

SPHYRNIDÆ.

216. *Sphyrna zygaena*, (Linn.) Müll. & Henle.
Indian River.
217. *Reniceps tiburo*, (Linn.) Gill.

GALEORHINIDÆ.

218. *Isogomphodon maculipinnis*, Poey.*
219. *Galeocerdo tigrinus*, Müll. & Henle.*
220. *Eulamia Milberti*, (Müll. & Henle) Gill.
Indian River.

GINGLYMOSTOMATIDÆ.

221. *Ginglymostoma cirratum*, (Gmel.) M. & H.

PETROMYZONTIDÆ.

222. *Petromyzon marinus*, Linn.—*Lamper-eel*.

BRANCHIOSTOMIDÆ.

223. *Branchiostoma lubricum*, Costa.

CATALOGUE OF A COLLECTION OF FISHES SENT FROM PENSACOLA, FLORIDA, AND VICINITY, BY MR. SILAS STEARNS, WITH DESCRIPTIONS OF SIX NEW SPECIES.

By G. BROWN GOODE and TARLETON H. BEAN.

The publication of the following list of fishes, collected by Mr. Stearns in the vicinity of Pensacola, Florida, is a preliminary step to the work of identifying and describing the large collections from the Gulf of Mexico now in the possession of the National Museum.

The fishes enumerated below were obtained in the winters of 1877-8 and 1878-9 by Mr. Stearns in the leisure hours of an active business life. Many of the larger species were forwarded to Washington in ice, and casts of them have been made in plaster. Mr. Stearns has usually sent interesting notes with each specimen, relating to the life-history of the species. We have refrained from publishing these, hoping that he will himself give them to science in a more complete form.

The common names published are those in use at Pensacola. The numbers in parentheses following the Museum catalogue numbers refer to Mr. Stearns's collecting record.

SMITHSONIAN INSTITUTION, *Washington, May 27, 1879.*

1. MALTHEIDÆ.

1. *Malthe cubifrons* Richardson.

A single specimen, No. 22,833, was sent by Mr. Stearns. The Museum has other specimens from West Florida—Nos. 21,467, 5,768, and 20,485. The radial formula in all is D. 4; A. 4; V. I, 5; P. 13. No. 21,467 is 12½ inches long, an enormous size for this fish.

2. DIODONTIDÆ.

2. *Chilomycterus geometricus* (Linn.) Kamp.—*Puff-fish*.

Two specimens, No. 21,492 (61), in alcohol, each about 6 inches in length, were sent; also a beach-dried specimen, No. 21,334 (19), somewhat longer. The coloration of the alcoholic specimen is peculiar, and it might at first sight be thought to belong to variety γ as defined by Günther. The ground-color is very dark, but a close examination reveals the irregularly parallel longitudinal lines characteristic of the species in its typical form.

3. TETRODONTIDÆ.

3. *Cirrisomus turgidus* (Mitch.) Jordan & Gilbert.—*Toad-fish*.

A single specimen, No. 21,495 (51), $5\frac{3}{4}$ inches in length.

4. *Lagocephalus lævigatus* (Linn.) Gill.

A single specimen, 19 inches in length, No. 22,807. D. 14; A. 12; P. 16. Caudal deeply forked. Spines 4-rooted. Length of head less than its distance from dorsal, and contained $3\frac{2}{3}$ times in length without caudal.

4. OSTRACIONTIDÆ.

5. *Ostracion quadricornis* Linn.—*Cow-fish*.

A single specimen, No. 21,310.

5. BALISTIDÆ.

6. *Alutera Schœpffi* (Walb.) Goode & Bean.

A specimen, No. 6,068, 16 inches in length, was sent from Cedar Keys, Fla., by Judge Steele, about 1864. D. 32; A. 35; P. 12; C. 12.

7. *Monacanthus occidentalis* Günther.

A bottle, No. 9,686, containing numerous specimens of this species, is labelled "Cedar Key, West Florida," and another, No. 5,868, contains two specimens from Charlotte Harbor, collected by C. B. Baker. This species doubtless occurs at Pensacola.

No. 5,868 (a). D. 31; A. 29.

No. 5,868 (b). D. 35; A. 32.

Monacanthus spilonotus, described by Cope* from the Gulf of Mexico, should also be looked for in this region.

8. *Balistes capriscus* Linn.—*Leather Jacket*.

A fine specimen, No. 21,220 (4), 21 inches in length.

* Trans. Amer. Philos. Soc. 1870, p. 476.

6. HIPPOCAMPIDÆ.

9. *Hippocampus antiquorum* Linn.—*Sea Horse*.

A single specimen was received from Mr. Stearns, No. 21,335 (15). The Museum possesses another, No. 6,933, from Pensacola, received from an unknown contributor.

In No. 6,933, a female, the head is contained $5\frac{1}{2}$ times in total length. There are 12 body rings and 34 caudal rings.

No. 21,335, a female, is a dried specimen in bad order, which appears to agree essentially with No. 6,933. It has 12 body rings and 33 caudal rings, and 19 rays in the dorsal.

7. SYNGNATHIDÆ.

10. *Syngnathus* sp.

A single individual, too young for identification, was sent by Mr. Stearns.

8. SOLEIDÆ.

11. *Achirus lineatus* (Linn.) Cuvier.—“*Flounder*.”

Two specimens were received. These are remarkable in the fact that the ventral surfaces are immaculate, while all specimens of this species from the Eastern and Middle States are strongly maculated with black or brown, except a few from the Potomac River. Others from the Potomac are maculated. How is it with the species on the South Atlantic coast?

No. 21,496 (a). D. 54; A. 43; P. 0; V. 4; C. 16. L. lat. 78.

No. 21,496 (b). D. 58; A. 43; P. 0; V. 4. L. lat. 76.

9. PLEURONECTIDÆ.

12. *Citharichthys spilopterus* Günther.

?? *Citharichthys microstomus* GILL, Proc. Acad. Nat. Sci. Phila. 1864, p. 223.

An individual, No. 21,500, from Pensacola, Fla., Silas Stearns, 5 inches in length. D. 78; A. 54; P. I, 10; C. 17; V. 6. L. lat. 47; L. trans. $\frac{1}{5}$.

No. 18,054, an individual $3\frac{3}{4}$ inches long, was received from mouth of St. John's River, Fla., through Prof. S. F. Baird. D. 81; A. 64; P. I, 8; C. 17; V. 6. L. lat. 47; L. trans. $\frac{1}{5}$.

Günther's types, from Bahia, Santo Domingo, New Orleans, Jamaica, and West Africa, had the following radial formulæ: D. 76-78; A. 60-63; L. lat. 47-50. Gill's type, from Beesley's Point, had the following: D. 81; A. 58; C. 18; P. 10; V. 6. L. lat. 42; L. trans. $\frac{10}{14}$??

Our specimens agree very satisfactorily with both diagnoses, except in the number of transverse rows of scales, as given by Gill.

13. *Pseudorhombus dentatus* (Linn.) Günther.—*Flounder*.

Two specimens, No. 21,340 (21), were received. That the Flounder of the South cannot be distinguished from the supposed different species

Table of Measurements—Continued.

Current number of specimen	9,388 b.		19,052.		19,049.		21,279 b.	
Locality	Indianola, Texas.		St. John's River, Florida.		St. John's River, Florida.		Florida.	
	Milli-metres.	100ths of length.	Milli-metres.	100ths of length.	Milli-metres.	100ths of length.	Milli-metres.	100ths of length.
Extreme length (without caudal) ..	236	.....	156	.....	170	.....	237	.....
Body:								
Greatest height		44						
Least height of tail		10						
Head:								
Greatest length		26½				28		28
Width of interorbital area		4						
Length of snout		7						
Length of upper jaw		14		13		14½		14
Length of mandible		17		16		17		17
Diameter of orbit		4						
Dorsal:								
Distance from snout		5						
Length of longest ray		11		12		12		
Anal:								
Length of longest ray		12		12½		13		
Caudal:								
Length of middle rays				23				
Dorsal	87	.....	89	.....	85	.....	86	.....
Anal	66	.....	67	.....	68	.....	68	.....
Current number of specimen	9,388.		4,887.		19,476 a.		19,476 b.	
Locality	Indianola, Texas.		"albigutta," type.		Eastern Shore of Virginia.		Eastern Shore of Virginia.	
	Milli-metres.	100ths of length.	Milli-metres.	100ths of length.	Milli-metres.	100ths of length.	Milli-metres.	100ths of length.
Extreme length (without caudal) ..	174	.....	123	.....	136	.....	111	.....
Length to end of middle caudal rays.	209	.....	147	.....	166	.....	
Body:								
Greatest height		42		43		44		43
Height at ventrals		30		33		32		
Least height of tail		10		11		11		
Head:								
Greatest length		27		29½		28		27
Width of interorbital area		3		2		3		
Length of snout		6		6		5½		
Length of upper jaw		14		15		13		13
Length of mandible		16		17		15		15
Diameter of orbit		4½		6				
Dorsal:								
Distance from snout		7		7				
Length of longest ray		10½		12		12		12½
Anal:								
Distance from snout		32		33				
Length of longest ray		10		13½		12		13
Caudal:								
Length of middle rays		20		21		22		
Length of external rays		15		17				
Pectoral:								
Distance from snout		27		31				
Length				15				
Ventral:								
Distance from snout		25		28				
Length		8		10				
Dorsal	83	.....	76	.....	88	.....	84	.....
Anal	64	.....	60	.....	68	.....	65	.....

Table of Measurements—Continued.

Current number of specimen	17,121.		17,122.		17,115.	
	Charleston, South Carolina.		Charleston, South Carolina.		Charleston, South Carolina.	
Locality	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Extreme length (without caudal)	172	.....	171	.....	188	.....
Head:						
Greatest length		26				29½
Length of upper jaw		11½		12½		14
Length of mandible		14½		15		17½
Dorsal:						
Length of longest ray		12				
Anal:						
Length of longest ray		13				
Dorsal	88	.....			90	.....
Anal	67	.....			70	.....
Current number of specimen	21,279.		18,048.		8,436.	
Locality	St. John's River, Florida.		Florida.		Paraguay.	
	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Extreme length (without caudal)	405	.....	178	.....	256	.....
Length to end of middle caudal rays	486	.....	218	.....	315	.....
Body:						
Greatest height		46		44		46
Height at ventrals		32		33		31
Least height of tail		11		12		12
Length of caudal peduncle (end of dorsal to origin of middle caudal rays)		10		10½		11
Head:						
Greatest length		28		27		28
Width of interorbital area		4½		2½		2½
Length of snout		6		6		6
Length of operculum		8		7		
Length of upper jaw		13½		12½		13
Length of mandible		16½		15		16
Diameter of orbit		3½		5½		4½
Dorsal:						
Distance from snout		6½		5		7
Length of longest ray		11		11½		11
Anal:						
Distance from snout		33		30		29
Length of longest ray		11½		11		10½
Caudal:						
Length of middle rays		20		22		23
Length of external rays		17½		18		19
Pectoral:						
Distance from snout		27		26		27½
Length		13½		13½		13
Ventral:						
Distance from snout		26½		24½		25
Length		8½		8		8
Dorsal	85	.....	79	.....	74	.....
Anal	68	.....	60	.....	57	.....
Pectoral	II, 10	.....			
Ventral	6	.....			
Number of scales in lateral line	101	.....			100	.....

14. *Pseudorhombus quadrocellatus* (Gill) Jordan.*Ancylopssetta quadrocellata* GILL, Proc. Acad. Nat. Sci. Phila. 1864, p. 224.

This species was originally described from specimens obtained at Pensacola.

10. BATRACHIDÆ.

15. *Batrachus tau* Linn.—“*Sarpo*”; *Sea Robin*.

A specimen of this species, No. 21,477 (27), corresponds closely in coloration with the southern specimens referred to by Günther.

Other individuals were obtained, which had grown to the size of 12 or 15 inches, and which, if coloration were accepted as a mark of specific rank, would surely be entitled to description as new species. The ground-color is gray or yellowish white, covered with large irregular blotches and small roundish spots of brown. The type of coloration is very different from that described by Günther from southern specimens in the British Museum. A fuller description of these specimens with measurements will be given hereafter.

11. GOBIIDÆ.

16. *Gobius soporator* Cuv. & Val.

A single specimen, No. 22,852, $2\frac{1}{4}$ inches in length, of a species of *Gobius*, was sent by Mr. Stearns. It is so shrivelled up from immersion in too strong alcohol that its characters are not very clearly to be made out. It agrees very well with the descriptions of *Gobius soporator*, and is very like specimens of that species from the Bermudas, except that the fins are blackish, and, unlike the Bermuda specimens, show no spots.

17. *Eleotris gyrinus* Cuv. & Val.

A single specimen, No. 22,853, of an *Eleotris*, agrees essentially with the descriptions of *E. gyrinus* and with specimens sent under this name from Cuba by Professor Poey.

12. TRIGLIDÆ.

18. *Dactylopterus volitans* (Linn.) Lac.

A single specimen, $6\frac{1}{2}$ inches in length, and measuring between the tips of the extended fins $8\frac{1}{2}$ inches. D. I, IV, I, 8; A. 6; P. 6, 22; V. 7; C. 5, 4.

In the young, the proportional length of the preopercular spines is greater than in the adult, equalling the greatest width of the head. The scales upon the flanks are conspicuously carinate, in the first and fourth rows from the abdominal flat surface showing a tendency to form strong ridges upon the sides of the body. The first and second rays of the first dorsal are separated from the other rays of this fin, and when the fin is closed and resting in the dorsal groove the first ray falls back upon the dorsal surface upon the right-hand side, the second upon the left embracing the fin. These rays resemble filaments, and it seems probable that they have independent motion, like the filaments of *Lophius*. They are never received into the dorsal groove. The fins are

dark, and show no traces of the circular blue spots often seen in individuals of this species. The colors are dull and little conspicuous.

19. *Prionotus tribulus* Cuv. & Val.

A single individual, No. 22,820, $5\frac{2}{5}$ inches in length. D. X, 12; A. 10; P. 13 + 3; V. I, 5; C. 4 + 11 + 3.

13. POLYNEMIDÆ.

20. *Polynemus octonemus* Girard.

Several specimens of this interesting species were obtained, notes upon which are given below.

No. 22,821 (70). Length $4\frac{1}{5}$ inches. D. II, VI, I, 12; A. II, 12; P. filaments 8; V. I, 5.

No. 22,822 (71). Two specimens, $3\frac{2}{5}$ inches and $3\frac{3}{10}$ inches in length. D. II, VI, I, 12; P. filaments 8; A. II, 12; V. I, 5. L. lat. 62.

No. 22,822. D. II, VI, I, 11; A. II, 13; P. filaments 8; V. I, 5. L. lat. 58.

No. 22,823. Length $4\frac{1}{10}$ inches. D. II, VI, 12; A. II, 13; P. filaments 8; V. I, 5. L. lat. 60.

14. TRICHIURIDÆ.

21. *Trichiurus lepturus* Linn.

Two specimens, No. 22,802 (102), $22\frac{1}{2}$ inches long, and No. 22,817 (112), 20 inches long.

22,802. D. 130; P. 11.

22,817. D. 118; P. 11.

15. SCOMBRIDÆ.

22. *Orcynus alliteratus* (Raf.) Gill.

A single specimen, No. 22,815 (92), 13 inches long, weighing $\frac{3}{4}$ of a pound, was sent by Mr. Stearns.

This specimen is interesting as being the only young individual taken on this side of the Atlantic.

A few irregularly distributed dark spots about the size of the pupil of the eye occur on the sides of the body below the pectoral.

23. *Cybium maculatum* (Mitchill) Cuvier.—*Spanish Mackerel*.

A single specimen, No. 21,333 (35), $14\frac{1}{2}$ inches in length, was sent by Mr. Stearns. There are about fifteen large spots between the branchial opening and the base of the caudal. D. 18 + 17, VII; A. 16, IX; P. 18; V. 6. Teeth, $\frac{16-14}{11-7+}$.

A young specimen, No. 7,310, $9\frac{1}{2}$ inches long, was sent from West Florida by C. B. Baker.

16. CARANGIDÆ.

24. *Decapterus punctatus* (Mitch.) Gill.

A single specimen, No. 22,819, was sent by Mr. Stearns. D. VIII, I, 27+1, 25+1; P. II, 18; V. I, 5. L. lat. 85.

25. *Paratractus pisquetus* (Cuv. & Val.) Gill.—*Hard Tail*.

An individual of 11 inches, No. 21,257, was sent. D. VIII, 25; A. 22; P. 21; V. 1, 5. Lateral scales: to curve, 50; in front of curve about 47.

26. *Carangus hippos* (Linn.) Gill.—*Crevallé*.

A magnificent specimen, 30 inches in length.

27. *Trachynotus carolinus* (Linn.) Gill.—*Pompano*.

A large individual, No. 21,309, 15 inches long. D. VI, I, 25; A. II, 22; P. II, 17; V. I, 5.

Also an individual, No. 22,824 (69), 2 $\frac{3}{5}$ inches in length. D. VI, I, 23; A. II, I, 21; V. I, 5; P. 17.

Also several very minute individuals (Coll. No. 72), not three-quarters of an inch in length.

28. *Trachynotus goreensis* Cuv. & Val.

A skin of this species, obtained in West Florida by Dr. J. W. Velie, has been sent for identification. Mr. Blackford sent another large specimen, No. 22,089, of this species, from Jupiter Inlet, Florida, in January, 1879; weight, 16 pounds; length, 34 inches.

29. *Seriola Stearnsii* Goode & Bean.—*Amber-fish*.

The description of this beautiful new species obtained at Pensacola by Mr. Stearns is given on page 48 of the present volume of the Proceedings of the National Museum.

A single specimen, No. 21,325 (116), has been received.

30. *Seriola bonariensis* Cuv. & Val.—*Rock Sabuon*.

A magnificent specimen, No. 22,258, 890 millimetres long, of this species, hitherto known only from the coast of Brazil, was sent by Mr. Stearns. Detailed measurements are given below.

Table of Measurements.

Current number of specimen	22,258.	
Locality	Pensacola, Fla.	
	Millime- tres.	100ths of length.
Extreme length.....	890	.....
Length to end of middle caudal rays.....	800	.....
Body:		
Greatest height.....	216	27
Greatest width.....	99	12 $\frac{3}{4}$
Height at ventrals.....	197	24 $\frac{3}{4}$
Least height of tail.....	35	4 $\frac{3}{4}$
Length of caudal peduncle.....	57	7

Table of Measurements—Continued.

Current number of specimen	22,258.	
Locality	Pensacola, Fla.	
	Millime- tres.	100ths of length.
Head:		
Greatest length	199	25
Height at posterior margin of preoperculum	173	21 $\frac{3}{4}$
Height at posterior margin of operculum	190	23 $\frac{3}{4}$
Greatest width	95	12
Width of interorbital area	65	8
Length of snout	65	8
Length of operculum	53	6 $\frac{5}{8}$
Length of upper jaw	80	10
Length of mandible	100	12 $\frac{1}{2}$
Distance from snout to orbit	80	10
Diameter of orbit	35	4 $\frac{3}{8}$
Dorsal (spinous):		
Distance from snout	274	34
Length of base	77	9 $\frac{5}{8}$
Length of first spine	14	1 $\frac{3}{4}$
Length of second spine	22	2 $\frac{3}{4}$
Length of third spine	32	4
Length of fourth spine	33	4
Length of fifth spine	18	2 $\frac{1}{4}$
Length of sixth spine	13	1 $\frac{3}{8}$
Length of seventh spine	5	$\frac{3}{8}$
Dorsal (soft):		
Length of base	335	42
Length of antecedent spine	45	5 $\frac{5}{8}$
Length of first ray	128	16
Length of longest ray	140	17 $\frac{1}{2}$
Length of last ray	49	6
Anal:		
Distance from snout	450	56 $\frac{1}{2}$
Length of base	229	28 $\frac{3}{8}$
Length of first spine	3	$\frac{3}{8}$
Length of second spine	6	$\frac{3}{4}$
Length of third spine	27	3 $\frac{3}{8}$
Length of first ray	105	13
Length of longest ray		
Length of last ray	45	5 $\frac{5}{8}$
Caudal:		
Length of middle rays	35	4 $\frac{3}{8}$
Length of external rays	150	18 $\frac{3}{4}$
Pectoral:		
Distance from snout	209	26
Length	106	13 $\frac{1}{4}$
Ventral:		
Distance from snout	235	29 $\frac{5}{8}$
Length	120	15
Branchiostegals	VII	.....
Dorsal	VII, I, 29	.....
Anal	II, I, 21	.....
Pectoral	I, I, 20	.....
Ventral	I, 5	.....
Number of scales in lateral line	ca. 131	.....
Number of transverse rows above lateral line	ca. 22	.....
Number of transverse rows below lateral line	ca. 36	.....

31. Elagatis pinnulatus Poey.*Sciola pinnulata* POEY, Mem. Hist. Nat. Cuba, II, p. 233.*Decapterus pinnulatus* POEY, op. cit. p. 374.*Elagatis pinnulatus* POEY, Rep. Fis. Nat. Cuba, II, 1868, p. 378.

Several specimens of this species were obtained by Mr. Würdemann in West Florida.

17. STROMATEIDÆ.

32. Peprilus alepidotus (Linn.) Cuvier.—*Moon-fish*.

A single specimen, No. 21,475 (9), 7 $\frac{1}{2}$ inches in length. D. IV, 42; A. IV, 42; P. 19.

18. LATILIDÆ.

33. *Caulolatilus microps* Goode & Bean.

The Smithsonian Institution received, March 22, 1878, this fish from Mr. Stearns. It was taken March 18, 1878, on the Snapper Bank, off Pensacola, in 35 fathoms of water. It is now a fine alcoholic specimen, No. 20,971 of the Fish Catalogue.

Caulolatilus microps is related to the Brazilian form *Caulolatilus chrysops* (Cuvier and Valenciennes) Gill, and the Cuban form *Caulolatilus cyanops* Poey, described in 1867.* Of the former, two specimens only are recorded: one, the type of the original description, one foot long, collected on the coast of Brazil by M. Gay, and probably now in the museum in Paris; a second, in the British Museum, a stuffed specimen, purporting to have been collected in the West Indies. Of Poey's *C. cyanops*, the National Museum possesses a fine specimen (Cat. No. 4,750), 15 inches long, collected and presented by Professor Poey.

The Pensacola specimen is 2 feet and 3 inches long, weighing 9¼ pounds. Its color has faded, but a yellow blotch is still visible under the eye, similar to that mentioned in *C. chrysops*. A dark blotch is visible in and above the axilla of the pectoral.

For diagnosis see Proceedings U. S. National Museum, I, 1879, p. 43.

19. SCIÆNIDÆ.

34. *Cynoscion carolinensis* (Cuv. & Val.) Gill.—*Spotted Trout*.

A single specimen, No. 22,811 (100), 12½ inches in length. D. IX, 24; A. I, 9; P. 16; V. I, 5; C. 9+8. L. lat. ca. 88.

35. *Cynoscion nothus* (Holbrook) Gill.—*White Trout*.

A single individual, No. 21,480 (60), 9½ inches long. D. X, 27; A. II, 11; P. 16; V. I, 5; C. 1+9+8+2. L. lat. 57.

36. *Pogonias cromis* (Linn.) Cuvier.—*Drum*.

An individual, No. 22,806, 20¼ inches long, weighing 4¼ pounds. D. X, I, 21; A. II, 6; P. 18; V. I, 5; C. 19. L. lat. 48; L. trans. 6, 15.

37. *Liostomus philadelphicus* (Linn.) Goode.—*Spot*; *Chopa Blanca*.

Perca philadelphia LINNÆUS, Syst. Nat. ed. x, 1758, i, p. 291; ed. xii, 1766, i, p. 484.

Liostomus philadelphicus GOODE, Fishes of East Florida (*vide supra*).

Liostomus obliquus DEKAY, and subsequent authors.

A single specimen, No. 21,478 (38), 6½ inches. D. X, I, 29; A. II, 12; P. 19; V. I, 5; C. 9+8. Transverse rows of scales about 54.

38. *Bairdiella argyroleuca* (Mitchill) Gill.—*Mademoiselle*.

A specimen, No. 21,499 (25), 7½ inches long. D. XI, 19½; A. II, 8½; P. 15; V. I, 5; C. 9+8. L. lat. 50; L. trans. ⅘.

A young individual, No. 22,849, 4½ inches in length. D. XI, I, 21; A. II, 9. L. lat. 49; L. trans. ⅘.

* Repertorio Físico-Natural de la Isla de Cuba, i, p. 312.

39. *Sciænopis ocellatus* (Linn.) Gill.—*Red Horse; Channel Bass.*

A single specimen, No. 21,774, 15½ inches long. D. X, I, 24; A. II, 7; P. II, 14; V. I, 5; C. 17. L. lat. 46; L. trans. $\frac{5}{12}$. Four black spots on the right side; two on the left.

40. *Menticirrus alburnus* (Linn.) Gill.—*Whiting.*

A single specimen, No. 21,332 (34), 15 inches long, in color silvery white immaculate, with bluish reflections upon back and body, white upon the belly.

In coloration, this specimen agrees with the *Menticirrus littoralis* of Holbrook, but seems to have no definite characters by which it may be distinguished.

D. X, I, 24; A. I, 6½; P. 20; V. 6; C. 17. L. lat. about 60; L. trans. $\frac{10}{18}$.

Another specimen, No. 22,832, 9½ inches long, agrees in proportions with the above. Its color is, however, very dusky, and the cloudings are blackish.

D. IX, I, 24; A. I, 7; P. 19; V. I, 5. L. lat. 70; L. trans. $\frac{11}{18}$.

41. *Micropogon undulatus* (Linn.) Cuv. & Val.—*Croaker.*

A single specimen, No. 21,479 (37), about 5 inches long. D. IX, I, 28; A. II, 7½; P. 18; V. I, 5; C. 9 + 8. L. lat. 72 or 73; L. trans. $\frac{10}{18}$.

20. GERRIDÆ.

42. *Eucinostomus harengulus* sp. nov. Goode & Bean.

There are in the collection two specimens of an undescribed *Eucinostomus* collected in West Florida by Kaiser and Martin. The catalogue number of the specimens is 5145. The largest is 120 millimetres in length to the origin of the middle caudal rays; the smaller, 87 millimetres. The species may be briefly characterized as follows: D. IX, 10; A. III, 7; P. 15; V. I, 5; C. +17+. L. lat. 44; L. trans. $\frac{5}{10}$.

The height of the body is contained 3 to 3½ times in the total length without caudal; the length of the head, 3⅓ to 3½ times; the diameter of the eye exceeds the length of the snout, and is contained 3 times in the length of the head, and equals the width of the interorbital space. The groove for the processes of the intermaxillaries is naked, and extends to the vertical through the anterior third of the eye. The free portion of the tail is longer than high. The least height of tail equals the length of the 6th dorsal spine. The 3d dorsal spine is the longest, its length being contained twice in the height of the body, and equals the length of the head without the postorbital portion; the last dorsal spine equals in length the 2d anal, and about equals the length of the snout, and is about $\frac{2}{3}$ as long as the 3d. The 1st dorsal ray is fully 1½ times as long as the 1st dorsal spine. The 2d anal spine is stronger and shorter than the 3d, its length being contained 3⅔ times in the length of the head. The 3d anal spine is contained 3⅓ times in the length of the head. The caudal is forked, its length slightly less

than the length of the head, and very little greater than the length of the pectoral. The pectoral reaches to the perpendicular through the origin of the soft dorsal. The ventral is half as long as the head. The vent is under the 2d ray of the soft dorsal.

21. SPARIDÆ.

43. *Lagodon rhomboides* (Linn.) Holbrook.

This species evidently breeds in the vicinity of Pensacola, as well as many other points on the Southern coast. Young specimens, No. 21,488, ranging from 2 to 4 inches in length, were received from Mr. Stearns.

The Museum has also specimens, No. 3,112, collected at Charlotte Harbor, West Florida, by C. B. Baker.

No. 21,344. D. XII, 11; A. III, 10; P. 16; V. I, 5; C. 17. L. lat. 60?; L. trans. $\frac{9}{15}$.

44. *Archosargus probatocephalus* (Walbaum) Gill.—*Sheep's-head*.

A single specimen, No. 22,803, 13 $\frac{2}{5}$ inches long. D. XI, 11 $\frac{1}{2}$; A. III, 8 $\frac{1}{2}$; P. 16; V. I, 5; C. 9 + 8. L. lat. 43; L. trans. $\frac{9}{18}$.

45. *Pagrus argenteus* Schneider.—*Porgy*.

Pagrus vulgaris CUVIER & VALENCIENNES, Hist. Nat. Poiss. vi, p. 142, pl. cxlvii.—GÜNTHER, Cat. Fish. Brit. Mus. i, p. 466.

We have examined several specimens of a species of *Pagrus* obtained at Charleston, S. C., in April, 1878, by Mr. Goode, and also a specimen, No. 21,339, sent from Pensacola by Mr. Stearns. We are unable to discover any differences between this species and *P. argenteus* of Europe, and provisionally identify them with it. The discovery of this European form in the Western Atlantic is particularly interesting.

Table of Measurements.

Current number of specimen	21,339.		20,981 a, ♀.		20,981 b.	
	Pensacola, Fla. {		Charleston, S. C., {		Charleston, S. C., {	
Locality			G. Brown Goode.		G. Brown Goode.	
	Millime- tres.	100ths of length.	Millime- tres.	100ths of length.	Millime- tres.	100ths of length.
Extreme length	435		398		473	
Length to origin of middle caudal rays	346		317		381	
Body:						
Greatest height		37 $\frac{1}{2}$		38		36
Greatest width		15 $\frac{1}{2}$		14		13
Height at ventrals		37 $\frac{1}{2}$		38		36
Least height of tail		9 $\frac{1}{2}$		9 $\frac{1}{2}$		9 $\frac{1}{2}$
Length of caudal peduncle		18 $\frac{3}{8}$		19		19 $\frac{1}{2}$
Head:						
Greatest length		33		33		33
Distance from snout to nape		17		17		16
Greatest width		16 $\frac{1}{2}$		15		14 $\frac{3}{8}$
Width of interorbital area		9 $\frac{1}{2}$		9 $\frac{1}{2}$		8 $\frac{1}{2}$
Length of snout		11 $\frac{1}{2}$		12		12
Length of operculum		9		9		9
Length of upper jaw		13 $\frac{1}{2}$		13		13
Length of mandible		14		13 $\frac{1}{2}$		13 $\frac{1}{2}$
Distance from snout to orbit		15 $\frac{1}{2}$		15		15
Long diameter of eye		7 $\frac{1}{2}$		7 $\frac{1}{2}$		7 $\frac{1}{2}$

Table of Measurements—Continued.

Current number of specimen.....	21,339.		20,981 a, ♀.		20,981 b.	
Locality	Pensacola, Fla. {		Charleston, S. C., G. Brown Goode.		Charleston, S. C., G. Brown Goode.	
	Millime- tres.	100ths of length.	Millime- tres.	100ths of length.	Millime- tres.	100ths of length.
Dorsal (spinous):						
Distance from snout		42 $\frac{1}{2}$		43		42
Length of base		31 $\frac{1}{2}$		31 $\frac{1}{2}$		
Length of longest spine		12 $\frac{1}{2}$		12 $\frac{1}{2}$		13
Length of first spine		5 $\frac{3}{4}$		5 $\frac{3}{4}$		6 $\frac{3}{4}$
Length of second spine		7 $\frac{1}{2}$ +		10		
Length of third spine		7 $\frac{1}{2}$		8 $\frac{1}{2}$		8 $\frac{1}{2}$
Dorsal (soft):						
Length of base		19 $\frac{1}{2}$		19 $\frac{1}{2}$		
Length of first ray		8 $\frac{1}{2}$				
Length of longest ray		11		9 $\frac{3}{4}$		10 $\frac{3}{4}$
Length of last ray		11		9 $\frac{3}{4}$		10
Anal:						
Distance from snout		66 $\frac{1}{2}$		64		64 $\frac{1}{2}$
Length of base		19		19		18 $\frac{1}{2}$
Length of first spine		3 $\frac{1}{2}$		4		4
Length of second spine		7 $\frac{1}{2}$		8		8
Length of third spine		7 $\frac{1}{2}$		8 $\frac{3}{4}$		8 $\frac{1}{2}$
Length of first ray		8 $\frac{1}{2}$ +		9+		
Length of longest ray		10				
Length of last ray		10		9		9 $\frac{1}{2}$
Caudal:						
Length of middle rays		12		13		11 $\frac{1}{2}$
Length of external rays		27		28 $\frac{1}{2}$		28
Pectoral:						
Distance from snout		34		34 $\frac{1}{2}$		34 $\frac{1}{2}$
Length		35 $\frac{1}{2}$		34 $\frac{1}{2}$		36+
Ventral:						
Distance from snout		37		38		37
Length		20 $\frac{1}{2}$		19		20
Branchiostegals.....		VI		VI		VI
Dorsal		XII, 10		XII, 10		XII, 10
Anal		III, 8		III, 8		III, 8
Caudal		IV, 15, VI		IV, 15, V		VI, 15, VI
Pectoral		II, 14		II, 14		II, 14
Ventral		I, 5		I, 5		I, 5
Number of scales in lateral line		56		56		56
Number of transverse rows above lateral line		6		7		6
Number of transverse rows below lateral line		13*		14		14
Air-bladder		Simple				
Number of caecal appendages		4				

46. *Pagellus Milneri* sp. nov. Goode & Bean.

Two specimens of an undescribed species of *Pagellus*, No. 6,134, were sent from Charlotte Harbor, Florida, in 1863, by C. B. Baker. The length of the smaller specimen to the origin of the middle caudal rays is 146^{mm}; of the larger, 156^{mm}. The species is dedicated to our friend Mr. James W. Milner, for eight years Deputy U. S. Commissioner of Fisheries, whose important services to the United States in the department of Fish Culture have been supplemented by much thorough natural history exploration, and who at this time is collecting the fishes of West Florida.

Diagnosis.—The height of the body is $2\frac{2}{3}$ in total length, caudal included; $2\frac{1}{4}$ in its length without caudal. Length of head $4\frac{1}{4}$ times with caudal, $3\frac{1}{4}$ without, and equal to length of pectoral. Diameter of eye equals length of operculum; width of interorbital space equals least height of

* To the abdominal outline; there are 16 to the median line of the belly.

tail, which is half the length of the ventral. Diameter of eye in length of head almost 4 times, and less than $1\frac{1}{2}$ times in snout. Preorbital nearly as high as it is long, with maxillary edge nearly straight. There are five series of scales between the preorbital and the angle of the preoperculum. Three series of molars in upper jaw, two in lower. Posterior nostril linear. In life this species is banded vertically with brown. In form of body it resembles the Scuppaug (*Stenotomus argyrops*). Radial formula: B. VI; D. XII, 12; A. III, 10; C. 5 + 8 + 7 + 5; P. I, 14; V. I, 5. L. lat. 47-48; L. trans. $\frac{7}{14}$.

Table of Measurements.

Current number of specimen.....	6,134 a.		6,134 b.	
Locality	Charlotte Harbor, Fla.		Charlotte Harbor, Fla.	
	Millimetres.	100ths of length.	Millimetres.	100ths of length.
Length to origin of middle caudal rays.....	146		156	
Body:				
Greatest height (at ventrals).....		45 $\frac{1}{2}$		46
Least height of tail.....		10		10
Head:				
Greatest length.....		31		31
Width of interorbital area.....		10		10
Length of snout.....		11 $\frac{1}{2}$		11 $\frac{1}{2}$
Length of operculum.....		8		8
Length of upper jaw.....		12		12
Length of mandible.....		13		13
Distance from snout to orbit.....		17 $\frac{1}{2}$		17
Diameter of orbit.....		8		8
Dorsal (spinous):				
Distance from snout.....		46		46
Length of base.....		34		33
Length of first spine.....		4 $\frac{1}{2}$		4 $\frac{1}{2}$
Length of second spine.....		Broken.		Broken.
Length of third spine.....		11		10+
Length of fourth spine.....		11		12
Length of fifth spine.....				12
Dorsal (soft):				
Length of base.....		20		20
Length of first ray.....		0		Broken.
Length of longest ray.....		0		Broken.
Length of last ray.....		7		Broken.
Anal:				
Distance from snout.....		67		65
Length of base.....		22		22
Length of first spine.....		4 $\frac{1}{2}$		4
Length of second spine.....		7 $\frac{1}{2}$		7
Length of third spine.....		7+		8
Length of first ray (longest).....		8 $\frac{1}{2}$		Broken.
Length of last ray.....		7		Broken.
Caudal:				
Length of middle rays.....		13		12 $\frac{1}{2}$
Length of external rays.....		29		32
{ superior.....		28		30
{ inferior.....				
Pectoral:				
Distance from snout.....		32		31
Length.....		31		31
Ventral:				
Distance from snout.....		39		37
Length.....		29		30 $\frac{1}{2}$
Length of axillary appendage.....		10		10
Branchiostegals.....	VI		VI	
Dorsal.....	XII, 12		XII, 12	
Anal.....	III, 10		III, 10	
Caudal.....	V+8+7+V		VI+8+7+V	
Pectoral.....	1, 14		1, 14	
Ventral.....	1, 5		1, 5	
Number of scales in lateral line.....	48		47	
Number of transverse rows above lateral line.....	7		7	
Number of transverse rows below lateral line.....	14		14	

22. PRISTIPOMATIDÆ.

47. *Pristipoma fulvomaculatum* (Mitch.) Günther.—*Pig-fish*.

A single specimen, No. 21,490, $8\frac{3}{4}$ inches in length. D. XII, $15\frac{1}{2}$; A. III, $11\frac{1}{2}$; P. 18; V. I, 5; C. 9 + 8. L. lat. 55 or 56; L. trans. $\frac{12}{10}$.

Another specimen, No. 3,113, was sent from Charlotte Harbor in 1864 by C. B. Baker. D. XII, 16; A. III, 13; P. 19; V. I, 5; C. 9 + 9. L. lat. 54; L. trans. $\frac{11}{10}$.

48. *Rhomboplites aurorubens* (Cuv. & Val.) Gill.—*Bastard Snapper*.

Several specimens of this beautiful species were obtained in Charleston, S. C., in the spring of 1878. They are often brought to Charleston market, where they are called "Mangrove Snappers." They are obtained chiefly from the Savannah Bank.

Another specimen, No. 21,338 (42), $15\frac{1}{2}$ inches long, was subsequently sent from Pensacola by Mr. Stearus. D. XII, 11; A. III, 8; P. I, 16; V. I, 5; C. 9 + 8. L. lat. 52; L. trans. $\frac{9}{10}$.

Table of Measurements.

Current number of specimen	21,224 a.		21,224 b.		21,338.	
Locality	Savannah Bank, Charleston, S. C.		Savannah Bank, Charleston, S. C.		Pensacola, Fla.	
	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Extreme length to origin of middle caudal rays.....	340	.....	360	.....	306	.....
Length to end of middle caudal rays	393	.....	412	.....	393	.....
Body:						
Greatest height		32.5		33.2		32
Greatest width		14.5		15.0		12.5
Height at ventrals		32.0		32.6		30
Least height of tail		10.5		10.2		10.5
Length of caudal peduncle.....		17.2		16.5		17
Head:						
Greatest length		31.8		30.8		32
Greatest width		14.0		14.5		14
Width of interorbital area		9.2		9.5		8.5
Length of snout		10.7		10.8		8
Length of operculum .....		.....		.....		11
Length of upper jaw		10.7		10.8		11
Length of mandible		13.7		14.0		13
Distance from snout to centre of orbit.....		13.7		14.0		12.5
Long diameter of eye		6.7		6.7		7.5
Dorsal (spinous):						
Distance from snout		36.0		36.7		35
Length of base		33.5		34.5		33
Length of first spine .....		.....		4.6		5
Length of second spine		10.0		8.5		9.5
Length of last spine		8.0		7.5		.....
Length of longest spine .....		.....		.....		12.5
Dorsal (soft):						
Length of base		18.5		.....		20
Length of first ray		8.0		7.5		9.5
Length of longest ray		9.8		9.2		9.5
Length of last ray		7.5		7.0		7
Anal:						
Distance from snout.....		68.0		69.0		68
Length of base		15.3		15.5		14.5
Length of first spine		3.5		3.5		2.6
Length of second spine		7.2		6.8		7
Length of third spine		7.6		8.0		8
Length of first ray		10.7		8.5		10.5
Length of longest ray		10.7		8.5		10.5
Length of last ray		8.2		6.3		7

Table of Measurements—Continued.

Current number of specimen	21,224 a.		21,224 b.		21,338.	
Locality	Savannah Bank, Charleston, S. C.		Savannah Bank, Charleston, S. C.		Pensacola, Fla.	
	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Caudal:						
Length of middle rays		15.2		14.2		16
Length of external rays	{ superior	25.0+		24.2		30
	{ inferior	25.0+				29.5
Pectoral:						
Distance from snout		29.5		29.5		29
Length		24.2		22.5		26.3
Ventral:						
Distance from snout		35.6		35.8		35.5
Length	{ on left side					19.5
	{ on right side	19.6		19.4		21
Branchiostegals	VII		VII		VII	
Dorsal	XII, 11		XII, 11		XII, 11	
Anal	III, 8		III, 8		III, 8	
Caudal					+ 18 +	
Pectoral	II, 15		II, 16		II, 15	
Ventral	I, 5		I, 5		I, 5	
Number of scales in lateral line	54		55		54	
Number of transverse rows above lateral line	9		9		9	
Number of transverse rows below lateral line	19		20		20	

49. *Lutjanus caxis* (Schneider) Poey.

The Museum has a specimen, No. 5,138, collected in West Florida by Kaiser and Martin. Length 10 inches. D. X, 14; A. III, 8. L. lat. 41.

50. *Lutjanus Stearnsii* Goode & Bean.—*Mangrove Snapper*.

Lutjanus Stearnsii GOODE & BEAN, Proc. U. S. Nat. Mus. i, 1879, p. 179.

A single specimen, No. 21,337, 19 $\frac{3}{4}$ inches, the type of the description of the species.

51. *Lutjanus Blackfordii* Goode & Bean.—*Red Snapper*.

Lutjanus Blackfordii GOODE & BEAN, Proc. U. S. Nat. Mus. i, 1879, p. 176.

A fine specimen, No. 21,330, 26 inches long, was sent from Pensacola by Mr. Stearns in May, 1878, which served as one of the types for the description of the species.

A young individual, No. 21,463, was also sent, which shows some interesting variations from the adult, as indicated in the following table of measurements.

The principal characters of the young as varying from the adult are (1) the greater length of the head, (2) the lesser length of the snout, (3) the greater diameter of the eyes, (4) the greater length of the paired fins, (5) the greater height of the azygos fins, (6) the stouter proportions of the caudal.

Table of Measurements.

Current number of specimen	21,463.	
Locality	Pensacola, Fla.	
	Millime- tres.	100ths of length.
Extreme length	241	.....
Length to origin of middle caudal rays	185	.....
Body:		
Height at ventrals		41 $\frac{1}{3}$
Least height of tail		13
Head:		
Greatest length		41
Greatest width		15
Width of interorbital area		7 $\frac{1}{2}$
Length of snout		12 $\frac{1}{2}$
Length of operculum		13 $\frac{1}{2}$
Length of upper jaw		15
Length of mandible		19
Distance from snout to orbit		14 $\frac{1}{2}$
Diameter of orbit		9
Dorsal (spinous):		
Distance from snout		44 $\frac{1}{2}$
Length of base		29 $\frac{1}{2}$
Length of first spine		5 $\frac{1}{2}$
Length of second spine		10 $\frac{1}{2}$
Length of fourth or longest spine		15
Length of last spine		10 $\frac{1}{2}$
Dorsal (soft):		
Length of base		22
Length of first ray		12
Length of longest ray		16
Length of last ray		9
Anal:		
Distance from snout		71
Length of base		16
Length of first spine		5 $\frac{1}{2}$
Length of second spine		10 $\frac{1}{2}$
Length of third spine		11 $\frac{1}{2}$
Length of first ray		15
Length of longest ray		19
Length of last ray		8 $\frac{1}{2}$
Caudal:		
Length of middle rays		21
Length of external rays		32
Pectoral:		
Distance from snout		36
Length		34
Ventral:		
Distance from snout		40
Length		25
Branchiostegals	VII	.....
Dorsal	X, 14	.....
Anal	III, 9	.....
Caudal	+17+	.....
Pectoral	II, 15	.....
Ventral	I, 5	.....
Number of scales in lateral line	50	.....
Number of transverse rows above lateral line	8	.....
Number of transverse rows below lateral line	16	.....

23. CENTRARCHIDÆ.

52. *Micropterus pallidus* (Rafinesque) Gill & Jordan.—*Black Bass*.

According to Mr. Stearns this species enters the brackish and salt waters of the Gulf of Mexico, whence he sends a specimen, No. 21,311, 12 inches in length. D. IX, I, 13; A. III, 10; P. II, 12; V. I, 5; C. +17+. L. lat. 65; L. trans. $\frac{7}{3}$

53. Lepiopomus incisor (Cuv. & Val.).—*Brim.*

Lepiopomus pallidus (not Mitchill) GILL & JORDAN, Annals N. Y. Lyc. Nat. Hist. ix, 1877, p. 316.

A single individual, No. 21,471 (50), $8\frac{1}{2}$ inches in length. D. X, 12; A. III, 11; P. I, 12; V. I, 5; C. III, 9. L. lat. 44; L. trans. $\frac{7}{16}$.

The description of *Bodianus pallidus* as given by Mitchill does not appear to us to apply to this species, and we cannot believe that our friend Prof. Jordan had the book before him when he made his final decision in the matter. Indeed, this is quite evident from the fact that he habitually quotes it in synonymy as *Labrus pallidus* Mitchill. It seems to us quite evident that Mitchill's species was *Bairdiella argyroleuca* (= *B. punctata* Gill), as was long ago demonstrated by Prof. Gill. It was a whitish, elongated fish, with "holes under the chin," yellow fins, 23 rays in the second dorsal fin, and 2 (not 3) spines in the anal. See Transactions of the Literary and Philosophical Society of New York, I, 1875, p. 420.

54. Eupomotis speciosus (Holbrook) Jordan?

A species represented by a single specimen, distinguished from the *Eupomotis speciosus* of the St. John's River solely by its slenderer body, slightly larger eyes, and the presence of only 9 dorsal spines. The markings are very similar to those of *Eupomotis speciosus*. The characters separating *E. speciosus* from *E. pallidus* appear to us of doubtful weight.

24. SERRANIDÆ.

55. Epinephelus morio (Cuv. & Val.) Gill.

A single specimen, No. 22,814 (75), 22 inches in length. D. XI, 17; A. III, 8; P. 17; V. I, 5; C. 16. L. lat. ca. 106.

56. Epinephelus Drummond-Hayi Goode & Bean.—*Hind.*

Epinephelus Drummond-Hayi GOODE & BEAN, Proc. U. S. Nat. Mus. i, 1879, p. 173.

A single specimen, No. 21,255, $16\frac{3}{4}$ inches in length, was received from Mr. Stearns, May, 1878, and was taken as one of the types of the description of the species. D. XI, 16; A. III, 9; C. 14; P. 16; V. I, 5; B. VII. L. lat. 125; L. trans. $\frac{3}{7}$.

The species occurs also in the waters of the Bermudas and South Florida.

57. Epinephelus nigritus (Holbrook) Gill.—*Jew-fish.*

A specimen, No. 21,329, measuring 29 inches in length, and weighing 16 pounds, was received from Mr. Stearns in May, 1878. For full description and measurements see Proceedings U. S. National Museum, I, 1879, p. 182. D. X, 15; A. III, 9; C. 17; P. II, 16; V. I, 5; B. VII. L. lat. 115; L. trans. $\frac{3}{5}$.

58. *Trisotropis falcatus* Poey.—*Scamp*.

The United States National Museum received, March 24, 1879, from Mr. Silas Stearns, of Pensacola, Fla., a fresh individual, No. 22,236, of a species of *Trisotropis*, called "Scamp" by the fishermen. The weight of the fish is $7\frac{1}{2}$ pounds.

Mr. Stearns's collecting number is 117. He states that it was captured in deep water, and is abundant "in spots." He has seen individuals three times as large as the present one.

Diagnosis.—A *Trisotropis* with the body moderately compressed, its greatest depth nearly equal to $\frac{1}{3}$ of its length without caudal, and exactly equal to twice the length of the pectoral; the length of the head equal to $\frac{2}{5}$ of the greatest depth of body, and to 4 times the length of the snout; the lower jaw projecting beyond the upper for a distance which equals $\frac{1}{3}$ of the long diameter of the eye; the 11th ray of the soft dorsal, the 5th and 6th rays of the anal, the external and 5 of the internal caudal rays produced; the vent in the vertical from the 10th dorsal spine; the pectoral reaching the vertical let fall from the 7th dorsal spine; the ventrals as long as the pectorals, and reaching to the vertical let fall from the 8th dorsal spine; the maxilla extending to and the mandible beyond the vertical through the posterior margin of the orbit; the distance of the eye from the upper profile of the head equal to $\frac{1}{3}$ of its short diameter; the long diameter of the eye contained twice in the length of the snout, and $9\frac{1}{2}$ times in the length of the head; the 6th dorsal spine longest, and equal to the distance from the border of the preoperculum to the end of the opercular flap; the 1st dorsal spine $\frac{2}{3}$ as long as the last and half as long as the 3d and 4th; the longest (11th) ray of the soft dorsal equal to the 1st ray of the anal; the longest (5th) anal ray slightly exceeding the length of the pectoral and ventral; 3 rays in the upper half, and 2 in the lower half of the caudal produced, the longest of these extending beyond the general outline of the rays for a distance equal to the 3d anal spine; the external caudal rays nearly twice as long as the middle rays; the 1st dorsal consisting of 11 spines, the 2d dorsal of 17 rays; the anal having 3 spines and 11 rays; the caudal, about 20 rays; the pectoral, 1 undivided ray; the ventral, 1 spine and 5 rays; the number of rows of scales between the upper angle of the operculum and the origin of the middle caudal rays 120; about 25 scales in a transverse series from the beginning of the spinous dorsal to the lateral line, and about 43 from thence to the lower profile of the body; the posterior nostril three times as long and twice as wide as the anterior, and scarcely its own length from the eye; the 3 opercular spines broad, flat and cleft at the free ends.

Teeth: Vomerines brush-like, in an angular patch; palatines similar and in a single series; intermaxillary teeth in a single series, with a short band at the symphysis; 4 canines; mandibular teeth in two series; several canines at the symphysis.

Table of Measurements.

Current number of specimen.....	22,326 (117).	
Locality.....	Pensacola, Fla.	
	Millime- tres.	100ths of length.
Extreme length.....	694	.....
Length to origin of middle caudal rays.....	539	.....
Body:		
Greatest height.....		32
Greatest width.....		14½
Height at ventrals.....		32
Least height of tail.....		11
Length of caudal peduncle.....		14
Head:		
Greatest length.....		36
Greatest width.....		14½
Width of interorbital area.....		7½
Length of snout.....		9
Length of operculum.....		12
Length of upper jaw.....		16½
Length of mandible.....		20
Distance from snout to orbit.....		10
Diameter of orbit.....		4½
Dorsal (spinous):		
Distance from snout.....		26½
Length of base.....		20
Length of first spine.....		5½
Length of second spine.....		10
Length of third spine.....		11
Length of fourth spine.....		11
Length of fifth spine.....		12
Length of sixth spine.....		11½
Length of seventh spine.....		10
Length of eighth spine.....		10
Length of ninth spine.....		Broken.
Length of tenth spine.....		Broken.
Length of eleventh spine.....		7½
Dorsal (soft):		
Length of base.....		25
Length of first ray.....		9½
Length of longest ray (eleventh).....		13½
Length of last ray.....		6
Anal:		
Distance from snout.....		65
Length of base.....		19½
Length of first spine.....		3
Length of second spine.....		6
Length of third spine.....		8½
Length of first ray.....		13
Length of longest ray (fifth).....		17
Length of last ray.....		6½
Caudal:		
Length of middle rays.....		17
Length of external rays.....		30
Pectoral:		
Distance from snout.....		32
Length.....		16
Ventral:		
Distance from snout.....		36
Length.....		16
Vent:		
Distance from snout.....		60
Distance from anal.....		5½
Branchiostegals.....	VII	.....
Dorsal.....	XI, 17	.....
Anal.....	III, 11	.....
Caudal.....	20	.....
Pectoral.....	I, 16	.....
Ventral.....	I, 5	.....
Number of scales in lateral line.....	120	.....
Number of transverse rows above lateral line.....	ca. 25	.....
Number of transverse rows below lateral line.....	ca. 43	.....

59. *Trisotropis microlepis* sp. nov. Goode & Bean.

Two individuals of an apparently undescribed species of *Trisotropis* were collected in West Florida in 1864 by Messrs. Kaiser and Martin.

They are closely related to that group of fishes known in Cuba by the common name "Abadejo" ("Codfish"), and represented by Poey's species *Trisotropis interstitialis* and *T. dimidiatus*. With the description of the former,* it corresponds except in the greater length of the head and the much greater number of the scales.

Diagnosis.—The length of the head is contained $2\frac{1}{2}$ to $2\frac{3}{4}$ times in the length to origin of middle caudal rays. Eye contained 6 to $6\frac{1}{2}$ times in the head. The maxilla extends to the perpendicular through posterior margin of orbit; upper jaw equals length of anal base; it is contained $2\frac{1}{4}$ times in the length of the head. The mandible extends beyond the perpendicular through the posterior margin of the orbit, and is slightly more than one-half the length of the head. Each jaw has two canines. The intermaxillaries have an inner band of villiform and an outer series of large, slender, conical teeth curved inward. At the symphysis are some long slender teeth pointing backwards and movable. The lower jaw has two series of slender conical teeth, the inner being the larger and movable. The head of the vomer is supplied with very small villiform teeth. A narrow band of similar teeth on the palatines. Preoperculum finely denticulated on its posterior margin and with coarser denticulations at the angle. The length of the intermaxillary is contained 3 times in that of the lower jaw. Pectoral extends to the 9th spine of 1st dorsal and the ventral as far. The distance from the ventral to the vent slightly exceeds that from the vent to the origin of the anal. The length of the 1st dorsal spine is slightly more than that of the 2d; the 3d and 4th are the longest; the last dorsal spine is slightly longer than the one preceding it. The 1st anal spine is about $\frac{1}{3}$ as long as the last, which is more slender and longer than the 2d. The tail seems to be truncate. The height of the body is contained $3\frac{1}{2}$ times in the length to the origin of the middle caudal rays.

Table of Measurements.

Current number of specimen	5,137 a.		5,137 b.	
	West Florida.		West Florida.	
Locality	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Extreme length	355	.....	.....	.....
Length to origin of middle caudal rays	294	.....	260	.....
Body:				
Greatest height (at ventrals)		$29\frac{1}{2}$		$25\frac{1}{2}$
Least height of tail		$10\frac{1}{2}$		$10\frac{1}{2}$
Head:				
Greatest length		40		38
Greatest width		13		12
Width of interorbital area		6		6
Length of snout		$8\frac{1}{2}$		8
Length of operculum		$13\frac{1}{2}$		$12\frac{1}{2}$
Length of upper jaw		18		17
Length of mandible		$20\frac{1}{2}$		$20\frac{1}{2}$
Distance from snout to orbit		10		9 $\frac{1}{2}$
Diameter of orbit		6		$6\frac{1}{2}$
Nostril (posterior) from eye		2		$1\frac{1}{2}$

* Mem. Nat. Cuba, ii, 1868, p. 127, pl. xiii, fig. 7.

Table of Measurements—Continued.

Current number of specimen	5,137 a.		5,137 b.	
	West Florida.		West Florida.	
Locality	Milli-	100ths of	Milli-	100ths of
	metres.	length.	metres.	length.
Dorsal (spinous):				
Distance from snout		37		37½
Length of base		26		27½
Length of first spine		5½		6
Length of second spine		10		10
Length of third spine		10½		10½
Length of last spine		8½		8½
Dorsal (soft):				
Length of base		24		23
Length of longest ray		13		13½
Length of last ray		6½		7½
Anal:				
Distance from snout		67		66½
Length of base		17		18
Length of first spine		2½		3
Length of second spine		6½		6½
Length of third spine		8		9
Length of first ray		14		14
Length of longest ray		16		15
Length of last ray		8		7
Caudal:				
Length of middle rays		20½		
Length of external rays		23+		
Pectoral:				
Distance from snout		36		35
Length		19		18
Ventral:				
Distance from snout		38		36
Length		16½		17
Vent from anal		6		6
Branchiostegals	VII		VII	
Dorsal	XI, 18		XI, 18	
Anal	III, 10		III, 11	
Caudal	+17+		+17+	
Pectoral	I, 16		I, 16	
Ventral	I, 5		I, 5	
Number of scales in lateral line	145		143	
Number of transverse rows above lateral line	30			
Number of transverse rows below lateral line	60			

60. *Trisotropis brunneus* Poey.—Black Grouper.

A single species of the genus *Trisotropis* is given in Professor Gill's Catalogue of the Fishes of the East Coast of North America (p. 28), the *Trisotropis acutirostris* (Cuvier & Valenciennes) Gill. Since there is no specimen of this species in the National Museum, and no record of the occurrence of this species on our coast, we challenge its right to a place among the fishes of our east coast. It was described from the coast of Brazil, and has not been satisfactorily identified since its first description, which was very inadequately written.

In Mr. Goode's "Catalogue of the Fishes of the Bermudas," the Bermuda Rock-fish is identified* as *Trisotropis undulosus* (Cuv.) Gill. A more extended study with comparisons shows that this name cannot fairly be retained for any Bermuda species. *T. undulosus* was originally described by Cuvier and Valenciennes from Brazil.† The only distinctive character recorded by those authors is the coloration; all others mentioned apply with equal force to any other member of the genus.

* Bulletin of the U. S. National Museum, No. 5, p. 55.

† Histoire Naturelle des Poissons, ii, 1829, p. 295.

Dr. Günther's characters for *T. undulosus* and Professor Poey's for *T. brunneus* are little better, since no diagnostic points are evident.

Since the Floridan and Cuban faunas are so similar, desiring to avoid a multiplication of specific names, we provisionally refer the Florida specimens before us to Poey's *T. brunneus* until we have an opportunity to compare them with specimens identified by that author. These had been hitherto identified with *T. acutirostris*.

We have studied three specimens, No. 15,462, sent by Mr. Blackford, from New York market, No. 16,902, obtained by Mr. J. H. Richard in Washington market, and No. 21,336 (32), sent by Mr. Stearns from Pensacola in 1878. Full measurements of these specimens are given below.

Table of Measurements.

Current number of specimen	21,336.		15,462.		16,902.	
	Pensacola, Fla.		Florida?		Florida.	
Locality.....	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Weight	7 $\frac{3}{4}$ lbs.		10 lbs. in alcohol.			
Extreme length	590		655		495	
Length to end of middle caudal rays	679	(26 $\frac{3}{4}$ in.)	754	(29 $\frac{1}{4}$ in.)	576	
Body:						
Greatest height (behind ventrals)		27 $\frac{1}{2}$		27 $\frac{1}{2}$		27 $\frac{1}{2}$
Height at ventrals		25 $\frac{1}{2}$		26		26
Least height of tail		9		9		10
Head:						
Greatest length		35 $\frac{3}{4}$		37 $\frac{1}{2}$		38
Width of interorbital area		6 $\frac{3}{4}$		6 $\frac{3}{4}$		6 $\frac{1}{2}$
Length of snout		10 $\frac{1}{2}$		10 $\frac{1}{2}$		10
Length of upper jaw		17		17		17 $\frac{1}{2}$
Length of mandible		20 $\frac{1}{2}$		21 $\frac{1}{2}$		21
Distance from snout to centre of orbit		13		13		12 $\frac{1}{2}$
Diameter of eye		4		4		4 $\frac{1}{2}$
Dorsal (spinous):						
Distance from snout		36 $\frac{1}{2}$		36		36
Length of first spine		3 $\frac{3}{4}$				5 $\frac{1}{2}$
Length of longest spine (third)		9				10 $\frac{1}{2}$
Length of last spine		6 $\frac{3}{4}$				7 $\frac{3}{4}$
Dorsal (soft):						
Length of first ray		8 $\frac{1}{2}$		8 $\frac{1}{2}$		9 $\frac{1}{2}$
Length of longest ray		(9th) 10		(9th) 10		(7th) 12
Length of last ray		6		5		6 $\frac{1}{2}$
Anal:						
Distance from snout		68		67		67
Length of first spine		2 $\frac{3}{4}$				3 $\frac{1}{2}$
Length of second spine		4 $\frac{1}{2}$				5 $\frac{3}{4}$
Length of third spine		7		6 $\frac{1}{2}$		7 $\frac{1}{2}$
Length of first ray		10		9		12
Length of longest ray		12		11		13
Length of last ray		6		6		7 $\frac{1}{2}$
Caudal:						
Length of middle rays		15		14 $\frac{3}{4}$		16 $\frac{1}{2}$
Length of external rays		17 $\frac{1}{2}$		17 $\frac{1}{2}$		20 $\frac{1}{2}$
Pectoral:						
Distance from snout		33		32		33
Length		16		15		16 $\frac{1}{2}$
Ventral:						
Distance from snout		35		35		35
Length		13 $\frac{1}{2}$		12 $\frac{1}{2}$		14 $\frac{1}{2}$
Branchiostegals	VII		VII		VII	
Dorsal	XI, 17		XI, 17		XI, 16	
Anal	III, 11		III, 11		III, 10	
Caudal	+ 17 +		+ 17 +		+ 17 +	
Pectoral	I, 16		I, 16		I, 16	
Ventral	I, 5		I, 5		I, 5	
Number of scales in lateral line	130 +		130 +		130	
Number of transverse rows above lateral line	(28)		(28)		27	
Number of transverse rows below lateral line	(60)		(61)		61	

61. *Centropristis atrarius* (Linn.) Barn.—*Sea Bass*.

A young specimen, about 5 inches long, No. 21,483 (47). D. X, 10 $\frac{1}{2}$; A. III, 6 $\frac{1}{2}$; P. 16; V. I, 5; C. 9 + 8. L. lat. 51; L. trans. $\frac{5\frac{1}{2}}{18}$.

This specimen and others from Florida show certain characters which, when studied more closely, may serve to separate the southern *Centropristis* from that of New England.

62. *Haliperca subligaria* (Cope) Goode & Bean.

Centropristis subligarius COPE, Proc. Acad. Nat. Sci. Phila. 186-, p. —.

Professor Cope has described, under the name *Centropristis subligarius*, a fish from Pensacola, which we refer provisionally to the genus *Haliperca*. "D. X, 14; A. III, 8. L. lat. 48; L. trans. $\frac{5\frac{1}{2}}{18}$."

25. LABRACIDÆ.

63. *Roccus lineatus* (Bl.) Gill.—*Striped Bass*.

A single specimen, No. 21,312, 17 inches in length. D. IX, 12; A. III, 10; V. I, 5; P. II, 15. L. lat. 66; L. trans. $\frac{11}{14}$.

26. EPHIPPIIDÆ.

64. *Parephippus faber* (Cuv.) Gill.

A single specimen, No. 21,474, 5 $\frac{3}{10}$ inches long. D. VII, I, 22; A. III, 19; V. I, 5; P. II, 15; C. VI, 15, V. L. lat. 66; L. trans. $\frac{1\frac{3}{4}}{10}$.

27. POMATOMIDÆ.

65. *Pomatomus saltatrix* (Linn.) Gill.—*Blue-fish*.

A specimen, No. 21,777, 19 inches long. D. VII, I, 26; A. I, 27; P. I, 16; V. I, 5; C. 10 + 9. L. lat. 105.

A smaller specimen, No. 21,256, 9 $\frac{1}{2}$ inches long, was also received.

28. ECHENEIDIDÆ.

66. *Echeneis naucrateoides* Zuiew.—*Sucker*.

A young individual, No. 21,482 (13), 6 inches in length, remarkable from the fact that the tip of the caudal fin is cuneate in outline. The coloration is much the same as in adult individuals of the species, except that the white on the dorsal, anal, and caudal fins is more conspicuous and occupies a wider area. The dorsal and anal fins are essentially white, with the spaces at the base of the fins and between each pair of rays of the same color with the darkest portion of the body. The white areas upon the high anterior portions of the dorsal and anal occupy more than half of the height of these fins. Upon the posterior portion of these fins, the white area is reduced to a marginal line. The white patches on the outer angles of the caudal fin are so arranged that the dark portion of this fin is outlined upon the white in a lanceolate form. The pectoral fins are lightly margined with white posteriorly. D. XXI, 35; A. 33.

29. SPHYRÆNIDÆ.

67. *Sphyræna picuda*.

We have made a preliminary study of the specimens of *Sphyræna* in the National Museum, which has convinced us that the number of scales in the lateral line is very variable, and must be used with caution as a specific character.

We recognize three species on our coast:

1. *Sphyræna picuda*, with comparatively large scales, 81 or more in the lateral line, and the dorsal inserted far in advance of the middle of the body, and in front of the vertical from the tip of the pectoral. We have seen this species from Cuba, the Bermudas, from West Florida (collected by Dr. J. W. Velie), and from South Florida (sent by Mr. E. G. Blackford), a large individual, $37\frac{1}{2}$ inches long.

2. *Sphyræna borealis*. We have examined numerous specimens of young *Sphyrænas* from Wood's Holl, the largest of which do not exceed 9 inches in length. We refer them provisionally to *S. borealis*. These specimens agree quite closely with specimens of *Sphyræna*, from the Mediterranean and the Bermudas, in shape of body, in position of fins, and in coloration. Others from the Canaries and from Europe belong to a totally different species. There are two European species which have been confused by recent writers, and united under the name *S. vulgaris*. We are not at present able to untangle the synonymy.

3. A species which we provisionally refer to *S. guaguancho*, which in the position of the fins resembles *S. picuda*, though the scales are much smaller, 107 to 115 in the lateral line. Besides the Pensacola specimen already mentioned, we have seen this species from Cuba and from Wood's Holl, where a specimen (No. 21,226) nearly 22 inches long was obtained by Vinal N. Edwards, in July, 1876.

68. *Sphyræna guaguancho* Poey.

A single specimen, No. 21,468, 18 inches long.

The height of the body is 7 times in the total length without caudal; length of head $3\frac{1}{2}$ to $3\frac{1}{4}$ times, greatest in young. Diameter of eye contained 6 times in adult, $5\frac{1}{2}$ in young; operculum with two points. Length of pectoral equal to the postorbital portion of the head, $8\frac{1}{2}$ times in total in young, 9 times in adult; its length greater than that of the ventrals, which are contained $3\frac{1}{2}$ in head. Spines of the ventrals almost as long as the rays and $\frac{1}{4}$ as long as the head. Origin of dorsal is far in front of the middle of the body, and in adults slightly, and in the young considerably, in advance of the perpendicular from the tip of the pectoral. The 5th dorsal spine is inserted exactly midway between the tip of the snout and the base of the middle caudal rays. The ventrals inserted in advance of the dorsal. The interspace between the dorsals is contained $5\frac{1}{2}$ to $5\frac{3}{4}$ times in the total without caudal. L. lat. 107 to 112; L. transv. 14 + 17. D. V, I, 9; A. II, 8; P. 16; C. 9 + 8.

The identification of this species was made from one of the types of Prof. Poey's original descriptions now preserved in the National Museum.

Table of Measurements.

Current number of specimen.....	21,226.		21,468.		4,725 a.		4,725 b.	
Locality	Wood's Holl, Massachusetts.		Pensacola, Fla.		Cuba.		Cuba.	
	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Extreme length.....	541				255		225	
Length to origin of middle caudal rays	450		385		275			
Body:								
Greatest height.....		17		15		12.2		14.5
Greatest width.....		10		10				
Height at ventrals.....		14½		13¾				
Least height of tail.....		6¾		7½				
Length of caudal peduncle.....		21		21				
Head:								
Greatest length.....		30½		32		33.7		33.5
Greatest width.....		10		9½				
Width of interorbital area.....		5½		5½		5.8		5.5
Length of snout.....		12¾		13¾		15.5		15.7
Length of operculum.....		4		3¾				
Length of upper jaw.....		13		13¾		14.0		14.0
Length of mandible.....		18½		19		21.0		21.0
Distance from snout to orbit.....		12		13¾				
Diameter of orbit.....		5		5½		5.8		5.6
Dorsal (spinous):								
Distance from snout.....		41		41		45.0		45.0
Length of base.....		10		9½		9.2		9.2
Length of first spine.....		8½		9½		9.0		10.6
Length of second spine.....		8½		9½		8.0		11.2
Length of last spine.....		4½		5½		5.5		6.0
Dorsal (soft):								
Distance from snout.....		70		69		72.3		71.0
Length of base.....		9¾		10		9.2		9.2
Length of antecedent spine.....		4½		5				5.0
Length of first ray.....				10¾		10.5		12.0
Length of longest ray.....				10¾		10.6		11.7
Length of last ray.....		4¾		6		6.5		7.0
Anal:								
Distance from snout.....		71½		72		75.0		74.2
Length of base.....		8		8¾		7.8		7.8
Length of first spine.....		11¾		1½				2.4
Length of second spine.....		4¾		4¾				6.0
Length of first ray.....		7+		9½		10.0		11.0
Length of longest ray.....				9½				
Length of last ray.....		4¾+		6		6.6		6.0
Caudal:								
Length of middle rays.....		7½		7½		7.6¾		9.8
Length of exter- } upper.....		21				20½		22.0
} lower.....		19				20½		20.0+
Pectoral:								
Distance from snout.....		30		30½		33¾		33.3
Length.....		10¾		11		12		12.2
Ventral:								
Distance from snout.....		38		38		41½		41
Length.....		9		9		9¾		10
Branchiostegals.....		VII		VII				
Dorsal.....		V, I, 9		V, I, 9		V, I, 9		V, I, 9
Anal.....		II, 8		II, 8		II, 8		II, 8
Caudal.....		IV, 17, IV						
Pectoral.....		I, 12		I, 12		I, 12		I, 12
Ventral.....		I, 5		I, 5		I, 5		I, 5
Number of scales in lateral line.....		112		106		115, 120		120
Number of transverse rows above lateral line.....		15		15		18		17 or 18
Number of transverse rows below lateral line.....		17		17		18		18

30. MUGILIDÆ.

69. *Mugil albula* Linn.—*Mullett*.

A single specimen, No. 21,331 (36). D. IV, 8; A. III, 8; P. 16; V. I, 5; C. 7 + 7. L. lat. 42; L. trans. 13.

Several small individuals of this species, No. 21,491, were also received. The largest measured 6 inches in length; those of intermediate size, 4 inches; many others from an inch to an inch and a half.

Bottle No. 5,151 contains several specimens of this species collected in West Florida by Kaiser and Martin.

70. *Mugil brasiliensis* Agassiz.—*Silver Mullet*.

A single specimen, No. 21,498 (28), 11½ inches in length. D. IV, 9; A. III, 8; P. 17; V. I, 5; C. 14. L. lat. 38; L. trans. 12.

31. ATHERINIDÆ.

71. *Chiostoma peninsulæ* sp. nov. Goode & Bean.

Two specimens (Nos. 21,481 *a* and 21,481 *b*) were sent from Pensacola by Mr. Stearns. We also have numerous specimens, No. 21,870, collected in Lake Monroe, Fla., by Prof. Baird.

Diagnosis.—The origin of the anterior dorsal fin is far in advance of the anal fin and slightly in advance of the vent. The height of the body is contained 5 times in total length without caudal (6 times in total length); it is slightly less than the length of the head, and precisely equal to the length of the pectoral. The diameter of the eye is contained 3 to 3½ times in the length of the head; is about equal to the length of the snout and to the width of the interorbital space. Mouth very protractile. Lower jaw long, contained 11 times in length of body without caudal, more than one-third of the length of the head, which is contained in total length of body 4 to 4½ times. Silvery streak occupying the fourth and upper half of the fifth series of scales. Caudal deeply forked; lobes equal. D. V-VI, I, 8-9; A. I, 15-16; C. + 17 +; P. I, 12; V. I, 5. L. lat. 38-39; L. trans. 9½.

72. *Chiostoma vagrans* sp. nov. Goode & Bean.

One specimen of this undescribed species (No. 22,848) was sent from Pensacola by Mr. Stearns, and two (Nos. 22,864 *a* and 22,864 *b*) were sent from Virginia.

Diagnosis.—The origin of the anterior dorsal fin is situated behind a point midway between the origins of the ventral and anal fin and opposite the middle of the interspace between the anal fin and the vent. Height of the body contained 5½ to 6 times in length without caudal, and 6¾ in total length, considerably less than length of head and length of pectoral. Diameter of the eye contained 3 times in length of head, greater than length of snout, and less than width of interorbital space. Mouth slightly protractile. Lower jaw contained 15½ times in length

of body without caudal, and equal to diameter of eye, which is one-third the length of the head, which is contained in total length $4\frac{3}{4}$ times. Silvery streak occupying the lower two-thirds of the third and the upper third of the fourth series of scales. Caudal slightly forked; lobes equal. Vertical fins excessively scaly. Scales of body large. D. V, 1, 7; A. I, 18; C. + 17 +; P. I, 13; V. I-5. L. lat. 48; L. trans. 7.

The measurements of both species are here given.

Table of Measurements.

Species: *Chirostoma vagrans*.

Current number of specimen.....	22,848.		22,864 a.		22,864 b.	
	Pensacola, Fla.		Virginia.		Virginia.	
Locality	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.	Milli- metres.	100ths of length.
Extreme length.....			117		101	
Length to origin of middle caudal rays.....	90		100		85	
Body:						
Greatest height.....		17		17		18
Greatest width.....		10		9		
Height at ventrals.....		17		17		
Least height of tail.....		8		8		
Head:						
Greatest length.....		21		21		21
Greatest width.....		10 $\frac{1}{2}$		9 $\frac{1}{2}$		10
Width of interorbital area.....		7 $\frac{1}{2}$		6 $\frac{1}{2}$		7
Length of snout.....		5		5 $\frac{1}{2}$		
Length of postorbital portion of head.....		9		9		
Length of upper jaw.....		5 $\frac{1}{2}$		5 $\frac{1}{2}$		
Length of mandible.....		6 $\frac{1}{2}$		6 $\frac{1}{2}$		
Diameter of orbit.....		6 $\frac{1}{2}$		6 $\frac{1}{2}$		6 $\frac{1}{2}$
Dorsal (spinous):						
Distance from snout.....		60		60		61
Length of longest spine.....		7		6		
Dorsal (soft):						
Distance from snout.....		76 $\frac{1}{2}$		76		75
Length of base.....		8		8		8
Length of antecedent spine.....		4		3 $\frac{1}{2}$		4 $\frac{1}{2}$
Length of first ray.....		9 $\frac{1}{2}$		8 $\frac{1}{2}$		
Length of longest ray.....		9 $\frac{1}{2}$		8 $\frac{1}{2}$		
Length of last ray.....		6		5 $\frac{1}{2}$		
Anal:						
Distance from snout.....		64		63		
Length of base.....		22		22		23
Length of first spine.....		5		4 $\frac{1}{2}$		5
Length of first ray.....		10+		9 $\frac{1}{2}$		
Length of longest ray.....				9 $\frac{1}{2}$		
Length of last ray.....				4		
Caudal:						
Length of middle rays.....		13		12		12
Length of external rays.....				18 $\frac{1}{2}$		20
Pectoral:						
Distance from snout.....		22		23		
Length.....		21 $\frac{1}{2}$		20		21
Ventral:						
Distance from snout.....		44		44		
Length.....		11		10		10
Branchiostegals.....		V 1				
Dorsal.....		V, I, 7		V, I, 7		V, I, 7
Anal.....		I, 18		I, -		I, 18
Caudal.....		+17+		+17+		+17+
Pectoral.....		I, 13		I, 13		I, 13
Ventral.....		I, 5		I, 5		I, 5
Number of scales in lateral line.....		48		48		48
Number of transverse rows of scales.....		7		7		7

Table of Measurements—Continued.

Species: *Chirostoma peninsule*.

Current number of specimen	21,481 a.		21,481 b.	
	Pensacola, Fla.		Pensacola, Fla.	
Locality	Milli-	100ths of	Milli-	100ths of
	metres.	length.	metres.	length.
Extreme length	91		68	
Length to origin of middle caudal rays	76		56	
Body:				
Greatest height		19		19
Greatest width		10		10½
Height at ventrals		18		18
Least height of tail		9		8
Head:				
Greatest length		24		25
Greatest width		11½		11
Width of interorbital area		7½		7½
Length of snout		6		
Length of postorbital portion of head		10		
Length of upper jaw		6		
Length of mandible		9		
Diameter of orbit		7		8
Dorsal (spinous):				
Distance from snout		51		
Length of longest spine		9		
Dorsal (soft):				
Distance from snout		70		
Length of base		11		
Length of antecedent spine		5		
Length of first ray		13		
Length of longest ray		13		13
Length of last ray		6		
Anal:				
Distance from snout		64		
Length of base		20		
Length of first spine		5½		
Length of first ray		13		
Length of longest ray		13		14½
Length of last ray		7		
Caudal:				
Length of middle rays		11		13
Length of external rays		21		22
Pectoral:				
Distance from snout		24		
Length		19		19
Ventral:				
Distance from snout		43		
Length		12		13
Dorsal	V, I, 8		V, I, 9	
Anal	I, 16		I, 15	
Caudal	+17+		+17+	
Pectoral	I, 12		I, 12	
Ventral	I, 5		I, 5	
Number of scales in lateral line	38		39	
Number of transverse rows of scales	9		9	

32. BELONIDÆ.

73. *Belone longirostris* (Mitchell) Gill.—*Needle-fish*.

A single specimen, No. 21,469, 20¾ inches in length. D. 15; A. 18.

A specimen, No. 21,288, from the St. John's River, G. Brown Goode, has the following radial formula: D. 14; A. 18. Others from the same source have, No. 19,076: D. 16; A. 19; and No. 18,441: D. 16; A. 19.

Dr. Günther's statement that the number of dorsal and anal rays in southern specimens is less than in those from the north seems scarcely tenable.

74. *Belone notata* Poey.

Belone notata POEY, Mem. Hist. Nat. Cuba, ii, 1860, p. 293.

A single specimen of this species, not hitherto recorded from the coast of the United States, collected by Kaiser and Martin in West Florida, in 1864 or earlier.

This specimen, No. 5,147, is $15\frac{2}{3}$ inches in length. D. 13; A. 14; P. 11; V. 6; C. 15.

33. CYPRINODONTIDÆ.

75. *Cyprinodon variegatus* Lacépède.—Minnow.

Several very large specimens, No. 21,494 (49), were sent from Pensacola by Mr. Stearns.

76. *Mollinesia latipinna* Le Sueur.

The Museum has a bottle, No. 22,845, containing several large specimens of this species from Pensacola, Fla. Donor unknown. The largest specimens measure $3\frac{1}{4}$ inches in length, and one male has a dorsal fin one inch in length.

77. *Fundulus grandis* Baird & Girard.

Fundulus grandis B. & G., Proc. Acad. Nat. Sci. Phila. vi, 1853, p. 389.

An individual, No. 22,847, $5\frac{7}{16}$ inches in length, was sent from Pensacola by Mr. Stearns. D. 13; A. I, 10; V. I, 5; P. II, 16; C. V, 18, V. L. lat. 36; L. trans. 15.

This Cyprinodont corresponds completely with the *Fundulus grandis* of Baird and Girard. Concerning the identity of this species with the *Fundulus heteroclitus* of Linnæus or the *Fundulus pisculentus* of authors we are not prepared to express an opinion.

78. *Hydrargyra similis* Baird & Girard.—Minnow.

Hydrargyra similis B. & G., Proc. Acad. Nat. Sci. Phila. 1853, p. 389.

A female, No. 21,484, sent by Mr. Stearns from Pensacola, $5\frac{1}{2}$ inches long, agrees sufficiently well with Baird and Girard's *Hydrargyra similis*. D. 13; A. 11. L. lat 33; L. trans. 13.

A specimen, No. 22,850, D. 12; A. $8\frac{1}{4}$; P. I, 18; V. I, 5.

34. CLUPEIDÆ.

79. *Brevoortia patronus* Goode.—Alewife.

Numerous specimens of this species were obtained, the largest of which did not exceed 7 inches in length. Four specimens are included under catalogue No. 21,341; eleven under original No. 93, No. 22,808; six under No. 22,809, original No. 103; seven under No. 22,810, original No. 86. Specimens of this species were sent to the National Museum as early as 1864 by Kaiser and Martin, who collected in West Florida.

80. *Opisthonema thrissa* (Linn.) Gill.

A single specimen, No. 21,462 (63), $5\frac{1}{2}$ inches long. D. 12; A. 28.

81. *Pomolobus chrysochloris* Rafinesque.—“*Shad*.”

One of the most interesting facts brought to notice by this collection is the occurrence in the Gulf of Mexico of this species, hitherto thought to live only in fresh waters.

Three individuals, Nos. 21,778, 21,779, 21,780, were received, December 9, 1878, from the Pensacola Ice Company, the largest $15\frac{1}{2}$ inches in length.

82. *Harengula pensacolæ* sp. nov. Goode & Bean.—*Alewife*.

The species is by its form most closely associated with *Harengula macrophthalma*, while in other respects it resembles *Harengula clupeola* and *Harengula humeralis*.

The head is very short, its length contained 4 times in the length of the fish without caudal, and nearly 5 times in its extreme length, to line drawn between the tips of the caudal lobes. In *H. sardina* Poey (= *H. macrophthalma* Ranz., *fide* Günther), the head is contained $3\frac{1}{2}$ times in body-length; in *H. clupeola* Cuv. & Val. (as identified by Poey), a much more elongate species, $3\frac{1}{2}$ to $3\frac{3}{4}$; in *H. callolepis* sp. nov., Goode, MS., from the Bermudas, $3\frac{1}{2}$ to $3\frac{3}{4}$ times.

The body is high, with projecting belly, the contour resembling that of the Common Shad, *Alosa sapidissima*, its height at the posterior extremity of the operculum being greater than the distance from the tip of the lower jaw to the posterior extremity of the operculum: in the other species it is less, notably so in *H. callolepis*, in which the height at this point barely equals the distance from the tip of the lower jaw to the posterior edge of the preoperculum.

The height of the body is contained in its length (without caudal) $2\frac{3}{4}$ to 3 times (in *H. sardina* 3 times; in *H. clupeola* $3\frac{1}{2}$ times; in *H. callolepis* $3\frac{3}{4}$ to 4 times, being equal to the length of the head).

Scales of the back in front of dorsal with radiating striæ and sharply serrated edges, these features being less prominent in the one or two rows on each side next to the dorsal. Other scales smooth, with irregular, but unarmed free margins. When detached they show from three to seven parallel vertical lines, these lines being most numerous posteriorly; upon the nuchal scales these are scarcely present, and they are not visible when attached to the skin, as they are in *H. sardina* (in *H. clupeola* the striations of the nuchal scales are very evident, though the edges are not armed, and the lateral scales exhibit vertical ridges, but in smaller number, ranging from one or more anteriorly to three posteriorly; in *H. callolepis* the nuchal scales are smooth, unstriated, unarmed; the lateral scales from the anterior part of the body are marked with lines not even approximately parallel, and neither straight nor extending over the whole scale, as in the other: on the scales of the posterior part of the body, the markings are very irregular, sometimes showing as many as nine or ten irregular waving, approximately parallel, undulating lines, at others with the vertical lines coalescing

with irregularly undulating horizontal lines, to form a graceful, irregular network).

Scales arranged in 40 transverse and $11\frac{1}{2}$ longitudinal rows. In *H. sardina* 40 (38-42 according to Günther); in *H. callolepis* 38, as nearly as can be ascertained from specimens partly denuded of scales, and $10\frac{1}{2}$ longitudinal rows.

Lower jaw moderately long, its length included nearly 3 times in distance from snout to origin of dorsal, and equal to half the distance from tip of snout to the posterior margin of the operculum (in *H. clupeola* and in *H. sardina* equalling half length of head as measured above, in *H. callolepis* less than half; in *H. callolepis* contained about $2\frac{2}{3}$ times in distance from tip of snout to posterior margin of operculum, in *H. sardina* $2\frac{1}{2}$ times, in *H. pensacola* nearly 3 times).

The maxillary extends behind the front margin of the orbit, as in all species of the genus which have been examined.

Teeth very small, inconspicuous in the jaws. A large patch of asperities on the tongue nearly covering its upper surface (in *H. callolepis* this patch is much smaller, lanceolate in form); cheeks and opercula veined prominently. Gill-rakers fine, closely set, shorter than the eye, about 56 on one side of the first arch (in *H. callolepis* they are thick, stiff, wiry, not closely set, about 40 in number; in *H. sardina* they are much the same as in *H. callolepis* in shape and arrangement, and the number does not exceed 42; in *H. clupeola* they are somewhat shorter, and number at least 50).

Eye large, its diameter longer than snout, contained about 3 times in the length of the head (in *H. sardina* the length of the snout nearly equals the eye, and in *H. callolepis* this is also the case, the diameter of the eye, however, being still about $\frac{1}{3}$ of the length of the head).

Dorsal fin inserted midway between snout and base of caudal, the ventral also originating at a point equidistant from snout and origin of upper caudal lobe (in *H. clupeola* the ventral is placed midway, while the dorsal is very slightly nearer to the snout than to the base of the upper caudal lobe; in *H. callolepis* the ventral is midway, while the dorsal is nearer to the base of the upper caudal lobe by a distance nearly equal to the diameter of the pupil of the eye; in *H. sardina* the ventral is nearer to the snout, the dorsal nearer to the base of the superior caudal ray by a distance nearly equal to the diameter of the orbit).

There are 12 abdominal scutes behind the base of the ventral fin, as is the case also with *H. callolepis* and *H. sardina*, *H. clupeola* having 14.

A high shield of scales enclosing the base of the dorsal and anal fins.

D. 16; A. 17; V. 8; P. 15; C. 16 (*H. callolepis* was D. 17; A. 17; P. 16; C. 15).

Two specimens, No. 22,831 (29), were obtained by Mr. Stearns.

35. CYPRINIDÆ.

83. *Notemigonus americanus* (Linn.) Jordan.—*Roach*; *Sucker*.

A single specimen, No. 21,465 (55). D. II, 7; A. II, I, 13; P. I, 15; V. I, 7. L. lat. 47; L. trans. 15.

36. SILURIDÆ.

84. *Ariopsis felis* (Linn.) Gill & Jordan.—*Salt-water Catfish*.

A single specimen, No. 21,487 (58), $11\frac{2}{5}$ inches in length. D I, 7 + 1; A. 18; P. I, 10; V. 6.

37. ANGUILLIDÆ.

85. *Anguilla vulgaris* Turton.—*Eel*.

A single specimen, No. 22,813 (101), 22 inches in length. A stout and short-headed form, agreeing essentially with *A. bostoniensis* as defined by Günther, except that the distance between the origin of the dorsal and anal fins is considerably greater than the length of the head. The thick lips and shape of the body suggest Girard's *Anguilla tyrannus* from the Gulf of Mexico.

38. MURÆNIDÆ.

86. *Crotalopsis mordax* (Poey).

Conger mordax POEY, Mem. Hist. Nat. Cuba, ii, 1860, p. 319.

Macrodonophis mordax POEY, Rept. Fis.-Nat. Cuba, ii, 1868, p. 252, plate ii, fig. 9 (head).

This species is probably the *Crotalopsis punctifer* of Kaup,* and called by Günther *Ophichthys punctifer*. We have had no opportunity of examining the original description by Kaup, and Dr. Günther does not claim to have seen specimens of this species. We therefore provisionally adopt the name of Poey, being fully convinced that the specimen described by him is specifically identical with a specimen, No. 17,176, 33 inches in length, sent to the National Museum from Pensacola, Fla., by F. B. Stevenson, U. S. N.

A specimen, No. 22,844, was sent from West Florida by Kaiser and Martin in 1864.

87. *Gymnothorax ocellatus* Agassiz.

Gymnothorax ocellatus AGASSIZ, in Spix Pisc. Bras. 1829, p. 91, pl. L. b.

Muræna ocellata GÜNTHER, Cat. Fishes Brit. Mus. viii, 1870, p. 102.

Neomuræna nigromarginata GIRARD, Ichthyology, U. S. Geol. Survey, 1859, p. 76, pl. xli.

The Museum has a bottle, No. 5,160, containing many specimens of this species, old and young, collected in West Florida by Kaiser and Martin. The largest measure 16 inches; the smallest about 5.

* Abhandl. naturwiss. Verein Hamburg, iv, 2, 1860, (1859), p. xii, Taf. i, Fig. 3.

The coloration of these specimens is various and in general corresponds with the description given by Günther. Agassiz's figure represents a fish ornamented with fewer and larger spots than in these Florida specimens, which show the spots very closely contiguous, especially on the head. Some of these specimens show narrow longitudinal brown lines upon the throat and posterior part of the head below the branchial opening. The markings on the dorsal fin are also somewhat different from any heretofore described. We observe a regularly undulating line of white about as wide as the pupil of the eye, the upper undulations extending to the edges of the fin; between these undulations are sub-triangular spots of blackish brown, which together form an interrupted black margin to the fin. These markings, and indeed the general appearance of the fish, are perhaps best represented by Girard's figure, which, however, fails to indicate the white undulating line already mentioned.

The Museum has also a bottle, No. 5,997, containing old and young specimens of this species from Cedar Keys, Florida.

We have examined a specimen, apparently of this species, catalogued "No. 7,004, St. Joseph's Island, Texas, Geo. Würdemann," which we believe to be the original type of Girard's *Neomuræna nigromarginata*.

88. *Herpetoichthys ocellatus* (Les.).

Muraenophis ocellatus LE SUEUR, Journ. Acad. Nat. Sci. Phila. vol. v, p. 108, pl. iv, fig. 3.

A fine specimen, No. 22,289, measuring 575 millimetres.

89. *Neoconger mucronatus* Girard.

An eel-like fish, No. 5,161, 15 inches in length, sent from West Florida in 1863 or 1864 by Messrs. Kaiser and Martin, appears to have been described by Girard under the name *Neoconger mucronatus*.

39. LEPIDOSTEIDÆ.

90. *Lepidosteus platystomus* Rafinesque.—*Alligator Gar*; *Gar Pike*.

A single specimen, 15 inches in length, No. 21,485. D. 8; A. 8; P. 10; V. 6; C. 12. L. lat. 57; L. trans. $\frac{8\frac{1}{2}}{6\frac{1}{2}}$.

40. CEPHALOPTERIDÆ.

91. *Ceratoptera birostris* (Walbaum) Goode & Bean.

Said to be of frequent occurrence in the Gulf of Mexico.

41. MYLIOBATIDÆ.

92. *Rhinoptera quadriloba* (Les.) Cuv.—*Skate*; *Whipperee*; *Corn-cracker*.

A large female specimen, No. 21,221.

42. TRYGONIDÆ.

93. *Trygon sabina* LE SUEUR.—*Stingaree*.

A single specimen, No. 21,470 (40), length of body $6\frac{3}{10}$ inches; width of body $6\frac{1}{5}$ inches; length of tail $7\frac{2}{5}+$ inches.

A specimen, No. 22,804, length of body 11 inches; width 10 inches; length of tail $11\frac{3}{10}$ inches. ♀ with tail of young protruding.

A young male, No. 22,818, $3\frac{3}{10}$ inches in length; width of body $3\frac{1}{2}$ inches; length of tail 7 inches.

43. GALEORHINIDÆ.

94. *Hypoprion brevirostris* Poey.

This Cuban species was collected in West Florida by Dr. J. W. Velie.

44. GINGLYMOSTOMATIDÆ.

95. *Ginglymostoma cirratum* (Gmelin) M. & H.

A large individual was obtained in West Florida by Dr. J. W. Velie.

NOTE.—The following new species from the Gulf of Mexico are enumerated in this paper. Those marked by asterisks have been described on previous pages of these Proceedings; those in italics were first sent by Mr. Stearns.

- 29. *Seriola Stearnsii*, Goode & Bean.*
- 33. *Caulolatilus microps*, Goode & Bean.*
- 42. *Eucinostomus harengulus*, Goode & Bean.
- 46. *Pagellus Milneri*, Goode & Bean.
- 50. *Lutjanus Stearnsii*, Goode & Bean.*
- 51. *Lutjanus Blackfordii*, Goode & Bean.*
- 55. *Epinephelus Drummond-Hayi*, Goode & Bean.*
- 59. *Trisotropis microlepis*, Goode & Bean.
- 71. *Chirostoma peninsulae*, Goode & Bean.
- 72. *Chirostoma vagrans*, Goode & Bean.
- 79. *Brevoortia patronus*, Goode.*
- 82. *Harengula pensacola*, Goode & Bean.
- (82 a. *Harengula callolepis*, Goode, from Bermuda.)