

with ecru-drab. The drab is only visible in certain lights. Underparts broccoli-brown, strongly washed with ecru-drab. Throughout the body the hairs are whitish smoke-grey at base.

*Skull.*—Notwithstanding its size, less than that of *Nyctinomus europus* or *N. brasiliensis*, the skull of *Promops nanus* closely resembles that of *P. glaucinus*. The brain-case is relatively larger and less angular, and the basisphenoid pits are actually larger. Bony palate entire anteriorly.

*Teeth.*—The teeth throughout are similar to those of *Promops glaucinus*, except that the upper incisors do not quite come in contact with the canines and the posterior molar, both above and below, is relatively larger and better developed. The third upper molar contains a small but distinct metacone, a cusp that is lacking in the corresponding tooth of *Promops glaucinus*. Similarly, the third lower molar is provided with an entaconid of considerably greater relative size than that of the corresponding tooth in the larger species. Hypocone of first and second upper molars as in *Promops glaucinus*.

*Measurements.*—External measurements of type: head and body 41 mm.\*; tail 34\*; tail (free) 15; tibiæ 11; foot 7.8 (6.6); forearm 38; thumb 5.5; second digit 38; third digit 75; fourth digit 58; fifth digit 37. The other specimen (a female) is slightly larger; forearm 39.5.

Cranial measurements of type: greatest length 16.4 mm.; basal length 15; basilar length 13; median palatal length 6; zygomatic breadth 9.8; least interorbital breadth 3.6; mastoid breadth 9; greatest breadth of brain-case above roots of zygomata 8; lachrymal breadth 5; mandible 11.6; maxillary tooth-row (exclusive of incisor) 6.4; mandibular tooth-row (exclusive of incisors) 6.8.

LXIII.—*Natural History Notes from the Royal Indian Marine Survey Ship 'Investigator,' Commander T. H. Heming, R.N., commanding.*—Series III., No. 4. *Some Results of the Dredging Season 1899-1900.* By A. F. MCARDLE, B.A., M.B., Capt. I.M.S., Surgeon-Naturalist to the Survey.

DURING the season 1899-1900 the R.I.M.S. 'Investigator' was for the greater part of the time without the services of a Surgeon-Naturalist. At the beginning of April 1900 I joined

\* Collector's measurement.

the ship at Colombo, and remained in her till the 4th May, when she went into dock at Bombay. Altogether there were twelve trawls made in over 100 fathoms, yielding a fair number of Crustacea, Fishes, Mollusca, &c. Of these the Fishes and Crustacea have been identified, while the Worms and Mollusks remain still to be described by the specialists to whose hands they have been entrusted.

Of the most interesting finds made during the year may be mentioned:—

1. A very large specimen (an adult male), 12 inches long, of *Bathynomus giganteus*, A. M.-Edw., dredged off the north-west of Ceylon in 594 fathoms.

2. A specimen of that strange crab *Trichopeltarium ovale*, from a depth of 445 fathoms.

3. Five specimens of the Atlantic fish *Hoplostethus atlanticum*.

4. A trawl of twenty-eight specimens of *Glyphocrangon investigatoris*.

5. Two fine specimens of *Pennatula* from 487 fathoms, in the branches of each of which was found a small polychæte worm of one and the same species.

6. Two specimens of *Pleurotoma symbiotes*, from 771 and 464 fathoms. As on the two previous occasions on which this interesting mollusk was dredged, the same species of *Epizoanthus* was found encrusted on the living shell.

7. A large collection (forty-five specimens) of *Turbo indicus*, from 595 fathoms. The living shells were generally covered on the spire by *Scalpellum* and sponges.

8. Two fine specimens of a species of *Conus* were found at the very unusual depth of 487 fathoms.

Most of the Crustacea obtained had been previously known, but the following three species are new:—

## BRACHYURA.

### OXYRHYNCHA.

#### Fam. Maiidæ.

#### Subfam. INACHINÆ.

### CYRTOMAIA, Miers.

#### *Cyrtomaia Goodridgei*, sp. n.

*Description of an adult male.*—Carapace bluntly triangular, broader than long, vertically depressed anteriorly, broadly rounded over the branchial regions, and with the gastric and

cardiac regions greatly elevated. It is finely granular and has numerous spines arranged as follows:—In the gastric region one very long spine on either side, with a very short one in the median line between them, a fourth gastric spine intermediate in size being situate in the median line posterior to the other three. In the cardiac region are two strong spines on well-marked tubercles close to and on either side of the median line. There is a well-marked hepatic spine. In the branchial region there is a very long and strong spine directed forwards, and laterally there are numerous small spines, mostly arranged in two horizontal lines running through the branchial and pterygostomial regions. There is a prominent postocular, but no preocular nor supraocular spines. A very small intestinal spine. The rostrum appears, when looked at from in front or from above, to be trifid, owing to the presence of a strong interantennular spine, which is as long as either of the proper rostral spines. The latter are two in number, triangular, and run forward horizontally and almost parallel to one another. They are bent downwards at the tips. The abdomen consists of seven distinct segments; the first six carinate and spinous, the spine on the sixth segment being the longest, the seventh segment granular and rounded at its distal extremity. The sternum is spiny, both anteriorly, where the spines are situated more or less transversely, and laterally, where they are placed in two rows, one at the bases of the chelipeds and ambulatory legs, and the other row midway between them and the margin of the abdomen. The eyes are short, robust, with a small spinule at their distal extremities. The basal joint of the antennæ has two spinules on its outer border, one of which—that nearer the base—points downward, the other pointing forward. Arising between these two, but from the inferior surface of the basal joint, there is a third spinule, pointing downwards. The second and third joints are flattened from above down, have each two small spinules on their outer margins, and the third joint reaches to the tip of the rostral spines. The flagellum is long, slender, and setose. The third maxillipeds have the ischium and merus strongly spinous, and the antero-external angle of the latter is produced to a spiny tubercle. The exognath is as long as the ischium and merus together, and is somewhat narrowed anteriorly. The chelipeds are long and slender, over two and a half times as long as the carapace (77 : 28), the merus slightly shorter than the palm and fingers combined (32 : 35), fingers irregularly toothed and not fitting closely. The first pair of ambulatory legs are between twice and one and a half times as long as the chelipeds [122 : 77],

the second pair about two thirds as long as the first. The first two pairs are strongly spinose, the spines being arranged in longitudinal rows. The last two pairs are shorter and much more slender, and have no spines, with the exception of one at the distal extremity of the merus. Dactyli nearly straight and hirsute.

Colour in spirit dull ivory-white.

Adult ♂.

	millim.
Length of carapace to base of rostrum . . . . .	28
Greatest breadth . . . . .	32
Length of rostrum . . . . .	5½
„ gastric spine . . . . .	13
„ branchial spine . . . . .	8
„ chelipeds . . . . .	77
„ first ambulatory legs . . . . .	122

A perfect adult male, dredged at Sta. 267 in about 500 fathoms, in lat. 7° 02' 30" N., long. 79° 36', off the west coast of Ceylon.

Of the species heretofore described it is most like *C. Smithii*, but differs in the shape and character of the rostrum, in having no supraorbital spine, in possessing a large branchial spine, and in the description of the basal joint of the antennæ.

From *C. Murrayi* it can be easily distinguished by its rostrum, by the absence of spines on its third and fourth ambulatory legs, by having no præorbital spine, and by its shorter and more robust eyes.

From *C. Suhmi* it differs in its shorter and more robust eyes, in its general appearance, the regions of the carapace being much better defined, in the general arrangement of the spines, and by the rostrum.

A figure will be given in an early issue of the "Illustrations of the Zoology of the R.I.M.S. 'Investigator.'"

OXYSTOMA.

Fam. Dorippidæ.

Subfam. DORIPPINÆ.

ETHUSA, Roux.

*Ethusa hirsuta*, sp. n.

Carapace subquadrilateral, flat, with its length equal to its extreme breadth. It is expanded, but not greatly so, over the branchial regions, and the lateral convergent borders are

almost straight. The whole of the carapace and the sternum are covered with hairs, which are particularly long and strong over the anterior and lateral borders. The cardiac region is not depressed, and the branchio-cardiac lines, which are well marked, do not meet in front. The front of the carapace is four-toothed, the teeth equal in length, but the median being more widely separated from one another than they are from the lateral. The widest and deepest space is that between the lateral teeth and the external orbital spine, which is long, slender, acutely triangular, and extended forwards beyond the tips of the rostral spines, and is directed slightly outwards. The eyes are small, well pigmented, situated on moderately sized, freely movable eyestalks, which extend well beyond the angles of the orbital sinuses.

There is no distinct epistome. Antennules folded obliquely.

The bases of the antennæ moderately developed. Flagellum short. The outer maxillipeds have the ischium produced at its antero-internal angle; the merus articulates with the next joint at its antero-external angle and has its antero-internal angle rounded. The exognath is long, slender, and narrowed anteriorly.

The chelipeds are equal, more than three fourths the length of the first pair of ambulatory legs. Palm and fingers taken together are twice the length of the carpus. Fingers not as long as the palm. The chelæ fit well and there is no space at the base.

The first pair of ambulatory legs are longer than the chelipeds ( $24 : 19\frac{1}{2}$ ) and the second than the first, but the disproportion is much less than in some allied forms. The last two pair of legs are small, covered with hair, and have small recurved dactyli. The abdomen in the female is 7-jointed, in the male 5-jointed, owing to the coalescence of the third, fourth, and fifth segments.

Colour (in spirit) yellowish white.

♂.

	millim.
Length of carapace.....	15
Breadth of carapace .....	15
Length of chelipeds .....	$19\frac{1}{2}$
"    first ambulatory legs .....	24
"    second ambulatory legs .....	$28\frac{1}{2}$

A female and a young male dredged at Stations 267 and 268 in between 500 and 600 fathoms, lat.  $7^{\circ} 02' 30''$  N. and  $7^{\circ} 36' 00''$  N., and long.  $79^{\circ} 36' 00''$  E. and  $78^{\circ} 05' 00''$  E. respectively.

The species is nearest *E. indica* of Alcock and *E. lata* of M. Rathbun (*E. pubescens*, Faxon). It differs from the former in having a flatter carapace with less swollen branchial regions, a cardiac region not depressed, in being covered with hair, in having longer eyestalks, and in having the external orbital spines directed forwards instead of obliquely outwards. From *E. lata* by its general hairy covering, by the longer eyestalks which extend beyond the angle of the orbit, the external orbital spine projecting beyond the rostral spines, and the chelipeds being much longer in proportion to the ambulatory legs.

In the "Key to the Indian Species of *Ethusa*," as published by Major Alcock in the J. A. S. B. vol. lxxv. part ii. no. 2 (1896), the species will be placed with *E. andamanica* in part 2 of the first division, being divided from it by the distinction that the external orbital spines are long, acute, and project beyond the level of the frontal spines, and the body being hairy.

The species will be figured in the "Illustrations to the Zoology of the R.I.M.S. 'Investigator.'"

## MACRURA.

### Fam. Thalassinidæ.

#### CALOCARIS, Berl.

##### *Calocaris Alcocki*, sp. n.

*Description of an adult female.*—Carapace laterally compressed and smooth. Rostrum long, narrow, and curved upwards, deeply grooved on its upper surface, the margins of the groove being produced backwards as well-defined ridges over the anterior part of the carapace, and giving rise on either side to a small spine directed upwards and forwards. The rostrum itself has two small spinules on its left margin, one on its right. All the regions of the carapace are smooth and devoid of hair. A slight median carina runs the whole length of the carapace. The abdomen is longer than the carapace, smooth, non-carinated.

Eyestalks short, eyes rudimentary; no traces of pigment or cornea.

The second antennæ have their first or basal joint unarmed, the second joint has two fixed spines. A short internal spine and an external, which is longer, but which does not reach the next joint. From the second joint there also arises an articulatory spine or scaphocerite, which projects but for a

very short distance over the third joint. The third joint is slender and very long, longer than the other three segments taken together; both it and the fourth joint, which is short, are unarmed.

Flagellum long. Epistome well developed.

The chelipeds are long and slightly asymmetrical; coxa unarmed; the ischium has one small spine above at its proximal end, two small spines below at its distal. Merus very long, flattened laterally, and curved on itself; at the upper border of its distal end is a prominent spine. Carpus unarmed. The palm has a large spine distally on its upper border. The chelæ are narrow and long (but not so long as the palm); on the right side the margins are sharp, finely dentate, with curved crossed tips. On the left side the chelæ are imperfect.

Second pair of legs slender, with small perfect chelæ; remaining legs slender, with short curved dactyli.

With the exception of a few hairs on the last and penultimate joints all the legs are naked.

The female genital openings are easily seen, and there is a tubercle in the position of the male openings.

Eggs large, blue in life.

The outer plate of the large swimmeret has a diagonal suture running obliquely from its outer to its posterior border. There is a spinule at the outer end of this, but none along the course of the suture. No spinules on the inner plate. The telson is longer than broad, with a rounded end.

Colour in life reddish, in spirit yellowish white.

Adult ♂.

	millim.
Length of rostrum .....	5
„ carapace to base of rostrum.....	16½
„ abdomen with telson .....	32
„ chelipeds:	
Ischium .....	4
Merus .....	16
Carpus .....	7
Palm.....	11
Fingers.....	10

One adult female dredged off the north-east of Ceylon in Sta. 266, in 542 fathoms, lat. 8° 36' 15" N., by long. 81° 20' 30" E.

I have placed this new species in the genus *Calocaris* of Bell, in spite of its having a styloid scaphocerite on the peduncle of its second antennæ, a point which Faxon has

thought of sufficient importance to found a new genus (*Catastacus*) on. Moreover, Bell, in his description of the genus *Calocaris*, says that the second antennæ have "a large triangular scale reaching to the end of the first joint," and gives a figure of it at the head of his description of the only species. The length of this scaphocerite seems to be only a matter of degree; it is very short in the species which has just been described, it is longer in *Calastacus investigatoris*, And., and *Calastacus felix*, and longest of all in *Calastacus stilirostris*, Faxon.

*C. Alcocki* is easily distinguishable from *C. Macandreeæ* by the general naked appearance of the body and legs and by the marked differences in the rostrum and chelipeds.

From *Calastacus stilirostris* by the short external spine and scaphocerite on the second antennæ, the rostrum being grooved, the gastric area being smooth, and by differences in the chelipeds and the telson.

From *C. investigatoris* and *C. felix* by the carapace having no hairs and not being granular, in having shorter spines on the second antennæ, no denticle at the end of the carina, and the abdominal terga smooth, and by differences in the rostrum, telson, and chelipeds.

The species will be illustrated in an early issue of the "Illustrations of the Zoology of the R.I.M.S. 'Investigator.'"

LXIV.—*Diagnoses of new Fishes discovered by Mr. J. E. S. Moore in Lake Tanganyika.* By G. A. BOULENGER, F.R.S.

I. Cyprinidæ, Siluridæ.

*Capoeta tanganicæ.*

D. 12. A. 8. L. lat. 68-70. L. tr.  $\frac{13-14}{14-15}$ .

Depth of body  $3\frac{3}{4}$  to 4 times in total length, length of head 5. Diameter of eye  $3\frac{1}{2}$  in length of head, 2 in interorbital width; a very small barbel. Third ray of dorsal very strong, ossified. Caudal peduncle twice as long as deep. Olive above, each scale darker at the base, silvery white beneath.

Total length 320 millim.

North end of Lake Tanganyika.