

NOTES ON TYPICAL SPECIMENS OF FISHES DESCRIBED BY CUVIER AND VALENCIENNES AND PRESERVED IN THE MUSÉE D'HISTOIRE NATURELLE IN PARIS.

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The writer spent two weeks of the month of July, 1886, in the museum at Paris, in the examination of the original types of species of fishes described by Cuvier and Valenciennes. The most important of the notes thus made, with the conclusions to be drawn from them, are given in the present paper. A few notes on specimens in the British Museum are also included.

The writer wishes again to express his many obligations to Dr. Léon Vaillant and to M. Alexandre Thominot, of the Musée d'Histoire Naturelle, for assistance in his work as well as for many personal favors.

1. *Engraulis argyrophanus*. (Cuv. & Val., xxi, 49, 1848.)

Five specimens in fair condition; length about .10^m. "Equatorial Ocean: Kühl and Van Hasselt."

Form resembling that of *Stolephorus ringens*. Body slender, not much compressed; the abdomen scarcely compressed and not serrate. Head slim and pointed, the snout much protruding. Teeth very small in both jaws. Opercle short, 3 in head. Snout 5 in head. Eye, $4\frac{1}{2}$. Gill-rakers very long. Caudal peduncle slender. Insertion of dorsal scarcely nearer caudal than snout. Ventral short, inserted before dorsal. Sides of body abruptly silvery, the white band very wide, forming half the depth of the fish.

Head, 4 in length to base of caudal. Depth, $5\frac{1}{5}$. Lat. l. about 45. Anal rays, 1.16.

These specimens agree with the types of *Stolephorus eurystole* from Wood's Holl, Mass., in all respects excepting the number of anal rays—1.16 in *S. argyrophanus* and 1.18 in *S. eurystole*.

It is not likely that this will prove to be a constant difference, and it is probable that all belong to one species, which should stand as *STOLEPHORUS ARGYROPHANUS* (Cuv. & Val.).

2. *Saurus synodus*. (Cuv. & Val., xxii, 477, 1849.)

Two specimens in fair condition, the largest about .18^m in length. Bahia: Blanchet.

This is apparently a species distinct from all those indicated by Meek (Proc. Ac. Nat. Sci. Phila., 1884, 130).

Top of head quite warty, marked with radiating and with cross streaks of warts. Interorbital space concave, marked with small warts. Supraorbital with a conspicuous bony ridge. Palatine teeth long and slender, much slenderer than the teeth in the jaw and almost in one series. Eye $5\frac{2}{3}$ in head, snout 4. Maxillary $1\frac{3}{8}$. Pectoral, $2\frac{1}{2}$. Ven-

tral $1\frac{1}{10}$. Head $3\frac{1}{2}$ in length, depth 7. Dorsal rays 1.11. Anal 1.8, its base being very short. Scales, 5 or 6-58-8.

Body much mottled and vermiculated with darker and crossed by about 15 dark half-bands, which are turned a little forward. Head dotted. A very little dusky on the scapular region, but apparently no distinct spot. Dorsal and anal somewhat mottled, the other fins plain.

The *Saurus gracilis* from the Sandwich Islands (type examined: Quoy and Gaimard) is quite different from this, being pale in color, with high dorsal and the palatine teeth in two bands. It is, in fact, as Dr. Günther has indicated, a species of *Saurida*.

Saurus synodus agrees fairly with Günther's description of the East Indian *Saurus varius*. It is not impossible that it is the original *Esox synodus* of Linnæus, the scanty description of which agrees with it in the small number of the anal rays. The *Saurus intermedius* of Spix agrees better with this species than with *Synodus anolis* in most respects, but in its number of anal rays (12) it corresponds better with the latter. The *Saurus atlanticus* of Johnson agrees also in many respects with this *Saurus synodus*.

The species called *Synodus intermedius* by Poey (Enum. Pisc. Cubens, 1875, 143) and by Meek (Proc. Ac. Nat. Sci. Phila., 1884, 133) is evidently not the original *intermedius* of Spix, and it is apparently as yet nameless. It may therefore stand as *SYNODUS POEYI* (sp. nov.), the specimens described by Mr. Meek and collected by myself in Havana being taken as its type.

The nomenclature of these fishes is still in a confused condition, and until better series can be compared, the *Saurus synodus* of Cuv. & Val. may stand under the oldest name supposed to belong to it, as *SYNODUS SYNODUS* (Linnæus).

The Southern range of *Synodus fætens* is yet to be definitely ascertained. One or both of the West Indian names (*ruber*, *longirostris*), supposed to belong to it, may have been intended for *Synodus spixianus*.

Synodus saurus L. (*Saurus griseus* Lowe = *Saurus lacerta* Cuv. & Val.) is distinct from the American species, although allied to *Synodus fætens*. Scales 4-64-5, the cross series being fewer than in *S. fætens*.

3. *Fundulus fonticola*. (Cuv. & Val., xviii, 198, 1846.)

One specimen in poor condition, .05^m long, from Porto Rico; Plée.

A true *Fundulus*, the dorsal fin being inserted in front of the anal, and both fins quite small. Teeth in a broad band, the outer considerably larger and stout, but not long. Head broad, not very much depressed. Body plump, with long caudal peduncle. Colors entirely lost. Scales 37.

This larger specimen is apparently the type of the species. The smaller ones in the same bottle are apparently *Gambusias*. D. 8; A. 9. Scales 33; the dorsal inserted behind the anal.

The *Fundulus* being apparently a valid species, may still stand as *FUNDULUS FONTICOLA*.

4. *Fundulus cingulatus*. (Cuv. & Val., xviii, 197, 1846.)

One specimen in poor condition, .07^m. North America: Castelnau.

A *Zygonectes*. Head broad and flat. Eye large, 3 in head. Distance from front of dorsal to caudal half the distance to front of eye. Teeth rather strong. Caudal long. D. 7; A. 8. Scales about 33-10, but as some are lost, this count is uncertain. Head, $3\frac{2}{3}$ in length; depth, $4\frac{1}{2}$.

Body crossed by (about 16) narrow cross-bands, which are quite distinct, and narrower than the interspaces. Region below eye silvery—not dark.

This is evidently different from the *Zygonectes chrysotus* Günther, described by Jordan & Gilbert (Proc. U. S. Nat. Mus., 1882, 586) under the name of *Zygonectes cingulatus*. The *Hydrargyra lucia* of Baird is probably different from both. The *Fundulus zonatus* of C. & V. (not *Esox zonatus* Mitchell) may be this species, or, more likely, the very closely related *Zygonectes zonifer* Jordan and Meek, if indeed the latter prove to be different.

In any case, the present species should stand as ZYGONECTES CINGULATUS.

In this connection I may note that *Zygonectes notti* Agassiz, recently rediscovered by Professor Hay (Proc. U. S. Nat. Mus., 1885, 557), seems to be identical with *Zygonectes eraticula* Goode & Bean.

Zygonectes manni Hay, as already noticed by Dr. Bean, is my *Heterandria ommata*. It is not a *Heterandria*, nor apparently a *Zygonectes*. The black caudal spot which is found in all species of *Rivulus* would indicate its affinity to that genus, with which it agrees in external characters. It may therefore be called provisionally *Rivulus ommatus*.

5. *Exocætus melanurus*. (Cuv. & Val., xix, 101, 1846.)

Specimen somewhat shriveled; .27^m in length. New York: Milbert.

Second ray of pectoral divided, the first more than half length of fin. Anal short, with 9 rays. Dorsal low. Head moderate, $4\frac{1}{2}$ in length. Eye $2\frac{3}{4}$ in head. Ventrals inserted at a point about midway between base of caudal and eye. Pectorals reaching to or beyond last ray of dorsal (the tips broken). Dorsal and ventrals pale. Pectorals plain, dusky behind. A black spot on lower side of caudal peduncle, its diameter $\frac{2}{3}$ that of eye. This is undoubtedly not a natural color-mark, as it is not alike on the two sides of the tail. There is a hole in its center, and the flesh within the dark area is also black. The fish seems to have been dried before being put into alcohol and it had doubtless been hung up by a black string or a nail through this hole.

As supposed by Jordan and Meek (Proc. U. S. Nat. Mus., 1885, 60), this is the species for which has been retained the name of EXOCÆTUS HETERURUS.

6. *Exocætus volitans*. (Cuv. & Val., xix, 83, 1846. Not of L.)

Specimen in good order; .35^m; collected by Le Sueur; belongs to the same species as the preceding.

7. *Exocætus gibbifrons*. (Cuv. & Val., xix, 118, 1846.)

Specimen .23^m long, in fair condition. Atlantic Ocean: Dussumier.

Second ray of pectoral simple, the first $\frac{3}{8}$ length of the fin, which reaches to middle of last dorsal ray; ventrals not reaching quite so far. Insertion of ventrals midway between base of caudal (mesially) and back part of eye. Eye 3 in head. Head $4\frac{2}{3}$ in body. Depth, 6. Anal short, with 8 rays. D. 1.12. Head a little more gibbous than in other species, but not notably so; the interorbital area a little concave. Dorsal, anal, and caudal plain. Pectorals becoming dusky backwards. Ventrals posteriorly considerably dusky.

This is the species correctly identified by Jordan and Meek as *EXOCÆTUS GIBBIFRONS*.

8. *Exocætus cyanopterus*. (Cuv. & Val., xix, 9, 1846.)

One specimen in poor order; rather stiff; .41^m. Rio Janeiro: Hombron & Jaquinot.

Second ray of pectoral divided, the first $\frac{2}{5}$ length of fin. Snout pointed; interorbital area transversely concave. Snout $3\frac{1}{2}$ in head. Eye, $3\frac{1}{3}$. Tail strong. Dorsal moderately high, its base one-third longer than that of the rather short anal. D. 12; A. 11. Insertion of anal considerably behind that of dorsal. Pectoral extending beyond tips of last ray of dorsal and anal. Ventrals not quite to the base of the last ray. Insertion of ventrals midway between base of caudal and edge of preopercle.

Fins all pale, except a round black blotch, about as large as eye, on tips of middle dorsal rays. Ventrals white.

This species is close to *E. bahiensis*, if, indeed, it is not the same. The greater number (11 instead of 9 or 10) of anal rays alone separates it. We may therefore provisionally regard *E. cyanopterus* with *E. albidactylus* as a synonym of *EXOCÆTUS BAHIENSIS*.

9. *Exocætus lineatus*. (Cuv. & Val., xix., 92, 1846.)

In fair condition. .43^m. Gorée: Rang.

Second ray of pectoral divided, the first ray $\frac{3}{4}$ length of longest. Head rather pointed, the interorbital area flat. Snout 4 in head; eye $3\frac{1}{3}$. Head $4\frac{4}{5}$ in length; depth, $6\frac{1}{2}$. Pectoral extending to base of last anal ray, ventrals reaching nearly as far, their insertion midway between base of caudal and edge of preopercle. Anal short, its rays 1.10. Dorsal 13. Dark lines on sides of back conspicuous only where scales have been rubbed off, not forming an important feature of coloration. Fins mostly dusky; ventrals with faint dusky shades. Anal with an obscure dark shade. Dorsal and caudal somewhat dusky, but unmarked.

This species is close to *E. heterurus*, from which it is perhaps distinguished by the more backward insertion of its ventrals. It may stand provisionally as *EXOCÆTUS LINEATUS*.

10. *Hemirhamphus browni*. (Cuv. & Val., xix, 13, 1846.)

Specimens in fair condition. .32^m. Plée: Martinique, 1821.

Scales 52 (not 65, as stated by Valenciennes). This is identical with *Hemirhamphus pleci*, as understood by Meek and Goss (Proc. Ac. Nat. Sci. Phila., 1884, 224), and the name *browni* is prior to that of *pleci*.

It is extremely doubtful whether the *Hemirhamphus balao*, *brasiliensis*, or *macrochirus* of authors be really a species distinct from this. We may therefore regard them as constituting a single species, for which we may employ the oldest tenable name used for a member of this group, *HEMIRHAMPHUS BALAO* Le Sueur.

The name *Esox brasiliensis* must, as stated by Meek and Goss, go with the *Timucu* of Maregrave, a *Tylosurus*, and not with the *Hemirhamphus*.

11. *Belone caribbæa*. (Cuv. & Val., xviii, 431, 1846.)

Three specimens, in good condition, the largest a little over two feet long. Martinique: Plée (not the original types of Le Sueur, which came from Guadeloupe).

Snout $2\frac{1}{2}$ times length of rest of head; the jaws very slender, not quite closing, there being a slight arch at base of upper jaw. Teeth comparatively weak. Eye $2\frac{7}{10}$ in postorbital part of head. Top of head striated, with median groove and the vertex covered by skin. Folds of skin across preopercle, as in *Tylosurus raphidoma*. Body broad, but compressed, the sides a little flattened. Breadth of body $\frac{2}{3}$ its depth, which is about equal to postorbital part of head. Keel on tail decidedly strong, stronger than in *T. raphidoma*, and black, the tail otherwise not much depressed.

Scales small, green, about 210 before dorsal. Ventrals inserted midway between base of caudal (mesially) and middle of eye. Anal inserted just a little before dorsal. Dorsal with its posterior rays elevated, especially in the smaller specimen; broken in the larger. D. 25; A. 22.

This is doubtless identical with the *Belone altipinna* of Poey, which species may therefore stand as *TYLOSURUS CARIBBÆUS*. Its distinction from *Tylosurus acus* is questionable.

12. *Belone timucu*. (Cuv. & Val., xviii, 426, 1846.)

One specimen in poor condition, .23^m in length, from Cayenne. A specimen with the same label and belonging to the same species is in the collection from Cuba; Ramon de la Sagra.

Body slender, little compressed, the caudal peduncle compressed, but with the lateral line so prominent as fairly to constitute a keel. Beak long and slender, the snout double the length of the rest of the head. Eye small, $3\frac{1}{4}$ in postorbital part of head. Ventrals midway between base of caudal and middle of opercle. D. 13 or 14, A. 15 or 16. Lateral band more distinct than in *T. marinus*.

It is not possible to say whether the original *Timucu* of Maregrave (= *Esox brasiliensis* L.) is the present species, or *T. subtruncatus*, or some

other of the slender ones. The name *brasiliensis* should therefore be disregarded as unidentified.

This species seems to correspond to the "southern variety of *Belone truncata*" (= *Tylosurus marinus*) mentioned by Dr. Günther (vi, 245). The original description of *Belone almeida*, Quoy & Gaimard, is wholly valueless, but as its types were among the original types of *B. timucu*, C. & V., and therefore presumably identical with the specimen noted above, we may retain for this species or variety the name of TYLOSURUS ALMEIDA.

The types of *Belone cigonella*, *ardeola*, *gerania*, and *galeata*, if existing, cannot now be found in the Museum.

13. *Belone scolopacina*. (Cuv. & Val., xviii, 428, 1846.)

Small specimens in bad condition from Rio de la Mana, Cayenne. Leschenault and Doumère.

These belong apparently to the species described by Dr. Günther as *Belone taniata*. The poor condition of the specimen has led Valenciennes to make a gross miscount of the fin-rays, the dorsal having apparently 29 rays, at any rate more than 25, and the anal apparently 25, certainly more than 20. Valenciennes says, "D. 14, A. 17." The *Belone guianensis* Schomburgk is said by Steindachner to be the same as the *Belone taniata*. As this name (1842) has priority over that of *scolopacina* the species may stand as POTAMORRHAPHIS GUIANENSIS.

14. *Atherina martinica*. (Cuv. & Val., x, 459, 1835.)

Three specimens in fair condition from Martinique; Plée.

A species of *Menidia*.

Scales strongly lacinate. Soft dorsal and anal naked (possibly scaly in life?). Teeth rather strong. Pectorals long, extending past base of ventrals. Eye large, as long as snout, $3\frac{1}{5}$ in head. Head $4\frac{1}{5}$ in length; depth, $5\frac{1}{2}$. D. V-1, 7; A. 1, 21. Scales, 43.

This species is very close to *Menidia laciniata* Swain, and may prove to be the same. It should stand as MENIDIA MARTINICA.

15. *Atherina boscii*. (Cuv. & Val., x, 465, 1835.)

"États-Unis"; Le Conte.

Scales entire; anal fin scaleless. Body comparatively elongate. Teeth strong. Insertion of spinous dorsal midway between front of eye and upper base of caudal.

Head $4\frac{2}{5}$ in length; depth 6. D. IV-1, 8; A. 1, 26. Scales 43.

This agrees entirely with a specimen before us from Beaufort, North Carolina, belonging to the species called by me MENIDIA MENIDIA.

16. *Mugil brasiliensis* Agassiz.

The figure given of this species by Agassiz (in Spix Pisc. Brasil, tab. 72) agrees rather with *Mugil liza* C. & V. than with *Mugil trichodon* Poey, in color and in size. The anal fin is represented as scaly, which it is not in *Mugil liza*. We are informed, however, by Dr. Spangenberg

that the anal fin is dried down in the type, and this character of the anal may have been taken from the other specimens* examined by Agassiz, as may also have been the description of the teeth, which are shown larger than in *M. liza*. The scales in the figure are 35, the depth $4\frac{2}{3}$ in the length—both characters agreeing with *M. liza*. For these reasons I regard our former identification of *Mugil brasiliensis* Agassiz with *Mugil trichodon* Poey as erroneous, and I now consider *Mugil liza* Cuv. & Val. (= *Mugil lebranchus* Poey) as the original MUGIL BRASILIENSIS Agassiz.

17. *Caranx bartholomæi*. (Cuv. & Val., ix, 100, 1833.)

One example, 14^m in length, from St. Bartholomew Island.

As supposed by us. (Proc. U. S. Nat. Mus., 1884, 33), this is fully identical with the *Cibi amarillo* of the Havana markets, the *Caranx cibi* of Poey and *Caranx beani* of Jordan. It has about 28 plates on its lateral line, besides some six smaller scales. It should stand as CARANX BARTHOLOMÆI.

18. *Caranx sexfasciatus*. Quoy & Gaimard (Zool. Voy. Freycinet Poiss., 358, pl. 65, f. 4, 1824.)

This species has been regarded as the young of *Caranx latus* Agassiz (= *C. fallax* C. & V.), and I have lately adopted the name *sexfasciatus* as a substitute for the latter.

The name is based on a very poor drawing of the very young of some *Caranx*, said to be from Papua. The figure shows the dorsal and anal scarcely falcate. D. 22, A. 19; plates about 22. The drawing may represent a young *latus*, or it may not, and the name *sexfasciatus* should be regarded as unidentifiable. The *Scomber kleini* of Bloch is still less likely to be this fish, which may therefore still stand as CARANX LATUS Agassiz.

19. *Trachinotus argenteus*. (Cuv. & Val., viii, 413, 1831.)

Specimen .32^m in length; America; D. 25, A. 23. Body a little deeper depth $2\frac{1}{10}$ (instead of $2\frac{2}{5}$) than in the ordinary Pompano, which it otherwise entirely resembles. It may stand as TRACHINOTUS CAROLINUS.

20. *Trachinotus cayennensis*. (Cuv. & Val., viii, 417, 1831.)

Very young specimen in poor condition, .06^m long, from Cayenne.

Form of *Trachinotus ovatus*, the body very deep, the snout short and very blunt. Dorsal lobe (in young) 2 in head. Eye very large; preopercle with strong spines. Depth of body 2 in length. D. 27, A. 26. Fins all pale. Apparently a valid species, distinguished from *Trachinotus ovatus* by its numerous fin-rays. It will stand as TRACHINOTUS CAYENNENSIS.

21. *Trachinotus paitensis*. (Cuv. & Val., viii, 438, 1831.)

Specimen in poor condition; .07^m long; from Paita, Pern.

* See Jordan & Swain, Proc. U. S. Nat. Mus., 1884, 270.

Different from *T. cayennensis*, having the more elongate form of *T. rhodopus*. Fins low, but higher than in *T. cayennensis*, the dorsal lobe black, its length about half head. Snout low, bluntish at tip. Depth $2\frac{1}{2}$ in length. D. 28, A. 27. A valid species, apparently distinguished by the large number of fin-rays. It may stand as *TRACHINOTUS PAITENSIS*.

22. *Seriola rivoliana*. (Cuv. & Val., ix, 207, 1833).

In fair condition, .25^m long; from the Greek Archipelago.

Form elliptical, compressed, the nape not very sharp; caudal keel weak. Snout blunt, compressed, not conical. Head a little longer than deep, $3\frac{1}{4}$ in length; depth, $3\frac{1}{12}$. Maxillary reaching to near middle of pupil, $2\frac{2}{5}$ in head; snout 3 in head. Dorsal lobe, $4\frac{4}{5}$ in length of body, $1\frac{3}{5}$ in depth, $1\frac{2}{5}$ in length of head, $2\frac{1}{6}$ in base of fin. D. 1, 29, A. 1, 20. A dark band from eye to soft dorsal; the body otherwise plain.

This agrees almost perfectly with a specimen about a foot in length from Pensacola. There is no doubt, I think, of the identity of *Seriola falcata*, *bonariensis*, and *rivoliana*. Unless, as is probable, *Seriola fasciata* (Bloch) is the young of the same species, it may stand as *SERIOLA RIVOLIANA*.

23. *Serranus undulosus*. (Cuv. & Val., ii, 295, 1828).

Small specimens (.08^m), in poor condition.

Brazil: Delalande.

These have many gill-rakers, large scales, the preopercle with salient angle, and the caudal subtruncate. They belong to the species called by us *MYCTEROPERCA SCIRENGA*.

24. *Serranus niveatus*.

A specimen a foot long (not type), collected at Rio Janeiro by Jobert.

This agrees with the description of Jordan & Swain (Proc. U. S. Nat. Mus., 1884, 386) except in color. There is no blotch on back of tail. The soft parts of the vertical fins are largely dusky with narrow pale edge. Moustache on maxillary very distinct; body with irregularly scattered pearly spots; breast plain. This specimen probably represents the transition from the young (*niveatus*) to the adult (*flavolimbatus*).

25. *Centropristes atrobranchus*. (Cuv. & Val., iii, 45, 1829.)

Brazil: Delalande.

Allied to *Serranus phabe*, but well separated by the color. A large inky black blotch on inside of opercle, just behind the pseudobranchiæ and parallel with them, extending also on membranes of shoulder-girdle; about six dark vertical bands on sides, the second extending as a jet-black blotch on the spinous dorsal from the fourth to the ninth spine. Base of soft dorsal dark; upper part pale, as is also the anal and caudal.

Preorbital and maxillary narrow, the maxillary $2\frac{2}{5}$ in head. Teeth small; eye large, 3 in head, longer than the short snout, which is $4\frac{1}{2}$ in head. Head, 3 in length; depth, 3. Dorsal spines rather high, not filamentous; soft dorsal not scaly; a notch between spinous and soft

parts of dorsal; caudal well forked; second anal spine small, but larger than third, $3\frac{1}{2}$ in head. Scales large and regular, 3-47-11. This species may stand as *SERRANUS ATROBRANCHUS*.

26. *Centropristes brasiliensis*. (Barneville, Rev. Zool., 1847, 131.)

Type, .095^m, from Bahia, received in exchange from the Museum of Geneva.

This is very close to *Serranus dispilurus*, if really different. It has the same form, and same coloration of caudal and anal fin and of the region above and before the latter. The dusky blotch below the spinous dorsal and above the white pre-anal blotch is a little more conspicuous than in Pensacola specimens, and the dark blotch on and below first soft rays of dorsal is less so. There is, however, little, if any doubt, of the identity of this species with *C. dispilurus* Günther, and *C. subligarius* Cope. It may stand as *SERRANUS BRASILIENSIS*.

27. *Centropristes rufus*. (Cuv. & Val., iii, 47.)

Two specimens in fair condition, from Martinique: Plée.

This resembles very closely *Serranus atrarius* in all respects, the only difference that I can detect being that the caudal fin is quite regularly rounded instead of trilobate. Color uniform dark—in alcohol. Fourth dorsal spine longest, 2 in head. Scales, 5-50-13. Eye, $4\frac{1}{2}$ in head. Pectorals extending beyond ventrals, $1\frac{1}{2}$ in head. It will probably prove to be a variety of *Serranus atrarius*, but for the present it may stand as *SERRANUS RUFUS*.

28. *Aylopon martinicensis*. (Guichenot, Index, Gen. et. Spec. Anthiadidorum, p. 6.)

Four specimens, the largest 13^m, from Martinique: Bélanger.

A true *Anthias*, the maxillary broad and provided with 5 or 6 rows of large scales. Head very blunt and short. Eye 3 in head; snout 5; maxillary $2\frac{1}{2}$; mouth very oblique, the lower jaw projecting; no supplemental maxillary. Head above closely scaled; tongue with a band of villiform teeth; two canines in front of upper jaw on each side, the anterior turned forward, the posterior downward and backward; three canines on each side of front of lower jaw, the anterior directed forward and outward, the posterior two upward and backward. No lateral canines and no depressible teeth in either jaw. Preopercle finely serrate, and with coarser teeth at the angle, as in *Anthias vivanus*. Five rows of large scales on the cheek. Gill rakers slender and very long.

Scales large, 4-35-14; lateral line running high; scales on breast large.

Third dorsal spine elevated, $1\frac{1}{3}$ times height of the next, $1\frac{1}{2}$ in head; soft dorsal moderate; caudal lunate; anal rather high, its second and third spines moderate, subequal; pectorals rather long, as long as head; ventrals $1\frac{2}{5}$ in head; head $3\frac{1}{5}$ in length; depth $2\frac{5}{6}$.

This species seems to be distinct from *Anthias asperilinguis* and *Anthias vivanus*. It may stand as *ANTHIAS MARTINICENSIS*.

29. *Mesoprion cyanopterus*. (Cuv. and Val., ii, 472, 1828.)

One specimen in fair condition, .27^m long; Brazil: Delalande.

This agrees with *Lutjanus cubera* Poey, in all respects except that the axil of the pectoral is black on one side of the specimen and faintly brownish on the other. This color mark may perhaps be fallacious, or disappearing with age, as we have seen no *cubera* so small as the type of *cyanopterus*. I was unable to find the dried skin which was the type of *Mesoprion pargus*, but it is probably identical with the present species. As the name *cyanopterus* is prior to *pargus*, *canina*, *cubera*, or *dentatus*, this species may stand as LUTJANUS CYANOPTERUS.

30. *Mesoprion litura*. (Cuv. & Val., ii, 467.)

Cayenne: Poiteau.

As already supposed by Jordan & Swain, this is LUTJANUS JOCU.

31. *Mesoprion flavescens*. (Cuv. & Val., ii, 472.)

Martinique: Plée.

This is LUTJANUS CAXIS.

32. *Mesoprion linea*. (Cuv. & Val., ii, 468.)

Havana: Poey.

This is also LUTJANUS CAXIS.

33. *Mesoprion mahogoni*. (Cuv. & Val., ii, 447.)

Young specimens in rather poor condition. Martinique: Plée. Also similar specimens from Cuba: Desmarest.

These are, as supposed by Jordan & Swain, identical with *Lutjanus ojanco* Poey, which species should stand as LUTJANUS MAHOGONI.

34. *Mesoprion ricardi*. (Cuv. & Val., ii, 448.)

This specimen is also the young of LUTJANUS MAHOGONI.

35. *Mesoprion cynodon*. (Cuv. & Val., ii, 465.)

Martinique: Plée.

This is a large example of LUTJANUS CAXIS.

36. *Lutjanus dentatus* Duméril. ("A Duméril, Archiv. du Mus., T. 10, 245.")

Brazil: Delalande. Specimen .35^m long.

This is the young of *Lutjanus cubera*. Axil dusky. It should stand as LUTJANUS CYANOPTERUS.

37. *Mesoprion vivanus*. (Cuv. & Val., ii, 454.)

Three specimens: the largest, .19^m long; the others, .10^m.

The largest of these specimens has the dark lateral spot obscure; the depth $2\frac{2}{3}$ in length, equal to length of head. Maxillary $2\frac{1}{2}$ in head. Dorsal rays X, 13 (not X, 14, as usual in *L. aya*). Anal fin lower than usual in *L. aya*, its longest rays about half head. In spite of certain small differences, I still hold my opinion that these specimens are the young of our common Red Snapper, which I call LUTJANUS AYA.

38. *Aprion virescens*. (Cuv. & Val., vi, 542, 1830.)

This species is fully congeneric with the American *Aprion* (or *Platyinius*) *macrophthalmus*. It has the same form of head, the vertex and interorbital area being perfectly flat. The body is more slender (depth 4) than in *Aprion macrophthalmus*, the teeth a little stronger, and the preorbital broader, 6 in head.

39. *Apsilus fuscus*. (Cuv. & Val., vi, 548.)

This is fully congeneric with the American *Apsilus* (*Tropidinius*) *dentatus*. It has the same form of the skull, but the body is slenderer (depth 3 in length), the teeth smaller, and the caudal lobes more pointed. The generic name *Tropidinius* is therefore a synonym of *Apsilus* as *Platyinius* is of *Aprion*. (See Jordan & Swain, Proc. U. S. Nat. Mus., 1884, 465.)

40. *Hæmulon canna*. (Cuv. & Val., v, 233, 1830; not of Agassiz, 1829.)

A specimen of 20^c long. Martinique: Plée.

This is the *Hæmulon parra* of Jordan and Swain, as Dr. Günther has supposed, and it should stand as *HÆMULON BONARIENSE*.

41. *Hæmulon canna*. (Agassiz, Spix. Pisc., Brazil, 1829, 130, pl. 69.)

A careful recomparison of Agassiz's description and figure of *Hæmulon canna*, with different species of *Hæmulon*, leads me to the conclusion that it can be no species other than the *Hæmulon acutum*. This use of the name *canna* (by Agassiz in 1829) is prior to its use by Cuv. & Val. (in 1830) for another species. The species of Agassiz may stand as *HÆMULON PARRA*.

Agassiz's *Hæmulon schranki* I must still regard as unidentifiable, though it most resembles *Hæmulon steindachneri*, from which it would appear to differ in color and in the very small size of the anal fin—both very doubtful characters.

42. *Hæmulon caudimacula*. (Cuv. & Val., v, 236.)

Specimen of .12^m. Brazil: Delalande.

This is the young of the species called by us *Hæmulon acutum*.

The name *Hæmulon caudimacula*, however, first appears in the Règne Animal, where it is based, without description, on the scarcely identifiable *Uribaco* of Maregrave and the *Diabasis parra* of Desmarest.

The name *Hæmulon caudimacula* Cuvier, becomes thus either unidentifiable or else a synonym of *Hæmulon parra*.

The *Diabasis parra* is itself not very satisfactory. The rough figure given by Desmarest, as well as his description, best fit the *Hæmulon acutum*, and we have the statement of Cuvier & Valenciennes that Desmarest's fish does not seem to differ from their *caudimacula* from Brazil, which is *acutum*. They do not, however, say whether they have examined Desmarest's type or not.

Dr. Sauvage, however (Bull. U. S. Fish Comm., 1881, 322), gives an account of a specimen in the Museum at Paris, said to be a type of Desmarest as well as Cuvier & Valenciennes. This description is not

very explicit, but the coloration seems best to represent the species with continuous stripes, the *H. bonariense* of Cuv. & Val. This specimen I failed to find when in Paris.

Since the above was in type, M. Thomiot informs me that he has found this specimen, and that in the direction of its scales, as well as in other characters, it agrees with the *Hæmulon chromis* C. & V., not with *Hæmulon bonariense*. The *Diabasis parra* Desmarest is therefore identical with *Hæmulon acutum* Poey. The earliest certain name for the present species (*acutum*) is therefore HÆMULON PARRA Desmarest.

43. *Hæmulon xanthopteron*.

I failed to find the type of this species. A specimen from Bahia, labelled *Hæmulon xanthopteron*, belongs to the species called *Hæmulon acutum*, the *Hæmulon parra* of this paper.

44. *Hæmulon bonariense*. (Cuv. & Val., v, 234, 1830.)

A small specimen (.15^m) from Buenos Ayres: Baillon.

This is the *Hæmulon parra* of Jordan and Swain, having the series of scales from the scapular scale extending to the front of the second dorsal, and the color marks on the scales forming continuous stripes. As this species is not the original *Diabasis parra*, it may stand as HÆMULON BONARIENSE.

45. *Hæmulon macrostoma*. (Günther i, 308.)

Specimens from St. Croix (Stephens) and from Bermuda (Jones) labelled *Hæmulon macrostoma*, in the British Museum, belong to the *Hæmulon carbonarium* of Poey. It is, however, not probable that the original type—a dried skin from Jamaica—belonged to this species, as the original description agrees neither with *H. carbonarium* nor with *H. fremebundum*.

46. *Hæmulon chromis*. (Cuv. & Val., v, 242, 1830.)

Specimen in poor order, 17^m; Jamaica; from the faculty of Montpellier.

This is a very pale specimen (*albidum* Poey) of the species called *Hæmulon acutum*, by Jordan & Swain.

It should stand as HÆMULON PARRA.

47. *Hæmulon chrysargyreum*. (Günther, i, 314.)

Several specimens examined in the British Museum; among them the type *b*. (Trinidad; J. B. Richardson.) Others are from St. Croix and Fernando Noronha.

These are identical with *Hæmulon tenuatum* of Poey, although some of these are larger in size than any of the latter obtained by me. The depth in the large examples is somewhat greater, $3\frac{1}{2}$ in the length, and the maxillary is longer, $2\frac{1}{2}$ in head. The species should then stand as HÆMULON CHRYRSARGYREUM.

The nomenclature of the species of *Hamulon* is still somewhat unsettled. The following list may be substituted for that given by Jordan & Swain (Proc. U. S. Nat. Mus., 1884, 317*):

1. *Hamulon sexfasciatum* Gill.
2. *H. gibbosum* Walbaum.
3. *H. bonariense* Cuv. & Val. (*parra* of J. & S.; *canna* of C. & V.).
4. *H. parra* Desmarest (*acutum* of J. & S.; ? *canna* of Agassiz).
5. *H. scudleri* Gill.
6. *H. fremebuulum* Goode & Bean.
7. *H. macrostoma* Günther. (?)
8. *H. carbonarium* Poey.
9. *H. steindachneri* Jordan & Gilbert (? = *H. schranki* Agassiz).
10. *H. melanurum* L.
11. *H. sciurus* Shaw.
12. *H. plumieri* Lacépède.
13. *H. flavolineatum* Desmarest.
14. *H. chrysargyreum* Günther.
15. *H. rinator* Jordan & Swain (? = *H. striatum* (L.)).
16. *H. aurolineatum* Cuv. & Val.
17. *H. quadrilineatum* Cuv. & Val. (? = *H. trivittatum* (Bl. & Schm.)).
18. *H. flavoguttatum* Gill.
19. *H. maculicanda* Gill.

48. *Calamus plumatula*. (Guichenot, Révision des Pagels, 119.)

Martinique; Plée; in poor order, .26^m long.

As supposed by Jordan & Gilbert (Proc. U. S. Nat. Mus., 1884, 20), this is the young of CALAMUS BAJONADO.

49. *Calamus microps*. (Guichenot, in Ramon de la Sagra, Hist. Cuba, 188, tab. 8, fig. 1.)

Specimen in fair condition, .32^m long, from Cuba; Ramon de la Sagra.

Very close to *Calanus penna*, from which it may be distinguished by the very small size of the eye, which is $4\frac{1}{2}$ in head. Canines small, irregular, about $\frac{3}{4}$ on each side. Preorbital breadth $2\frac{1}{2}$ in head. Maxillary $2\frac{1}{2}$ in head. Depth of body $2\frac{1}{4}$ in length. Form of *Calamus*

* *Hamulon hians* Haly (Ann. Nat. Hist., 1875, xv, 268), from Bahia, was overlooked in our review of this genus. The scanty original description does not distinguish it from *H. sciurus*. The following is the original description of *Hamulon hians*:

"D. $1\frac{1}{2}$. A. $\frac{3}{4}$. L. lat. 50. L. transv. $1\frac{1}{2}$."

"The height of the body equals the length of the head, and is contained three times and a half in the total. The snout is of moderate length, rather longer than the eye, which is contained three times and a half in the length of the head. The cleft of the mouth is very wide, the maxillary reaching to the vertical from the center of the eye. Preoperculum with the posterior limb nearly vertical, obtusely denticulated, the denticulations somewhat stronger at the angle. Dorsal deeply notched; the fourth spine longest, nearly half the length of the head, the last spine longer than the eleventh. Caudal forked. Second anal spine stronger but scarcely longer than the third, as long as the sixth dorsal spine. Pectoral one-fifth of the total length. The fish appears to have been longitudinally striped.

"Two specimens in spirits from Bahia, and a young stuffed specimen from the same locality. The adults are $7\frac{1}{2}$ inches long."

penna, the back with a regular arch. Ventrals dusky. A dark spot in axil of pectoral, as in *C. penna*. Scales 49.

This species may be distinct, but it will probably be found inseparable from CALAMUS PENNA.

50. *Sargus argenteus*. (Cuv. & Val., vi, 60.)

Specimen from Brazil; Delalande; .15^m.

This is identical with the *Sargus caudimacula* of Poey, a species distinct from the *Diplodus holbrooki* of Bean.

Depth 2 in length; scales 8-70-16.

Little or no black on opercular membranes.

A specimen of this species from Saint Augustine, Fla., was sent to the museum of the Indiana University by Mr. W. P. Shannon. This is the first record of its occurrence on the United States coast.

The species should stand as DIPLodus ARGENTEUS.

51. *Sargus ascensionis*. (Cuv. & Val., vi, 61.)

Ascension Island; Quoy & Gaimard; .30^m.

The type of this species much resembles *Diplodus holbrooki*.

Depth $2\frac{1}{3}$ to $2\frac{2}{3}$ in length; scales 8-61-16.

Anterior profile steep. Black on the opercular membranes. Axil dusky. No cross-bands. Dorsal, anal, and ventrals somewhat dark. Anterior profile steep, the dorsal outline being more angular than in *D. argenteus*, the ventral outline less so. It should stand as DIPLodus ASCENSIONIS.

52. *Sargus flavolineatus*. (Cuv. & Val., vi, 60.)

San Iago de Cuba; Choris; .26^m in length, in bad condition.

Teeth broad and scarcely notched. Incisors $\frac{3}{4}$. Procumbent dorsal spine scarcely evident. Second anal spine *very* strong, much larger and longer than third.

Head $3\frac{1}{2}$ in length; depth $2\frac{1}{11}$.

Longest dorsal spine $1\frac{1}{2}$ in head.

D. XIII, 11. A. III, 9. Scales 7-45-14.

This species is very close to *Diplodus unimaculatus*, but it seems to be distinct, having the body deeper than in the latter. It should stand as DIPLodus FLAVOLINEATUS.

This species occurs in abundance at Key West, but the true *Diplodus unimaculatus* has not yet been definitely recorded from the coast of the United States.

53. *Sargus aries*. (Cuv. & Val., vi, 58, 1830.)

Specimen .30^m long, from Brazil; Delalande.

This is very close to *Diplodus probatocephalus*, with seven dark cross-bands, similar in position to those of the latter species. The teeth are, however, distinctly narrower, the width of one being about two-fifths its height, from the gums. Spines strong, the longest dorsal spine $1\frac{2}{3}$ in head. Second anal spine $1\frac{1}{3}$. Procumbent spine before dorsal present.

Head $3\frac{1}{2}$ in length; depth 2. D. XII, 12. A. III, 10. Scales 7-44-14. Scales on breast small.

The species may stand as *DIPLODUS ARIES*.

54. *Sargus lineatus*. (Cuv. & Val., vi, 59.)

Dried skin, .30^m long, from the "Cabinet de Lisbonne."

Four or five narrow black cross-bars, as wide as pupil; a black blotch on back of caudal; apparently some black on opercle. Body deep, the depth $2\frac{1}{3}$ in length; second anal spine longest and strongest, $2\frac{1}{2}$ in head. Profile steep; snout 3 in head. Incisors broad, $\frac{4}{4}$. Scales on breast large. D. XII, 13.

The species is unknown to me, and the type, in poor condition, from unknown locality, should not have received a name.

55. *Sargus fasciatus*. (Cuv. & Val., vi, 59.)

Dried skin, .35^m long, from the "Cabinet de Lisbonne."

Body more elongate. Color now entirely faded. Incisors very narrow, entire, $\frac{4}{4}$. Snout sharp, rather long, $2\frac{1}{2}$ in head, forming an angle above eye. Second and third anal spines subequal. Scales about 45. A species of *Diplodus*, otherwise unknown to me, and not in fit condition for description.

56. *Upeneus martinicus*. (Cuv. & Val., iii, 483, 1829.)

Martinique; Garnot.

As supposed by Hall & McCaughan (Proc. Ac. Nat. Sci. Phila., 1885, 154), this species is identical with the *Upeneus balteatus* C. & V. and *Upeneus flavovittatus* Poey. The *Upeneus parvus* of Poey, included by Hall & McCaughan in the synonymy of *U. martinicus*, is probably different.

The species may stand as *UPENEUS MARTINICUS*.

57. *Umbrina martinicensis*. (Cuv. & Val., v, 186.)

Two specimens, .24^m long, from Martinique; Plée.

Color plain, the lower lobe of caudal not black. Snout bluntish, $3\frac{1}{2}$ in head, projecting beyond premaxillary for two-ninths its length. Maxillary 3 in head, reaching a little beyond front of eye. Posterior nostril narrow-ovate, rather large. Outer teeth above moderately enlarged. Gill-rakers very small, tubercle-like. Eye $5\frac{1}{4}$ in head. Head $3\frac{2}{5}$ in length; depth 4. D. X-I, 25. A. I, 8. Lateral line with 55 pores. Scales on breast large, irregular. Lower lobe of caudal the longer.

This species is very close to *Menticirrus alburnus*, but apparently somewhat different. It may stand as *MENTICIRRUS MARTINICENSIS*.

58. *Umbrina gracilis*. (Cuv. & Val., v, 189.)

A stuffed skin in alcohol (Brazil; Aug. St. Hilaire), its apparent slenderness of form being due to distortion. It belongs to the species above noted as *MENTICIRRUS MARTINICENSIS*.

59. *Otolithus guatucupa*. (Cuv. & Val., v, 75.)

Two specimens (.45^m); Montevideo; D'Orbigny.

This species has oblique dark streaks along the back, following the rows of scales, much as in *C. reticulatum*. Soft dorsal mostly covered with small scales. Head compressed. Maxillary $2\frac{2}{5}$ in head. Canines rather small. Eye $5\frac{1}{2}$ in head. Gill-rakers long and slender, about 14 in number. Caudal subtruncate, emarginate when not spread open. D. X-I, 21. A. 1, 8. Lateral line, with 56 pores. A valid species, allied to *Cynoscion regale*. It may stand as *CYNOSCION GUATUCUPA*.

60. *Otolithus leiarchus*. (Cuv. & Val., v, 78.)

A dried skin of a young example, .23^m long, from Brazil, the color faded and the fins all broken.

A species of *Cynoscion*. Soft dorsal scaleless. Scales quite small, there being about 90 pores in the lateral line. Maxillary $2\frac{1}{4}$ in head. Dorsal IX-I, 24. Anal shriveled, its spine covered by varnish. The species may stand as *CYNOSCION LEIARCHUS*.

61. *Otolithus nebulosus*. (Cuv. & Val., v, 79.)

Type .27^m long, in moderate condition. No locality.

This is the *Otolithus carolinensis* of Cuv. & Val., and should stand as *CYNOSCION MACULATUM*.

62. *Corvina trispinosa*. (Cuv. & Val., v, 109, 1830.)

Two dried skins fastened to glass, .13^m long; Brazil; Delalande.

A genuine member of the subgenus *Stelliferus*. Head $3\frac{2}{3}$ in length; depth $3\frac{1}{4}$. Eye $3\frac{1}{2}$ in head; maxillary $2\frac{1}{4}$; space between eyes $3\frac{1}{2}$. Preopercle with three strong divergent spines near its angle, and smaller spines above it. Mouth very oblique. Maxillary extending to middle of eye; premaxillary in front, on level of pupil. Second anal spine $1\frac{3}{4}$ in head; pectoral $1\frac{1}{4}$; longest dorsal spine $1\frac{3}{4}$. Dorsal rays not readily counted, apparently X-I, 19.

This is the species called by Steindachner (Ichth. Notizen, i, 6) *Corvina stellifera*, and it is distinct from the *Corvina stellifera* of Günther, which is the *Corvina microps* of Steindachner. It seems probable, as supposed by Cuvier & Valenciennes, that this is the original *Bodianus stellifer* of Bloch, in which case it may stand as *SCIÆNA* (or *STELLIFERUS*) *STELLIFERA*.

63. *Julis detersor*. (Cuv. & Val., xiii, 408.)

Two small specimens, in poor condition, from Martinique; Plée.

These belong to the species called by Jordan & Hughes (Proc. U. S. Nat. Mus., 1884, 68) *THALASSOMA BIFASCIATUM*.

64. *Julis psittacus*. (Cuv. & Val., xiii, 387, 1839.)

Two specimens, in fair condition, from Surinam. They belong to *PLATYGLOSSUS BIVITTATUS*.

65. *Julis crotaphus*. (Cuv. & Val., xiii, 395; not of Cuvier.)

Brazil; Delalande (stuffed specimen).

Color entirely faded. Caudal injured. Dorsal scales not crossing the median line. Ventrals short. Snout rather long and pointed, $2\frac{1}{3}$ in head. Depth about 5 in length. This seems to be *PLATYGLOSSUS CAUDALIS*.

Another specimen (.18^m long), also from Delalande, is evidently *PlatyGLOSSUS caudalis*. The caudal ends in three blunt points, and the black spot behind eye is distinct. Ventrals $1\frac{4}{5}$ in head; eye 7. Depth $4\frac{1}{3}$ in length.

66. *Julis garnoti*. (Cuv. & Val., xiii, 390.)

Three young specimens, from Martinique; Belanger.

These belong to the species called *PlatyGLOSSUS cinctus* by Poey, and should stand as *PLATYGLOSSUS GARNOTI*.

67. *Xyrichthys martinicensis*. (Cuv. & Val., xiv, 49.)

Eight specimens, about .135^m long, in poor condition; Martinique; Garnot.

Color faded; one specimen (male) with dark fins. Anterior profile rather less trenchant than in *X. psittacus*. Canines strong, $\frac{1}{2}$ on each side. No scales on head. Anterior dorsal spines not produced; none of the spines pungent. Head $3\frac{4}{5}$ in length; depth about the same. Scales 29. Till the species of this group are critically examined the present one may stand as *XYRICHTHYS MARTINICENSIS*.

68. *Xyrichthys vitta*. (Cuv. & Val., xiv, 51.)

From the "Cabinet du Stadhouder"; .14^m long.

Specimen a little deeper than the types of *X. martinicensis* (head $3\frac{2}{5}$; depth $5\frac{1}{5}$), but apparently not otherwise different. A yellowish streak along sides where the muscles join (perhaps not evident in life). This is doubtless identical with *XYRICHTHYS MARTINICENSIS*.

69. *Xyrichthys uniocellatus*. (Cuv. & Val., xiv, 48.)

Two specimens, in fair order, .16^m long, from Bahia.

Head short, deep, its profile steep and trenchant, its length 4 in body; depth $3\frac{1}{5}$. Canines strong. Scales 27. Blue vertical stripes on side of head. A jet-black ocellus, like an ink-spot, as large as pupil, behind sixth dorsal spine.

A valid species, *XYRICHTHYS UNIOCELLATUS*.

70. *Callyodcn ustus*. (Cuv. & Val., xiv, 286.)

A dried skin, somewhat distorted; .23^m long. Brazil. Delalande.

Color all faded. Lower lateral teeth very regularly arranged; some teeth not dissimilar outside of these in front. Lower teeth growing rather stronger backward. Upper lateral teeth very fine and even, close set. One canine near middle of jaw turned outward and backward. No other canines evident on left side; the right side broken.

This species may stand as *CRYPTOTOMUS USTUS*.

71. *Callyodon auropunctatus*. (Cuv. & Val., xiv, 290.)

In fair condition; .17^m long; from San Domingo. Ricord.

Body rather elongate; the snout sharp, the front not steep. Eye, 5 in head; Snout, 2 $\frac{3}{5}$. Head, 3; depth, 3.

Teeth on edge of each jaw regular, those of lower jaw twice as large, the front series standing outside of the lateral series. Upper jaw with one strong canine hooked outward and backward, a little behind the middle of its side. Anterior canines small; those of the lower jaws scarcely unlike the ordinary teeth. Upper lip not double for its whole length.

The other specimen, .13^m long, also from San Domingo, mentioned by Cuvier, lacks the posterior canine, but seems to be otherwise similar.

This species should stand as *CRYPTOTOMUS AUROPUNCTATUS*.

72. *Scarus frondosus*. (Cuv. & Val., xiv, 204.)

A dried skin, .22^m long, and a small rotten specimen in alcohol; both from Brazil. Delalande.

The specimen in alcohol has the caudal faintly banded, and belongs to the species called by Jordan & Swain *Sparisoma flavescens* (Proc. U. S. Nat. Mus., 1884, 92). The other is scarcely identifiable, but is probably the same.

The name *Scarus frondosus* Cuvier first appears in Agassiz, Pisc. Brasil., p. 93, pl. LIV. This figure is a poor one, but it, too, was probably intended for *SPARISOMA FLAVESCENS*.

The *Sparisoma frondosum* of Jordan & Swain, (l. c.) 93 should probably stand as *SPARISOMA BRACHIALE*.

73. *Scarus quadrispinosus*. (Cuv. & Val. xiv, 197.)

A dried skin .40^m long. Martinique. Plée.

Color entirely faded, possibly blue in life. Four distinct posterior canines on right side of upper jaw (the left side broken). Snout rather long. Caudal simply lunate. Cheek scales in 2 $\frac{1}{2}$ rows. Seven scales before dorsal. Axil pale. Fins apparently pale and plain.

This is apparently a valid species, and may stand as *CALLIODON** (OR *SCARUS*) *QUADRISPINOSUS*.

* In accordance with the code of nomenclature adopted by the American Ornithologists' Union, the genera established by Gronow in his *Zoophylaceum* in 1763, should be regarded as tenable. This will necessitate the accrediting to Gronow of several genera, as *Albula*, *Synodus*, *Eleotris*, &c., usually assumed to date from Bloch and Schneider. It will also necessitate the following changes of name in the current nomenclature of our fishes:

Apogon Lacépède to *Amia* Gronow; *Amia* Linnaeus (1766) to *Amiatus* Rafinesque; *Muranoides* Lacépède to *Pholis* Gronow; *Zoarces* Cuvier to *Euchelyopus* Gronow; *Liparis* Cuvier to *Cyelogaster* Gronow; *Scarus* Forskål to *Calliodon* Gronow.

The *Scarus* of Gronow, prior to that of Forskål, is based on a species of *Labrus* and two *Cichlidae*. It would be a synonym of *Labrus*. The original *Calliodon* of Gronow is apparently the *Scarus croicensis*. It is therefore equivalent to *Pseudoscarus* of Bleeker.

74. *Scarus tæniopterus*. (Desmarest, Diet. Classique, xv, 244, pl. 12, 1831.)

Specimen .27^m long, in very bad condition; the color entirely faded. Cuba. Desmarest. The dorsal shows faintly two colors, with a spot at the base of each membrane.

Another specimen (also a type?) from the museum at Geneva, .30^m long, is in better condition. The colors on the dorsal show more plainly, and there are two dusky bands on the anal. The outer ray of caudal above and below is paler than the others.

This is identical with the other specimen, and both, I think, belong to the species called *Scarus virginalis*, by Jordan & Swain (Proc. U. S. Nat. Mus., 1884, 88), which species, if this view is correct, must stand as CALLIODON TÆNIOPTERUS.

75. *Scarus cœlestinus*. (Cuv. & Val., xiv, 180.)

A large stuffed skin, .60^m long, from St. Thomas. Plée.

Color now plain dusky (perhaps blue in life). Teeth apparently dark green. Forehead fat. A single canine on right side of upper jaw; none on left. Cheeks with 2½ rows of scales. Seven scales before dorsal. Caudal rounded, but with the outer rays much produced, about one-third their length being exerted. Next the last rays of dorsal and anal similarly prolonged into a point. Ventrals long, pointed. Form rather robust. Head, 3⅔; depth, 3⅙.

This seems to be a valid species, and it may stand as CALLIODON CŒLESTINUS.

76. *Scarus turchesius*. (Cuv. & Val., xiv, 181.)

A dried skin, .40^m long, from Porto Rico. Plée.

Color faded to a plain brown, paler than in *S. cœlestinus*. No canines. Forehead not very fleshy (young). Caudal with its lobes exerted for ¼ to ⅓ their length. Dorsal, anal, and ventrals less produced than in the type of *Scarus cœlestinus*. Scales on cheeks in two rows. Head, 3⅔ in length; depth, 3⅓. Teeth faded, but still partly green.

This is the *Guacamaia* of Parra, the *Scarus guacamaia* of Cuvier, but not of Cuv. and Val. It may stand as CALLIODON GUACAMAIA.

77. *Gobius banana*. (Cuv. & Val., xii, 103.)

In bad condition; .14^m long; from San Domingo. Ricord.

This is identical with the species called by Poey, *Rhinogobius bucculentus*, and by us CHONOPHORUS TAIASICA.

78. *Gobius martinicus*. (Cuv. & Val., xii, 105.)

Larger specimens (.20^m), from Martinique. Garnot. They belong also to CHONOPHORUS TAIASICA.

79. *Gobius flavus*. (Cuv. & Val., xii, 60.)

Specimens, .075^m long, from Surinam. Diepering.

This is a species of *Chonophorus*, with fleshy appendages on the shoulder-girdle. Color faded, the fins all pale. Body plumper, the eye larger, and snout shorter than in *Ch. taiasica*. Scales also larger.

Mouth similar in form, but the lower jaw more flat. Teeth small; those of the outer row above enlarged; maxillary extending to middle of eye, $2\frac{1}{3}$ in head. Eye, 4 in head, about as long as snout; scales 53, less crowded forward than in *Ch. taiasica*; 21 before the dorsal on the nape.

Head, 4 in length; depth, $5\frac{2}{3}$. D. VI—1, 12, A. 1, 10.

This species may stand as *CHONOPHORUS FLAVUS*.

80. *Gobius brasiliensis*. (Cuv. & Val., xii, 121.)

Specimen .50^m long, in very bad condition. Martinique. Plée.

This is a specimen of *GOBIOIDES BROUSSONNETI*.

81. *Eleotris sima*. (Cuv. & Val., xii, 232.)

Two specimens in poor order, from Vera Cruz, .09^m long.

Snout a little more steep and convex than usual in *Dormitator maculatus*. Head, $3\frac{1}{3}$ in length; depth, $3\frac{1}{4}$. Eye, $4\frac{1}{2}$ in head. D, VII—9, A, 11. Scales, 31—11. Soft dorsal very high, with round black spots. Caudal and anal plain. This seems to be inseparable from *DORMITATOR MACULATUS*.

82. *Eleotris grandisquama*. (Cuv. & Val., xii, 229.)

One specimen in fair condition, .14^m long, from "Amérique Méridionale?"

Head slenderer than in *D. maculatus*, and much depressed; its depth at the eyes less than its width, which is less than that of body. Anterior profile almost concave. Caudal fin large; other fins moderate. D, VI—9, A, 1, 9. Scales about 29—11. A few dusky spots on dorsal and anal.

A valid species, though probably not North American. It may stand as *DORMITATOR GRANDISQUAMA*.

83. *Blennius pantherinus*. (Cuv. & Val., xi, 262.)

A specimen in good condition. Brazil. Gaudichaud.

A true *Blennius*, with fringed cirri over eyes and stout canines in both jaws. Gill membranes free from isthmus. Dorsal fin continuous; the spines not very dissimilar from the soft rays. D, XI, 21, A, 22. Body freckled with blackish in coarse pattern. It may stand as *BLENNIUS PANTHERINUS*.

84. *Prionotus punctatus*. (Cuv. & Val., iv., 93.)

Specimen .20^m long, from Bahia. Castelnau.

Head large, $2\frac{4}{5}$ in length; depth $2\frac{4}{5}$. Eye, 6 in head. Interorbital space rather broad and deep, nearly equal to eye. Maxillary $2\frac{1}{2}$ in head. A spine on each bone from side of snout to preopercle, the latter having two. Sculpture on bones of head very conspicuous. A slight cross-furrow behind eye. Pre-ocular and post-ocular spines conspicuous. Gill-rakers, about 10; the upper rather long and slender.

Pectoral $2\frac{1}{3}$ in body, reaching middle of soft dorsal. Third dorsal spine longest, $2\frac{2}{5}$ in head; anterior edge of first spine smooth. Caudal truncate, scarcely emarginate when closed. Soft dorsal rather high, $2\frac{1}{4}$

in head. Both dorsals faintly spotted, the spot behind the fourth spine diffuse and faint. Caudal with bars of spots. Back obscurely spotted. Pectorals blackish and clouded. A whitish area on back between dorsals.

This seems to be the species usually called *PRIONOTUS PUNCTATUS*.

There is also a specimen in the Museum, labeled, apparently in the handwriting of Valenciennes:

"*Trigla punctata* nobis, Bl., 253. *Tr. carolina*, Bl., 252. *Prionotus eclaus* Lacép. *Rubio volador* Párra, tab. 38, du Brésil. Quoy et Gaimard, exp'n Freycinet."

This specimen, .25^m long, in good condition, is of the same species as the one described above. Longest dorsal spine $2\frac{1}{6}$ in head. Pores in lateral line 85 to 90.

85. *Scorpæna scroфина*. (Cuv. & Val. ix, 465.)

Specimen .21^m long, from Brazil. Gay.

Color in spirits pale (red ?), marked only with numerous round black spots on head, dorsal, caudal, anal, and pectorals; a few on body. Axil whitish, with some whiter spots; a row of 6 dark spots from above axil to anal, not in a straight line. Spots largest and most distinct on pectorals and caudal, where they form irregular bands.

Occipital pit deep, broader than long; spines on head high and sharp; four over eye, two behind occipital pit, two on temporal region, and two behind these. Suborbital stay strong, with 4 or 5 spines. No coronal spines. Cirrus over eye low, about as long as pupil. Gill-rakers very small and short. Opercle scaled; some scales on cheeks. Breast scaly; scales large; some of them provided with flaps. About 31 pores in the lateral line. Second anal spine longest, $2\frac{1}{2}$ in head. Third dorsal spine $2\frac{2}{3}$. D. XII, 9.

This seems to be a valid species, allied to *Scorpæna grandicornis*. It may stand as *SCORPÆNA SCROFINA*.

86. *Scorpæna brasiliensis*. (Cuv. & Val., iv, 305.)

A dried skin, .22^m long, from Brazil. Delalande.

The color is faded, but otherwise, so far as I can see, this specimen agrees with the species from Florida, heretofore called by us *SCORPÆNA BRASILIENSIS*.

87. *Scorpæna inermis*. (Cuv. & Val., iv, 311.)

A small specimen from Martinique. Ricord.

Spines on top of head all low and smooth; no occipital pit; no cirrus above eye; suborbital stay strong. Lowest spines of preopercle directed a little forward; breast scaly.

Color brownish and mottled, much as in *S. brasiliensis*. Axil pale. Three dark bands on caudal. A dark band across head behind eye.

This is probably identical with *S. occipitalis* Poey and *S. calcarata* Goode & Bean, in which case it should stand as *SCORPÆNA INERMIS*.

88. *Batrachus cryptocentrus*. (Cuv. & Val., xii, 485.)

A specimen, .35^m long, from Bahia. Musée de Genève.

Color mottled-brown, apparently without spots. Dorsal spines nearly hidden in the loose skin. No foramen in axil, but the skin of the axil covered with small parallel folds of skin, which are occasionally connected by cross-folds. Spines of head nearly hidden. Teeth short and very blunt. Rays of dorsal and anal enveloped in skin, and not easily counted; 28 to 30 soft rays in the dorsal and 22 to 24 in the anal. Cirrus over eye conspicuous.

This is a valid species, and, with *B. grunniens*, *B. diemensis*, and other species without foramen in the axil, it should probably constitute a new genus. This genus may receive the name of MARCGRAVIA, in tardy recognition of the work of the original discoverer of the species, Georg Maregrav, of Liebstad, author of the "Historia Rerum Naturalium Brasiliæ" (1648), and one of the ablest of the early writers on American natural history. The species may stand as MARCGRAVIA CRYPTOCENTRA.

INDIANA UNIVERSITY, *October 2, 1886.*