

On favorable report of the Committee, the following paper was ordered to be published:

On some New Species of FISHES obtained by Prof. Orton from the Marañon, or Upper Amazon, and Napo Rivers.

BY THEODORE GILL, M. D., PH. D.

In an expedition to the Andes of Ecuador and Peru, and thence across the continent of South America, under the command of Prof. James Orton, a considerable zoological collection was formed, and the fishes being submitted to the writer for determination, the following appeared to be undescribed. Of previously known species, the most noteworthy were *Chalcinus nematurus* Kner, *Gasteropelecus stellatus* Kner, *Pimelelepis lateralis* Gill, and *Cyclopium Humboldtii* Swains.

Subfamily TETRAGONOPTERINÆ.

TETRAGONOPTERUS ORTONI Gill.

[D. 11. A. 34. L. 1. 31.

The height is contained about twice in the distance between the snout and the median margin of the caudal, and the head about four times in the same, or three and a half in the length, exclusive of the caudal. The profile is concave at the parietal region; the interorbital area is transversely convex. The diameter of the eye is contained two and a half times in the head's length. The supramaxillary extends nearly to the vertical of the anterior margin of the pupil. The dorsal is immediately behind the roots of the ventrals; its height equals about $\frac{3}{4}$ of that of the body. The pectoral equals $\frac{3}{4}$ the length of the head; the ventrals extend to the anal.

The scapular spot is indistinct; that at the base of the caudal well defined. Most nearly related to *T. orbicularis* Val.

I dedicate this species to Prof. Orton.

ASTYANAX CAROLINÆ Gill.

D. 11. A. 26. V. 9. L. lat. 37—38 $\frac{6\frac{1}{2}}{5}$.

The height of the body enters $2\frac{3}{4}$ times in the length, exclusive of the caudal; the length of the head $3\frac{2}{3}$; the profile to the convex snout is rectilinear, and the interorbital space scarcely arched; the latter is as wide or rather wider than the diameter of the orbit, and about a third of the head's length. The maxillary ceases in front of the vertical of the front of the pupil, and the end of the first suborbital. The dorsal commences considerably behind the origin of the ventrals. The pectorals extend beyond the same point, and the ventrals to the anus. The usual silver tinged lateral band, and humeral and caudal spots exist, but are very faint.

The species is represented by a single specimen, $4\frac{1}{4}$ inches long, taken in the river Napo or Marañon and belongs to the same group as *A. peruvianus* (Tetragonopterus peruvianus M. T.), *A. humilis* (T. humilis Gthr.), *A. scabripinnis* (T. scabripinnis Jen.), *A. maculatus* (T. maculatus M. T. ex L.), *A. Brevoortii* (Poec. Brevoortii Gill), *A. fasciatus* (T. fasciatus Cuv.) *A. microstoma* (T. microstoma Gthr.) and allies.

Subfamily HYDROCYONINÆ.

RÆBOIDES MYERSII Gill.

P. 16. V. 9. D. 12. A. 53.

The height enters two and a half times in the length, exclusive of the caudal.
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dal; the head three and a half times. The eyes are large, the diameter being contained only three and a half times in the length of the head. The supra-maxillary ends under the posterior border of the pupil. The surface of the intermaxillary has four larger equidistant conical teeth, directed forwards, and a smaller one on each side and farther back, between the external and internal; the surface of the mandible has also four conical processes. The dorsal commences nearly over the anus; its height at least equals three fourths of the head's length.* The anal commences nearly under the third dorsal ray. The pectorals extend beyond the anus, and the ventrals, which are inserted nearly midway between the axils of the pectorals and the origin of the anal, extend to about the third ray of the latter.

The scapular spot is very distinct; the caudal indistinct. The fins, especially the pectorals, minutely punctuated between the rays.

I dedicate this specimen to Mr. Philip V. Myers, a travelling companion of Prof. Orton, in compliance with a request of the latter gentleman.

HYDROLYCUS COPEI, Gill.

D. 11. A. 43.

The height enters $2\frac{3}{4}$ times in the length (exclusive of the caudal), the length of the head $3\frac{1}{3}$; the profile between the nape and convex snout is moderately incurved; the interorbital space is slightly arched, and about equal to the orbit, the snout, and a quarter of the head's length. The maxillary passes considerably behind the vertical of the posterior border of the orbit. The dorsal fin commences above the anus. The pectorals pass for a third of their own length beyond the axillæ of the ventrals, and the ventrals extend backwards to the third or fourth anal ray.

The lateral spot is faint, and above the lateral line, just in advance of the vertical of the anus.

Four specimens, the largest of which is four and a quarter inches long, were obtained in the Napo and Marañon rivers.

I dedicate this species to my esteemed friend, Prof. Cope, in recognition of his important contributions to herpetology and ichthyology.

Subfamily SERRASALMONINÆ.

PYGOCENTRUS ALTUS Gill.

P. 17. V. 7. D. 17. A. 33.

The height of the body is contained about 3 4-5ths in the length, exclusive of the caudal; the length of the head (measured from the prominent lower jaw) about $2\frac{3}{4}$. The back declines very slowly towards the nape of the neck, and thence is boldly decurved downwards. Snout obtuse, less than the diameter of the eye. The diameter of the eye equals a fifth of the head's length, and the interorbital width enters $2\frac{1}{3}$ in the same distance. The second sub-orbital bone is separated from the preoperculum by a lunate naked area. There are fourteen teeth in each jaw. The origin of the dorsal fin is nearer the eye than the root of the caudal; its height is less than half the head's length. The origin of the anal is under the last dorsal rays. The pectorals scarcely reach the bases of the ventrals; the latter are two thirds as long as the former. Gill-rakers of the outer branchial arch short and pointed like those of the other arches. Abdomen armed with about twenty-seven serratures.

The color is greyish, iridescent, and tinged with blueish; there is no well defined scapular spot, but the region above the operculum is darker.

Nearly related to *P. scapularis* (*Serrasalmo scapularis* *Gthr.* v. p. 368).

* The anterior dorsal rays are broken.



Family *SILURIDÆ*.Subfamily *PIMELODINÆ*.*RHAMDIA DORSALIS* Gill.

B. 6. P. I. 8. V. 6. D. I. 6. A. 9.

The body is moderately slender; the height rather exceeding a fifth of the length (exclusive of the caudal), while the height of the caudal peduncle is about an eleventh. The head forms rather more than a fourth of the length, and is about three fourths as wide as long, or more than twice as wide as the interocular area; the skin is moderately thick and smooth; and the supraoccipital spine is pointed and extends beyond the vertical of the bony opercular margin. The eyes enter about eight times in the head's length, are entirely in the anterior half of the head, and are about equally distant from each other and the middle of the upper jaw. The upper jaw projects but little beyond the lower. The intermaxillary band of teeth is widest near the angles, where it is truncated and obtusely angulated, and rather narrowest at the middle; the greatest width exceeds a sixth of the length. The intramandibular flaps are considerably wider than the dentigerous bands. The maxillary barbels extend to or beyond the middle of the ventrals; the external mandibular extend beyond, and the internal nearly to, a line with the bases of the pectorals.

The dorsal fin is oblong, the longest rays equalling the distance from the second to the axilla. *The adipose fin is contained between three and four times in the length.* The pectorals terminate under the second or third dorsal ray, and are not much larger than the ventrals. The porus axillaris is very minute.

The color is dark brown. The dorsal has the usual broad clear basal band.

SORUBIMICHTHYS ORTONI Gill.

B. 14, 14 D. I. 6. A. 13. C. iii, I, 7, 8, I, iv. P. I. 10. V. 6.

The head forms rather more than a third of the length, exclusive of the caudal fin; the outline above is oblong, convex in front; the width is less than half its length, and the width between the orbits less than a third; the hinder margin of the orbit is midway between the snout and opercular flap; the profile is perfectly straight. The dentigerous area of the upper jaw projects almost entirely beyond the lower jaw, and equals the chin or two diameters of the orbit; it is uninterrupted, except behind at the middle, where there is a broad but shallow triangular sinus; the palatal bands externally describe half an ellipse, and are only interrupted at the middle by a linear furrow widening backwards into a hastiform sinus; their antero-internal angles are, however, rounded. The maxillary barbels extend to the anal; the external mandibular terminate at some distance from the pectoral fins, and the internal are less than the width of the upper jaw.

The dorsal spine is unarmed, or scarcely rough behind; the adipose fin obliquely truncated, shorter than the anal and nearly coterminous with it; the pectorals terminate nearly under the last dorsal ray, and in advance of the ventrals, than which they are considerably larger. The caudal is shorter than the head, the lobes are acutely prolonged, and the upper lobe is somewhat larger than the lower.

The color is ashy with a broad silvery band bounded above by a narrower blackish one, which is bifurcated in front, and below by a still narrower one, or rather a series of partly confluent spots; numerous spots, generally much smaller than the eyes, cover the entire upper portions of the body and head, as well as the dorsal, adipose, and pectoral fins.

This species is among those described most closely related to *S. Artedii* (*Platystoma Artedii* *Gthr.* = *Mystus* No. 6 *Artedi*), but the length of the barbels and coloration at once distinguish it, and still more decided differences

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may appear on re-examination of the latter, the dentition and other characteristics not yet being known.

SCIADES MARMORATUS Gill.

B. 9. P. I. 10. V. I, 5. D. I, 10. A. 11.

The head is little longer than broad. The diameter of the eye is contained nine or ten times in the head's length. The vomerine teeth are in two oval patches, nearly as large as the eye, and separated by a moderately narrow interval; the palatine patches are transversely oval, and smaller than the pupil of the eye. The maxillary barbels extend beyond the base of the caudal; the external mandibular beyond the tips of the pectorals, and the internal beyond the bases of those fins. The dorsal fin is three fourths as high as the head is long. The adipose fin is half as long again as the dorsal.

The ground color is greyish, and forms meandering lines between the large blackish spots by which it is covered. All the fins are similarly colored, but the spots at the base of the dorsal are fused into a band. The barbels are indistinctly annulated.

Closely allied to *S. longibarbis* (Arius? *longibarbis* Castlenau), but appears to be distinguished by the longer adipose fin and the number of rays; it may, however, prove to be only a form of that species. Castelnau has doubtless overlooked the two small areas of teeth on the palate.

Subfamily CETOPSINÆ.

CETOPSIS VENTRALIS Gill.

P. 10. V. 6. D. 1, 6. A. 29.

The greatest height enters $4\frac{1}{2}$ times in the length exclusive of the caudal, and $5\frac{1}{2}$ times inclusive thereof. The head enters $4\frac{1}{2}$ times in the length exclusive of the caudal fin, and $5\frac{1}{2}$ inclusive of it; its breadth does not exceed half its length. The gape is continued under the entire eye. The teeth are in a villiform band on the lower as well as upper jaw, and on the vomer. The ventrals are inserted entirely behind the vertical of the dorsal, and are connected together by a membrane which is, however, closely connected with the abdomen along the middle, and is not free even at the margin; the extremities of the fins extend to or beyond the anus. The barbels are nearly equal and about two or three times as long as the diameter of the eye.

The color is greyish, darker above; the basal half of the dorsal is punctulated with black.

This species is most closely related to *Cetopsis gobioides* Kner, but is distinguished by the more compressed head, posterior ventrals, and longer anal.*

Subfamily TRACHELYOPTERINÆ.

CENTROMOCHLUS STEINDACHNERI Gill.

P. I, 7, D. I. 5. A. 7.

The greatest height equals two thirds of the length of the head, which itself enters about $3\frac{3}{4}$ times in the total length, exclusive of the caudal. The eyes are moderately large, the diameter equalling a quarter of the head's length. The maxillary barbels are nearly coterminous with the elongated pectoral fins. The dorsal buckler behind is cordate, and its branches expand inwards and extend as far back as the third soft ray. The height of the dorsal is not much less than the head's length; its spine is obsoletely serrated behind. The pectorals equal nearly a third of the length, and do not reach the ventrals. The

* The number of anal rays is not given by Kner, but the figure represents twenty-two.

ventrals are inserted midway between the branchial apertures and the base of the caudal. The caudal is forked.

Color greyish, tinged with silvery on the sides.

The species is eminently distinguished from its congeners by the form of the dorsal buckler; it is most nearly related to *C. megalops*.

I dedicate this species to the meritorious ichthyologist and herpetologist Dr. Franz Steindachner, as a slight recognition of his labors.

Sept. 6th.

MR. VAUX, Vice-President, in the Chair.

Seventeen members present.

The following paper was presented for publication :

"Notice of some Crustaceans of the Genus *Libinia*, with descriptions of three new species." By T. Hale Streets.

PROF. LEIDY stated that he had just returned from a short visit to Boston and Cambridge, and that while there he had had the opportunity of examining the collection of Mastodon remains of the Warren museum and the Cambridge University museum, which had so much interested him, that he thought a brief notice of them would be interesting to the members.

The private museum of the late Dr. Warren, now in possession of his heirs, contains a magnificent skeleton of the American Mastodon (*M. americanus*), the best preserved and most complete which has yet been found. It was discovered in 1845, at Newburgh, N. Y. It is that of a mature male. The jaws contain the last two molars on both sides, besides the tusks above, and one of those below, together with the alveolus of that of the opposite side. This skeleton forms the basis of Warren's book on the Mastodon, published in 1852.

Besides the skeleton indicated, Dr. Warren's museum contains the skull of another, a well preserved specimen, found in Orange Co., N. Y. It is even larger than that of the skeleton, and also pertained to a mature male. The jaws contain on both sides the last two molars; and on one side the fourth molar is also retained. The specimen is described and figured in Warren's book on the Mastodon. (Pls. xvi, xviii, xix.)

The Warren collection further contains a number of other remains of Mastodon, mainly fragments of jaws with teeth, isolated molars, and casts in plaster of others. I may add it also contains a number of molars of the American Elephant (*Elephas americanus*), together with many vertebræ of the *Basilosaurus*.

The museum of the University of Cambridge contains the most interesting series of remains of the American Mastodon which I have yet seen collected together in one place. The most important of these are as follow :

1. A skeleton, discovered, in 1844, in Warren Co., N. J. It pertains to a mature female. The jaws contain the last two molars on both sides, and no traces of inferior tusks remain.

2. A complete skull of what I take to have been a female approaching maturity. The jaws contain the fourth and fifth molars in functional position. The sixth molar had not protruded and is visible within the jaws. On one side of the lower jaw the third molar is retained but is nearly worn out. On the other side and in the upper jaw the alveoli of the corresponding teeth are partially obliterated. The incisive sockets of the lower jaw are likewise obliterated. (The specimen is represented in plates v, vi, of Warren's book on the Mastodon.)

3. Another complete skull of an animal younger than that of the preceding

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