

THE ANNALS
AND
MAGAZINE OF NATURAL HISTORY.

[SECOND SERIES.]

No. 69. SEPTEMBER 1853.

XVI.—Notes on some new or little-known Marine Animals.
(No. 2.) By P. H. Gosse, A.L.S.

[With a Plate.]

Class CRUSTACEA.

Fam. PALÆMONIDÆ.

Hippolyte fascigera (mihi). The Plumed Hippolyte.

ROSTRUM straight, acuminate, with two teeth above, the one at the base and the other near the apex; two teeth below, the one near the middle, the other near the tip. Body studded with deciduous tufts of plumes.

This curious species attains about $\frac{7}{8}$ ths of an inch in length. The carapace is moderately gibbous; the rostrum straight, elongated, furnished on its upper edge with a curved tooth near the base, and a second small one so close to the extremity, that the tip might almost with propriety be called bifid; the tip itself is acute, and extends a little beyond the apical tooth; on the under edge, which is much hollowed at the base, and deep in the middle, there are two teeth, of which one is a little beyond the middle, and the other near the tip, but considerably behind the line of the upper apical tooth. The scale of the external antenna is large, exceeding the rostrum by one-third of its own length; its tooth is placed about one-fifth from the extremity. The thicker filament of the internal antenna is comparatively slender, not longer than the thin filament, and bent up at a right angle. The first pair of feet are short; the second has the wrist four-jointed. The middle plate of the tail has two spines on each side, and six placed slightly divergently at its extremity, of which the outermost on each side is minute.

The most remarkable character is that each segment of the

body is armed with six tufts of plumose bristles, set transversely at nearly equal distances. The thorax has three transverse rows, and the abdomen one on every segment. Each tuft consists of from ten to fifteen plumes, which spring from a point and diverge in a fan-like manner in the longitudinal plane. Each plume is a slender straight taper stem, set distichously with two rows of very close pinnæ, diverging at a small angle from the stem, and graduated to a point, like the barbs of a feather. These plumose tufts are very peculiar, and are sufficiently conspicuous during life even to the naked eye; though, being very deciduous, it is rare to find the whole series perfect, and in dried specimens they are frequently altogether wanting. In this condition the species may be easily mistaken for *H. varians*, which it resembles closely in many of its characters, besides the form and denticulation of the rostrum. It may, however, be distinguished at once, while alive, by its colour, which, though varying, does not assume any of the phases of *H. varians*. It is usually pellucid white, clouded with opaque drab, and generally blotched with dark reddish purple. When dead, and divested of its tufts, the rostrum displays minute but constant points of difference, in the closer proximity of the upper and lower apical teeth to the apex, and in the wider separation of the two lower teeth *inter se*. The relation of the filaments of the internal antennæ to each other, in length and thickness, also affords a good distinction; but not the direction of the thicker; for though this in *H. varians* is stated by Professor Bell not to be bent at right angles, I must venture to correct this observation; its angle, according to my experience, is as abrupt during the life of the animal as it is in *H. Cranchii* for instance.

Hippolyte fascigera is taken with the dredge in Weymouth Bay a few miles from land; though less numerous than some other species of the genus, it cannot be considered rare.

Hippolyte Cranchii (Leach). Cranch's Hippolyte.

The colours of this little species when alive, taken by comparison of several specimens, are as follows. Upper parts nearly white, the rest light pellucid purple, in which the blue or the red element prevails in irregular patches. The hue is most positive on the legs, where it is banded, on the terminal segment of the abdomen, on the tail-plates, and on the false feet. In other parts it is seen by means of a lens to consist of minute stellate specks on a light ground. The extruded ova, which form a large mass, are white, becoming olive. Sometimes the whole animal is of a pellucid drab hue, with scattered purple specks. I have seen a specimen which was wholly of a deep purple, except

the thorax, which was alternately banded with brown and pale yellow, and the eyestalks, which were pale yellow. A narrow band of whitish drab running along the median line of the abdomen, and expanding into a broad oval spot on the fourth segment, is pretty constant in all, and may be considered characteristic.

The rostrum has four teeth on the upper edge, quite as often as three, if not oftener; and the extremity is occasionally trifid.

This is one of the most common of the smaller Crustacea inhabiting the deeper parts of the coralline zone in Weymouth Bay. It is brought up in almost every haul of the dredge or keel-drag.

Hippolyte Thompsoni (Bell). Thompson's Hippolyte.

The denticulations of the upper edge of the rostrum in this Prawn are not simple serratures of the edge as in *Hip. Cranchii*, and in the true *Palæmons*, but triangular spines articulated to the edge. In *Pandalus annulicornis* the same structure exists, and the superior size of this latter species facilitating manipulation, I found that by means of a fine needle I could move the spines to and fro with considerable freedom, on their articulated bases. The spaces between the spines are occupied in both these species by rows of short bristles graduated in length, as in *Palæmon serratus*.

Crangon sculptus (Bell). The Sculptured Shrimp.

This pretty species varies exceedingly in colour. In one of its most common conditions, the ground colour is a plain drab, which is studded with minute blackish dots, and stellate specks of reddish brown. The body, especially the abdomen, is elegantly clouded with pale sienna-brown in a sinuous but symmetrical pattern. The sinuosities are in some parts edged with pale blue, and there are three more conspicuous spots of bright azure blue, set at equal distances along the median line of the abdomen, each of them taking the form of a semi-ocellus with a black pupil. An undulating line or macular band of azure crosses the front of the thorax. The ground colour of the fourth abdominal segment is of a deeper brown than the rest, the difference being gradual anteriorly but abrupt posteriorly, where it ceases with a transverse line of deep brown, imparting some resemblance to *C. fasciatus*. Sometimes there is a broad well-defined band of deep brown across the hinder part of the thorax. One specimen that I have seen had the whole upper parts opaque white, minutely freckled with buff; except the last abdominal segment and the tail-plates, which, as well as the sides of the body and the false feet, were freckled with blackish purple.

Another had the buff of the upper parts so mingled with rufous, purple and dark brown, as to give a warm bay tint to the whole, with azure spots scattered, and a broad band of deep bistre brown across the hind part of the thorax.

Another is about equally clouded and banded with black and rose-crimson; exceedingly rich and beautiful.

The projection of the wrist of the anterior foot on each side, like an angular elbow, gives a peculiar aspect to this little shrimp.

Crangones vulgaris, *trispinosus*, *sculptus*, *fasciatus*, and *spinosus* occur in this bay with a comparative frequency indicated by the order in which I have placed their respective names.

Fam. MYSIDÆ.

Mysis productus (mihi). The Long Opossum Shrimp.

Form elongate, slender. Rostrum lanceolate, nearly twice as long as the eyes. Peduncle of internal antenna elongate, curving outward; second and third joints together as long as the first. Scale of external antenna about half as long as the carapace, strongly toothed.

The general form is much longer and more slender than that of *M. chamæleon*. The rostrum is hyaline, broadly lanceolate, acute, and nearly twice as long as the eyes. All the joints of the peduncle of the internal antenna are lengthened; the second and third united are equal to the first, and together reach about to the tip of the antennal scale. This latter is lengthened; nearly parallel-sided, with the tip abruptly angular; a strong tooth projects from the outer angle, from whence long cilia extend round the tip along the inner edge. Pl. VI. fig. 5 a.

The middle plate of the tail (fig. 5 b) is lanceolate, with the apex entire, obtuse; the base constricted; the margin fringed with small spines. The inner lateral plate tapers to a point, with a terminal spine. The outer plate is by much the longest, it is emarginate on the outside near the tip; the inner edge is deeply ciliated, the fringe extending round the tip to the emargination; there a rather long spine occurs, followed by a series of minute spines to the base.

The colour of the only specimen found was pale umber-brown, becoming redder towards the tail. The outer tail-plate was hyaline, with a large stellate spot of red on its basal half. Eyes black. It was taken in Weymouth Bay in July, together with several of *M. chamæleon*.

The species appears to combine some of the characters of *M. Griffithsia* and *M. vulgaris*, but to be sufficiently distinct from either.

Class ZOOPHYTA.

Fam. ACTINIADÆ.

Genus SCOLANTHUS (mihi). The Worm-Anemone.

Body cylindrical, lengthened, vermiform, invertile, incapable of attachment; posterior extremity rounded, perforate; anterior discoid, surrounded by a marginal series of slender tentacles. Name from *σκώληξ*, a worm, and *ἄνθος*, a flower.

Scolanthus callimorphus (mihi). The Yellow Worm-Anemone.

When contracted this animal is about three-fourths of an inch long, and one-third of an inch in diameter, covered with a coriaceous, minutely corrugated skin, of a deep orange-yellow colour. (See Pl. X. fig. *a*.) In this state it bears a strong resemblance to a *Holothuria*, which indeed for some time I supposed it to be. On being placed in a glass vase of sea-water with a layer of gravel at the bottom, it speedily burrowed out of sight. The next morning, however, I perceived it greatly changed, being fully expanded. It had fortunately selected a site in contact with the side of the glass, so that I could see the whole length of the animal through the transparent medium.

When fully protruded it extends to about $2\frac{1}{2}$ inches, with a slight diminution of the former diameter. (See fig. *b*.) The anterior extremity for about one-third of an inch forms a sort of fluted column, a little less in thickness than the rest of the body, from which it is abruptly separated. The flutings, eight in number at the base, but divided into sixteen at the summit, are of a rich sienna-brown hue, varied irregularly with black and white, each bearing a conspicuous lozenge-shaped spot of cream-white at the base, and terminated by a white tip. The effect of these colours is bizarre, and much resembles those mosaics of coloured woods well known as Tunbridge-ware. (See fig. *c*.)

The extremity of the coloured column is truncate, forming a transverse disk, in the centre of which is a small, ovate, conical mouth, agreeing in structure with that of the *Actiniæ* generally. The surface of the disk is white, marked with a series of pointed arches in form of a star of deep sienna-brown; the regularity and beauty of which figure, resembling the forms of the kaleidoscope, so struck my imagination as to suggest the specific name, from *καλὸς*, beautiful, and *μορφὴ*, form. From each angle of the mouth a broad band of blackish brown crosses the disk, interrupting the star at opposite points. (See fig. *d*.)

Sixteen depressed radiating lines on the disk mark the outlines of the basal portion of so many tentacles, which become free only at the edge of the disk. They are long, slender, and of

nearly equal diameter throughout, but taper to a blunt point at the extremity. Their substance is of colourless transparency, with the exception of transverse rows of specks and dashes of opake white, more or less arranged in rings, increasing in number and size, until they become confluent at the tips; this glassy translucency imparts to the tentacles a singular effect, especially as the part where they become free and spring from the margin of the disk is marked by an abrupt circle of opake white. Each tentacle is about thrice as long as the disk is wide. These organs radiate horizontally, and commonly are curved either upward or downward at their tips. Their bases coincide with the flutings of the column.

The specimen which I have described was dredged in four or five fathoms in Weymouth Bay, about the end of July. Its habit, judging from what I have seen of it in captivity, is to burrow in fine gravel or sand at such a depth as allows it to protrude the coloured column from the surface (as shown at fig. *c*). Here it expands its tentacled disk for passing prey: I fed it with fragments of a shrimp, and found that it ate with the same avidity, and in exactly the same manner as its cousins, the Sea-Anemones; the tentacles catching and moving to and fro the morsel, and disposing its position and direction so as to facilitate the mouth's grasping it; this latter organ expanding its flexible lips to an apparently indefinite width, and gradually enveloping the presented food.

If rudely touched, the disk was suddenly withdrawn, the column, and then the upper two-thirds of the body disappearing in rapid succession by a process of inversion, exactly like that by which the Earthworm withdraws its fore parts, or, to use a homely simile, like the turning of a stocking. The extent to which the introversion proceeds depends on the degree of annoyance to which the animal has been subjected, or on its wayward will: it is capable of crawling along in its subterraneous abode, while contracted; pushing aside the gravel with the front of its body: it proceeded in this way two or three inches in as many hours, while I was watching it, before it turned upwards and thrust out its head; the evolution of the column not beginning until the surface was reached.

The form and habits of this animal had appeared to warrant its isolation from any genus known to me; it is most nearly affined to *Iluanthos* of Professor Forbes, but seemed to me sufficiently distinct from that genus, before I was aware of the presence of an anal orifice. This is a peculiarity (probably connected with its elongate form) which at once isolates it from its fellows. The aperture is moderately large, of a deep black, which hue appears to be derived from the colour of the fæces





Gosse, Philip Henry. 1853. "XVI.—Notes on some new or little-known marine animals. (No. 2.)." *The Annals and magazine of natural history; zoology, botany, and geology* 12, 153–159. <https://doi.org/10.1080/03745485709495018>.

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DOI: <https://doi.org/10.1080/03745485709495018>

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