

DESCRIPTION OF EIGHTEEN NEW SPECIES OF FISHES FROM  
THE GULF OF CALIFORNIA.

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In July, 1887, the writers spent some time at Guaymas, on the east coast of the Gulf of California, making collections of fishes and other objects of natural history, in the interests of the institutions with which they are respectively connected (De Pauw University and the Indiana State Normal School) and of the Indiana University.

Among the fishes collected at this time eighteen species appear to be new to science. The types of all these are now in the United States National Museum.

A detailed account of the general collection is now in preparation and will soon be ready for publication.

We desire in this connection to express our indebtedness to Dr. David Starr Jordan for the use of his library and collections.

1. *Siphostoma arctum*, sp. nov. (Type, No. 39639. U. S. N. M.)

Head 11 in body to base of caudal; depth 20; dorsal 20, on about 0+5 rings; rings 15+39.

The top of the head scarcely carinated, the opercle without a prominent ridge. Snout 2.35 in head, keeled in the median line. Dorsal slightly higher than the width of a body ring, its length about equaling the head. Pectoral 3 in head. Distance from tip of snout to vent equals one-half the length of the tail. Caudal is about 3 in head.

Color in alcohol pale, with no evident markings except on the under side of the tube of the snout, and as far back as the posterior margin of the eye, where there are dark mottlings.

One specimen was obtained from the bay at Guaymas, 9<sup>cm</sup> in length.

2. *Atherina sardina*, sp. nov. *Peje Reje* of the local fishermen. (Type, No. 39633, U. S. N. M.)

Head  $4\frac{1}{2}$  in length to base of caudal (5 in total); depth 6 ( $6\frac{3}{4}$ ); eye  $3\frac{1}{2}$ ; D. IV, I—9; A. 25; Lat. l. 6—45—5.

Body rather slender, elongate, greatly compressed ventrally. Head short, greatly flattened above; snout a little greater than eye, blunt, with two evident folds or grooves across it; maxillary protractile, very broad, not reaching orbit; cleft of mouth oblique, curved, the lower jaw but slightly included. Eye moderate,  $3\frac{1}{2}$  in head,  $1\frac{1}{4}$  in interorbital space. Teeth in each jaw very small and wide-set, none on vomer or palatines; gill rakers long and slender. First dorsal short and low, its origin a trifle nearer tip of caudal fin than end of snout, entirely in front of origin of anal. Space between first and second dorsals equals the length of both snout and eye. Distance from beginning of second

dorsal to base of caudal fin equals that from end of snout to insertion of pectorals, the fin lying over middle of anal; the first rays are highest, their length being a little greater than the diameter of orbit.

Origin of anal under anterior part of the interdorsal space, one and one half times as far from snout as from base of caudal; length of its base about twice that of the second dorsal, and about equal to head; the first rays the longest. Pectorals short, about two-thirds length of head. Ventrals small, short, inserted much in front of first dorsal and a little nearer snout than base of caudal, their tips not nearly reaching anal.

Scales large, cycloid, not very firm.

General color pale, each side with a broad lateral plumbeous band, two scales in width, and equaling one-fifth length of head; the upper third of this band is much the darker; above the band the scales are sparsely covered with fine dark punctulations; none below the band, and but few upon it. Top of head very pale, almost transparent on the interorbital area, but in front and behind thickly set with small dark spots; snout also marked with spots, lower jaw with some spots in front, plain behind; opercles plain; fins all more or less plainly marked with numerous small dark spots.

This species is known to us from three specimens (No. —, U. S. National Museum), 3.50, 3.49, and 3.37 inches long, respectively, taken from the bay near the city of Guaymas.

This species seems most closely related to *A. eriarcha* Jordan and Gilbert, from which it differs, notably, in the more slender body and in the position of the fins.

3. *Atherinops regis*, sp. nov. Pez del Rey. (Type, No. 39632, U. S. N. M.)

Head 4.5 in body to base of caudal, the depth of head 8, its width 8; depth of body 4.5, width 7; dorsal VII, 11; anal I—22; scales, in longitudinal series, 46, in oblique, 15.

Color, in alcohol, pale, darker above the lateral band, the scales in this region having fine punctulations, a silvery lateral band slightly more than one scale wide, 0.6 the diameter of the eye, the upper third bordered by a dark line.

Maxillary not reaching the pupil, the lower jaw shorter than upper. Teeth in a single series, close set, incisor-like, weak, each with a short lateral branch on the main stem, not Y-shaped; tips brown.

Gill-rakers about 19 on lower limb of anterior arch, about 30 on lower limbs of succeeding arches, not strong, equaling diameter of pupil.

Eye large, equaling snout, 3.7 in head.

Origin of spinous dorsal in front of vent, its distance from tip of snout being but little more than half the length of the body, the origin of the first to the origin of the second dorsal contained 5.25 times in the length of the body. The origin of first dorsal is much nearer to the angle of the opercle than to the base of the caudal. The pecto-

rals are longer than head by one-fourth the length of the head, reaching to the middle of ventrals. Ventrals about reaching vent, 1.9 in head; scales firm, large; pores developed on scales on various parts of the body; 4 rows on the cheeks. Peritoneum black.

This species is allied to *A. affinis* Ayers, from which it differs in the longer pectorals, larger scales, and in the position of the spinous dorsal, which in this species is much nearer the head.

This species is common in the bay at Guaymas, where many specimens were obtained.

*Measurements.*

	Milli- meters.	In body.	In head.
<b>Body:</b>			
Length to base of caudal.....	168		
Depth.....	37	4.5	
Width.....		7.	
<b>Head:</b>			
Length.....	37	4.5	
Depth.....		8.	
Width.....		8.	
Eye.....	10		3.7
Interorbital space.....	15		2.5
Snout.....	10		3.7
Width of mouth.....	12		3.
Lateral band.....	6		6.3
Tip of snout to origin of first dorsal.....	88		
First dorsal to base caudal.....	82		
Origin first dorsal to second dorsal.....	32	5.25	
Pectoral fin.....	45		
Ventral fin.....	24		
Longest ray of caudal.....	32		

**4. *Centropomus grandoculatus*, sp. nov.** (Type, No. 39630, U. S. N. M.)

Head in length of body to base of caudal, 2.7; depth of head, 5; width, 9; depth of body in length, 3.4; width of body, 9; dorsal, VII, I—10; anal III—7; scales, 8—52—10; scales in front of the dorsal, 21.

Allied to *C. pedimacula* Poey; the body elongate; the back somewhat elevated; profile concave; nuchal region convex, maxillary reaching a vertical line through the pupil; 3 in head. The snout is 3.7 in the head; eye large, and is 5 in the head; preorbital with small serræ on the posterior portion, directed backwards; preopercle with nearly equal, distinct teeth on the vertical limb; a series of graduated teeth on the horizontal limb; a strong spine at the angle, and a strong spine next above the angle, sometimes bifid; two flat spines at the angle of the anterior ridge; suprascapula with four strong spines; opercular flap about reaching the vertical from the front of the dorsal.

Gill-rakers 6+16 on anterior arch, in length equaling the diameter of the pupil.

Dorsal spines strong, the third being the highest and strongest; 1.8 in the head; the fourth but little shorter, but more slender, their tips, when depressed, scarcely reaching the tips of the ventrals. The insertion of the first dorsal spine is midway between tip of snout and last ray of second dorsal. The fourth dorsal spine is 2 in head.

Second anal spine very strong; straight in one specimen, slightly curved in another; 1.66 in head. Third anal spine a little longer, but much more slender than the second anal and longer than the third dorsal.

Caudal well forked.

Pectoral small; 2.2 in head; much smaller than the ventrals.

Ventrals with a strong spine; the spine nearly as long as the pectoral fin; soft rays of ventral as long as third dorsal spine.

Scales large on the sides; crowded in front of the dorsal; scaly sheath of anal extends farther than in *C. pedimacula*.

Color in alcohol, white below; dusky above the lateral line, which is black and conspicuous; scales on back and sides covered with numerous punctulations; first dorsal somewhat dusky, second lighter, coloration of both due to fine punctulations; a large black blotch on the tips of the ventrals and anal; the membrane between the second and third anal spines black.

This species differs from *C. pedimacula* Poey in the larger scales, in the more robust and more elevated body, and in the larger eye.

Two specimens were obtained from the bay at Guaymas.

*Measurements.*

	Milli- meters.	In body.	In head.
Body:			
Length to base of caudal.....	230		
Depth.....	67	3.4	
Width.....	25	9.2	
Head:			
Length.....	85	2.7	
Depth.....		5.	
Width.....		9.	
Interorbital space.....	12		7.
Depth of caudal peduncle.....	27	8.5	
Third dorsal spine the longest.....	48		1.8
Fourth dorsal spine.....	41		2.
First anal spine.....	10		8.5
Second anal spine.....	51		1.66
Third anal spine.....	52		
Ventral spine.....	36		
Soft rays of ventral.....	47		
Pectoral fin.....	38		
Snout.....	23		3.7
Eye.....	17		.5

5. *Epinephelus Jordani* sp. nov. (Type, No. 39628, U. S. N. M.)

Head 2.6 in body to base of caudal (3.1 in total); depth 3.6 in body; depth of caudal peduncle 8.8; dorsal XI—17; anal III—11; scales very small, crowded, but not less than 160 in the lateral line, 20 above, not less than 40 below; length of largest specimen, 36<sup>cm</sup>.

Body comparatively elongate, compressed. Head long, lower jaw protruding, maxillary extending but slightly beyond the eye in the smaller specimens and not at all in the larger ones. The eye is 7.2 in head, the interorbital space 6 in head. Preopercle slightly emarginate

above the angle and on lower limb below the angle; the serræ above the angle are very fine; at the angle stronger, the lower limb entire.

Nostrils not very near together. Distance between them 8 in longer diameter of eye. The anterior with a flap, circular. Posterior elliptical and not more than twice the diameter of the anterior.

Gill-rakers of anterior arch rather short, the longest about 2 in eye. Breadth of base about 2.5 in length. About 9 developed and 2 rudimentary ones on lower branch, one in the angle, 2 well developed on upper branch, with a few others rudimentary; on succeeding arches, all very short, being but knobs, or hardly developed.

Teeth on lower jaw in about two series, strong. On upper jaw several strong ones intermingled with many small ones. Two prominent canines in each jaw.

Caudal fin very slightly lunate. The outer rays scarcely longer than inner, 2 in head; pectorals reaching beyond the tip of ventrals, being 5 in the body and 1.9 in the head; ventral fin shorter than the pectoral, 6.25 in the body, its spine 4 in head.

The first three spines of the dorsal are graduated. The first 8.8, the second 4.26, the third 3.3, in head. The tenth spine is 4, and the eleventh is 3.8, in head. The longest soft ray, the sixth, is 2.3 in head. The origin of the dorsal is a little less than the length of the head from the tip of the snout.

The anal spines are graduated, the first 14.4, the second 6.4, the third 5.2 in the head. The fin is evenly rounded, the longest soft ray is 2.3, and the last 4.8 in the head.

Color in alcohol, much as in *E. bonaci* Poey, brown with irregular darker mottlings of considerable size, but varying much; belly paler; dorsal and anal fins of the general color of the body, the anal having the lower edge pale, the outer margin not evidently darker; ventrals black with the tip white; pectorals paler.

This species is nearly allied to *E. microlepis* Goode & Bean, from which it differs in the shorter maxillary, in the form of the caudal, which in this species is less lunate, in the smaller eye, in the wider interorbital space, and in the smaller number of gill-rakers.

It is also allied to *E. bonaci* Poey, from which it differs in the shorter maxillary, in the less robust body, smaller eye, wider interorbital space, and in the smaller number of gill-rakers.

We follow Dr. Jordan's manuscript in using the name *Epinephelus*, instead of *Myteroperca* or *Tristropis*. The original type of *Epinephelus* was *E. ruber* Bloch, which is probably identical with *Myteroperca acutirostris*.

This species is dedicated to Dr. David S. Jordan. This fish is rather common in the bay at Guaymas, where we obtained several specimens, and at which place it is in great favor as a food-fish.

## Measurements.

	Millimeters.	In body.	In head.
Length of body (to base of caudal) .....	300		
Head .....	115	2.6	
Depth .....	84	3.6	
Depth of caudal peduncle .....	34	8.8	
Snout .....	20		3.8
From tip of snout to first dorsal .....	111		
Maxillary .....	45		
Eye .....	16		7.2
Interorbital space .....	19		6.0
Dorsal fin:			
First spine .....	13		8.8
Second spine .....	27		4.26
Third spine .....	35		3.3
Tenth spine .....	28		4.0
Eleventh spine .....	70		3.8
Sixth soft ray .....	50		2.3
Anal fin:			
First spine .....	8		14.4
Second spine .....	18		6.4
Third spine .....	22		5.2
Longest soft ray (fifth) .....	50		2.3
Last soft ray .....	24		4.8
Pectoral fin .....	60	5.0	1.9
Ventral spine .....	29		4.0
Ventral fin .....	48	6.25	

6. *Kyphosus elegans* \* (Peters.) (No. 39635, U. S. N. M.)

Head 3.5 in length of body to base of the caudal; depth 2 in length of body; dorsal fin, XI—14; anal, III—13; scales, 12—70—22.

Body elliptical, compressed, head short, snout very blunt, eye moderate, 3.5 in head, mouth small, nearly horizontal, the maxillary barely reaching the front margin of the eye, both jaws with a single close-set row of incisors, obtusely lanceolate, transparent on the extremities, most of the teeth with a dark spot in the middle of the body of each, teeth with conspicuous roots posteriorly, behind which there is no band of teeth; fine teeth on the vomer, palatines, and tongue.

Gill-rakers on anterior arch not long, the longest about one-half the diameter of the eye, slender, about 14 developed on the lower limb, those on the succeeding arches short, not well developed. Preopercle obsoletely serrate at and near the angle in the older specimens, not evidently serrate in the younger specimens; remaining parts of the limb entire. Preorbital covering but little of the maxillary. Squamation complete, all parts of the body and head being scaled, except a small space just above the snout, the preorbital region, the premaxillary, and tip of lower jaw. The scales on the head come far down, well in front of the anterior margin of the eyes, the maxillary well scaled; scales small, etenoid, somewhat crowded anteriorly, about 70 in the longi-

\* We have substituted the name *elegans* for the new name, *chopa*, proposed by us, as it is highly probable that our species is identical with *Pimelepterus elegans* Peters (Berliner Monatsberichte, 1869), from Mazatlan. We are indebted to Dr. F. Hilgendorf for the following notes on Peters' types, received while this paper is in type: "Schuppen über L. l. zähle ich 64-66 und ausserdem etwa 10 kleinere auf den Schwanzflosse. \* \* \* Die Höhe des ersten weichen Strahles der Anals beträgt 33<sup>mm</sup>. Die Basislänge der ganzen Flosse ist 68<sup>mm</sup>." The original description applies equally well to *K. analogus* and to our species.

tudinal series besides 10 or 15 smaller ones. Soft parts of the vertical fins densely scaled, the other fins covered more or less with fine scales. Lateral line about evenly curved, with small wavy irregularities, more evident in some specimens than in others, extending as far as a line vertical from the posterior end of the dorsal, from which point it is straight and extends by a few pores on the caudal.

Dorsal fin low, the spinous part depressible into a groove, eleven spines, the sixth spine 2.4 in head, 4 in depth of body, continuous with the soft dorsal, the last spines lower, thus making a slight depression between spinous and soft parts. The base of the spinous portion equals the base of the soft portion. The anal fin with three spines, graduated, the third 0.66 of the diameter of the eye, soft part similar to soft dorsal but the anterior part is higher and the base shorter than the soft dorsal. Longest anal ray  $2\frac{1}{2}$  in head,  $2\frac{1}{4}$  in base of fin.

The caudal fin is forked, the upper fork slightly the longer, 1.17 in the head. Pectoral fin 1.6 in the head. Ventral fin 1.9 in head. the origin behind that of the pectoral. Peritoneum black.

Coloration, in life: Top of head and back dark bluish, sides lighter blue with metallic reflections, paler below the line with about 12 narrow, darker, horizontal bands running along the junction of the edges of the longitudinal series of scales, rather distinct in the middle region of the sides, less so forward and below; belly and chin white, cheeks silvery, a white line extends from the snout horizontally under the eye and as far as its posterior margin. A dark line under this line, as long as the maxillary, extends back from the maxillary. Dorsal fin blue, anal blue with pale base, caudal dusky, pectoral pale, tips of pectoral and base on inner side dusky, white below, axilla silvery.

This species is allied to *Kyphosus* (*Pimelepterus*) *analogus* Gill, differing in the higher anal and in the larger scales. (Scales 85 in *K. analogus* and the longest ray of anal, 4 in base of fin and 4 in head.) In the latter the body is deeper, and the eye rather smaller. It is rather common in the bay at Guaymas, where we obtained six specimens.

Measurements.

	Millimeters.	In body.	In head.
Length of body to base of caudal.....	134	.....	.....
Depth of body.....	65	2.0	.....
Depth of caudal peduncle.....	14	9.5	.....
Length of head.....	38	3.6	.....
Snout.....	12	.....	3.1
Interorbital space.....	15	.....	2.5
Eye.....	11	.....	3.5
Maxillary to tip of snout.....	10	.....	3.8
Sixth dorsal spine.....	16	.....	2.4
Base of spinous dorsal.....	35	.....	.....
Base of soft dorsal.....	35	.....	.....
Height of soft dorsal.....	11	.....	.....
Second anal spine.....	8	.....	4.8
Base of soft anal.....	30	.....	.....
Height of anterior rays of soft anal.....	15	.....	2.5
Height of posterior rays.....	10	.....	3.8
Pectoral.....	23	.....	1.6
Ventral fin.....	20	.....	1.9
Longest ray of caudal.....	35	.....	1.1

HERMOSILLA, gen. nov. (Family *Sparidae*.)

General characters the same as those of *Kyphosus* Lacépède = *Pimblepterus* Lacépède, from which it differs: In the weaker gill-rakers; in having the margin of the preopercle entire; in having no teeth on the vomer or tongue, and no band of villiform teeth behind the incisors; in the squamation, the scales on the body being larger, 55 in the longitudinal series in *H. azurea*; the head not being so completely scaled, the top of the head, snout, preorbitals, space below the eye, the chin, and the preopercles being naked. It also differs in the relative sizes and forms of the vertical fins—the spinous dorsal is much longer than the soft dorsal, and the soft anal is higher and shorter than the soft dorsal.

(*Hermosillo*, capital of Sonora, the name derived from a word meaning beautiful.)

7. *Hermosilla azurea*, gen. et sp. nov. (Type, No. 39629, U. S. N. M.)

Head 3.56 in length of body to base of caudal; depth of body 2 in length; dorsal fin, XI—11; anal fin, III—10; scales, 11—55—17.

Body ovate, compressed, head short, snout 3 in head, blunt, maxillary about the diameter of the eye, barely reaching front margin of eye. Both jaws with a single series of close-set, equal, narrow, rounded incisors; no teeth on the vomer.

Gill-rakers slender on anterior arch about the diameter of the eye, 3+12; on succeeding arches much shorter. Preopercle entire. Preorbital two-thirds the diameter of the eye, nearly covering the maxillary.

Top of head as far back as the posterior margin of the eyes, the snout, the preorbitals, a narrow space below the eye, the chin, and the preopercles naked. The top of the head covered with pores; the preopercles covered with a net-work of grooves. The remaining parts of the head and body scaled. Five rows of scales on the cheeks below the eye, about 6 rows on the opercle, subopercle with 1 row.

The fins, with the exception of the spinous dorsal, covered more or less with fine scales. Scales moderate, ctenoid, 55 in the longitudinal series, not crowded anteriorly. Lateral line complete, traceable but a short distance on the caudal. Dorsal fin of eleven spines, the seventh, which is the longest, 1.8 in head; the alternate ones very strong, the spinous part continuous with the soft portion, the last spine not much lower than the soft dorsal, thus leaving but a slight depression between the two. The spinous part depressible into a groove, base of spinous part about one-half longer than the base of the soft portion. Soft anal shorter and higher than soft dorsal; anal with three spines, short but strong, the second the longest, 1.3 times the diameter of the eye; caudal forked, upper fork the longer; pectoral 1.5 in head, not quite equaling the ventrals which begin behind them.

Depth of caudal peduncle 7 in the body. Eye moderate, 3.7 in head; interorbital space 2.7 in head. Peritoneum black.

Coloration: Back and sides dark steel blue, lighter towards the belly; chin, throat, and belly white, the body with about twelve nearly vertical blackish cross bands, about as wide as the eye. The bands reaching the belly, sides of the face, under and in front of the eye silvery, but interrupted by a dark streak running from the maxillary to the angle of the opercle. An inky blotch on the margin of the opercle above the angle. Axilla black, the black extending somewhat below the base of the pectoral. Dorsal and anal dusky. Upper side of ventral dusky, lower side pale, but dusky on the webs towards the tips.

A very beautiful fish, apparently not common at Guaymas; two specimens were obtained, respectively 195 and 213<sup>mm</sup> in length.

8. *Pseudojulis venustus*, sp. nov. (Type, No. 39631, U. S. N. M.)

Head with flap 3.3 in length of body to base of caudal, without flap, 4; depth of head, 5.3; width, 9 in length of body; depth of body, 3.6; width, 10 in the length; dorsal fin, IX—12; anal fin, III—12; scales, 3—26—8; scales before the dorsal about 11. Body elongate, compressed, back more elevated in the older males; scales large, smaller on the breast; head, cheeks, opercle, and preopercle naked, preopercle entire. Teeth large, the four front ones in each jaw stronger. The posterior canines in four specimens present the following characteristics: In No. 1, small one present on the right side, absent on the left; in No. 2, barely evident on the right side, absent on the left; in No. 3, absent on the right, barely evident on the left; in No. 4, not evidently present on either side. Dorsal spines pungent, anal spines graduated, the first very weak, almost rudimentary. Gill-rakers on lower limb of the anterior arch about 9, slender, less than 0.5 the diameter of the pupil, on succeeding arches still shorter, almost rudimentary on the fourth arch. Gill membranes joined to the isthmus. Color in life: Dorsal and anal fins rose-red, with white edges; caudal orange; general color of the body olivaceous; a row of black spots on the back at the base of the dorsal, other spots along the lateral line. In the larger specimens, the males, there is a dark blue cross bar as wide as the eye on the body, at a distance of twice the diameter of the eye behind the pectoral, extending from the belly nearly to the lateral line. Teeth not evidently in two series. The front teeth canine-like. Snout 2.75 in length of the head without flap. Eye small, 5.75 in length of head without flap.

Pectorals 6 in the body length, extending to the tip of the ventrals. The ventrals are 7.5 in the length of the body, their origin being on a vertical passing through the posterior edge of the axilla. The lateral line drops abruptly a distance of three scales at a point two scales in front of the last dorsal ray.

This species is intermediate between *PlatyGLOSSUS semicinctus* (Ayres) and *P. californicus* Günther (= *P. modestus* Grd.), the color much like the former, the form intermediated.

A very beautifully colored and graceful fish, not common at Guaymas, at which place we obtained four specimens.

9. *Gobius chiquita*, sp. nov. (Type, No. 39634, U. S. N. M.)

Head  $3\frac{1}{2}$  in length to base of caudal ( $\frac{1}{4}$  in total); depth, 5 ( $5\frac{3}{4}$ ); eye, 4; scales 37 in longitudinal, 17 in transverse series; D. VI—9; A. 10.

Body rather stout, compressed; head short, somewhat depressed, widened behind orbits; snout short and narrowly rounded; profile in front of eye very steep, less so to occiput, and nearly straight from there to caudal fin; eyes moderate, well up, interorbital space very narrow, less than eye; greatest width of head equals greatest depth of body. Top of head, opercles, and space in front of dorsal naked, rest of body covered with small, evidently ctenoid scales, which increase in size upon the caudal peduncle. Dorsal fins two, the anterior of six flexible spines, their length about equal to the depth of the body; the distance from the snout to the origin of the spinous dorsal is a little more than one-third the distance to base of caudal; the second dorsal of nine soft rays is but slightly separated from the spinous part, its origin being about midway of the total length of the fish, its rays are not quite so high as are the spines. The anal is of about the same shape and size as the soft dorsal, but begins a little behind it. The pectorals are tapering, about equal to the head in length, their tips not reaching origin of anal, but to origin of soft dorsal; ventrals united, free from the belly, inserted behind the pectorals, but their tips not reaching tips of pectorals.

Teeth apparently, in a single species, small and weak.

Ground color pale yellowish, thickly mottled with fine punctulations of dark; about seven pretty well-defined larger spots of dark brown along middle of side; eight or nine faint cross-bars of lighter, a number of small light spots scattered irregularly over the sides; head dark; dorsal, anal, and ventral fins covered with fine black points, in some specimens the dorsals and anal being quite dark; pectorals plainer; caudal similar to the ventrals.

This species seems most closely related to *G. poeyi* Steindachner, but differs in that the head is less flat, the interorbital space is less wide, the fewer scales, as well as differing in color.

Seven specimens were obtained from shallow water in the bay at Guaymas. This species seems to be one of the smallest of the gobies, the largest of our specimens being but 27<sup>mm</sup> long.

10. *Gobius longicaudus*, sp. nov. (Type No. 39636, U. S. N. M.)

(Length of longest specimen, 15<sup>cm</sup>.) Head 5 in length to base of caudal ( $7\frac{1}{2}$  in total); depth, 7 (10); eye,  $4\frac{3}{4}$ ; D. VI—13; A. 13; scales about 66 in longitudinal, 15 in transverse series, counted just below space between the two dorsals. Body slender, tapering pretty regularly from middle of first dorsal to caudal, most compressed posteriorly, depth about uniform from head to origin of second dorsal. Head short, depressed, and broad,  $4\frac{1}{2}$  to 5 in length in twelve specimens measured,  $5\frac{1}{2}$  to  $7\frac{1}{2}$  in total length of fish; maxillaries rather short, 3 in head, reaching about to middle of eye, wide apart, the distance between them

at their posterior ends being greater than their length, or about two-fifths length of head; mouth but little oblique. Eye small,  $1\frac{1}{2}$  in snout,  $4\frac{3}{4}$  in head, twice the interorbital space. Teeth in a narrow band in each jaw, those in upper largest. Pseudobranchiæ in seven tufts, well developed. Gill-rakers short and flexible, rudimentary on all but first arch. First dorsal of six rather weak spines, their length about three-fifths that of head; origin of first dorsal over middle of pectorals, distance from snout equals  $1\frac{1}{2}$  times length of head. Distance between dorsals less than diameter of eye. Origin of second dorsal in most specimens examined a little nearer tip of snout than base of caudal. Pectorals moderate,  $1\frac{1}{4}$  in head, their tips reaching past middle of spinous dorsal. Ventrals inserted below pectorals, about equal to them in length, reaching more than half way to origin of anal. Beginning of anal immediately below that of second dorsal; the two fins are of almost equal length, the anal extending a little nearer the caudal; the anal fin is less high than the dorsal. The caudal fin is quite long, two times in length of body in largest specimens,  $2\frac{1}{2}$  in smaller ones, its relative length increasing with age. Entire head scaleless, predorsal region with small scales; body covered with close-set ctenoid scales, small and greatly crowded anteriorly, toward the caudal fin growing gradually larger and more strongly ctenoid, but fine rows of scales in a transverse series on the caudal; peduncle fins naked.

General color light-yellowish, palest below, upper parts darker; sides with a series of fine rather distinct black blotches; the first is under the first dorsal, the second under origin of second dorsal, the third, which is sometimes almost double, at about the middle of the second dorsal, the fourth near its posterior end, while the last and largest is at the base of the caudal. There is a large black spot upon each shoulder just above the origin of the pectoral fin; head plain, inclining to dark above; lips with a little dark; maxillary dark; opercle with a dark blotch. Dorsal fins with a few dark spots; anal unmarked; pectorals dotted with dark brown; ventrals plain; caudal crossed by six or seven dark zig-zag bars.

This species is related to *G. sagittula* (Günther), from which it differs chiefly in the longer tail, smaller scales, smaller eye, and in coloration, especially in the presence of the large blotches upon the body and the markings of the fins.

It may be readily distinguished from *G. oceanicus* Pallas, by the somewhat shorter caudal, the wider and more depressed head, the greater width of space between rami of the mandible, and the absence of the black spots upon the first dorsal spine.

About forty specimens of this species, varying in length from 6<sup>cm</sup> to 15<sup>cm</sup>, were taken in a small shallow arm of the bay near Guaymas.

11. *Gillichthys y-cauda*, sp. nov. (Type, No. 39637, U. S. N. M.)

Head  $3\frac{1}{2}$  (4); depth 7 (8); eye  $3\frac{1}{2}$ ; D. V—16; A. 15; Lat. l. about 50, about 18 in transverse series; B. 5.

Body moderately elongate, compressed, narrowing regularly from the shoulder-girdle to the caudal fin; head not greatly depressed, broader than body, its length being contained four times in total length of body; snout rounded, short, about equal to diameter of eyes; interorbital space narrow, not greater than half diameter of eye; mouth rather large, its gape extending nearly to the vertical of posterior margin of orbit; maxillary somewhat variable in length, but usually prolonged behind eye for a distance nearly equal to diameter of eye; skull rather long, medium crest of cranium moderate, cross-ridge across posterior part of interorbital space well developed; scale small, cycloid, about fifty in longitudinal series, eighteen in transverse; teeth in a single series on premaxillaries and mandible short, blunt, and curved slightly backward, most closely set and most numerous on premaxillaries.

Fins moderate; dorsal of five spines and sixteen soft rays, the spines being unconnected with the rayed portion, the space between them about equal to half diameter of eye; the spines are weak and flexible, their length being one-half that of the head; soft dorsal begins at a point a little nearer end of snout than tip of caudal, and extends nearly to the caudal, its height is about equal to that of the spinous portion, the first few rays being slightly graduated; the anal has fifteen rays and begins a little behind the origin of the soft dorsal, the rays are about equal to those of the dorsal in length; pectorals moderate, inserted a little below the axis of the body, their length greater than the depth of the body, their tips reaching a vertical from posterior part of spinous dorsal; ventrals united but not adnate to the belly, inserted slightly in front of the pectorals, and their tips do not quite reach those of the pectorals.

Ground color light, head and body pretty uniformly covered with dark punctulations; an irregular dark bar across occiput; breast and belly pale; a row of nine or ten small dark blotches along the middle of the side, the one at the base of the caudal being plainest and having a shape something like the Greek letter  $\Gamma$ ; about six dark blotches along median line of back. Peritoneum dark.

The average length of over seventy specimens is about 33<sup>mm</sup>, the longest 40<sup>mm</sup>.

This species is allied to *G. guaymasiæ* J. & E., from which it differs, among other points, in its smaller size, shorter head, and its fewer fin-rays.

Numerous specimens of this little fish were found rolled up in the seaweed dragged out by the seine from the bay near the railroad station at Guaymas.

12. *Gillichthys guaymasiæ*, sp. nov. (Type, No. 39642, U. S. N. M.)

Head 3 in length to base of caudal ( $3\frac{3}{5}$  in total); depth 6 (7); D. V-14; A. 13; eye, 5.

Body quite slender, elongate, but little compressed; head long, narrow, not much widened behind the eyes, not depressed, forming one-

third the length to base of caudal. Profile gently arched from snout to half the distance to dorsal fin, from there nearly straight to dorsal, and then gently curved to caudal peduncle; ventral outline nearly straight; a considerable prominence on the snout made by the enlarged end of the turbinal bone. Eye somewhat above median line, not quite equaling the snout in length; interorbital space narrow, it being contained one and one half times in the eye. The maxillaries are much produced, in some specimens nearly reaching the gill-openings, broadest at the middle and tapering to a blunt point posteriorly; premaxillaries not protractile, but little movable at the symphysis, more than half as long as the maxillaries. Gill-rakers, two above the angle, ten below, short and blunt, the first four the largest, those on the second arch but little developed. Teeth well developed, in a single series, on mandible and premaxillaries, all slightly curved backwards.

The tongue is not so broad as in *G. mirabilis* Cooper; it is gently rounded at the tip, which is free for a much greater length than in *G. mirabilis*. The peritoneum is black or blackish, and the intestine short, but little longer than the head, and not at all convoluted.

The scales are small, imbedded, and scarcely perceptible except on sides; no pores appear to be developed. First dorsal of fine flexible spines, distance of origin from snout  $2\frac{2}{3}$  length of body, and separated from the second dorsal by a distance but little greater than length of snout; second dorsal of fourteen rays of nearly equal length, which equals the distance from end of snout to middle of pupil; length of base of soft dorsal not quite equal to length of head, distance of posterior end from caudal fin equals distance between the two dorsal fins. Origin of anal behind that of soft dorsal and a little posterior to middle of total length of fish; its base is contained one and one-fourth times in base of soft dorsal, or about four times in length of fish to base of caudal fin. Pectorals moderate, a little more than half length of head. Ventrals inserted slightly behind the pectorals and about equaling them in length.

Color in life, whitish beneath, grayish or mottled above; six double white spots along the back, alternating with fine blackish areas; a white spot behind each eye on top of head, cheeks with two dark bands extending obliquely backward and downward from eye, a number of dark splotches on opercles; about seven dusky areas along the side, the last and most marked being upon the base of the caudal fin. Dorsal fins finely marked lengthwise by about four series of small dark spots; caudal crossed by five or six wavy vertical bars of very fine dark spots or points; anal, pectorals, and ventrals plain. In alcohol these markings are less plain, especially the white and black areas upon the back.

This species is related to *G. mirabilis* Cooper, from which it may be readily distinguished by the fewer dorsal spines, the greater number of anal rays, the more slender body, narrower head, and difference in color.

The species is based upon twenty specimens, the longest 70<sup>mm</sup> in length, obtained by us from a lagoon near the Long Bridge above Guaymas, and from a small arm of the bay near the city. The water in both places was shallow, and quite filthy from great quantities of dead fishes that had been washed in.

An examination of the material at hand leads us to believe that the newly-proposed genus *Clevelandia*\* was based upon characters that are not of generic value, and can not therefore stand. In *Gillichthys* the number of dorsal spines has been invariably given as six. The fact that the number of dorsal spines in *Clevelandia* and in our specimens, which will agree otherwise with *Gillichthys* as limited by Cooper, are four and five, respectively, would seem to indicate that the limits of the genus *Gillichthys* should be extended. This is evidently preferable to basing a new genus upon so slight a character as a difference of one or two dorsal spines.

13. *Scoræna sonoræ*, sp. nov. (Type, No. 39644, U. S. N. M.)

Head,  $2\frac{1}{2}$  in length to base of caudal (3 in total); depth,  $3\frac{1}{2}$  ( $4\frac{1}{2}$ ); eye, 3; D. XI, 1—10; A. III—5; Lat. l. 6—17—15.

Allied to *S. fernandeziana* Steindachner.

Body oblong, slightly compressed, back not greatly elevated, profile gently arched from snout to origin of first dorsal, and but little convex from there to caudal fin; ventral profile nearly straight to origin of anal, where it makes a broad angle with line to base of caudal.

The occiput has no distinct pit; there is no pit between the lower anterior margin of the orbit and suborbital stay.

Head large, little compressed, 3 in total length. Mouth large, oblique; maxillary large, triangular,  $2\frac{1}{2}$  in head, extending to posterior margin of pupil; premaxillaries with a deep sinus at the middle of their anterior margin into which fits the slightly projecting lower jaw.

Teeth in villiform bands on jaws, vomer, and palatines. Suborbital with a sharp ridge bearing three small spines, these in a line with a strong spine on the preopercle.

Cranial ridges quite unlike those in *Sebastodes*. The nasal spines small with a prominence between them made by the upper posterior tips of the premaxillaries; the preocular spine is the largest; the supra-ocular ridge with two small spines a little behind middle of eye; on the upper posterior margin of the orbit is a strong tubercle rising into three small spines from which a well-developed occipital ridge extends backwards, ending in a sharp spine; tympanic spines quite small; coronal ridges quite prominent, with at least three distinct spines on each; nuchal spines well developed.

Opercle with two strong spines, both beginning at the same point on a level with the pupil and at a distance from it equal to the diameter of the eye, the lower one running nearly horizontally backwards across

\* Eigenmann and Eigenmann, Proc. Cal. Acad. Sci., 1888, 73.

the opercle, while the upper and weaker one diverges from it at an angle of about thirty degrees and extends to the lateral line; the length of each of these spines is equal to the diameter of the eye.

There are five preopercular spines, the uppermost one much the largest, in a line with the suborbital ridge, and with a very small spine on its ridge near the middle; the second, or next spine below, is very short and inconspicuous; the third is short and broad and projects slightly downwards; the fourth is smaller than the third and is inclined still more downwards; while the fifth is still smaller and projects nearly at right angles with the first.

The suborbital ridge prominent, bearing two small spines, the anterior one directly beneath the pupil the other at anterior edge of the preopercle.

Origin of spinous dorsal a little in front of opercular flap, its distance from snout three times in body to base of caudal; first spine short, less than snout in length; second spine equals eye; third equals distance from tip of snout to middle of pupil; fourth, fifth, and sixth each a little longer; the remaining four gradually shorter, the eleventh about as long as first, thus making the fin emarginate; all rather strong and pungent; the next spine slender, greater than eye in length; the ten soft rays moderate, about equal to third spine in length; distance from base of dorsal to caudal not equal to height of the former. Anal moderate, its height a little greater than its length, its origin under beginning of soft dorsal; the first spine shorter than second spine of the dorsal, the second much stronger and longer, one-half length of head, longer than longest dorsal spine; third more slender, shorter, about equal to longest dorsal; soft rays about equal to longest spine; anal and dorsal fins equally distant from the caudal.

Pectorals long, 1.3 in head, their tips just passing first anal spine, inserted a little in advance of the ventrals and much below the axis of the body; the upper rays branched.

Ventrals close together, moderate, just reaching vent. Caudal moderate, about equal to the pectorals in length.

Cheeks well scaled, opercles nearly naked, occipital region with a few poorly developed scales; body covered with moderate cycloid scales, about 47 in longitudinal and 21 in transverse series; the lateral line begins at the upper angle of the opercle, then curves downward to a line vertical from the tips of the ventrals, and then upward to near the middle of base of soft dorsal, from which it is nearly straight to the caudal fin; but few dermal flaps upon scales.

Coloration, in alcohol: Body pale below, dark above, mottled with darker; head dark, snout and jaws covered with fine punctulations; a dark blotch between the eyes, an irregular blotch extending from below eye to edge of opercle, and another on suborbital just below pupil. Spinous dorsal with three dark blotches at base extending onto the body, outer edge mottled with black; soft dorsal with a dark spot at

the base, a black spot greater than the diameter of pupil on the middle of the outer part, and another on the tips of the last rays. Pectorals with two distinct black bars and mottled with black near the base, the narrow outer edge white; axilla pale; ventrals white on anterior half, the terminal half black; anal white, tips of last rays with a black spot; caudal with three black bands, the first partly on the peduncle, the second about equal to half the eye in width, its posterior edge at middle of fin; the third on tip of fin, about equal to snout in width.

This species is related to *S. fernandeziana* Steindachner, from which it differs chiefly in being not so deep, in the naked temporals and opercles, and in coloration.

One specimen, 63<sup>mm</sup> long, from Guaymas.

14. *Gnathypops scopis*, sp. nov. (Type, No. 39641, U. S. N. M.)

Head, 3.5 in body to base of caudal; width of head 5.75, its depth 4.6; dorsal spines and soft rays, 26; anal spines and soft rays, 19; scales, 3-122-40.

Scales small; none on head. The lateral line extends to about middle of dorsal fin. Mouth large. Maxillary extends beyond the eye a distance equaling 4.1 in head. The snout is 6.5 in head. Teeth in bands, and on the upper jaw the outer series is rather strong. A single tooth on the vomer. The gill membranes are connected.

The opercles end in long flaps, which extend upwards and backwards, nearly meeting over the back in front of the dorsal fins.

Eye large; 2.5 in head. The interorbital space narrow; 11 in the head.

There is no depression between the dorsal spines and the soft rays; height of dorsal equals that of anal.

Ventrals inserted in front of the pectorals; the pectorals equal the ventrals in length, being 7 in the body length; caudal rounded.

Coloration, in alcohol: Body pale, covered with many dark spots about the size of three to six scales. The top of the head with smaller dark spots; the sides of the head with whitish spots. The dorsal fin with a black ocellated spot equal to the diameter of the eye on the space between the second and fifth spines, the remainder of the fin dark, with many white spots running into each other on some portions, so as to form irregular lines. Base of the anal fin pale; the outer edge black. The caudal fin is dark, with two whitish spots at the base, and a row of six white spots across the middle on alternate rays. Pectorals lighter, with small whitish specks; ventrals dusky; belly pale.

Three specimens were obtained from the bay at Guaymas, respectively 115<sup>cm</sup>, 10<sup>cm</sup>, and 7<sup>cm</sup> in length to base of caudal.

## Measurements.

	Milli- meters.	In body.	In head.
Length of body to base of caudal .....	115		
Depth of body .....	25	4.6	
Length of head .....	33	3.5	
Depth of head .....	25	4.6	
Width of head .....	20	5.75	1.7
Width of body at front part of dorsal .....	12	9.5	
Eye .....	13		2.5
Interorbital space .....	3		11.0
Snout .....	5		6.5
Maxillary beyond the eye .....	8		4.1
Pectoral fin .....	16	7.0	
Ventral fin .....	16	7.0	

15. *Opisthognathus ommata*, sp. nov. (Type, No. 39640, U. S. N. M.)

Head 3 in the length of body to the base of the caudal; in total length 3.75. The width of head, 5. The depth 5 in body to base of caudal; depth of body, 4.15; width, 8.3 in length of body; dorsal spines and rays, 28; anal spines and rays, 18; scales in longitudinal series, about 140; branchiostegals, 6.

Body moderate, compressed, depth 4.15, width behind the head 8.3 in the length of the body. Head large, its breadth equaling its depth, being 5 in the length of the body.

Scales small, embedded, head naked, lateral line extending past the middle of the dorsal fin. Mouth large.

Maxillary long, 1.5 in head; postorbital portion 2.3 in head, not extending beyond the head. The snout short, its length less than half the diameter of the eye; the distance from tip of snout to the end of maxillary is contained 3.3 in the length of the body and 1.2 in the head.

Teeth in front part of each jaw in several series; on sides of jaws reduced to a single series; the outer series strong. A tooth on the vomer.

The gill membranes are connected.

Eye 3 in head, the interorbital space very narrow, 11.6 in head.

Distance from snout to origin of dorsal but little greater than length of head; space between dorsal and caudal fins one-half greater than the length of snout. There is no depression between the spinous and soft rays of the dorsal fin, the dorsal equaling the anal in height; its longest ray is 1.66 times the eye.

The pectorals are slightly longer than the ventrals, being 2 in head; the breadth of the pectorals is 3 in the head.

The ventrals are inserted slightly in front of the pectorals.

The caudal is rounded and narrow.

Coloration: The body is irregularly mottled with dark, head evenly blackish. The dorsal fin is blackish on the posterior portion, with two rows of four or five pale spots well separated. There is a large ocellated spot from the third to the sixth spines, including them, greater than the diameter of the eye. Anal fin black, with a series of pale spots on the

rays, the base pale. Caudal black, with two pale spots at the base and a row of spots across the middle. The lining of the maxillary with bands of black and white.

This fish differs from *O. punctata* Peters, to which it is allied, in the evenly black head, in the presence of a large ocellated spot on the dorsal fin, and in the coloration of the remaining part of the dorsal, in the coloration of the remaining fins, in the smaller scales, in having a tooth on the vomer and in the shorter maxillary.

Three specimens were obtained in the bay at Guaymas.

*Measurements.*

	Millimeters.	In body.	In head.
Body:			
Length to base of caudal .....	108		
Depth .....	26	4.1	
Width behind the head .....	13	8.3	
Head:			
Length .....	35	3.0	
Width .....	23	5.0	
Depth .....	23	5.0	
Interorbital space .....	3	11.6	
Tip of snout to tip of maxillary .....	28	3.3	1.25
Maxillary beyond the eye .....	15		2.3
Eye .....	11		3.0
Ocellated spot on dorsal .....	14		2.5
Pectoral fin .....	17		
Ventral fin .....	16		
Lateral line .....	42		

16. *Auchenopterus asper*, sp. nov. (Type, No. 39643, U. S. N. M.)

Head 3 in length to base of caudal ( $3\frac{2}{3}$  in total); depth,  $5\frac{1}{2}$  ( $6\frac{1}{3}$ ); eye,  $4\frac{1}{5}$  in head. Lateral line, 6—43—7; D. III, XXV—1; A. II—20.

Body greatly compressed, head narrow, pointed, snout long, lower jaw slightly the longer; mouth a little oblique, cleft moderate, maxillary not reaching nearly to vertical at front of orbit. Teeth in one well-defined outer series and a broken inner one; those in the outer series are strongest and of pretty uniform size, short and broad. Vomerine teeth in a single patch; no palatine teeth. No tentacles of any kind about the head. Profile nearly straight from snout to origin of first dorsal, but very slightly arched from there to base of caudal fin.

The scales are rather large, cycloid, about forty-three in a longitudinal series, upon about forty of which pores are well developed; about six rows between the origin of the second dorsal and the lateral line just behind its angle, and about seven from there to middle of ventral surface; nine rows from origin of second dorsal to upper limb of opercle; entire head, opercles, and fins naked.

Lateral line, beginning at upper limb of opercle on a level with the pupil, almost exactly under the middle of the first dorsal fin, and a little more than one-fourth the distance from top of nape to the under side of the throat, arches gently for seven or eight scales, leaving but one row of scales between it and the first spines of the second dorsal; on the ninth, tenth, and eleventh scales it bears slightly downward until

two rows are left between it and the dorsal, then a sharp turn is made which puts it four scales further down, and from there it pursues a nearly direct line to the middle of the base of the caudal fin.

There are two distinct dorsal fins, the first composed of three slender, flexible spines, their length being contained about twice in that of the head. The second dorsal is separated from the first by a distance somewhat greater than the diameter of the eye, and is composed of twenty-five rather stout, sharp spines and one terminal soft ray; the first three are graduated, the first being contained one and one-half times in the distance between the two fins, the second is about one-half longer, and the third still a little longer; the remaining twenty-two are of approximately equal length, about equaling the distance from the origin of the first dorsal to that of the second. The one soft ray is somewhat shorter than the spines, and is well separated from the caudal by a space equal to that between the dorsals. Pectorals inserted under middle of space separating the dorsals, composed of fourteen rays, equaling eye and snout in length, and reaching slightly past origin of anal. Ventrals of two rays inserted directly under origin of first dorsal and considerably in front of pectorals, which they somewhat exceed in length, in some specimens reaching vent.

The anal fin begins slightly in front of posterior end of the pectorals, is a little lower than the second dorsal, and reaches a trifle nearer to the caudal fin; the first spine is longer and more slender than the first regular dorsal spine, while the second equals the third dorsal in length. The caudal fin is rounded, and in length equals the greatest depth of the fish.

Coloration (in alcohol), pale, pretty regularly covered with very fine dark punctulations, thickest on the back, palest below; a large dark opercular blotch, two similar postocular blotches, and usually a darkish bar extends downward from the eye; upper half of preorbital region dark, outer margin of jaws dark, breast and under parts of head pale, top of head and nape dark. First dorsal quite dark, almost black; second dorsal pale, obscurely mottled with brown, which is disposed in about five indistinct areas; a large black ocellus upon the twelfth and thirteenth spines of the second dorsal, and a similar one upon the twenty-third and twenty-fourth spine; each ocellus is surrounded by a narrow circle of white or pale orange. In the six specimens before us there is a slight variation as to the exact position of the two ocelli; in one example the second ocellus extends back upon the twenty-fifth spine also; but in every case the twelfth and thirteenth, and the twenty-third and twenty-fourth, are the spines which most evidently locate the spots. Pectorals and ventrals plain; anal paler than dorsal, sparsely covered with fine dark points, so grouped as to form three or four darker areas.

The description of this specimen is based upon six specimens (the largest 57<sup>mm</sup> long), taken from the mass of kelp hauled out by the seine from the bay near Guaymas.

This species may be distinguished from *A. monophthalmus* Günther\*

\* Günther, Cat. Fishes, Vol. III, 275.

by the absence of tentacles about the head, the presence of *two* dorsal ocelli instead of one, the absence of any membrane connecting the two dorsal fins, the presence of a terminal dorsal soft ray, and in the greater number of scales in the lateral line.

From *A. altirelis* (Lockington)\* it differs in the greater length of the head, the smaller scales, and the position of the dorsal ocelli, which in *altirelis* are upon the fourth and twenty-fourth and twenty-fifth rays instead of the twelfth and thirteenth, and twenty-third, and twenty-fourth spines. From Mr. Lockington's description it seems that, in *altirelis*, there are no detached dorsal spines, which is another important difference.

From *A. integripinnis* (Rosa Smith)† it differs in the two distinct dorsals, the presence of two dorsal ocelli, as well as in other less important points.

17. *Pseudoblehnus hypacanthus*, gen. et sp. nov. (*family Bleenniidae*). (Type, No. 39638, U. S. N. M.)

Head,  $4\frac{3}{8}$  in length to base of caudal (5 in total); depth, 7 (8); eye, 4, = snout; B. 6; D. III, 34; A. 27.

Body greatly compressed, moderately elongate, its depth but eight times in total length; head short, snout blunt, about equal to eye; anteorbital profile very steep, gently rounded from front of eye to first dorsal, from there nearly straight to caudal; ventral line nearly straight. Body naked, no membranous appendages. Mouth large, horizontal, jaws subequal, extending to beyond middle of eye. Teeth in a single series in both jaws, well developed, pretty uniform in size, slightly projecting backward; vomer and palatines apparently smooth. Eye large, equal to twice interorbital space, high up. Dorsal fins two, the first of three very slender, flexible spines, hard to distinguish from soft rays, but they do not appear to be at all jointed. This fin is inserted upon the nape immediately above the posterior edge of the preopercle, and a distance in front of second dorsal nearly equal to the length of the snout; its very soft spines equal in length the distance from end of snout to posterior rim of orbit. The second dorsal begins directly over the origin of the pectorals and extends to the caudal, with which it is slightly connected. The first few rays of the second dorsal are very weak, flexible spines, the last few are pretty evidently soft, jointed rays, while the intermediate ones are not distinguishable as definite spines or soft rays—in short, there seems to be a gradual change from spines to soft rays from the anterior to the posterior part of the fin. This character, if we mistake not, is entirely unique. The fin is of nearly uniform height, the rays about equaling those of the first dorsal in length. The anal is similar to the second dorsal in shape and height but is much shorter, its origin being much behind that of the second dorsal or nearly half way from the snout to the base of the cau-

\* *Cremnobates altirelis* Lockington, Proc. Acad. Nat. Sci. Phila., 1881, pp. 116-118.

† *Cremnobates integripinnis* Rosa Smith, Proc. U. S. Nat. Mus., 1880, 147-149.

dal; posteriorly it extends coterminously with the dorsal, and, like it, is slightly joined to the caudal fin. Caudal fin apparently rounded, fan-shaped, but its shape can not be exactly made out, as some of its rays are broken off.

The pectorals are inserted below the axis of the body, directly over the ventrals; their length about three-fourths that of head. Ventrals of two rays, inserted under the pectorals, about equal to pectorals in length. The body is entirely scaleless. Coloration (in alcohol), pale, mottled with fine dark points so arranged as to inclose circular areas with fewer spots; a long dark blotch behind the axil, inclining downward and backward; head covered with similar punctulations; opercles dusky; chin with two dark cross-lines, separated by one of white, extending onto upper jaw on each side; top of head with a purple spot; sides with a series of about six short black lines, the last broadest and plainest; base of caudal with a distinct black blotch. First dorsal quite dark, almost black; second dorsal with about eight pretty well defined dark blotches at its base, rest of fin with numerous dark spots of different sizes; anal with about twelve dark blotches extending somewhat regularly from the base slightly forward, these separated by plain unmarked spaces of a little greater width; caudal sparingly marked with dark points arranged in wavy cross-bars; pectorals and ventrals unmarked.

A single specimen, 40<sup>mm</sup> long, was obtained by us from a shallow arm of the bay at Guaymas.

The species evidently belongs in the family *Blenniidae* and would seem to be related to the genus *Pholidichthys* Bleeker. The many important points in which it differs from this genus, as well as from all other genera that are at all related to it, seem to us to necessitate its being made the type of a new genus, *Pseudoblennius*, the characters of which are included in the foregoing description. (*Γεδνός* = naked; *βλέννος* = blenny.)

18. *Citharichthys gilberti*, sp. nov. (Type, No. 39627, U. S. N. M.)

Head, 3.5 in length of body to base of the caudal; the depth of head 4 in body; width of head, 20; depth of body, 1.9 in length; thickness of disc, 11.8 in length of body; dorsal, 78; anal, 57; scales, 18—46—19.

Body comparatively broad; the greatest depth is under the middle of the dorsal; the two profiles about equally arched; the snout slightly longer than the longest diameter of the eye, and without a distinct spine.

Eyes on the left side, equal in size, small, 5.7 in head; interorbital space narrow, 19 in head, low, slightly grooved, and scaled on posterior portion only.

Maxillary, 2.4 in head, reaching barely to posterior border of the eye, upper jaw projecting.

Teeth small, in a single series; none on the vomer.

Gill-rakers on anterior arch 4—13, not strong, with a rather broad base, quickly narrowing to a slender stalk, much weaker on second and third arches; obsolete on posterior arch.

The dorsal fin begins in front of the anterior margin of the upper eye, the first three rays growing from the blind side, the distance of the origin from the snout being seven times in the length of head. Fin rays all simple.

The anal fin begins on a vertical through the axilla at a distance from the snout 0.8 in the head: its greatest height is 2.3 in head.

The two pectorals are nearly equal, the one on the colored side being slightly longer, its length 1.9 in head, its distance from snout 0.8 in head, the insertion less than one-third the distance below the lateral line. The rays on colored side, 9; on blind side, 8.

The ventrals are 2.3 in head, their origin from snout nearly equaling the head.

Caudal rounded; caudal peduncle short, its depth 8 in the body, equaling the height of the anal.

Scales large, ciliated, tolerably uniform, those towards the head and the margins of the disk becoming smaller, the largest scales about equaling the diameter of the eye.

Lateral line simple, gradually descending along the course of about 16 scales, from which point it is straight.

Color light brown, with about 15 irregular dark blotches of various sizes, the largest being a pair on the latter third of the disc, one on each side of the lateral line, as great in diameter as the length of the ventral fin.

One specimen, 20<sup>cm</sup> in length, was caught in the bay at Guaymas.

This species is dedicated to Prof. Charles H. Gilbert, whose collection and notes on fishes from Mazatlan, containing undescribed species, this among them, was destroyed by fire in 1883.

*Measurements.*

	Millimeters.	In body.	In head.
Length of body to base of caudal .....	200		
Depth of body .....	105	1.9	
Thickness of body .....	17	11.8	
Depth of caudal peduncle .....	25	8	
Length of head .....	54	3.5	
Depth of head .....	52	4	
Thickness of head .....	10	20	
Interorbital space .....	3		
Snout .....	11		5
Tip of snout to end of maxillary .....	24		2.25
Eye from front to back .....	10		5.4
Dorsal fin .....			
Height .....	21		2.6
Distance of origin from snout .....	8		6.75
Anal fin .....			
Height .....	25		2.16
Distance of origin from snout .....	74		.73
Pectoral fin .....	28		1.9
Origin of pectoral from snout .....	60		.9
Ventral fin .....	22		2.5
Origin of right ventral from snout .....	52		

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