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XXVI.—*Natural History Notes from H.M. Indian Marine Survey Steamer 'Investigator,' Commander R. F. Hoskyn, R.N., commanding.*—No. 16. *On the Bathybial* Fishes collected in the Bay of Bengal during the season* 1889-90.

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§ 1. *The Dredging Stations.*

Of nine hauls of the trawl in depths of a hundred fathoms and over within the limits of the Bay of Bengal during the surveying-season of 1889–90, only five added anything to the collection of fishes, and it will not be necessary to mention here any but these five.

* Following the precedent of Dr. Günther, I have here taken the 100-fathom line as the near boundary of the bathybial fauna. In the Bay of Bengal, at any rate, where already at 70 fathoms we find among all the classes of marine animals numerous characteristic reactions to bathybial conditions, the 100-fathom line appears to be a sufficiently unequivocal limit.

1. *Station* 96.—4th March, 1890.

Off Madras coast, lat. 18° 30′ N., long. 84° 46′ E. Depth 98 to 102 fathoms. Bottom hard sand.

Temperature at surface 80° Fahr., at bottom about 64° Fahr.

This was a clean sandy bank in clear water standing out from the mud, which in that vicinity is almost universal. There was a strong surface-current running northerly. The old ' Challenger '-pattern trawl was used, and over a thousand fishes, of twelve species, and a very large number females with mature ovaries, were brought up, besides great numbers of crabs (chiefly *Leucosina* and Maiidæ), Penæids, and Mollusks. It seems probable that this bank was a spawning-ground.

2. *Station* 97.—14th March, 1890.

Off Madras coast, lat. 18° 26′ N., long. 85° 24′ E. Depth 1310 fathoms. Bottom olive mud.

Temperature at surface 80° Fahr., at bottom 36°·2 Fahr. Blue water, with a strong surface-current running northerly.

Twelve fishes, all quite dead, of six species of deep-sea genera were obtained, besides very numerous and varied Crustaceans and Annelids, Echinoderms, and Mollusks.

3. *Station* 101.—29th March, 1890.

Off Madras coast, lat. 16° 11′ 15″ N., long. 82° 30′ 30″ E. Depth 922 fathoms. Bottom brown mud.

Temperature at surface 87° Fahr., at bottom 39° Fahr. Blue water and strong northerly current.

The take included two fishes of different species, Penæids, Schizopods, and Actinids—all quite dead on arrival at the surface.

4. *Station* 102.—1st April, 1890.

Off Madras coast, lat. 15° 38′ N., long. 82° 30′ E. Depth 920 to 690 fathoms. Bottom brown mud.

Temperature at surface 85° Fahr., at bottom 39°·75 Fahr. Blue water and strong northerly current.

Result: two fishes of different species, deep-sea Medusæ, Corals, Echinoderms, and Crustaceans, all dead on arrival at the surface.

5. *Station* 103.—2nd April, 1890.

Off Madras coast, lat. 15° 14′ N., long. 81° 9′ E. Depth 1260 fathoms. Bottom blue mud.

Temperature at surface 86° Fahr., at bottom 36° Fahr.

In the trawl-bag were two fishes of different species, both quite dead.

§ 2. *Review of the Collection, with List of the Fishes and Descriptions of the new Species.*

The number of specimens obtained in the above five hauls was considerably over a thousand, most of which, however, were from the sandy bank at Station 96. They fall into twenty-four species, of which nine (belonging to eight genera and six families) are already known, though rare; while fifteen (belonging to thirteen genera and nine families) do not appear to have been yet described. Of the thirteen genera into which the undescribed species fall, five have been founded upon supposed generic types in this collection. To glance at the subject of distinction: while the fishes from the less depths (98 to 102 fathoms) mostly belong to well-known East-Indian genera, yet as exceptions we must note with some interest *Centropristis investigatoris*, sp. n., and *Trigla hemisticta*, Schlegel; those from all depths show, as would be expected, identities or marked alliances with the bathybial and hemibathybial forms of the seas of Aru, Banda, Celebes, &c.; lastly, the discovery in the Bay of Bengal of a deep-sea Pediculate showing the closest affinities with *Oneirodes* from the Greenland Sea is another remarkable illustration of the wide range of distribution of the true deep-sea fishes.

Acanthopterygii.

Family **Percidæ**.

Centropristis, C. & V.

1. *Centropristis investigatoris*, sp. n.

Closely allied to *C. pleurospilus*, Gthr., from the Arafura Sea.

B. 7. D. 10/10. A. 3/6. L. lat. 42. L. tr. $\frac{2\frac{1}{2}}{1}$.

The dorsal and ventral profiles are quite symmetrical. Height of the body between $3\frac{1}{2}$ and $3\frac{2}{3}$, length of the head

about $2\frac{1}{16}$, in the total, without caudal. Head inclined to depression in its anterior half, deep, broad, and inflated in its branchial region, with the operculum prolonged; scaly, except on the snout and upper jaw. Snout depressed, rounded; its tip formed by a prominent median knob on the projecting lower jaw; its extreme length (including the mandibular element) is equal to the major diameter of the eye and is less than its breadth. Eyes in their long diameter $4\frac{2}{3}$ in the head-length; the upper border of the orbit enters the dorsal profile; the breadth of the interorbital space is one third the length of the eye. Nostrils superior. Mouth wide, oblique; jaws strong, the maxilla reaches the vertical through the posterior border of the orbit, the mandible closes outside the maxilla; teeth in villiform bands in the premaxilla and palatines and in a small patch on the vomer; small canines in the mandible and at the maxillary symphysis; tongue long and spathulate.

Gill-opening very wide; operculum with two flat spines; preopercular border rounded and serrated throughout; sub- and interoperculum large; pseudobranchiæ coarse; gill-rakers tuberculate. Scales, except on the lateral line and in the row flanking the dorsal fin, large, finely ctenoid, except on the operculum; eight series on the cheek. Lateral line salient, with very small scales. One dorsal, with its spinous and soft portions of equal extent, the fourth and fifth spines the greatest and one fourth longer than the eye; the rays slightly increasing in length to the ninth, which is less than two thirds of the maximum body-height and shorter than the corresponding anal ray. Caudal emarginate, with the upper lobe the longer, its basal half scaly; its length is about equal to that of the pectoral, which is rather longer than the postorbital portion of the head. Ventrals subjugular, the second ray almost as long as the pectoral fin. Pyloric cæca few. Air-bladder small.

Colours in life:—Head and body bright pink, belly and throat white; a broad bright yellow band passes from the tip of the snout through the eye to the caudal fin; indefinite bright yellow markings on the cheeks, opercles, and fins. In spirit, faded yellow, with four incomplete cross bands of grey.

Total length $5\frac{1}{8}$ inches.

Hab. Vide Station 96. Two specimens.

BREPHOSTOMA, Alcock.

2. *Brephostoma Carpenteri.* (Pl. IX. fig. 4.)

Brephostoma Carpenteri, Alcock, Ann. & Mag. Nat. Hist., Nov. 18 9, p. 383.

More careful examination of this fish, now that it has been delineated, leads me to the conclusion that instead of being related to the Trachinidæ it has close affinities with *Pomatomus*, Risso; and I take this opportunity of placing it in what I believe to be its proper natural position in the group Apogonina.

If this position be conceded, the following diagnosis of the genus should be sufficient:—

Head-bones and opercles unarmed; preoperculum with a double edge. Mouth edentulous. Eyes large. Two separate dorsal fins, the first with five spines. Anal fin with one spine and similar to second dorsal. Scales large, adherent, ctenoid. Seven branchiostegals. Pyloric cæca in moderate number. No air-bladder.

PARASCOMBROPS, Alcock.

3. *Parascombrops pellucidus*, Alcock.

Parascombrops pellucidus, Alcock, Journ. As. Soc. Beng. vol. lviii. pt. ii. pp. 296, 297, pl. xxii. fig. 1.

About one hundred specimens were taken at Station 96 (98–102 fathoms), none of them being more than 4 inches long; many were mature females. The *facies* of this fish (of which one specimen had previously been found in 68 and one in 65 fathoms) decidedly inclines to the bathybial.

Family **Berycidæ.**

MELAMPHAËS, Günther.

4. *Melamphaës mizolepis*, Gthr.

Melamphaës mizolepis, Günther, Ann. & Mag. Nat. Hist. 1878, vol. ii. p. 185; and Zool. Chall. Exp. vol. xxii. p. 28.

A mutilated specimen, which corresponds in almost every verifiable particular with the diagnosis of this species, was dredged at Station 97, in 1310 fathoms. The radial formula of our specimen is D. $\frac{2}{11}$, A. $\frac{1}{8}$, V. $\frac{1}{6-?7}$.

A single scale was found still adherent to the thorax; it

was soft and almost coriaceous, and measured a quarter of an inch in its major diameter. The pectoral fins reach to the eighth anal ray.

Family Carangidæ.

Bathyseriola, gen. nov.

Body oblong and compressed, covered with small deciduous cycloid scales. Lateral line apparently unarmed. First dorsal fin continuous, with rather feeble spines; the second and the anal much more developed and without finlets. Anal spines approximated to and continuous with the rest of the fin. Ventral with a continuous membranous attachment to the abdomen. Cleft of mouth narrow; villiform teeth in the jaws only. Preopercular border entire. Seven branchiostegals. Pseudobranchiæ. Pyloric appendages numerous. No air-bladder. Vertebræ 10/14.

5. *Bathyseriola cyanea*, sp. n.

All the tissues fragile.

B. 7. D. 8–9/24–25. A. 3/22. P. 22. V. 1/5.

Body oblong and compressed; its height about $3\frac{1}{4}$ in the total and one ninth less than the length of the head.

Head compressed and thin in its lower, broad and heavy in its upper half; its muciferous cavities well developed. Snout rounded, a little inflated at the tip, the jaws equal in front; its length, which is hardly equal to its greatest breadth, is equal to the diameter of the eye. Eyes circular, their diameter not quite one fourth of the length of the head; they are encircled by a sharp-edged adipose fold, widest fore and aft; interorbital space wider than the eye, convex from side to side. Nostrils large, situated almost superiorly at the tip of the snout. Cleft of mouth narrow, the maxillary hardly reaching the vertical through the middle of the eye; jaw-bones weak, with a trenchant edge, which bears a narrow band of villiform teeth; tongue large and fleshy; buccal folds very broad. Gill-cleft wide; gill-membranes united anteriorly; gill-covers with thin, almost membranous, bones, the operculum with two diverging weak stays above, the preoperculum bulging backwards as a large, striated, entire lobe; gill-laminæ broad, gill-rakers on the first arch long, close-set, acute; pseudobranchiæ fleshy. The mucosa of the whole oro-branchial cavity black.

Scales extremely deciduous; the few that still adhere are small and membranous, and those of the lateral line, which are $\frac{1}{1\frac{1}{2}}$ inch in their major diameter, have each a salient membranous tube.

The dorsal and anal fins have thick gelatinous bases; the dorsal spines are short and rather weak, and their interconnecting membrane is delicate; the anal spines are in close contact with each other and with the rest of the fin. Caudal symmetrically forked. Pectorals pointed, their length rather more than four fifths the height of the body. Ventrals much shorter than the pectorals; they are adherent to the abdomen throughout their inner border, and can be retracted within a shallow furrow in the middle abdominal line.

Peritoneal cavity large, the membrane black; numerous pyloric cæca in an arborescent mass; no air-bladder. Vertebræ 10/14.

Colours in life, uniform bluish black, with an uneven silvery sheen.

Total length $6\frac{1}{4}$ inches.

Hab. Vide Station 96. Four specimens, all mature ovigerous females.

This fish appears to have many Nomeid affinities.

Family **Trachinidæ**.

Ponerodon, gen. nov.

Body elongate, naked. Eyes lateral. Two separate dorsal fins, of which the second is much the longer, and equal, opposite, and similar to the anal; ventrals thoracic; pectoral rays branched. Cleft of mouth extremely wide; jaws distensible and armed with canine teeth, as are also the palatines. Gill-openings very wide, the gill-membranes united anteriorly; preoperculum with a (small) spine at its angle; seven branchiostegals; pseudobranchiæ. Lateral line single, uninterrupted. Abdominal cavity enormous. No air-bladder. No pyloric cæca. No anal papilla. Vertebræ 14/24.

6. *Ponerodon vastator*, sp. n. (Pl. IX. fig. 5.)

Tissues fragile; gape and abdomen enormously distensible.

B. 7. D. 10/29. A. 29. P. 12. V. 1/5.

Body somewhat elongate and compressed, its height being $4\frac{1}{2}$ in the total without the caudal.

Head low, long, and compressed, its length being $3\frac{1}{4}$ in the

same standard; its surface is studded with pores, those on the crown being elliptical and arranged in numerous longitudinal rows. Snout depressed, tapering, and rounded, its length being twice the diameter of the eye and one fourth the length of the head; the lower jaw projects slightly. Eyes lateral, small, circular, deep-set; interorbital space twice the diameter of the eye and nearly flat from side to side; it is traversed by two anteriorly-converging ridges which enclose a V-shaped groove, in the centre and also at the apex of which is a luminous (?) gland. Nostrils large, superior, situated near the tip of the snout. Cleft of mouth oblique, extremely wide, its angle nearly reaching the preopercular angle; the maxilla, which is much more slender than the premaxilla, is almost three fourths the length of the head; the symphyseal connexions are loose; the labial folds are thin and almost obsolete. Depressible hinged fangs in two rows, those of the inner row being much the larger, in both jaws, and a row of distant, fixed, recurved teeth in each palatine; the most anterior and external premaxillary tooth is very stout, curved, and fixed. Tongue free, thin, foliate. Gill-openings wide; gill-covers thin and flexible, the preoperculum with a very oblique edge, a small, stout, obliquely decurrent spine at its angle, and a thick muscular covering; gill-membranes attached to the isthmus in its anterior half; four gills, the last gill-cleft a small foramen, branchial arches extremely weak and flexible; no gill-rakers; pseudobranchiæ well developed.

Skin entirely scaleless, thin, covered with a uniformly thick adherent layer of mucus; a single lateral line, which follows the dorsal profile from occiput to base of caudal.

Two dorsal fins, separated by an interval equal to two thirds the length of the snout: the first, which begins slightly in advance of the vertical through the base of the pectoral, consists of ten slender but well-ossified spines, of which the longest (third) is barely as long as the rostro-orbital portion of the head; the second contains twenty-nine slender articulated rays, branched at the tip and decreasing regularly in length from before backwards, the longest (second) being about half the length of the head. Anal equal, opposite and similar to the second dorsal. Caudal symmetrically forked. Pectorals slender, as long as the postorbital portion of the head, all the rays branched. Ventrals thoracic, equal in length to the rostro-orbital portion of the head.

The abdomen is a great elastic sac, which extends behind the normally situated vent into the tail; it contains a vast collapsed stomach, which extends from its anterior to its

extreme posterior limit, but no air-bladder and no pyloric appendages.

There are fourteen abdominal and twenty-four caudal vertebræ.

Colours in life:—Blotchy violet-black to black; gill-membranes and opercles black; oral cavity, but not the peritoneum, darkly pigmented.

The enormous gape, the loosely articulated jaw-bones, and the structure of the abdomen and stomach would permit the deglutition of a relatively immense object.

When brought on board the fish was a good deal ruptured, its belly was distended and pendent, and several ounces of grumous chyme escaped from a tear in the tail.

Hab. Vide Station 102.

Total length $6\frac{1}{6}$ inches. One specimen.

Uranoscopus, C. & V.

7. *Uranoscopus crassiceps*, sp. n.

Diagnosed at once by the extraordinary size of the head.

B. 6. D. $4/\frac{1}{13}$. A. 13. C. 15. P. 18. V. 1/5.

Length of the head $2\frac{6}{7}$ in the total including the caudal, its maximum breadth in repose (that is, when the opercles are not extended and expanded for defence) is $\frac{2}{3}$ the length, its maximum height (and that of the body) is about $\frac{2}{5}$ the length; bones of the head massive and rugose; the preorbital much sculptured, with a coarse procurrent spine at its antero-inferior angle; the anterior border of the preoperculum raised and inflated, especially in its middle, with numerous strong ridges radiating from it across the bone upwards, backwards, and downwards, the last ending in four or five procurved spines, and a similar spine on the suboperculum; clavicular spine small, grooved, its length equals the diameter of the orbit; points of pubic bones projecting forwards as acute spines on each side of the clavicular symphysis. Diameter of the eye not quite one seventh the length of the head; supra-orbital margin broad, massive, longitudinally grooved. Lips fringed with papillæ; no prelingual filament; curved, acute (caniniform) teeth, in two rows in the upper, one in the lower jaw and palatines, a second incomplete row at the mandibular symphysis, a patch of small teeth on the vomer. No scales on the throat or anterior part of belly.

Stomach an enormous sac, which in the specimen dissected

(a mature female with gravid ovaries) contained seven entire individuals of *Scopelus pterotus* besides much débris; intestine longer than the entire body, coiled, with nine pyloric appendages; no air-bladder.

Colours in life:—Dorsum dirty greenish yellow, marbled with lighter shades, venter silvery white, first dorsal black.

Total length of mature specimens $5\frac{2}{3}$ inches. About twenty-five specimens.

Hab. Vide Station 96.

Family **Pediculati.**

Halieutæa, C. & V.

8. *Halieutæa stellata* (Wahl).

(*Vide* Günther, Catalogue, iii. pp. 203, 204.)

One small specimen from Station 96 (98–102 fathoms).

The skin is smoother and the dermal spines less robust than in shallow-water specimens, while the mouth is slightly smaller and the eye rather larger; the last character may either be due to immaturity or may be a reaction to depth.

A second small Pediculate from 1260 fathoms remains outside the area of incidence of any hitherto defined genus. It is closest to *Oneirodes*, Lütken, and *Melanocetus*, Günther. It is with some diffidence that I propose to establish a new genus for the reception of a single small specimen; but there seems to be no other course.

Paroneirodes, gen. nov.?

Differs from *Oneirodes*, Lütken, in possessing a second cephalic instead of a true dorsal spine.

9. *Paroneirodes glomerosus*, sp. n. (Pl. IX. fig. 6.)

D. 1/1/6. A. 4. C. 8.

When captured the form of the body was ovoid, though unstable; hardened in spirit it becomes compressed and oval. The length of the head is five eighths, its greatest height nine sixteenths of the total, without the caudal. The eye is rudimentary, being deeply buried beneath a circular patch of transparent (unpigmented) skin; above the eye is a prominent, coarse, procumbent spine. Mouth moderately large, its

cleft obliquely ascending; the length of the maxilla is one third that of the head; a narrow band (?) of small teeth in each jaw and on the vomer; tongue large; only the floor of the mouth pigmented.

Gills $2\frac{1}{2}$; gill-opening a small circular aperture just beneath the root of the pectoral fin.

Skin thin and perfectly smooth and scaleless; it is protected by a thick coat of mucus.

Two clavate cephalic tentacles, the first being rather more than twice the length of the second, situated close together immediately behind the interorbital space, with luminous organs imbedded in their enlarged tips. Second dorsal and anal placed far back on the tail, almost in contact with the caudal, which is pointed and in length a little more than one fourth of the total; all the rays of the vertical fins simple; pectorals very short, pointed; ventrals absent.

Colours:—Body and fins jet-black; in spirit the tip of the cephalic tentacles become white. Pharyngo-branchial and peritoneal membranes unpigmented.

One specimen, $1\frac{1}{6}$ inch long.

Hab. Vide Station 103.

Family Cottidæ.

Trigla, Artedi.

10. *Trigla hemisticta*, Schlegel.

Trigla hemisticta, Temm. & Schleg. Faun. Japon., Poiss. p. 36, tab. xiv. figs. 3, 4, tab. xiv. B; Günther, Cat. ii. pp. 201, 202.

About forty specimens from Station 96 (98–102 fathoms), many of them being females with mature ovaries. It is remarkable that the largest specimen barely reaches a length of 7 inches.

The original description of the vomerine teeth is "il n'en existe qu'un petit tas," and in these Indian specimens the vomerine teeth are inconspicuous, obsolescent, or even in some cases absent. The intestine is long and convoluted, and there are five large pyloric cæca. The stomachs of the dissected specimens contained *Scopeli*.

Colours in the fresh state:—Head pink, dorsal half of body pink, with large scattered black spots, ventral half silvery white; pectoral interradial membrane dark olive-green, pectoral appendages and ventrals pink; first dorsal fin with a large black patch from second to sixth spines; second dorsal with a longitudinal row of black spots.

Family **Gobiidæ**.

GOBIUS, Artedi.

11. *Gobius cometes*, sp. n. (Pl. VIII. fig. 2.)

Tissues fragile; all the fins elongate.

B. 5. D. 6/10 (11). A. 10 (11). L. lat. 23–24.
L. tr. 5–6. C. 18–20. P. 23. V. 1/5.

Head with thin bones and inflated branchial region; its length about one fourth of the total, caudal included, three eighths greater than its height and almost twice its breadth. Maximum body-height about one sixth of the total length, caudal included.

Snout truncated, its breadth much greater than its length, which is two thirds the major diameter of the eye. Eyes large, their major diameter being contained $3\frac{2}{3}$ times in the head-length; they are situated far forwards, on the top of the head, but with lateral visual axis, and are separated by a narrow shallow groove. Mouth with very oblique cleft; the maxilla reaches the vertical through the middle of the eye, and the mandible is hardly prominent; in each jaw an inner band of villiform teeth, and an outer regular row of uniformly enlarged, acute, slightly curved teeth; tongue large and fleshy. Gill-covers large, the suboperculum much larger than the operculum; gill-laminæ broad; gill-rakers small and weak. Scales large (0·23 inch in the vertical, 0·18 inch in the antero-posterior diameter), very finely ctenoid; they cover the crown of the head as far as the eyes, leaving only the cheeks and opercles scaleless; there are five or six rows of scales between the second dorsal and the anal fins.

All the fins are elongated; the second and third dorsal spines are about half as long as the head; the rays of the feathery second dorsal and anal increase in length from before backwards as far as the antepenultimate ray, which is a good deal longer than the head. The caudal is long and pointed, its longest rays, which are on the dorsal aspect, are one third the total length. The ventrals are united, but are not adherent to the abdomen; their length is a little greater than the height of the body. Pectorals with a long fleshy base, their longest (middle) rays are nearly equal to the length of the head.

Intestine short; anal papilla long and slender. A large thin-walled air-bladder is present. Vertebræ 11/13.

Colours in life:—Transparent grey, with seven broad bright-yellow cross bands not quite reaching the abdominal raphe,

and the gills showing through the opercle as a bright pink blotch; the second dorsal and caudal fins beautifully pencilled in alternate, narrow, obliquely transverse stripes of black and white; anal with a broad dark border; ventrals blue-black. In spirit, the yellow cross bands almost entirely fade.

Total length 4 to 5 inches.

Hab. Vide Station 96. About 350 specimens of all sizes.

Callionymus, L.

12. *Callionymus carebares*, sp. n. (Pl. VIII. fig. 8.)

Allied to *C. kaianus*, Gthr., from the Arafura Sea.

Head large; tissues delicate.

B. 7. D. 4/9. A. 9. C. 12. P. 21. V. 1/5.

The upcurved branchiostegal rays are prolonged considerably beyond the suboperculum, so that the extreme length of the head is three sevenths of the total without, and about one third with, the caudal. The height of the low cylindrical body is one eighth of the first standard and much less than the height of the head. Eyes large, their major diameter being rather over one fourth of the extreme head-length and one fourth longer than the snout; they are separated by a narrow shallow groove.

Floor of the mouth darkly pigmented.

Preopercular spine upcurved, very fine and acute; its length is two thirds the long diameter of the eye; its base is advanced to form a forward-projecting sharp spine of considerable length; and on its upper border, close behind the angle of the preoperculum, are one or two rather procumbent spinelets.

The gill-opening is not much smaller than the orbit and rather more on the flank than on the top of the head; the branchial arches are slender and flexible, the gill-rakers almost rudimentary.

The skin is loose and very thin. Lateral line single. The first dorsal fin is lower than the second, its flexible spines decreasing in length from before backwards; the height of the second dorsal and of the anal is not quite twice the greatest body-height; the length of the caudal is rather more than one fourth of the total; the pectorals are rather shorter than the ventrals, which are as long as the postorbital portion of the head and reach just beyond the origin of the anal when laid back.

The intestine is convoluted; the anal papilla is very slender, and in the male it is very much longer than it is in the female. Vertebræ 8/13.

Colours in life :—The upper half of the head and body and all the fins range from sepia-grey to blotchy black, and the ventral surface of the body is transparent and colourless; the first dorsal fin has in the male a central black patch, and in the female a central, black, white-edged ocellus.

Total length 5 inches.

Hab. Vide Station 96. About seventy specimens.

Anacanthini.

Family **Ophidiidæ**.

Neobythites, Goode & Bean.

13. *Neobythites pterotus*, sp. n.

With long feathery pectoral fins which reach to the origin of the anal fin.

B. 7–8. D. circa 120. A. circa 95. V. 2. P. 18. C. 10.

Snout pointed; head and body compressed; tail long and tapering, ending in a long narrow caudal fin, which is free except at its extreme base.

Head with its mucous cavities well developed; its length is about $\frac{3}{7}$ that of the entire trunk, or about $\frac{1}{6}$ of the total without the caudal; its maximum height behind the occiput is more than $\frac{2}{3}$ of its length, or $\frac{10}{13}$ of the maximum body-height; its breadth is nearly half its length; there is a strong acute spine in the upper half of the operculum, but no other armature. Snout pointed, overhanging the mouth; its length, less than its breadth, is $3\frac{6}{7}$ in the length of the head, or twice the major diameter of the eye, which is deeply set beneath the skin without any orbital fold; interocular space convex, $2\frac{1}{2}$ times the diameter of the eye; nostrils very large, one near the tip of the snout, the other at the angle of the eye. Cleft of mouth wide, oblique; maxilla more than half as long as the head, expanded and scaly at its posterior end; in repose the lower jaw is completely included within the upper; villiform teeth in narrow bands in jaws, in a V-shaped patch on the vomer, in broad elliptical bands on the palatines; entire oro-branchial cavity intense black.

Gill-cleft very wide, the membranes being united only quite anteriorly; branchiostegals (in the one specimen obtained) seven on the right side, eight on the left; gill-laminæ very

narrow; nine very long scabrous gill-rakers on the middle of the first branchial arch besides rudimentary ones above and below; each pseudobranchia consists of two small pinnules.

Head, body, base of pectoral fin, and basal two thirds of dorsal covered with small adherent scales; between the base of the dorsal and the vent there are thirty rows.

Dorsal fin much higher than the anal; its rays, the longest of which are half the maximum body-height, are imbedded in a thick gelatinous tissue covered with scaly skin, in their basal two thirds. Caudal narrow, its length is a little more than that of the postrostral portion of the head; it projects freely beyond the other vertical fins, with which it is connected only at its base. Pectorals entire, their bases fleshy and free, their rays long and delicate, reaching the origin of the anal fin. The ventrals arise behind and above the pectoral symphysis, their bases separated by an interspace about equal to $\frac{2}{3}$ the diameter of the eye; each consists of two short filaments, of which the outer is a little the longer.

Stomach siphonal; intestine much coiled; no pyloric cæca; air-bladder developed; peritoneum deeply pigmented throughout.

Colours in the fresh state:—Body chocolate; head, abdomen, and all the fins black.

Total length $8\frac{1}{4}$ inches.

Hab. Vide Station 97. Only one specimen.

Bathyonus, Gthr.

14. *Bathyonus glutinosus*, sp. n.

Allied to *Sirembo oncerocephalus*, Vaillant.

B. 8. D. circ. 125. A. circ. 105. V. 1. P. 29–30. C. 10.

Head and body in spirit much compressed, but in the fresh state, owing to the presence of a uniform thick subcutaneous layer of mucus, rounded and subcylindrical; tail long and tapering.

Length of the head greater than that of the rest of the trunk, or about $5\frac{1}{3}$ in the total without the caudal, the length of the entire trunk being about one third of the same standard and $2\frac{7}{8}$ times the maximum body-height or head-depth; anterior third of the head somewhat abruptly depressed, its vertical profile forming an arc of a much smaller ellipse than that of the posterior part of the head. Snout depressed, rounded, somewhat inflated at the tip; its length, which is less than its breadth, is one fifth the length of the head.

Eyes situated in the uppermost part of the anterior third of the head, deep-set, without orbital folds, their major diameter being one tenth to one eleventh of the head-length and one third the width of the convex interocular space. Nostrils large, one at the antero-superior limit of the orbit, the other midway between the first and the tip of the snout. Mouth wide, oblique; the maxilla, which is half as long as the head, completely encloses the mandible in repose; villiform teeth in narrowish bands in the jaws, palatines, and vomer, the last arranged in a V with incurved limbs; oro-branchial cavity jet-black throughout.

Gill-covers large; the preoperculum overlaps large portions of all the other opercular bones, extending almost to the hinder edge of the operculum; the operculum with a feeble flat spur at the postero-superior angle, and another below concealed by the overlying preoperculum; gill-openings very wide, the membranes separate throughout; gill-laminæ narrow; seventeen long scabrous gill-rakers on the first branchial arch, besides some rudimentary ones above; no pseudobranchiæ.

Small, thin, deciduous scales cover the entire head and body behind the snout; there are twenty-five rows between the dorsal fin and the vent. Lateral line indistinguishable.

All the fin-rays delicate. The dorsal and anal fins are thick and fleshy; the highest rays of the dorsal—near the middle of the fin—are higher than the corresponding anal rays, and measure nearly half the maximum body-height; the dorsal begins well in advance of the gill-opening. Caudal very narrow, its length nearly one twelfth of the total; it is confluent with the other vertical fins only at its base. Pectorals entire, pointed, half as long as the head. Ventrals arising at the pectoral symphysis, close together; their single ray is as long as the postorbital portion of the head.

Stomach siphonal; intestine wide, much coiled; no pyloric cæca; liver large; an air-bladder.

The stomach of the dissected specimen contained a Penæid.

Colours in the fresh state: transparent grey; head, belly, and pectorals black.

Length 7 to 8 inches.

Hab. Vide Station 97. Five specimens.

Tauredophidium, gen. nov.

Allied to *Acanthonus*, Gthr.

Head large and thick, armed on the opercles with strong spines; body compressed. Snout broad, not overhanging

the large mouth. Eyes none. No barbel. Villiform teeth in the jaws, vomer, and palate. Gill-membranes rather broadly united; four gills; eight branchiostegals; no pseudobranchiæ. Small deciduous scales on body and head; lateral line indistinguishable. Vertical fins confluent; pectorals entire; ventrals widely separated, each consisting of two filaments.

15. *Tauredophidium Hextii*, sp. n. (Pl. VIII. fig. 1.)

The soft tissues comparatively firm, and the bones, except those of the opercles, strong and compact; no eyes; immense spines on the opercles.

B. 8. D. 64. A. 58. V. 2. P. 18. C. 10.

The trunk much deeper and broader than the tail, its length being $2\frac{1}{2}$ in the total without the caudal and its height about $4\frac{1}{2}$ in the same; the tail low, compressed and acuminate.

Head broad, pyramidal, its dorsal outline rising straight from the tip of the snout to the occiput at an angle of nearly 45°; its length is about one fourth of the total without the caudal, its height about $\frac{7}{8}$, its breadth about $\frac{2}{3}$, of its length; the cranial bones are compact and resistant, forming a sort of buckler in the broad frontal region; the preoperculum and operculum have each an independent lateral ginglymoid motion, allowing the erection of the enormous grooved spines with which these bones are armed; the operculum, which is a short narrow bone, carries at its postero-superior angle a single straight retrorse spine, measuring half the length of the head; the preoperculum bears three spines, which radiate from its angle, the middle one being the longest and nearly three fourths the length of the opercular spine; the occipital crest projects subcutaneously as a coarsely pointed eminence, and behind it the stout, elongate, first (?) neural spine projects similarly but even more conspicuously. The snout is broad and rounded, and does not overhang the mouth. The eyes are completely atrophied; the small orbital cavities are hidden beneath thick scaly skin, and are filled with connective tissue, deeply imbedded in which is a small pigmented ocular bulb about the size of an ordinary pin-head. Nostrils large. Muciferous cavities of snout and mandible well developed and opening to the exterior by pores. Mouth large, its cleft nearly horizontal; maxilla more than half the length of the head, much expanded behind, protractile, completely including the lower jaw in repose; labial fold absent on the upper,

rudimentary on the lower jaw. Teeth in narrowish villiform bands in jaws, vomer, and palatines. Tongue large. Orobranchial cavity intense black throughout. Gill-opening moderately wide, the membranes rather broadly united below the isthmus anteriorly; gill-laminæ very narrow; ten long pointed scabrous gill-rakers on the first branchial arch, besides some rudimentary ones above and below.

Head and body covered with small deciduous scales; apparently 22 rows between the dorsal fin and the vent. Lateral line indistinguishable.

Vertical fins united; the dorsal begins just behind the vertical through the base of the pectoral, its longest rays—about the middle of the fin—are rather over one third the maximum body-height and exceed the corresponding anal rays in length. Caudal long and pointed. Pectorals entire, pointed, as long as the head without the operculum. Ventrals jugular, arising from bony bases which are distant by a wide interspace equal in width to one third the length of the head; each consists of two filaments, of which the inner is much the longer, reaching beyond the origin of the anal fin.

A bunch of about six slender cæca situated above the pylorus. Air-bladder present.

Colours in the fresh state:—Uniform chocolate; fins blackish; throat and belly black, owing to the pigmentation of the peritoneum.

Total length $4\frac{1}{10}$ inches.

Hab. Vide Station 97. Three specimens.

When brought on board the skin of the head was injected and spotted with small capillary hæmorrhages.

Family **Macruridæ**.

Macrurus, Bloch.

Subgenus Macrurus, Bloch.

16. *Macrurus Hoskynii*, sp. n.

B. 6. D. 11. A. circ. 90. V. 9. P. 19–20.

Length of the head about one fifth of the total, its height about two thirds, its breadth not quite half, its length. Snout subtrihedral, its length almost equal to the diameter of the large circular eye, which is about one fourth the length of the head; interorbital space slightly convex, its width one fourth greater than that of the eye. Nostrils close together in front of the angle of the eye, the posterior very

large. Mouth small, completely inferior, the infraorbital ridge being most distinct; the maxilla reaches a short way behind the vertical through the anterior border of the orbit. Teeth in broad bands in both jaws, villiform in the lower, cardiform in the upper. Barbel barely one fourth the length of the eye.

Gill-opening narrow, the gill-membranes being broadly united; synarthrosis of first branchial arch and gill-cover very broad; gill-laminæ narrow; oro-pharyngobranchial cavity uniformly deeply pigmented.

Body and head, except the jaws and the glosso-hyal region, covered with spinigerous, imbricating, rather deciduous scales. Those on the body are of uniform large size ($\frac{5}{24}$ of an inch in either diameter), imbricate in the anterior two thirds and upper and lower fifth, and longitudinally fluted throughout their free portion, the ridges between the grooves bearing spinelets along the greater part of their length. On a scale from the flank there are usually thirteen such ridges, of which all but the outermost are spiny, the spinelets of the central ridge being superior in size to all the others, and they alone project beyond the edge of the scale. The lateral line runs five rows of scales below the origin of the first dorsal fin.

First dorsal spine rudimentary; the second prolonged into a filament and almost as long as the head, its front edge armed with about thirty decumbent spinelets; the second dorsal fin begins about a snout-length behind the first, its rays being very inconspicuous. Pectoral short, its length being less than half that of the head; somewhat rounded. Ventrals with the first ray prolonged into a filament, the entire ray being nearly as long as the second dorsal ray.

Stomach siphonal. Intestine long and much coiled; nine pyloric appendages. A large air-bladder.

Colours in the fresh state:—Chocolate; the jaws, gill-covers, belly, and fins black.

Total length $14\frac{1}{4}$ inches.

Hab. Vide Station 97. One specimen.

Macrurus Hoskynii—named after the accomplished Superintendent of the Indian Marine Survey—appears to be allied to *Macrurus asper* and to be one of the known bathybial Macruri. It is the deepest-water species yet obtained in the Bay of Bengal, and it seems significant that it is the largest. The specimen described emitted a powerful and disagreeable musky odour when in the fresh state.

Family Pleuronectidæ.

Scianectes, Alcock.

Scianectes, Alcock, Journ. As. Soc. Bengal, vol. lviii. pt. ii. p. 284.

This genus was established to include two Indian species (*Sc. lophoptera* and *Sc. macrophthalmus*), taken in 68 to 100 fathoms by the 'Investigator,' and represented at the time by only three small specimens. The 'Investigator' has since collected several fine specimens of *Sc. macrophthalmus*, from the examination of which several errors in the original diagnosis have been detected.

I beg now to amend that diagnosis and to place *Scianectes* in what now appears to me to be its proper position, near *Læops*, Gthr.

Cleft of the mouth narrow, the maxillary being less than a third the length of the head, with the dentition much more developed on the blind side. Vomerine teeth present. The dorsal fin commences before the eye on the snout. Eyes on the left side, close together. The rays of the vertical fins simple, elongated, weak, and filamentous. Scales minute, very deciduous. Lateral line with a curve above the pectoral. Gill-membranes united at the throat.

17. *Scianectes macrophthalmus*, Alcock.

Scianectes macrophthalmus, Alcock, J. A. S. B. vol. lviii. pt. ii. p. 292, pl. xvi. fig. 4; and Ann. & Mag. Nat. Hist. November 1889, p. 398.

B. 6. D. 85–88. A. 68. L. lat. circ. 95.

Body pyriform, very delicate, its height about $2\frac{1}{2}$ in the total without caudal. The length of the head is one third of the same standard and rather less than its height. Snout obtuse, about half as long as the eye. Eyes on the left side, close together, separated by a salient decliving ridge, the lower slightly in advance; their major diameter about one fourth the length of the head. Cleft of the mouth nearly vertical; length of the maxilla a little more than one fourth that of the head; the lower jaw projecting in repose. Villiform teeth in a band on the blind side of each jaw and in a patch on the vomer.

Gill-cleft very high; the opercles thin and the branchiostegal rays prolonged; gill-membranes broadly united; gill-rakers distant, small, lanceolate.

Scales minute, thin, smooth, deciduous. Lateral line salient, curved above the pectoral, continued right along the caudal fin.

The dorsal fin commences on the blind side of the snout in front of the level of the eye, its longest rays (just behind the middle of the fin) are not quite half the length of the head and are slightly shorter than the corresponding anal rays. The pectoral fin is more developed on the coloured side, where, if laid forward, it reaches to the posterior border of the lower (anterior) orbit. Ventrals six-rayed, the left wider than the right. Caudal pointed, with 17 rays, its length nearly one fifth of the total.

Colours in the fresh state:—Left side dark sepia; vertical fins and left ventral black; left pectoral grey in its basal third, black in its distal two thirds; branchiostegal fringe on the left side black, right side unpigmented.

Originally obtained in 100 fathoms, 40 miles S.W. of Akyab; now from Station 96, where eleven specimens (the longest $4\frac{3}{4}$ inches) were taken.

Cynoglossus [Hamilton-Buchanan].

18. *Cynoglossus Carpenteri*, Alcock.

Cynoglossus Carpenteri, Alcock, Journ. As. Soc. Beng. vol. lviii. pt. ii. p. 287, pl. xviii. fig. 1.

Several hundred specimens were taken at Station 96 (98–102 fathoms), many of them being mature females. The general *facies* of this fish is certainly bathybial.

Physostomi.

Scopelus, Gthr.

19. *Scopelus* (*Myctophum*) *pterotus*, sp. n.

D. 11–12. A. 17. L. lat. circ. 30. P. 15. V. 8.

Body compressed, with the posterior half much lower than the anterior; its greatest height just over one fourth of the total without the caudal, its least height, midway between the adipose dorsal and the base of the caudal, one third its greatest height at the shoulder.

Head large, its length a little more than one third the total without the caudal, its height two thirds its length. Snout obtuse, symmetrically rounded, its depth more than three times its length, which is less than half the diameter of the eye. Eye circular, moderately large, its diameter being one third the length of the head; the posterior border of the orbit is half an eye-diameter distant from the vertical border of the preoperculum; no spine above the orbit; interorbital space

less than a diameter of the eye in width anteriorly, more posteriorly. Mouth large, moderately oblique; the jaws perfectly equal in repose; the maxilla reaches the preopercular angle and is dilated at its hinder end; no vomerine teeth. Opercles large; the operculum produced into a membranous spur behind; the vertical border of the preoperculum very obliquely recurrent.

Scales extremely deciduous, smooth, cycloid, their average diameter one twelfth of an inch.

The dorsal fin begins nearer to the tip of the snout than to the base of the caudal, but behind the bases of the ventrals, which are much advanced, its last ray falls in the vertical through the first or second anal ray; adipose dorsal entire. Pectorals long, extending to the first or second anal ray.

Luminous organs:—A lateral series extending close to the mid-ventral line from the isthmus to the base of the caudal, and numbering four to base of ventral, three more to origin of anal, ten more to hinder end of anal, and one more at base of caudal; above this rectilinear series are the following, rather more diffused—one at the angle of the preoperculum, two along the edge of the gill-opening, one on the base of the pectoral, two on the base of the ventral, three in a straight line along the middle of the flank, and three along the middle of the tail; no luminous organ on the back of the tail.

Nine pyloric cæca. A well-developed air-bladder.

Colours in the fresh state:—Uniform silvery, with thickly scattered black specks; opercles, iris, and first branchial arch burnished silver.

Total length $1\frac{7}{8}$ inch.

Hab. Vide Station 96. About sixty specimens, many of them being mature females.

20. *Scopelus pyrsobolus*, sp. n. (Pl. VIII. fig. 3.)

D. 12. A. 13. P. 12. V. 8.

Head large; body compressed.

Length of the head, not including a membranous expansion of the suboperculum which reaches considerably beyond the root of the pectoral fin, $2\frac{6}{7}$ in the total without the caudal. Greatest height of the body or of the head not quite one fourth of the same standard, its least height behind the adipose dorsal $2\frac{1}{2}$ in the greatest.

Snout almost obliterated by the encroachment of the large eye; it is rounded, with the jaws exactly equal and opposed throughout; its length is one fourth the diameter of the eye.

Eye large, circular, bulging beyond the dorsal profile of the head; its diameter is one third the head-length as above limited; its *least* distance from the vertical border of the preoperculum is equal to half its diameter; supraorbital margin smooth; interorbital space anteriorly $\frac{1}{2}$, posteriorly $\frac{3}{2}$, the diameter of the eye. Mouth wide, oblique, the jaw-bones thin and weak, the maxillary slightly expanded behind and not reaching as far as the preopercular angle; villiform teeth developed on the vomer. Opercles large but extremely thin; the operculum and suboperculum both with membranous prolongations backwards; the vertical border of the preoperculum obliquely recurrent.

Owing to the almost complete denudation of the integuments the nature of the scales cannot be determined.

The dorsal fin begins to arise nearer to the tip of the snout than to the base of the caudal by a distance about equal to half the length of its own base, and its first ray is almost in the vertical through the origin of the ventrals; the entire fin is nearly one third the length of its base in advance of the anal fin; adipose dorsal well developed. The pectorals reach at least behind the sixth anal ray. The ventrals are broad.

The luminous organs have been too much damaged for description; two series, traversing the ventral half of the body on each side, still remain; two long luminous organs occupy respectively the mid-dorsal and mid-ventral line close to the base of the caudal.

About five large pyloric cæca; a well-developed air-bladder.

Colours in the fresh state:—What was left of the integument was jet-black, like the entire oro-pharyngeal cavity; iris and antero-inferior part of opercles burnished silver, the latter in the evening twilight emitting brilliant coruscations of greenish-blue light.

Total length without the caudal $3\frac{1}{12}$ inches.

Hab. Vide Station 102. One mature female specimen.

The shattered condition of this fish proved that it had been dragged up through a a great depth of water; and its *facies* is typically bathybial.

21. A third species of *Scopelus*, taken from the stomach of a *Trigla hemisticta*, must be mentioned, as it cannot be included among any of the species to which I have had literary access.

Its radio-squamal formula is:—D. 11. A. 14. P. 12? V. 8. L. lat. 32.

Its eye is not quite one third the length of the head, the scales are smooth and of a uniform size, the pectorals are

minute and the ventrals singularly large, and there is a conspicuous luminous organ immediately in front of the eye; the dorsal fin is nearer to the snout than to the base of the caudal and entirely in front of the anal. But the single specimen has been too much damaged to become the type of a new species and the subject of a description.

Family Stomiatidæ.

Thaumastomias, gen. nov.

Allied to *Malacosteus*, Ayres.

Body elongate, compressed, scaleless, with the vent not far distant from the caudal fin. Head compressed, with the cranium small, the snout short, and the cleft of the mouth exceedingly wide. A long elastic muscular band passing from the hyoid bone to the inner aspect of the mandibular symphysis. Teeth acute, unequal, in single series in premaxillæ, maxillæ, mandibles, and palatines; none on the tongue. Eye moderate. Gill-covers rudimentary. One dorsal fin opposite to the anal, situated in the posterior fourth of the body, near the caudal. No pectoral fins. Ventral fins situated in the anterior half of the body. Gill-openings very wide. No air-bladder.

22. *Thaumastomias atrox*, sp. n. (Pl. VIII. fig. 7.)

Head small, mouth extremely wide. Body elongate, low, compressed, not diminishing much to the origin of the vertical fins, but there rapidly and symmetrically narrowing to the caudal peduncle, which is not quite one fifth the body-height in depth.

D. 23. A. 25. C. circ. 25. P. 0. V. 6.

Length of the head one fifth, height of the body one tenth, of the total without the caudal.

Snout truncated, broad, with a slightly concave vertical profile, its length one third the diameter of the eye. Eye large, circular, its diameter about one fourth the length of the head; interorbital space wider than the eye, convex. On each side there is a small luminous organ, about the size and shape of a caraway-seed, below and partly in front of the eye, and another large salient slipper-shaped one, in length more than one third the length of the head, lying parallel with the upper jaw behind the eye. Mouth enormous, its cleft as long as the head; its floor is completely wanting

except at the extreme anterior limit, its place being taken by a long elastic muscular band which extends from the tip of the hyoid to the inner surface of the mandibular symphysis; the mouth-cleft and the gill-cleft being thus continuous beneath almost divide the head from the rest of the body; the lower jaw projects beyond the upper. Teeth, everywhere except in the maxilla, in the form of slender acute rigid fangs; in each premaxilla laterally eight or nine, with three remote stouter ones at the symphysis; in each half of the mandible laterally an uneven row of over twenty, with five (one median flanked on each side by a pair) of superior size at the symphysis; in each palatine a row of seven or eight, increasing in size from before backwards, and a patch on the upper pharyngeal bones; maxillary teeth in the form of even, close-set, recurved serrations, of which there are over thirty in each bone.

Gill-cleft extremely wide and oblique, its antero-superior limit being above the middle of the eye; gill-cover reduced apparently to a narrow straight preoperculum, very obliquely articulated, furnished with a narrow membranous fringe; four branchial arches, extremely weak and flexible, bearing very narrow laminæ; gill-rakers rudimentary.

Body scaleless. Skin thick, soft, velvety, and uniformly covered with adherent tenacious mucus; apparently no lateral line. Besides the large luminous glands already described, there are two regular rows of minute luminous organs along the ventral half of the body on each side: the upper, numbering about fifty, extending from the gill-opening to the base of the caudal; the lower, numbering about forty, skirting the ventral profile from the isthmus to the fifth anal ray; a few similar luminous organs on the crown of the head.

The dorsal fin begins slightly in advance of the posterior fifth of the body, and is equal and opposite to the anal. The longest (central) anal rays are a little longer than the corresponding dorsal rays, and are equal to the depth of the tail at their point of origin. The caudal is deeply forked, with the lower lobe the broader and longer and about $\frac{1}{2\frac{1}{2}}$ of the total length.

Pectorals absent. The ventrals arise in the anterior half of the body, their point of origin being $1\frac{1}{3}$ times as far from the vent as from the margin of the gill-cleft; the two outer rays are thickened, coherent throughout, and prolonged, their length being two fifths of the total length including the caudal; the inner rays are short and weak.

Stomach siphonal, its *cul-de-sac* extending halfway along the abdominal cavity; intestine straight, opening at the

origin of the anal fin; apparently no pyloric cæca. No air-bladder.

Colours in the fresh state, as in spirit, intense black.

The small luminous organs were not distinguishable through the enveloping mucus until after immersion in spirit; but the large postocular organs were very conspicuous, that on the right side being bright rose-pink, while that on the left side was covered, except round its lower edge, which showed as a silvery streak, with deeply pigmented cuticle.

Total length $4\frac{7}{8}$ inches.

Hab. Vide Station 97. One specimen, which was quite dead when brought to the surface.

The other Physostomes obtained were (23) *Gonostoma microdon*, Gthr., at Station 101, and (24) *Chauliodus Sloanii*, Bl. Schn., at Stations 101 and 103.

The largest *Chauliodus*—a female with gravid ovaries—measured nearly 9 inches.

In concluding this paper I should like to express once again my deep obligations to my friend Professor J. Wood-Mason, of the Indian Museum.

EXPLANATION OF PLATES VIII. & IX.

Fig. 1. *Tauredophidium Hextii*, ♀.
Fig. 2. *Gobius cometes.*
Fig. 3. *Scopelus pyrsobolus*, ♀.
Fig. 4. *Brephostoma Carpenteri.*
Fig. 5. *Ponerodon vastator.*
Fig. 6. *Paroneirodes glomerosus.*
Fig. 7. *Thaumastomias atrox.*
Fig. 8. *Callionymus carebares*, ♀.

XXVII.—*British Fossil Crinoids.*—III. Thenarocrinus callipygus, *gen. et sp. nov.*, *Wenlock Limestone.* By F. A. Bather, M.A., F.G.S.

[Plate X.]

In pursuance of the intention expressed at the end of Paper I., I now enter on the description of the Fistulata from the Wenlock Limestone; and the first to be dealt with is an interesting genus, which has not yet been described, but which has been alluded to in Paper II. under the name of *Thenarocrinus.*