**Fam. Galatheidæ.**

**Munidopsis**, Whiteaves, Faxon.

*Munidopsis dasypus*, Alcock.

*Munidopsis dasypus*, Alcock, Ann. & Mag. Nat. Hist., April 1894, p. 329; Alcock, Descr. Cat. Ind. Deep-sea Crust., Macr. and Anom. 1901, p. 252; Illus. Zool. Invest. pl. xiii. fig. 9.

Although numerous adult female specimens of this species have been caught in past years, the males have hitherto been represented by only two small young specimens. This season, at Sta. 331, east of Andamans, 569 fathoms, two adult males were obtained; the extreme length of body of the larger male is 55 mm., and the length of chelipeds is 69 mm.

The chelipeds of the male are (right and left approximately equally) enlarged in all joints and in all dimensions when compared with those of the female. The palms are much broadened and the fingers when closed leave at their base a fairly wide hiatus, into which a 3- or 4-cusped tooth projects from the mobile finger.

The extreme length of body of the larger male caught prior to this season was 28 mm., and its chelipeds were slender throughout, like those of the female, and without a hiatus at the base of the fingers.

There seem to be considerable and fairly frequent variations from the typical (and much the commonest number) 4 spines on the posterior border of the carapace. Variations found are 2, 3, 5, and 7.

A figure of the male will appear in "Illustrations of the Zoology of R.I.M.S. 'Investigator.'"

*Munidopsis Wardeni*, Anderson, var. *andamanica*.

*Munidopsis Wardeni*, Anderson, J. A. S. B. vol. lxv. pt. 2, 1896, p. 99; Alcock, Desc. Cat. Ind. Deep-sea Crust., Macr. and Anom. 1901, p. 257; Illus. Zool. Invest., Crust. pl. lv. fig. 1.

As mentioned by Alcock in his Descriptive Catalogue of Anomura, there are in the Indian Museum two small specimens of *M. Wardeni* dredged off the Andamans in 500 fathoms, and in these the abdominal terga have no spines. This season two similar but larger specimens (one an egg-laden adult female) were trawled at Sta. 331, east of the Andamans, in 569 fathoms, so that there would seem to be a distinct variety of species *Wardeni* in that locality.

Measurements of egg-laden female :—

| | mm. |
|---|---|
| Length of body from tip of rostrum to end of telson.. | 45 |
| „ chelipeds..... | 54 |

Besides the absence of spinules on the transverse carinæ of the second and third abdominal terga, the surface of the carapace generally is smoother and its ridges and rugæ less prominent.

*Munidopsis Milleri*, Henderson, var.

*Munidopsis Milleri*, Henderson, Chall. vol. xxvii., Anom. p. 155.

This specimen agrees with *M. Goodridgei* (Alcock and Anderson) and *M. spinipes* (sp. n. et sub descr.) in differing from all other Indian species in having the eyes fused ventrally, immovable, and furnished with no spine or spinule. This variety also comes from much the same depth and locality as *M. Goodridgei* : the former from 568 fathoms, west of Ceylon ; the latter from 430 fathoms, off the Travancore coast.

This specimen differs from Henderson's description of *M. Milleri* in the following points :—

(1) Gastric area armed with one pair of spines and three (instead of one) pairs of spinules. These spinules are arranged one pair behind the other and all lying on the circumference of an imaginary circle on the posterior half of the gastric region, thus :—the first pair situated behind the spines ; the second pair behind these and wider apart, placed on the lateral margins of the gastric region ; the third pair close together near the posterior margin of the gastric region.

(2) Rostrum is not spinulous, but subsquamiform.

(3) Instead of a spinule being present on the anterior border of the carapace behind the antennal peduncle, the largest spine on the carapace is situated there.

(4) Inner margin of palm is spinose and the upper surface is not smooth and glabrous, but has a few scattered tubercles and tufts of long silky hairs.

(5) There is a well-marked spinule in the centre of the triangular dilated area of the carapace, lying between the two divisions of the cervical groove.

This specimen differs from *M. Goodridgei* chiefly in :—

(1) Posterior border of carapace spinulose.

(2) An extra spine on the lateral border of the carapace.

(3) Three extra pairs of spinules on the gastric region and

a spine on either side of the carapace between the two divisions of the cervical groove.

Unfortunately only one specimen (a male) was obtained at Sta. 334, west of Ceylon, 568 fathoms.

*Munidopsis spinipes*, sp. n.

This species agrees with *M. Goodridgei* and *M. Milleri*, var. (above described), amongst Indian species in having the eyes absolutely immovable, yet furnished with neither spine nor spinule.

The carapace is convex, subquadrangular, about the same breadth in front and behind. A pair of large spines are situated anteriorly on the gastric region. There is no vestige of a spine or spinule on the cardiac region or posterior border of the carapace. The rostrum is short and styliform; towards its tip there is obscure microscopic serration on its lateral margins. The supra-antennal spines are of good size. On the lateral border there are three large spines and one or two spinules, situated thus:—One spine at the antero-lateral angle, a second at the anterior angle of the triangular area lying between the two divisions of the cervical groove, and the third immediately behind the posterior division of the same groove; behind the second spine and lying with it between the two divisions of the cervical groove there may be one or two spinules, diminishing in size from before backwards.

The abdomen is smooth and has a few scattered hairs; the second tergum is transversely bicarinate, and the third transversely grooved. In the telson on either side between the two lateral plates there is a small calcareous patch, much the same as in *M. ciliata*.

The basal joint of the antennule has one spine and three spinules: the spine (large) on the outer side and two spinules on the inner side of the distal end of the joint; whilst the third spinule is on the far side of the globular swelling on the upper and outer surface of the basal joint. On the inner edge of the merus of the external maxillipeds there are two large spines.

The chelipeds are subequal and much longer than (nearly a third as long again as) the fully extended body. The arm has three longitudinal rows of spines and four large terminal spines; the wrist has two rows of spines and four terminal spines; both edges of the outer surface of the palm are spinose. The fingers are not straight, but meet throughout their length; the fixed finger is finely serrated, and a little

beyond its centre it has a projecting lobe which fits into a corresponding depression in the free finger. The free finger is finely dentate in its distal half or so; its proximal half forms a projection, with its free margin coarsely dentate, which fits into a depression at the basal end of the fixed finger. There is no epipodite on any of the thoracic legs.

The ambulatory legs are long; the first pair are longer than the fully extended body. The merus of the first three pairs has a row of spines almost throughout the whole extent of its anterior border, and this is continued along the anterior border of the carpus as a row of spines, and not merely as a terminal spine; their dactylus is hardly or only very slightly more than half the length of the propodite.

Three egg-laden females and one male were taken in the trawl at Sta. 310, Bay of Bengal, 960 fathoms. The male unfortunately had lost its chelipeds. The largest female gives the following measurements:—

| | mm. |
|---|---|
| Length of fully extended body, including rostrum .. | 30·6 |
| „ chelipeds ..... | 39 |
| „ first pair of ambulatory legs ..... | 31·8 |

This species is very closely allied to *M. Goodridgei*, from which it differs mainly in having no spines or spinules on the cardiac region; chelipeds not very unequal, both of them much longer than the fully extended body, and both edges of the outer surface of the palm spinose; legs more spinose, the carpus having a row of two or more spines, and not merely a terminal spine on its anterior border; the lateral border of the carapace with three spines and two spinules instead of two spines and one spinule.

This new species has been figured for the next issue of "Illustrations of the Zoology of R.I.M.S. 'Investigator.'"

### *Munidopsis* (*Orophorhynchus*) *ciliata*, Wood-Mason.

*Munidopsis ciliata*, Wood-Mason, Ann. & Mag. Nat. Hist., Feb. 1891, p. 200; Faxon, Mem. Mus. Comp. Zool. xviii. 1895, p. 84; Alcock, Desc. Cat. Ind. Deep-sea Crust., Anom. p. 267; Illus. Zool. Invest., Crust. pl. xi. fig. 3.

*Munidopsis brevimana*, Henderson, Chall. Anom. p. 154, pl. xvii. fig. 1.

One male specimen (length of body, including rostrum, 43 mm.; length of chelipeds 24½ mm.) was caught at Sta. 326, Bay of Bengal, 1100 fathoms. It presented the following peculiarities:—Carapace and abdomen tomentose; lateral margins of carapace armed with only three spines, two only

being present between the two divisions of the cervical groove and no spine at all at the extreme antero-lateral angle of the carapace. In other respects this specimen agrees with descriptions of *M. ciliata*.

Last season at Sta. 310, Bay of Bengal, 960 fathoms, three small specimens of this species were caught in the same trawl: the smallest had the five typical spines on the lateral margins of the carapace; the other two had an extra small spine (making four in all) between the two divisions of the cervical groove. The number of spines on the lateral borders of the carapace of this species would thus seem to vary from three to six.

Fam. **Uroptychidæ**.

UROPTYCHUS, Henderson.

*Uroptychus glyphodactylus*, sp. n.

Length of carapace, including rostrum, less than its greatest breadth. Carapace moderately convex from side to side, its surface and margins all smooth and glabrous except for a spine at each antero-lateral angle. Hardly any indication of regions. Rostrum has a broad base, but is exceedingly short, horizontal, and placed on a lower level than the summit of the carapace; in length it is considerably shorter than the eye-stalks. The pterygostomial region is very limited in extent, smooth, slightly inflated, and produced anteriorly as a well-marked acute spinule.

The eyes are of moderate size and, to the naked eye, of a uniformly brown colour; but under a lens they appear as a delicate dark brown network enclosing large pale facets. The eye-stalks are short, stout, and freely mobile.

The antennal acicle is very short and stunted, not more than $\frac{1}{3}$ the length of the antennal peduncle, the distal end of the penultimate joint of which the acicle does not reach. Like the rostrum it is broad at the base and rapidly tapers to a point. The flagellum is barely twice the length of the peduncle.

| | Male. mm. | Female. mm. |
|---|---|---|
| Length of body, including rostrum | 11 | |
| „ „ excluding „ | $10\frac{1}{2}$ | |
| „ carapace, including rostrum | $4\frac{3}{4}$ | $4\frac{3}{4}$ |
| „ chelipeds | 26 | 22 |
| „ second pair (longest) of ambulatory legs | 12 | 12 |
| Greatest breadth of carapace | $5\frac{1}{4}$ | $5\frac{1}{4}$ |

The chelipeds are long and smooth, except for a spinule on the dorsal margin of the ischium at its distal extremity and 1–3 prominent spinules at the distal ends of both merus and carpus on their upper and inner aspects. There are a few tufts of hairs (2–5 in each tuft) scattered sparingly on the joints, but mostly on the carpus; these tufts may escape notice unless looked for with a lens. On the fingers there are numerous hairs. The palm is very slightly shorter than the wrist and slightly dilated. The fingers are elegantly curved, forming at their base a wide hiatus, into which a conical tooth projects from the prehensile edge of each finger—that from the free finger being the larger and more distally placed. The summits of these two teeth are seen under a strong lens to be furnished with numerous spiniform cusps. In slightly more than their distal or apical third the closed fingers leave no gap, the prehensile margins in that region being smooth or very minutely serrulate. The chelipeds are about five times the length of the carapace, including the rostrum.

The ambulatory legs are about one third the stoutness of the chelipeds; the first pair are slightly shorter than the second, which are about half the length of the chelipeds; the third pair are more than a dactylus shorter than the first or second pair. The legs are smooth, unarmed, and glabrous, except the dactyli and the posterior border of the propodites. These latter parts are well coated with hairs. The dactyli are strongly curved and long, being about the same length as the propodite, and their posterior border is finely toothed in its distal two thirds; the posterior border of the propodites is unarmed.

The abdomen is smooth and has hairs only on the margins of the pleura, telson, and caudal swimmerets. The telson is much shorter than (about half the length of) the caudal swimmerets.

The ova are large, about 1 mm. diameter, and comparatively few in number.

One male and an egg-laden female were trawled at Sta. 331, east of the Andamans, 569 fathoms. The female was found and preserved clinging to a species of *Virgularia*, the first pair of ambulatory legs fixed to the stem from below upwards, and the second and third pairs clasping the stem from above downwards (or behind forwards).

In the female neither spines nor hairs are so well developed as in the male. For instance, the spine at the distal end of the upper margin of ischium of cheliped is hardly evident, and there are fewer and less prominent spines at

the distal ends of merus and carpus. The chelipeds of the female are much more slender and shorter than those of the male. Both chelipeds of the male are approximately equally enlarged (right palm possibly slightly more dilated than the left).

Of species hitherto described this one comes nearest *Diptychus uncifer* (A. M.-Edwards) and *D. politus* (Henderson). The new species differs from the former in having a shorter rostrum and still shorter antennal acicle; merus of cheliped smooth on its under surface, and no sharp tubercle on under surface of ischium; merus and carpus armed distally; fingers entirely different. It differs from *D. politus* in the rostrum being much shorter and the acicle still more so; carapace broader than long; fingers different. This species can be at once distinguished by the form of the fingers, size of rostrum and antennal acicle, and the carapace being broader than long.

The telson and caudal swimmerets of the females of this genus are not so acutely flexed on the preceding segments or so closely applied to them as in the males.

Figures of both the male and female, the latter clinging to a species of *Virgularia*, will appear in "Illustrations of the Zoology of R.I.M.S. 'Investigator.'"

## BRACHYURA.

### Oxyrhyncha.

### Fam. Maiidæ.

### *Cyrtomaia Goodridgei*, McArdle.

*Cyrtomaia Goodridgei*, McArdle, Ann. & Mag. Nat. Hist. ser. 7, vol. vi., Nov. 1900, p. 472; Ill. Zool. Invest. pl. lix. figs. 1, 1 *a*, 1 *b*, & 1 *c*.

Of this species, described by McArdle from a single large male specimen, this season three more specimens—an adult and a young male and an egg-laden female—were obtained.

*Dimorphism in the male.*—The adult male was caught at Sta. 332, south-east of South Andaman Island, 279 fathoms. It is somewhat smaller than McArdle's specimen, but it presents this very striking and curious difference—its chelipeds are in all joints, but especially the distal extremities of the palms, very much enlarged and inflated. In the general arrangement of the spines on the chelipeds both specimens agree, and the gape (about 45°) is similar in both. The hiatus, however, left at the base of the fingers when closed is in the enlarged chelipeds much wider. The fingers