

NOTES ON SOME FISHES COLLECTED AT PENSACOLA BY MR. SILAS STEARNS, WITH DESCRIPTIONS OF ONE NEW SPECIES (*CHÆTODON AYA*).

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A small tank of fishes lately sent by Mr. Silas Stearns to the museum of the Indiana University contains, among others, the following interesting species from the "Snapper Banks," near Pensacola. The type of the species which is regarded as new to science has been presented to the United States National Museum.

1. *Exocætus heterurus* Rafinesque.

Exocætus noveboracensis Mitchill.

One specimen, without barbels, answering very well to the account given by Jordan & Meek (Proc. U. S. Nat. Mus., 1885, 59).

2. *Exocætus furcatus* Mitchill.

A young specimen, without barbels, agreeing well with our account, above cited, and corresponding almost exactly in size and in other respects to the figure given by Vinciguerra of his *Exocætus maculipinnis*, from Tunis (Risultati Ittiologici del Violante, 1883, 113, tabola 1, f. 6).

3. *Siphostoma mackayi* Swain & Meek.

Two specimens differing somewhat from the original types of this species. Dorsal rays about 32, on $2\frac{1}{2} + 5\frac{1}{2}$ rings. Rings 18+36. Form more slender than in the types (the specimen smaller however), the dark cross-bars more marked, about 14 in number, and broader than the interspaces. Light spots obsolete.

A manuscript species of this genus, *Siphostoma miurum*, Swain & Meek, from Key West, has been once or twice mentioned. The description of this species has been suppressed by its authors, because, in some way, its type has been lost or destroyed. The name is therefore null.

4. *Chætodon aya*, sp. nov. (No. 37747, U. S. N. M.)

Head $2\frac{1}{2}$ in length (3 with caudal); depth, $1\frac{3}{5}$ (2). D. XII, 18. A. III, 17. Scales, 9-36-17. Length of type, $1\frac{1}{2}$ inches.

Body short and deep, strongly compressed. Snout narrow, sharp, considerably produced, its length from eye $2\frac{2}{3}$ in head, its outline forming in front of eye a sharp angle with the profile of the head. Anterior profile steep and straight from before eye to first dorsal spine. Eye large, about as long as snout (in young), a little longer than post-orbital part of head.

Dorsal fin high, the second spine highest, very strong, as long as head. Soft dorsal high, higher than the posterior spines, the longest rays about half head. Anal similar to soft dorsal, its second spine stouter than

third, and about equal to it in length, about half length of head. Caudal fin somewhat rounded, $1\frac{1}{2}$ in head. Ventrals not quite reaching anal; pectorals still shorter.

Scales of moderate size, the soft parts of the vertical fins less scaly than usual. Lateral line running very high and ceasing abruptly under first ray of soft dorsal.

Color, in spirits, light yellowish, with two oblique jet-black cross-bands, and no other spots or ocelli. The first band involving first and second dorsal spines, then extending downward and forward, close behind the line of the profile and across the eye and across the cheek, where it is fainter. This band is a little narrower than the eye.

The second band is more than twice as broad as the first. It begins abruptly with nearly all the membrane of the fourth and fifth dorsal spines, covering the fifth spine from its base to near its tip. The posterior border of the black band extends from near the tip of the fourth spine in a straight line across the dorsal fin and the body to near the base of the last anal ray. The anterior margin runs in a slightly concave line from the base of the fourth spine to the middle of the base of the anal; the lower border follows the base of the anal fin without including any of it. The band is broadest on the dorsal fin and gradually narrows downward. Middle line of forehead with a dusky shade. No dark on soft dorsal, caudal, caudal peduncle, anal, pectorals, ventrals, or opercles.

This species is distinguished from *Ch. ocellatus* (= *maeulocinctus* Gill), *Ch. sedentarius*, and other related species by the above-mentioned features of the coloration.

The type, a young example in good condition, was "spewed up" by a Red Snapper (*Lutjanus aya*) at the Snapper Banks near Pensacola.

5. *Cryptotomus ustus* Cuv. and Val.

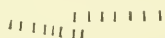
The following description may be compared with that of *Cryptotomus beryllinus* (Jordan & Swain), given in Proc. U. S. Nat. Mus., 1884, p. 101, and that of *Cryptotomus dentiens* (Poey), given by me earlier in the present volume of these Proceedings.

Head 3 in length ($3\frac{2}{5}$ in total); depth, $3\left(\frac{3}{5}\right)$; length of specimen, 9 inches.

Body less elongate than in *C. beryllinus*, moderately compressed. Upper profile much less steep than in *C. dentiens*, less evenly convex than in *C. beryllinus*, little convex above the eye, and somewhat concave before it; snout longer than in other species, its length (measured along the axis) $2\frac{1}{3}$ in head. Distance from eye to angle of mouth half greatest depth of head, 3 in length of head, and $2\frac{4}{5}$ times diameter of eye. Eye small, $6\frac{2}{3}$ in head.

Jaws pale, some of the teeth each with a reddish brown spot. Upper jaw with a cutting edge of closely coalesced teeth. Outside of this is an irregular series of enlarged and projecting canines; the hindmost of

these near the middle of the side of the jaw, directed outward and backward; before this two smaller canines, and in front of the jaw about four more on each side, some of them directed downward and forward, the others variously divergent. Teeth of lower jaw compressed, larger than in any of the other species, mostly in two series, the posterior series ceasing anteriorly in front of the middle of the side of the jaw, the anterior series extending a little farther back than the front of the posterior series. The posterior series extends horizontally along the edge of the bone in front; the anterior series has its teeth placed on the edge of the bone in front, those behind inserted lower and lower, so that the last teeth of this series are placed entirely below the first of the posterior series, thus—



In the front of the jaw are a few teeth imbricated outside the anterior series, forming a partial third row. Upper lip double for its entire length.

Fins and scales about as in *Cryptotomus beryllinus*, the last rays of the soft dorsal and anal rather higher; the former 3 in head.

Color, in spirits, olive gray, with irregular marblings of slaty gray; four diffuse darker blotches along base of dorsal, as in *C. beryllinus*, but with none of the pale streaks shown in that species. Dorsal, pale olive, finely mottled with darker cross-lines. A black blotch on the membrane of the first and second spines. Caudal and anal, dull olive, nearly or quite plain. Pectorals and ventrals pale.

This is evidently the *Callyodon ustus* Cuv. & Val., but not the *Callyodon dentiens* of Poey, which is represented by a specimen before me from Havana.

Callyodon retractus Poey, is probably identical with *C. dentiens*. In any case, it cannot be *C. ustus* or *C. beryllinus*, as the snout is said to be shorter and steeper than in *C. dentiens*.

The *Callyodon auropunctatus* Cuv. & Val., is very close to *C. dentiens*. Comparing the description given of the former by Guichenot (Scarides p. 60) with my specimen of the latter, I see no difference except in the color of the spots on the scales and fins which are brownish rather than "dorée," as stated by Guichenot, or "anrore," as described by Valenciennes. The characters given below are taken by me from the original type in the museum at Paris.

The five known American species of *Cryptotomus* may be thus compared:

- a. Posterior canine present, preceded by about two smaller canines.
- b. Lateral teeth of lower jaw unequal, the posterior teeth much larger than those near the middle of the side of the jaw, which are wholly coalescent; profile strongly convex above eye, thence nearly straight to tip of snout; distance from eye to angle of mouth, about twice diameter of eye; snout (measured along axis) nearly 3 in head.....DENTIENS.

- bb.* Lateral teeth of lower jaw subequal, arranged in two rows which are not parallel; profile slightly convex above eye, thence somewhat concave; distance from eye to angle of mouth nearly 3 times diameter of eye; snout (axially) $2\frac{1}{2}$ in head USTUS.
- aa.* Posterior canine single; teeth otherwise essentially as in *C. ustus*; snout rather sharp, $2\frac{3}{8}$ in head; front canines small; lower lip not double for its whole length AUROPUNCTATUS.
- aaa.* Posterior canines, none; lateral teeth in each jaw subequal, those of the lower jaw larger than those of the upper.
- c.* (Teeth of outer (anterior) series in upper jaw numerous, large, divergent, canine-like, free to their bases; lower jaw with numerous canines; body elongate, the depth 4 in length; snout pointed, 3 in head; eye large, profile not steep, gently arched; diameter of eye greater than its distance from angle of mouth, color chiefly rosy.) (Cope.*) ROSEUS.
- cc.* Teeth of outer (anterior) series in upper jaw few, small, non-divergent, not canine-like, and scarcely differentiated; lower jaw without enlarged teeth; body moderately elongate, the depth $3\frac{1}{2}$ in length; snout rather sharp, $2\frac{3}{4}$ in head; profile gently curved, not steep; diameter of eye, $1\frac{1}{2}$ in distance from eye to angle of mouth; color chiefly olive gray BERYLLINUS.

6. *Prionotus stearnsi* Jordan & Swain.

Adult example. Head $2\frac{4}{5}$ in length ($3\frac{1}{3}$ with caudal); depth $4\frac{1}{5}$ ($5\frac{1}{5}$). Dorsal IX, 12; anal 12; scales in transverse series about 50; pores in lateral line about 52; length of specimen, $14\frac{1}{2}$ inches.

Body rather robust, formed much as in *P. tribulus*; width of nape between occipital spines not quite one-fifth the length of the head. Head very large, broad, and unusually smooth, the profile, except for the prominence of the orbital region, forming a very gentle and somewhat regular arch. Snout very broad, truncate at tip, its breadth at tip $3\frac{1}{2}$ in head, its length $2\frac{2}{5}$; edge of snout granular, without any spines.

Surface of all bones of head very finely, evenly, and regularly striated, the striæ much finer than in *P. tribulus*, their granulations all minute.

Mouth wide, the maxillary reaching front of eye, its length about $2\frac{1}{2}$ in head. Band of palatine teeth well developed. Eye large, placed high, its diameter $5\frac{1}{2}$ in head. No cirri. Interorbital space about as in *P. tribulus*, rather broad and moderately concave, wider than the eye, and about 5 in head.

Bone at anterior portion of orbital rim very prominent, serrulate, its principal ridge ending in a stout, blunt spine. Supraorbital rim little prominent and without spine. No cross-groove on top of head. A slight, bluntish spine behind eye. No spines on temporal ridge. Outer pair of occipital spines short, strong, compressed, not quite reaching front of dorsal. Inner pair and their ridges obsolete. Opercular and preopercular spines short, the latter with no smaller one at its base. Upper opercular spine very weak. Humeral spine moderate. Membranaceous flap of opercle with about five rows of scales. No spine on cheek-bone.

Gill-rakers short and few, little longer than in *P. ophryas*, the longest about one-third interorbital width, about half longer than the inter-

* *Cryptotomus roseus* Cope, Trans. Am. Phil. Soc., 1871, 462.

spaces, and perhaps five times as high as broad. About nine gill-rakers developed.

Scales comparatively large, those on the back little reduced in size, about ten before dorsal fin. Seven scales in a vertical row from first ray of soft dorsal to lateral line.

Dorsal fins rather low and strong (the first injured), with its anterior margin not granulated; the third $2\frac{2}{3}$ in head. Soft dorsal moderate, its longest ray $3\frac{1}{4}$ in head. Caudal very slightly concave, its longest rays $1\frac{1}{2}$ in head.

Pectoral fins rather short, reaching third ray of anal, $2\frac{1}{2}$ in body, their length little more than length of head. Detached rays tapering, a little more than half head. Ventrals about reaching vent, $1\frac{1}{4}$ in head.

Color, in alcohol, nearly plain brownish olive, with dark shades at the bases of many of the scales, giving a mottled appearance; head everywhere conspicuously reticulate with blackish, in fine pattern. Pectoral fin dusky, with a net-work of fine black cross-streaks. Dorsals similarly marked, the spinous dorsal with a diffuse black blotch between the fourth and sixth spines. Caudal plain, slightly dusky. Anal and ventrals pale. Pectoral filaments nearly so.

The specimen here described in splendid condition, is larger in size than any other individual of any species of *Prionotus* which I have ever seen.

7. *Gnathypops mystacinus* Jordan.

A fine specimen, considerably larger than the original type. Maxillary a little longer, $4\frac{1}{2}$ in body.

8. *Malthe vespertilio* L.

A specimen with the snout very long, $4\frac{2}{5}$ in length to base of caudal.

9. *Canthigaster rostratus* Bloch.

(*Tetrodon ornatus* Poey)

A small specimen, about 2 inches long, agreeing fairly with Günther's description. Upper and lower edge of caudal abruptly jet-black, this color extending as a dark stripe along median line of caudal peduncle above and below. No cross-bands on tail (these appearing with age?). Belly with conspicuous two-rooted prickles; some prickles and granulations on the back.

The name *Pylonotus*, formerly adopted for this genus by Dr. Gill and the writer, is preoccupied.

To the list of fishes from the stomachs of *Lutjanus aya* on the "Snapper Banks" of Pensacola, given in these Proceedings for 1884, p. 39, the following may be added:

Siphostoma mackayi Swain & Meek.

Exocoetus furcatus Mitchill.

Anthias vivanus Jordan & Swain.

Chaetodon aya Jordan.

Cryptotomus nustus Cuv. & Val. (not from stomachs).

Pomacentrus caudalis Poey.

Prionotus ophryas Jordan & Swain.

Prionotus stearnsi Jordan & Swain.

Porichthys porossimus Cuv. & Val.

Canthigaster rostratus Bloch.

Malthe vespertilio L.