiput; base of caudal with dark markings above and below formed of dark points; the entire fin speckled; a small black streak on each side of ventrals; black points at the base of each fin ray.

Head,  $4\frac{1}{5}$  in length; depth, 6.

Dorsal with about 12 rays (11 to 13); anal, 12 to 14.

This species is known to us from eight specimens (28119 U. S. Nat. Mus.), the largest  $1\frac{3}{4}$  inches in length, killed by dynamite cartridges in deep water in the harbor of Mazatlan, where they were exceedingly abundant. They are, of course, immature, but the species to which they belong will be known from all others by the short anal.

8. *Synodus scituliceps*, sp. nov. (28392, 29449.)

Allied to *S. fætens* L., but with a much smaller head.

Body slender, subterete, less depressed than in *S. fætens*. Head very short and slender, its length above not greater than greatest depth of body. Snout pointed, triangular, about as broad as long. Interorbital space slightly concave, about as broad as eye; a longitudinal ridge on each side of its middle, which sends out radiating branches opposite posterior part of eye; preopercle somewhat raised above eye, its margin somewhat serrate; maxillary extending much beyond orbit, its length  $1\frac{2}{3}$  in head; lower jaw a trifle shorter than upper, its symphyseal knob scarcely included. Teeth essentially as in *S. fætens*, the bands, perhaps, a little narrower; palatine teeth forming a very narrow band, which becomes posteriorly a single series. Gill-rakers undeveloped. Branchiostegals, 14. Cheeks with four rows of large scales; opercles with four.

Distance from origin of dorsal fin to adipose fin equal to the distance from the former to the middle of orbit; origin of dorsal nearer to end of snout than to base of caudal by a distance equal to  $\frac{2}{3}$  head.

Dorsal fin much higher than long, the first and last rays coterminous when the fin is deflexed. Caudal well forked, the upper lobe the longer,  $1\frac{1}{3}$  in head; the middle rays scarcely more than one-third the length of the outer. Ventral fins long and pointed, their length scarcely more than half the distance from their base to front of anal,  $1\frac{1}{7}$  in head.

Pectorals short, their length just about half head, equal to length of snout and eye.

Scales comparatively large; 5 series between lateral line and ventrals; 4 between adipose fin and lateral line. Scales of breast little reduced; 11 between the bases of the two pectorals.

Head,  $4\frac{2}{5}$  in length (4 in *S. fætens*),  $5\frac{1}{6}$  including caudal; greatest depth,  $6\frac{2}{3}$ . D. 11; A. 13. Scales, 6-61-6.

Color in life, brownish-olive above, white below; each scale of back with one or more paler flecks; top and sides of head marbled; lower jaw sometimes marked with darker. Pectorals and caudal mostly blackish; adipose fin black, with a pale border; ventrals and anal immaculate. No yellow in life.

Two specimens of this species were obtained, one  $7\frac{1}{2}$  inches long (28392) from the harbor of Mazatlan, the other 7 inches long (29449) from Panama. The species is much like the *S. fætens* of the Atlantic Coast, but may be readily known by the small head and the somewhat larger scales. *Synodus fætens* has been recorded from Panama, by Dr. Günther, but the reference is probably to *S. scituliceps*.

9. *Muraena pinta*, sp. nov. (28238, 28177, 28388, 28197, 29308, 29359.)

Allied to *Muraena lentiginosa* Jenyns.

Body rather stout and compressed. Teeth all comparatively small, subequal, everywhere uniserial; those of the vomer developed only posteriorly and smaller than the others. Two anterior teeth of mandible larger than the other teeth, but hardly canine-like. Lateral teeth of both jaws rather narrow, sharp, directed a little backwards, those of lower jaw smallest. Mouth not closing completely. Jaws about equal. Anterior nostril with the tube two-thirds diameter of eye; tube of posterior nostrils nearly as long as pupil. Cleft of mouth  $2\frac{2}{5}$  in head. Gill-opening longer than eye. Eye  $2\frac{1}{3}$  in snout, a little nearer tip of snout than angle of mouth. Head  $2\frac{2}{5}$  in trunk. Tail a very little longer than rest of body. Dorsal well elevated, beginning in front of gill-opening.

Color rather dark olivaceous-brown above, belly slightly paler, everywhere covered with round or horizontally-oblong light yellow spots, each surrounded by a wide black border. On the body these spots are placed with some regularity; the larger ones, which are a little larger than the pupil, are arranged in 5 or 6 horizontal rows, those of each row being connected by dark streaks two-thirds as wide as their diameter; between the larger streaks are numerous small ones, some of them mere points; all except the very smallest are surrounded by darker rings, and none are indistinct or confluent. The spots are rather larger and brighter and more crowded on the belly than on the back, where the ground color occupies more of the surface than the spots; towards the head the spots become closer together and rather smaller, and on the anterior and lower parts of the head the ground color is reduced to mere reticulations around the spots. Space about gill-opening dusky



Fins colored like the region to which they belong; the dorsal anteriorly with a median row of oblong spots.

The specimen described (No. 28238 U. S. Nat. Mus.) is 18 inches long.

This species is very abundant among the rocks in the harbor of Mazatlan, where numerous specimens were obtained. It is known to the Mexican fishermen as *Anguila pinta*. (From the Latin *puncta*, *i. e.*, punctate.) Another specimen (29359) was obtained by Lieutenant Nichols at San Josef Island.

10. *Muraena pintita*, sp. nov. (28311 U. S. Nat. Mus.)

Subgenus *Gymnothorax*; allied to *Muraena dorii* Günther, but differing in color and proportions.

Tail longer than body, by about two-thirds the length of the head; distance from snout to anterior edge of gill-opening contained  $2\frac{3}{5}$  times in length of trunk. Eye above middle of cleft of mouth; diameter of orbit slightly less than half length of snout. Cleft of mouth rather more than two-fifths length of head. Teeth all uniserial; those in sides of lower jaw small, compressed, directed backward, of nearly equal size, some of the posterior larger than the anterior; front of lower jaw with 4 to 6 moderate, movable canines. Sides of upper jaw with some fixed canines among the smaller teeth; premaxillaries with two rather small movable canines; four small conical teeth in front. Vomer with two large movable canines, distant from each other, the posterior the larger. Mouth capable of being nearly closed.

Tubes of anterior nostrils short, scarcely equaling half the diameter of orbit. Posterior nostrils without tubes. Gill-slit one-third wider than orbit. Dorsal fin beginning much in front of gill-slit.

Coloration: Chestnut-brown; upper parts of body and tail with numerous yellow non-ocellated dots, the largest much smaller than pupil, most of them being minute dots. Dorsal colored like the back. Anal plain brown, becoming darker posteriorly. Head without spots; longitudinal furrows under throat, black.

A single example, 19 inches in length, was taken among the rocks near Mazatlan; the species is called *Anguila pinta* by the fishermen.

11. *Ophichthys xysturus*, sp. nov. (28142, 28247, 29642.)

Subgenus *Pisodontophis*; allied to *O. maculosus* (Cuv.).

Teeth all more or less blunt and granular; a band of three or four series, on each side of lower jaw; a band of two rows, on each side of upper jaw; vomer with a long series divided into two for about half its length. Anterior nasal tubes conspicuous, turned downward. Eye  $2\frac{1}{2}$  in snout; front of eye above middle of gape, the length of which is a little more than one-third of head; the angle of mouth well behind eye. Interorbital width about  $\frac{2}{3}$  length of the rather long and slender snout, which projects much beyond lower jaw, the tip of the latter about reaching middle of snout.

Length of head contained  $4\frac{1}{4}$  times in that of the trunk; head and trunk together shorter than tail, and contained  $2\frac{1}{3}$  to  $2\frac{1}{2}$  times in total length. Pectoral very small, its length about equal to depth of gill-opening. Dorsal beginning close behind nape, much in front of gill-opening; fins low; tail pointed, the tip sharp.

Color light olive; sides each with three series of large round brown spots, those of the two upper series of equal size, those of lower scarcely half as large, faint, and often obsolete anteriorly; the spots irregular in their arrangement, those of the upper series usually twice as numerous as those of the next; those of the upper series along base of dorsal fin extending partly on the base of the fin; lower series of spots along base of anal, some of them extending on the fin or even entirely upon it; on the belly are sometimes small dark spots scarcely arranged in series. Dorsal fin with a terminal series of dark spots, which are partly confluent, the fin narrowly margined with white. Anal reddish, with a lighter margin. Pectoral with a blackish blotch. Head covered with round black spots, which become smaller and more numerous towards the snout. Lower jaw with dark spots. Iris light yellow.

Several specimens, from 1 to 2 feet in length, were obtained.

12. *Ophichthys zophochir*, sp. nov. (28280, 28277, 29220, 29239.)

Allied to *Ophichthys parilis* (Richardson) Günther.

Cleft of mouth wide, the snout much overlapping the lower jaw; length of gape from tip of snout to angle of mouth contained  $2\frac{2}{3}$  times in length of head. Teeth small, sharp, subequal, in two somewhat irregular rows on each of the dentigerous bones; points of the teeth directed backwards; no canines; patch of vomerine teeth long, the two series converging backwards. Eye large, its diameter two-thirds the inter-orbital width, which is slightly less than length of snout. Anterior pair of nostrils at end of anterior third of snout, in a short tube, which is less than one-third diameter of orbit and widened at tip. Posterior nostrils large, below the anterior margin of the orbit, not tubular, but the margin with free dermal flaps.

Gill-opening one-third wider than eye, its upper edge slightly above middle of base of pectoral; length of slits slightly greater than the isthmus between them.

Tail long, very nearly twice as long as rest of body. Length of head contained  $2\frac{1}{2}$  times in that of trunk.

Pectoral fin well developed, its length  $2\frac{1}{2}$  in length of head, in adults; proportionally longer in the young. Dorsal fin beginning slightly in advance of tip of pectorals, well developed, the rays distinct. Tip of tail finless, moderately acute.

Color olive brown, becoming paler on sides, whitish below; snout and mandible blackish, yellowish brown anteriorly; mandible with a series of black pores below; throat yellowish, the color extending up on the opercles. Pectoral blackish, its base pale. Anal with the distal half black. Dorsal with a broad black margin. Length about two feet.

This species is rather common in the rocks about Mazatlan, where it is known to the fishermen as "*Anguila blanca*." Several specimens are in the collection.

13. *Muraenesox coniceps*, sp. nov. (28136, 28141, 28212.)

Body compressed, stoutish, head twice in length of trunk. Snout slender, conical, rather pointed, nearly half longer than broad at front of eyes, the distance between anterior nostrils less than half its length; cleft of mouth from tip of snout  $2\frac{1}{2}$  in length of head; upper jaw projecting beyond the lower; teeth all erect, not very large or sharp and without evident basal lobes; teeth in jaws small, compressed, blunt, triserial, those in the inner series much the largest; teeth in outer series very small and blunt; teeth in front of jaws largest, sharp, forming small canines which are shorter than the pupil; about 23 large teeth in each side of lower jaw; middle series of vomerine teeth compressed, without basal lobes, about ten in number; the outer teeth blunt, much smaller. Both nostrils without tubes, the anterior with a narrow free rim. Eye large, 2 in snout,  $1\frac{1}{2}$  in interorbital width, its front much nearer angle of mouth than tip of snout; anterior nostril nearer tip of snout. Gill-opening beginning below upper edge of pectoral, its length greater than the distance between the two openings. Dorsal beginning above gill-opening, moderately high, its longest rays equal to length of eye and snout. Tail about one-third longer than head and body. Pectorals nearly as long as head, a little longer than cleft of mouth from tip of upper jaw. Lateral line very distinct.

Clear olive brown above, dull whitish below with olive tint; dorsal olive brown; anal dusky; both fins with a black margin becoming wider posteriorly; the caudal nearly uniform black; pectorals black, light olive at base; iris grayish silvery.

This species is not very common among the rocks in Mazatlan Harbor, and is not distinguished by the fishermen by any peculiar name. It reaches a length of three feet, and, in common with the other species at Mazatlan, is occasionally eaten but not highly valued. The specimen here described (No. 28136 U. S. Nat. Mus.) is about 2 feet long. This species was also obtained at Panama.

14. *Atherinella eriarcha*, sp. nov. (29243.)

Body comparatively deep, deepest at base of pectorals, strongly compressed. Head short, less compressed than the body, the snout very short, blunt, and rounded in profile; maxillary very slender, almost reaching the vertical from anterior margin of pupil; cleft of mouth oblique, curved, the lower jaw included. Eye very large,  $2\frac{1}{2}$  in head in the type specimen. Premaxillaries very protractile, narrow. Teeth in a narrow band in each jaw, rather strong, recurved; none on vomer or palatines. Gill-rakers long and slender.

First dorsal very short, its origin slightly behind origin of anal; of three very slender weak spines. Space between first and second dorsal

three-fifths length of head. Second dorsal beginning over middle of anal, terminating slightly in advance of its last ray; the first rays highest. Origin of anal considerably nearer snout than base of caudal. Base of anal oblique, the anterior rays much highest, the posterior very short. Caudal deeply forked. Ventrals short, not reaching front of anal. Pectorals very broad and short, slightly falcate, scarcely longer than distance from snout to posterior margin of pupil.

Scales adherent, with entire edges.

Color transparent, with a wide, very sharply-defined, silvery band along sides, margined above by a narrow dark line; this band abruptly constricted near the middle of the caudal peduncle and again widened at base of tail into a silvery blotch without dark edging; opercles and branchiostegals silvery; lips punctulate with black dots; silvery peritoneum showing through walls of abdomen; caudal dusted with black; a black point at base of each dorsal and anal ray.

Head, 4 in length; depth,  $4\frac{1}{3}$ .

D. III-I, 12; A. I, 27; Lat. I. 36; L. trans. 7.

We refer this species to the genus *Atherinella* of Steindachner, without raising the question of the distinction of the latter group from *Atherina* proper. *Atherinella eriarcha* is known to us from a single young specimen (No. 29243 U. S. Nat. Mus.),  $2\frac{1}{4}$  inches in length, found in a rock pool at Mazatlan. It is distinguished from *A. panamensis* Steind. by numerous characters, notably the much longer anal and shorter pectoral fins.

15. *Caranx vinctus*, sp. nov. (28365, 28366.)

Allied to *C. cibi* Poey.

Body elongate, elliptical, compressed, upper profile evenly arched from snout to caudal peduncle, the lower nearly rectilinear from snout to origin of anal fin; upper profile slightly carinate anteriorly. Width of cheek about equal to diameter of eye. Mouth moderately oblique, the jaws subequal, the lower scarcely included; intermaxillaries anteriorly about on a level with axis of body, just below level of lower margin of eye; maxillary reaching vertical from front of orbit, 3 in head; teeth very small, blunt, in a narrow band in each jaw, becoming a single series in sides of mandible; the outer series slightly enlarged; teeth on vomer, palatines, and tongue similar to those on jaws. Gill-rakers very long, numerous; the longest, two-thirds diameter of orbit, their number about 10-27. Eye large, less than length of snout, about equaling interorbital width, 4 in head. Adipose eyelid moderately developed. Preopercle with its posterior margin very oblique, the angle broadly rounded. Pre-orbital thin, its least width three-fifths diameter of orbit.

Spinous dorsal well developed, the spines high and flexible; the antrorse spine well developed; the fourth spine the longest, the fifth but little shorter; those posterior rapidly decreasing; the fourth spine equals two-fifths length of head; length of longest dorsal ray less than one-half

length of head. Anal spines strong; the soft rays a little lower than those of dorsal. Soft dorsal and anal entirely received within a membranaceous scaly sheath, which is two-fifths the height of the median dorsal rays, and terminates before the ends of the fins, leaving the last two rays free; the two fins not falcate, the rays regularly decreased from the first. Pectorals very long, falcate, reaching much beyond the origin of the anal, and to the twelfth lateral scute; the fins one-third length of body. Ventrals reaching to or slightly beyond the vent, which is nearly equidistant from their inner axil and from second anal spine. Caudal lobes not falcate, the upper slightly the longer, a little less than length of head.

Lateral line with a strong curve anteriorly, the width of which is less than one-half the straight portion; the depth of the curve about one-fourth its width. Plates very strongly developed, extending the whole length of straight portion of lateral line, which begins under first dorsal rays. Top of head, opercles, jaws, and preorbital scaleless or with a very few scattering scales; cheeks scaly, breast entirely covered with fine scales; membrane of caudal fin with series of scales.

D. VIII-I, 24; A. II-I, 19; Lat. 1. 48. Head  $3\frac{1}{2}$ ; depth 3.

Color dusky-bluish above, silvery below, with golden and greenish reflections; eight or nine vertical dark half-bars descend from back to below lateral line, the widest about equaling diameter of orbit, and more than twice as wide as the light interspaces; breast blackish; head dusky; end of snout black; a distinct black blotch on upper angle of opercle. Fins somewhat dusky; pectoral without spot; anal white at tip.

Common at Mazatlan, but not one of the most abundant fishes. Numerous specimens are in the collection.

16. *Serranus calopteryx*, sp. nov. (28123.)

Allied to *Serranus scriba* (L.), but with shorter soft dorsal.

Body elliptical, little elevated, the dorsal outline gently arched. Snout sharp; lower jaw distinctly longest; maxillary reaching vertical from middle of pupil, or beyond; interorbital space somewhat concave and ridged. Teeth small, cardiform, two small canines in front of lower jaw; four in front of upper jaw; the inner series of teeth somewhat enlarged, containing 2 or 3 large fixed canines in the middle of sides of lower jaw, these larger than the canines in front. Strong teeth on vomer and palatines. No supplemental maxillary bone. Gill-rakers short, few in number, about 8 in all. Preopercle nearly evenly rounded, the posterior margin nearly vertical and, as well as the angle, very finely, evenly, and sharply serrated, the serræ on angle scarcely larger; the lower limb nearly entire. Opercle ending in three compressed spines, the middle the largest, the membrane extending much beyond them.

Scales well ctenoid, on cheeks small, in about 11 rows; opercles with about 4 series of large scales; jaws and top of head naked.

Spinous dorsal low, not notched, the first two spines shorter than the others, which are of equal length and shorter than the soft rays; length of spines about equaling distance from snout to middle of eye, 3 in head. Soft dorsal elevated, the anterior rays somewhat shorter than the posterior, the tips of which reach rudimentary caudal rays,  $2\frac{1}{5}$  in head. Anal spines short and strong, the middle one stronger and slightly longer than the third; the second about equal to dorsal spines; anal rays more elevated than those of dorsal, the last ray the longest and about equal to two-thirds length of head. Ventrals reaching vent; pectorals slightly beyond it, two-thirds length of head; ventrals inserted in front of axil of pectorals. Caudal short, somewhat lunate, with the outer rays produced; the fin  $1\frac{2}{5}$  in head. Dorsal and anal scaleless.

Head  $2\frac{5}{8}$  in length; depth  $3\frac{1}{3}$ . D. X, 12; A. III, 7; scales 5-50-15.

Color: Body light olivaceous, the dorsal region with about 12 broad dark brown cross-bands extending from back to below lateral line, where they are interrupted, to reappear on the level of base of pectorals as a series of roundish blotches; those in front pinkish, behind brown. A light streak from nape to front of dorsal, with two parallel ones (usually indistinct) on each side of it. The brown bar immediately behind soft dorsal is replaced by the ground color, but the corresponding brown spot on sides is present. A brownish streak from snout through eye to upper angle of opercle, clear brown anteriorly; suborbital light blue, with a narrow median streak of clear brown; numerous clear brown blotches on top of head. Base and axil of pectorals largely pink, the fin very finely barred (vermiculated) with pink and light blue. Dorsals reddish, with a median light streak, which disappears posteriorly on soft dorsal; distal part of soft dorsal with numerous small dark brown spots, becoming light pink posteriorly and alternating with similar spots of whitish or light blue. A dark brown spot at base of ventrals; one below base of pectorals, and one in front of the latter at margin of gill-opening. Caudal brown at base and on outer rays, pink on inner rays, vermiculated with irregular narrow light blue lines. Anal and ventrals light glaucous blue, thickly marked with brownish-yellow spots.

Five or six specimens of this species were taken in a seine in the Astillero (estuary), at Mazatlan.

17. *Lutjanus colorado*, sp. nov. (28386, 28305, 28261, 28383.)

Body comparatively deep, highest at front of spinous dorsal, and with an angle at origin of soft dorsal. Profile of back evenly arched to origin of dorsal fin; ventral outline rectilinear to origin of anal fin, the base of which fin is very oblique in the young, less so in the adult.

Snout rather short, less acute than in *L. prieto*, less than one-third length of head. Maxillary reaching nearly or quite to vertical from front of pupil,  $2\frac{3}{4}$  in head. Width of cheek from orbit to angle of preopercle

less than snout. Eye, in adult, half the interorbital width and two-fifths length of snout, proportionately larger in the young. Vertical margin of preopercle with minute, even, serrations for its entire length. A shallow emargination above the angle, which is provided with coarser, but still inconspicuous, serrations; lower limb of preopercle smooth on its anterior half.

Upper jaw with a very narrow band of villiform teeth, behind the conical teeth, which are not very large. A single pair, or more usually two unequal pairs, of canines in front of upper jaw, between which is a pair of small teeth. Conical teeth in lower jaw larger than those of upper, close-set, largest in the middle of the jaw, becoming smaller in front and behind; about 8 on each side. Vomerine teeth arranged in a crescent-shaped patch, without backward extension on the median line. Teeth on tongue in two patches, a roundish one anteriorly, usually formed by the junction of three smaller ones, and an oblong patch on the median line behind this.

Gill-rakers distant, few, the longest half length of orbit, their number about 1+7.

Dorsal spines strong, the fourth the longest, the last more than half its length; the fourth spine  $2\frac{3}{4}$  in head, as long as the snout in the adult, a little longer in young. Soft dorsal and anal similar to each other, some of the posterior rays of each being considerably elevated, the fin thus being pointed instead of rounded in outline. In the young these rays are much longer than the dorsal spines and slightly longer than the caudal peduncle. In the adult they are lower but still longer than the dorsal spines. Longest rays of anal about half head.

Caudal not deeply emarginate. Pectorals long, acute, reaching to or beyond vent,  $1\frac{1}{2}$  in head. Ventrals not nearly reaching vent, as long as snout and orbit. Anal spines strong, the second rather longer than third and a little stronger,  $3\frac{1}{2}$  in head.

Scales rather small, the series forming an angle at the lateral line, those below it running the more obliquely, those above lateral line forming nearly horizontal series, parallel with the lateral line. Scales on cheeks in about 7 rows, one row on subopercle and about 7 on opercle. Scales on breast very small, much smaller than those on opercles. Soft rays of vertical fins with accompanying series of scales.

Head  $2\frac{3}{4}$  times in length; depth 3. D. X, 14; A. III, 7; scales 5-47-11; tubes in lateral line 47.

Coloration in life: Above dark olivaceous, each scale with the basal half dark olive brown; sides with or without some silvery luster at bases of scales, forming when present faint longitudinal streaks; head and lower parts of body bright red, especially bright on lower parts of head, the color extending up on the sides for a varying distance; upper jaw and maxillary reddish; upper parts of head dark olivaceous; scales on sides of head without dark spots; a much interrupted light blue line

from middle of preorbital along suborbital, rarely extending behind the orbit, much less distinct than in *L. argentivittatus*, and disappearing in alcohol; cheeks sometimes with bluish spots or lines; inside of mouth red; vertical fins very dark, with more or less reddish; spinous dorsal with a broad median streak of very light slaty blue; pectorals and ventrals reddish, the latter with dusky.

This species is a very abundant food-fish at Mazatlan, being seen daily in the markets. It is preferred (probably on account of its bright colors) as a market fish to the other species of *Lutjanus*. It reaches a weight of about 15 pounds, and is known to the Mexican fishermen as "*Pargo Colorado*."

18. *Lutjanus prieto*, sp. nov. (28196, 28231, 28253, 28384, 29567, 28779, 29787.)

Body comparatively elongate, the back little elevated; profile very gently curved; snout long and pointed, one-third length of head; eye small, less than breadth of the wide preorbital; maxillary barely reaching to opposite front of orbit, its length  $2\frac{2}{5}$  in head; each jaw with a very narrow band of villiform teeth, outside of which is a single series of larger teeth; those in sides of upper jaw small; two in front, however, developed as large fang-like canines, larger than usual in this genus, their length about equal to the diameter of the pupil; a pair of smaller canines near the middle of the upper jaw, between the large ones; conical teeth of lower jaw distant, canine-like, 6 to 8 in number on each side, larger than in any of our other species of *Lutjanus*, much larger than those on sides of upper jaw; teeth on tongue in a large oval patch, in front of which are two smaller patches; teeth on vomer forming a crescent-shaped patch, without backward prolongation on the median line.

Gill-rakers few, not very large, distant, about 1+7. Preopercle with its posterior margin extending very obliquely forward, the angle therefore very obtusely rounded; a broad shallow notch above the angle, the margin above the notch convex, its edge minutely serrulate; a few coarser teeth at the angle; lower border mostly smooth. In the adult the whole margin of the preopercle is without serrations; suprascapular serrate. Posterior nostril nearly round; a single narrow band of scales extending downward and backward from occiput. Dorsal spines rather long, with sharp flexible tips, the fourth the longest, but shorter than the snout,  $3\frac{1}{2}$  in head; anal spines short and strong, much stronger than dorsal spines, the second and third of nearly equal length, the second somewhat strongest, not much longer than diameter of the orbit,  $4\frac{2}{3}$  in head. Soft rays of anal low,  $3\frac{1}{4}$  in head. Caudal fin emarginate,  $1\frac{2}{3}$  in head. Pectorals much longer than ventrals, extending slightly beyond them, their length  $1\frac{2}{3}$  in head.

Scales moderate firm, present on cheek, opercle, subopercle, and in a single series on interopercle. Scales above lateral line forming very



oblique series running upward and backward, not parallel with the lateral line. Scales on breast not very small, smaller than those on opercle. Basal portions of vertical fins scaly.

Head  $2\frac{2}{3}$  in length ( $3\frac{1}{5}$  with caudal); depth  $3\frac{2}{5}$  (4); eye  $5\frac{1}{3}$  in head. D. X, 13; A. III, 7; scales 6-45-11; lateral line with 50 tubes.

Coloration: Back and sides very dark olive brown, the back with a slaty tinge, the sides often with some faint purplish; sides paler below; the belly and lower parts of head white. Each scale on the dorsal region with the basal half dark. Head colored like the body; maxillary brownish, no bluish streak on preorbital. Vertical fins dark brownish; the spinous dorsal olive brown with a narrow dark streak at base and tip; anal with the margin of its first 3 rays white; pectorals olivaceous brown; ventrals dark brownish, becoming reddish at base. Inside of mouth reddish yellow. Young with the margin of spinous dorsal, and most of anal black.

This species is very abundant in the harbor of Mazatlan. It reaches a weight of 15 pounds, and as a food-fish ranks high, little below the "*Pargo Colorado*." It is known to the fishermen as "*Pargo prieto*."

The species of *Lutjanus* found at Mazatlan may be thus compared:

- a. Vomerine teeth forming an anchor-shaped patch, the band prolonged backward on the median line; body rather deep, the back somewhat elevated.
- b. Second anal spine shorter than third; soft fins rather high; teeth weak; snout moderate; scales above lateral line forming oblique series; a temporal as well as an occipital band of scales; dorsal spines slender; pectoral fin long; posterior nostril oblong. Color red; a large black blotch on lateral line below last dorsal spines; back and sides with rows of dark spots following the series of scales; fins reddish.

GUTTATUS.\*

- bb. Second anal spine longer than third; teeth strong, the upper canines very large; snout long and pointed, the preorbital broad; scales above lateral line forming series parallel with the lateral line; one narrow occipital band of scales; dorsal spines strong; pectoral fin long; posterior nostril slit-like. Color brownish, with faint silvery streaks along the rows of scales on sides; a light blue streak along preorbital and suborbital usually interrupted and often extending on the opercle; fins mostly pale..... ARGENTIVITATUS.†
- aa. Vomerine teeth forming a crescent-shaped patch, without prolongation on the median line.

\* *Mesoprion guttatus* Steindachner, Ichthyol. Notiz. ix, 18, 1869, taf. viii. Mazatlan (Steind.; Gilb.); Panama (Gilb.). This species has been erroneously confounded with the West Indian *L. synagris* (L.) J. & G. (= *Mesoprion uninotatus* C. & V.), a species not yet known from the Pacific.

† *Mesoprion argentivittatus* Peters, Berlin. Monatsber. 1869, 704. Mazatlan (Peters; Gilb.); Acapulco (Gilb.), Panama (Gilb.). This species has been confounded with the closely-related *L. caris* (*M. griseus* C. & V.) of the Atlantic. The latter is best distinguished by the direction of the rows of scales above the lateral line, which are not throughout parallel with the latter.

- c. Scales above the lateral line forming oblique series; teeth very strong; lower jaw with about 8 canines, which are not much smaller than the canines of the upper jaw; posterior nostril nearly round; a narrow occipital band of scales; anal spines graduated; dorsal spines ten, rather slender; pectoral shortish, not nearly reaching anal; soft rays rather low; body rather elongate, the back not arched. Color dark brown; ventrals and anal largely blackish. . . . PRIETO.
- cc. Scales above the lateral line forming horizontal series parallel with the lateral line; teeth rather strong; the large teeth of the lower jaw not canine-like, much smaller than the upper canines; posterior nostril oblong; occipital band of scales very narrow.
- d. Body rather deep, the depth about equal to length of head; scales rather small and firm, in five series above lateral line; second anal spine larger than third; dorsal spines ten, rather low and strong; soft rays of dorsal and anal high; pectorals long, about reaching anal. Color red, dusky above; a short blue streak on suborbitals; anal and ventrals largely dusky . . . . . COLORADO.
- dd. Body elongate, the back not elevated, the depth less than length of head; scales large and rather thin, in four series above lateral line; dorsal spines eleven, high and slender; second anal spine smaller than third; soft dorsal and anal low; pectorals much longer than ventrals, but not reaching vent. Color brown, with broad silvery stripes along the rows of scales; young with silvery bars; lower fins dusky . . . . . ARATUS.\*
- aaa. Vomerine teeth unknown; body elongate, the depth less than length of head; second anal spine longer than third; dorsal spines ten, low; pectorals very short, not longer than ventrals; scales rather small. Color purplish-brown, the centers of the scales paler; body with nine faint vertical bars; upper fins edged with dusky; base of pectoral dark . . . . . NOVEMFASCIATUS.†

19. *Micropogon ectenes*, sp. nov. (28295, 29538, 28336, 28361.)

Head  $3\frac{1}{4}$  in length ( $3\frac{2}{3}$  with caudal); depth  $3\frac{1}{5}$  ( $4\frac{2}{5}$ ). Length (28295)  $16\frac{1}{2}$  inches. D. X-I, 25 or X-I, 24; A. II, 7 or II, 8; scales 7-53-13; tubes of lateral line 54.

Body rather elongate, slenderer than in *M. undulatus*, moderately compressed, the back little elevated; anterior profile straightish or slightly undulate. Head long, rather low, the snout long, and abruptly truncate at the tip, which projects but little beyond the premaxillaries. Mouth nearly horizontal, the lower jaw included, the maxillary barely reaching to opposite front of eye; its length  $3\frac{1}{6}$  in head. Teeth in rather broad bands, the anterior in upper jaw little enlarged.

Snout with the usual lobes and pores at tip, its length  $3\frac{1}{6}$  in head; chin with 5 large pores; about four small barbels on the inner edge of each dentary bone anteriorly. These are rather shorter than the posterior nostril, which is oblong and much longer than the anterior nostril.

Eye rather large, 6 in head,  $1\frac{1}{2}$  in interorbital width, a little more than half snout, a little less than preorbital width. Preopercle with numerous rather strong teeth above the angle which has two large,

\* *Mesoprion aratus* Günther, Proc. Zool. Soc. Lond. 1864, 145. Mazatlan (*Gilb.*); Punta Arenas (*Gilb.*); Chiapani (*Gthr.*); Panama (*Gthr., Gilb.*).

† *Lutjanus novemfasciatus* Gill, Proc. Ac. Nat. Sci. Phila. 1862: *Mesoprion inermis* Berlin. Monatsber. 1869, 705. Cape San Lucas (*Gill*); Mazatlan (*Peters*). Not obtained by Mr. Gilbert.

strongly-divergent teeth; the lower of these is directed obliquely downward. Gill-rakers short. Pseudobranchiae well developed.

Scales of moderate size, those on the breast little reduced. No scales on the dorsal or anal, except a basal series. Caudal largely scaly; about 20 scales in an oblique series from front of anal upward to spinous dorsal; 18 from vent upward to soft dorsal. Lateral line becoming straight well in advance of anal.

Spinous dorsal high, not higher than in *M. undulatus*, its third spine not very much shorter than the fourth. Third spine varying in length, about 2 in head ( $1\frac{3}{4}$  to  $2\frac{1}{3}$ ); all the spines freely flexible; longest soft ray  $3\frac{1}{4}$  in head. Caudal slightly double-concave, the upper, middle, and lower rays about equal,  $1\frac{3}{4}$  in head; lower rays shorter in young specimens; anal small, ending well in advance of posterior ray of dorsal; second anal spine rather small, its length  $3\frac{2}{5}$  in head; longest soft ray  $2\frac{1}{2}$  in head. Pectoral fin very long and pointed, reaching past ventrals, but not to vent, its length  $1\frac{1}{6}$  in head. Ventrals with the first ray filamentous;  $1\frac{4}{5}$  in head, without filament.

Color grayish silvery, without brassy tinge; dorsal region and sides above lower edge of pectorals marked with dark streaks extending obliquely upward and backward along the series of scales. Besides these, about ten short oblique dark bars extending downward and forward, crossing the arched portion of the lateral line, the longest of these about as long as snout; lining of gill-cavity blackish; peritoneum pale; fins all yellowish, the tip of spinous dorsal blackish; upper edge of pectoral and border of soft dorsal dusky; region above and below base of pectoral with dark punctulations.

This species is rather common at Mazatlan, where it is known as "*Corbina*." It was not noticed at Panama, where its place is taken by the closely related *Micropogon altipinnis*. It is closely allied to *Micropogon undulatus* (L.) C. & V., of the Atlantic coast, differing in its more elongate body, rather larger scales, &c. The color and number of fin rays are also somewhat different in the two species. From *M. altipinnis*, to which it is still more closely allied, it differs chiefly in the smaller scales and greater number of dorsal rays.

20. *Sciæna icistia*, sp. nov. (28182, 28228, 28275, 28368, 29566, 29613, 29615, 29775, 29790.)

#### Subgenus *Bairdiella* Gill.

Body elongate, compressed, the back a little elevated; snout very short, compressed, and rather blunt, 4 in head; mouth moderately wide, oblique; lower jaw somewhat included; maxillary reaching vertical from posterior margin of pupil,  $2\frac{2}{3}$  in head; upper jaw with a narrow band of villiform teeth and an external series of somewhat larger teeth; lower jaw with a single series of teeth smaller than the enlarged teeth of upper jaw and more close-set; in front this series broadens into a narrow band.

Chiu with 4 pores; premaxillaries on the level of lower part of pupil projecting beyond snout. Interorbital region slightly depressed. Gill-rakers long and strong, about 6-17 in number. Preopercle with its lower edge smooth, the posterior edge armed with distinct spines, the three spines nearest the angle much the longest, the lowest directed vertically downward and somewhat forward. Eye large, its diameter slightly less than length of snout and than interorbital width,  $4\frac{2}{3}$  in length of head. Scales rather small; series of small scales on membrane of dorsal and anal; lateral line little arched, becoming straight opposite interval between vent and anal.

Spinous dorsal high, the spines all very slender, weak, and flexible, more slender than in other species of this subgenus; the third and fourth about equal, much longer than the others, the upper margin of the fin very oblique; the longest spine about seven-tenths length of head, much longer than the soft rays, which are about  $3\frac{1}{2}$  in head.

Second anal spine exceedingly strong,  $1\frac{3}{4}$  in head, about four-fifths length of fourth dorsal spine, and about as long as first soft ray of anal; middle rays of caudal slightly produced,  $1\frac{1}{2}$  in head, the fin subtruncate. Ventrals long, their length more than half the distance from their base to origin of anal. Pectorals not reaching vertical from tips of ventrals, about equal to them in length,  $1\frac{1}{2}$  in head.

Head  $3\frac{2}{5}$  in length (4 with caudal); depth  $3\frac{2}{5}$  ( $4\frac{1}{5}$ ). D. X-I, 25; A. II, 8; scales 9-62-15; Lat. I. with 52 tubes.

Color grayish silvery above, silvery on sides and below; dorsal region with faint streaks produced by darker centers of the scales. Spinous dorsal blackish, darker on membrane of first spine, the soft portion as well as the caudal yellowish-dusky. Ventrals and pectorals pale, each with a faint yellowish blotch; axil of pectoral black above; anal pale.

This species differs from *Sciæna armata* (*Bairdiella armata* Gill = *Corvina acutirostris* Steindachner) in the much longer and more slender dorsal spines, as well as in various details of form. The teeth of the lower jaw are also quite different.

*S. icistia* is very common at Mazatlan, where it is known as "*Corbineta*". It reaches an average length of 6 inches, and is little valued as a food-fish. Many specimens were obtained.

21. *Scarus perrico*, sp. nov. (28328 U. S. Nat. Mus.)

Subgenus *Hemistoma*\* Sw.; allied to *S. chlorodon* Jenyns.

Body robust, deep, compressed; top of head with a very large adipose hump. Teeth green; no pointed teeth at angle of mouth; upper lip covering about half the surface of the upper dentary plate; lower lip covering base only of lower dentary plate. Cheeks with two rows of scales, the lower of four, the upper of five; lower limb of preopercle wholly naked. Caudal fin somewhat rounded, its lobes not produced. Pectoral fin three-fourths length of head; ventrals inserted under front of pectorals.

\* *Hemistoma* Swainson, 1839 = *Pseudoscarus* Bleeker, 1861.

Coloration in life: light brownish, with some greenish shading on sides and bluish-green on caudal peduncle; fins all bright blue; snout and forehead bluish; orbits surrounded by radiating dots and dashes of green. In spirits: a yellowish area below and in front of eye; upper edge of dorsal and lower edges of caudal, anal, and ventrals yellowish, as is the lower side of the head.

Head, 3 in length; depth,  $2\frac{1}{2}$ . D. IX, 10; A. II, 9; Lat. 1. 24.

This species is very common in the rocks about Mazatlan, where it is called *Lora* or *Perrico*, both words meaning parrot. It is seldom caught and is not eaten. One specimen, 23 inches in length, was procured, and is the type of the species.

22. *Pomacanthus crescentalis*, sp. nov. (28139.)

Subgenus *Pomacanthodes* Gill; allied to *Pomacanthus zonipectus* (Gill) Gthr.

Body broadly ovate, with short and slender caudal peduncle. Head deeper than long, the profile very steep and uneven; a bulge above the occiput, another above the eye, and another at the premaxillaries, the interspaces between these concave. Eye broader than preorbital,  $3\frac{1}{2}$  in head (in the largest specimen), its diameter half the width of the cheeks below it. Eyes proportionally larger in smaller specimens. Vertical limb of preopercle minutely serrate, the spine at the angle about as long as pupil. Mouth small, with broad bands of setiform teeth as in other species. Length of mandible half greater than diameter of eye. Gill-rakers very short; gill-membranes narrowly joined to the isthmus.

Dorsal spines rapidly graduated, the last (eleventh) spine two-thirds to three-fourths length of head, three-fifths the height of the soft rays of dorsal. Anal spines long, stronger than those of dorsal, rapidly graduated. Soft rays of anal lower than those of dorsal, the outline of the fin rounded. Soft dorsal highest towards the front, the rays more rapidly shortened posteriorly than those of anal. Caudal peduncle deeper than long, the fin somewhat rounded. Pectoral fins short, reaching scarcely past vent, a little shorter than head. Ventrals elongate, the first ray filamentous; the fin one-third longer than head, reaching third anal spine.

Head everywhere scaly, the scales of head, breast, and front of back, very small; anteriorly reduced to shagreen-like roughness, as in *Pomacanthus arcuatus*. Scales of body irregular in size, very rough; large and small ones closely intermixed.

Head  $3\frac{1}{2}$  in length; depth  $1\frac{1}{2}$ . D. XI-23; A. III, 22; Lat. 1. ca. 70.

Color brownish-black, becoming pure black on dorsal and anal fins; top of head with a median line of bright yellow which divides on the snout, a branch passing down on each side of mouth, the two meeting, or nearly meeting, on the throat; a small white spot on chin; sides with five very distinct narrow bright yellow cross-bars, strongly convex for-

wards; the first from front of dorsal, touching posterior margin of orbit, extending along preopercle to base of spine, then turning abruptly backwards, the two meeting on belly immediately in front of ventral fins; the second from immediately in front of anal base, in a strong curve behind base of pectorals, reaching dorsal at base of seventh and eighth spines, thence narrowed and continued backwards on the fin; the third extends from eighth and ninth soft rays of dorsal to the fourth and fifth of the anal, the fourth from end of dorsal base to end of anal base, the two latter bands much curved and continued backwards on dorsal and anal fins, the attenuated ends sometimes blue; the fifth bar crosses the caudal near its base, and runs back on fin above and below. Between these yellow bars and parallel with them are numerous narrow blue lines. Dorsal blue-edged anteriorly, this color a backward continuation of the first bands. Caudal translucent with a vertical series of short linear black blotches.

This species is said by the fishermen to be common among the rocks in Mazatlan Harbor, and is called by them *Muñeca*. But two specimens were seen by the collector. Several others were afterwards obtained at Panama, where it is very common.

23. *Gobiesox zebra*, sp. nov. (29250.)

Body comparatively very long and narrow, the greatest width about one-fifth the total length. Head narrow, depressed, its width about  $4\frac{1}{2}$  times in length of body. Eye small, its diameter about half interorbital width. Opercular spine well developed. Ventral disk nearly as long as head. Mouth rather small, anterior, maxillary reaching front of eye. Incisors of lower jaw nearly horizontal, rather broad, three-lobed at tip, the middle cusp the longer. Upper teeth much smaller, the median ones compressed, blunt, close set, a little shorter than the lateral teeth and with dentate edges; one or two series of small teeth close behind them. Anal beginning under middle of dorsal; the distance from insertion of dorsal to base of caudal is contained  $3\frac{2}{3}$  in length; pectoral half as long as head; caudal truncate with rounded angles.

Head  $3\frac{2}{3}$  in length; depth nearly 8. D. 7; A. 6.

Back with five dark cross-bars about as wide as the interspaces, three of them in front of the dorsal fin, the two anterior much broader and more distinct than the others; these bars are all distinct on the back, fading on the sides, which are often vaguely clouded with dark; the color of these dark bars varies from reddish-brown to black, and that of the interspaces from olivaceous to light pink and bright rose-red; top of head bright red, marbled with light slaty-bluish; a black blotch on opercle, and two very distinct black cross spots, one on each side of median line, forming the front of first dorsal bar; sometimes cheeks with 2 or 3 pale bluish streaks; dorsal, pectoral, and caudal more or less shaded with dusky; lower fins pale; usually a dark bar at base of caudal and one across middle of the fin.

Very abundant in the rocky tide-pools around Mazatlan, hiding under the numerous sea-urchins. About 30 specimens were collected, the largest nearly 3 inches long.

24. *Gobiesox eos*, sp. nov. (29247.)

Body comparatively short, stout, and narrow, the head rather broad, but, as well as the body, much less depressed than in *G. erythrops*; the width of the head less than its length, contained  $3\frac{2}{3}$  times in body; incisors serrate or tricuspid, the teeth as in *G. zebra*. Eye moderate, about  $1\frac{1}{2}$  in interorbital space, which is about  $3\frac{1}{2}$  in head. Pectoral about one-half length of head. Ventral disk shorter than head. Distance from base of caudal to front of dorsal  $3\frac{4}{5}$  in total length. Caudal truncate. Head 3 in length; depth  $5\frac{1}{2}$ . D. 6; A. 6. Bright rosy red, sometimes made dusky above with black points; back with from one to three faint dark bars; three dark lines downwards and backwards from orbit, and usually one or two more on the opercle; caudal usually with a reddish bar at base and a dusky one towards tip; fins otherwise nearly plain.

Very abundant in the rock-pools, where it is nearly always found, in company with *G. zebra*, hiding under the sea-urchins. The largest examples seen are about  $1\frac{1}{2}$  inches long.

25. *Gobiesox erythrops*, sp. nov. (29248.)

Head scarcely longer than broad, proportionately very broad and depressed, its breadth three times in total. Incisors in both jaws entire and rather broad, the lateral teeth, as usual, pointed; no canines. Eyes very large, considerably wider than the narrow interorbital area,  $3\frac{1}{2}$  in head; interorbital area nearly 5 in head. Ventral disk a little longer than head,  $2\frac{2}{3}$  in body. Pectoral about one-third length of head. Distance from front of dorsal to caudal,  $3\frac{2}{5}$  in body. Caudal truncate with rounded edges.

Head  $2\frac{1}{2}$ ; depth 6. D. 6; A. 5.

Light olivaceous; body with three or four bars of cherry red; head marbled with red; eyes intensely cherry red, their upper border blackish; fins pale, the upper mottled with reddish; caudal barred with red.

But two specimens,  $1\frac{1}{2}$  inches long, taken in a rock-pool; evidently rare. A specimen of this species from the Tres Marias Islands, is in the collection at Woodward's Gardens, San Francisco.

26. *Gobiesox adustus*, sp. nov. (29249.)

Head and body broad and flat, much depressed; width of head nearly equal to its length,  $3\frac{2}{3}$  in body. Incisors in middle of lower jaw broad, entire; those in upper jaw narrow, blunt, little compressed, entire, shorter than the lateral teeth; behind these two or three series of smaller teeth. Eyes rather large, separated by a broad interorbital space, which is one-third the length of the head and about half greater than diameter of eye. Opercular spine sharp. Pectoral short, about half

length of head; ventral disk as long as head; distance from base of caudal to front of dorsal equaling three-tenths of the length; caudal rounded behind.

Head 3 in length; depth  $5\frac{1}{2}$ . D. 9; A. 7.

Brown, banded with blackish on body, the head marbled with darker brown; front of dorsal black, the fins dusky with dark points.

Three specimens, the largest about 2 inches long, were obtained in a tide-pool at Mazatlan. The species is evidently not common.

27. *Gobiosoma zosterurum*, sp. nov. (29245.)

Body long, slender, its greatest depth less than greatest depth of head. Head long, slender; mouth large, the lower jaw projecting; maxillary extending slightly beyond posterior edge of orbit. Eye rather large, longer than snout,  $3\frac{2}{3}$  in head; the interorbital space narrower than the pupil. Teeth small, in villiform bands, the outer in the upper jaw slightly enlarged. Snout rather pointed, subconical, the profile not very gibbous. Spinous dorsal high, the spines slender, the anterior filamentous, its height considerably more than greatest depth of body. Ventrals  $1\frac{2}{3}$  in length of head; pectorals short, half length of head. Caudal  $\frac{2}{3}$  length of head, skin wholly naked.

Head  $3\frac{1}{3}$  in length; depth  $6\frac{2}{3}$ ; D. IV-10; A. 12. Olivaceous, vaguely barred, everywhere closely punctate with darker, even the belly not pale; lower parts of head thickly punctate with dark dots like the sides; sides of body and head with some faint pale spots; caudal with two distinct black lengthwise bands, its upper and lower edges white, the middle part colored like the body; dorsal and anal largely black, with pale edgings; pectorals and ventrals dusky.

A single specimen about  $1\frac{1}{2}$  inches long was taken with a seine in the Astillero at Mazatlan.

28. *Clinus zonifer*, sp. nov. (28122.)

Subgenus *Labrosomus* Swainson; allied to *Clinus delalandi* C. & V.

Form rather stout, compressed; snout not very short, rather pointed, the profile gibbous above the eyes, thence declining straight to the tip of the snout; mouth rather small, the maxillary reaching front of eye; eye large,  $3\frac{1}{2}$  in head, as long as snout; small slender cirri above the eyes, and a fringe of rather long filaments at the nape rather longer than the orbital cirri. Outline of spinous dorsal emarginate; first spine a little longer than eye, the second, third, and fourth progressively shortened, the fifth again longer; the eighth to eleventh spines are the longest, thence gradually decreasing to the next to the last, which is much shorter than the last; soft dorsal rays considerably higher than the spines, the longest about one-half length of head. Anal long, not very high, the membrane deeply notched between all but the last six rays, which are the highest. Pectorals five-sixths length of head;



ventrals as long as from snout to edge of preopercle. Belly naked anteriorly; the scales small, cycloid; lateral line complete.

Head  $3\frac{1}{2}$  in length; depth  $4\frac{1}{2}$ . D. XIX, 9; A. II, 19; Lat. 1. 53.

Color olivaceous, darker above, much mottled and speckled with clear dark brown; sides with five distinct irregular dark brown bars, extending from base of dorsal to level of lower margin of pectoral, their lower edges connected by a vague undulating longitudinal band; a blackish blotch on occipital region, and black blotches on cheeks, opercles, and before base of pectoral; opercle with several narrow pinkish streaks; head below with narrow streaks formed by series of dark brown spots; an interrupted brown bar across lower jaw; belly unspotted; ventrals pale; other fins all barred with narrow series of dark brown dots; anal somewhat dusky.

*Clinus zonifer* is the most abundant denizen of the rock-pools around Mazatlan, with the single exception of *Gobius saporator*, and reaches a length of about three inches. This is the species mentioned by Mr. Lockington (Proc. Acad. Nat. Sci. Philad. 1881, 114) as *Clinus phillipi* Steind., from the Gulf of California.

29. *Tripterygium carminale*, sp. nov. (28118.)

Body rather slender, heavy forwards, rapidly tapering behind. Head short, the snout low and rather pointed, the profile straight and steep from the snout to opposite the front of the eyes, there forming an angle and extending backwards nearly in a straight line. Eyes very large, longer than snout, 3 in head, high up and close together. Mouth wide, the jaws subequal, the maxillary extending backwards to front of pupil. Teeth moderate, essentially as in species of *Clinus*, those of the outer series enlarged. No evident cirri on the head. Scales on body of moderate size, ctenoid, the edges strongly pectinate; belly naked; lateral line extending to opposite last ray of soft dorsal, ascending anteriorly but without convex curve. Dorsals three, the first and second contiguous, the second and third well separated; first dorsal of three spines, the first of which is the highest and about as long as diameter of eye; the second dorsal of higher and slenderer spines, the anterior the highest, the longest about equaling greatest depth of body; soft dorsal shorter and a little lower than second spinous dorsal. Caudal small. Anal long, beginning nearly under middle of spinous dorsal. Pectoral long, longer than head, reaching much past front of anal. Ventral three-fourths length of head.

Head  $3\frac{2}{3}$  in length; depth about  $5\frac{1}{2}$ . D. III-XII, 9; A. II, 17; Lat. 1. 40.

Color light brownish, with four dark brown cross-bars on sides, about as wide as the interspaces, which are marked with more or less reddish and with some lighter spots; belly pale; space behind pectoral dark; a dark bar downward and one forward from eye. First dorsal mottled with darker, second and third dorsals nearly plain; a narrow dark bar

at base of caudal, and a broader one towards tip, the fin sometimes entirely black, pectorals somewhat barred; lower fins plain.

This species is represented in our collection by four specimens, each about  $1\frac{1}{2}$  inches long, taken from a deep tide-pool at Mazatlan.

30. *Salarias chiostictus*, sp. nov. (28117.)

Body moderately elongate, compressed, the head short, blunt, almost globular, about as broad as deep, and a little longer than broad. Mouth inferior, without lateral cleft, the lower jaw included; width of cleft of mouth two-thirds length of head. Teeth small, weak, finely pectinate; canine teeth small, not so long as diameter of pupil. Supraorbital cirrus divided in four, its height three-fourths that of the eye. Eye  $3\frac{3}{8}$  in head. Interorbital space channelled, narrower than eye. Maxillary extending to behind middle of eye. No crest on top of head. First dorsal low and even, its spines rather slender, the last spines short, scarcely connected by membrane with the soft rays; soft dorsal well separated from caudal. Caudal subtruncate, with rounded angles. Anal lower than soft dorsal, with a little longer base. Pectorals a little longer than head; ventrals about half as long.

Head  $4\frac{1}{5}$  in length; depth  $5\frac{1}{4}$ ; D. XII-15; A. 15.

Color in life: Olive brown above, lighter below; five broad dark bars from dorsal fin to middle of sides, each terminating above on the fin, and below on sides in a pair of black spots; sometimes only the spots are distinguishable, the bars being obscure; sides below spinous dorsal with numerous black specks, and with numerous oblong spots of bright silvery; sometimes a silvery streak from upper portion of base of pectorals to base of caudal; a broad salmon-colored streak on each side of ventral line; sometimes the space between the silvery lateral band and the base of the anal is darker, the vertical bars again appearing as pairs of black, vertical blotches. Head yellowish olive, darker above and reticulated with narrow brown lines, these appearing as parallel bars on the upper lip and radiating from the median line on the under side of the head. Vertical fins light grayish, with black spots, which appear as wavy bars on the caudal fin. Pectorals and ventrals pale, the former with a yellowish shade at base. Orbital tentacles bright red.

This species is known from four specimens (the largest  $2\frac{1}{4}$  inches in length), taken in a deep rock pool at Mazatlan.

31. *Fierasfer arenicola*, sp. nov. (29244.)

Body with nape slightly elevated, thence tapering regularly to the tail. Snout blunt, rounded, protruding; the mouth subinferior, nearly horizontal, large, the lower jaw included; gape wide, the maxillary one-half length of head, extending beyond the vertical from orbit; teeth in upper jaw very small, acute, in a narrow band, none of them enlarged; those in lower jaw and on vomer blunt, conic, in a wide band; those in outer series acute; a few on each side of mandible, and two or three anteriorly on vomer enlarged, canine-like.

Gill-openings very wide, the branchiostegal membranes little united, leaving nearly all of isthmus uncovered; the membranes united as far back only as vertical from end of maxillary. Opercle adherent above the upper angle, which is produced in a point extending above the base of pectorals. Below the angle the opercular margin runs very obliquely forwards. Eye large, equaling length of snout, greater than interorbital width.

Origin of dorsal fin distant from nape by the length of the head; the fin a very inconspicuous fold anteriorly, becoming higher posteriorly, where the rays are evident. Anal well developed along entire length, beginning immediately behind vent and running to tail; its rays visible. Caudal exceedingly short. Pectorals very well developed, more than half length of head. Vent just in front of base of pectorals.

Head  $6\frac{1}{2}$  in length; depth  $10\frac{1}{2}$ ; eye 5 in head.

Head and body perfectly translucent; a faint silvery luster on middle of sides anteriorly; a few inconspicuous small light yellowish spots along middle of sides (disappearing in alcohol); tip of tail dusky; upper margin of orbit black.

A single specimen,  $3\frac{1}{4}$  inches long, was found buried in the sand at low-tide on the beach of Mazatlan.

32. *Etropus crossotus*, gen. and sp. nov. (*Pleuronectidæ*.) (28124.)

CHAR. GEN.—Eyes and color on the left side. Body deep, regularly oval. Head small; mouth very small, the teeth close set, pointed, in a single series, mostly on the blind side. Eyes narrow, separated by a narrow scaleless ridge. Margin of preopercle free. Ventrals free from the anal, that of colored side on ridge of abdomen. Dorsal beginning above eye; caudal fin double truncate; anal fin not preceded by a spine; scales thin, ctenoid on left side, smooth on blind side; lateral line simple, nearly straight. ( $\epsilon\tau\rho\upsilon\varsigma$ , abdomen;  $\pi\omicron\upsilon\varsigma$ , foot; the ventral being on the ridge of the abdomen.)

CHAR. SPEC.—Body oval, strongly compressed, with the dorsal and ventral curves nearly equal; both outlines strongly arched anteriorly. Head very small; snout short; mouth very small, its cleft not so long as the diameter of the orbit. Teeth conical, pointed, close-set, strongly incurved, in a single series. Those in the upper jaw on the blind side only; those in the lower jaw, on both sides. Eyes large, the lower in advance of the upper, the two separated by a very narrow scaleless ridge, which extends backward above the preopercle. Edge of opercle on the blind side, with a row of conspicuous white ciliae. Upper nostril turned somewhat to blind side; anterior nostril of left side, with a very slender cirrus.

Dorsal fin commencing over front of upper eye, its middle rays highest, the anterior not elevated. Anal fin not preceded by a spine, its middle rays highest. Caudal fin very sharply double-truncate; as long as head. Pectorals short, that of left side the longer, about three-

fourths length of head. Ventral of colored side on the ridge of the abdomen; the membrane of its last ray nearly reaching base of first ray of anal. Ventral of blind side longer than the other, half the length of the head, inserted farther forward than the ventral of colored side. Vent lateral, with a well-developed anal papilla.

Scales thin, large; etenoid on colored side, smooth on blind side, those on the middle part of the body larger. Head entirely scaly, except snout and interorbital ridge. Rays of vertical fins, with scales on the basal half, on colored side. Lateral line developed equally on both sides, nearly straight.

Head  $4\frac{1}{5}$  in length; depth  $1\frac{9}{10}$ . D. 80; A. 61; V. 6; Lat. l. about 48.

Color light olive brown, with some darker blotches. Vertical fins finely mottled and streaked with black and gray. Pectoral and ventral of left side spotted.

A single specimen, about 5 inches long, was taken with a seine in the Astillero at Mazatlan. Numerous others were afterwards obtained at Panama.

33. *Malthe elater*, sp. nov. (28127.)

Body very broad and depressed, the disk considerably broader than long, its width  $1\frac{2}{5}$  times in length of body; back and snout considerably raised above rest of body; greatest depth of body scarcely more than width of mouth. Mouth small, its width half greater than diameter of orbit. Snout very short, scarcely projecting beyond mouth, its length about equal to the interorbital width, shorter than its own width in front. Eye rather large, much longer than snout, wider than the interorbital area. Process representing first dorsal spine present, small. Skin covered with spines which are comparatively slender and sharp, their stellate bases inconspicuous; the spines on snout and middle of back and tail largest, much slenderer and sharper than in *M. notata*. No spines on ocellæ of back. Belly rough. Under side of tail with tubercular plates. Tail depressed towards base of fin. Soft dorsal and anal so shrunken that the rays cannot be counted. Pectorals one-third longer than ventrals, their length  $1\frac{2}{3}$  width of mouth. Caudal a little longer than pectoral,  $4\frac{1}{3}$  in body. Length 4 inches.

Color light olive, above everywhere thickly and uniformly covered with small round spots of dark brown, these about as large as the pupil, and about as wide as the lighter interspaces. A conspicuous ocellus, larger than eye, on each side of back. This ocellus has a bright yellow central spot surround by a black ring, around which is a pale ring, and finally a fainter dark one. Under parts plain white. Pectorals spotted; caudal yellowish at base with a terminal blackish band.

A single specimen was collected in Mazatlan Harbor and presented to the National Museum by Dr. J. U. Bastow. Two other specimens were afterwards seen but not obtained. The species is evidently rare at Mazatlan, and is unknown to the fishermen.