

V. *On a new form of Corynoid Polypes.* By PHILIP HENRY GOSSE, Esq., F.R.S., A.L.S.

Read December 2nd, 1856.

ALTHOUGH every discovery of a new species of animal ought to be recorded with as much precision as can be commanded, it is not every such discovery that is worthy of being made the subject of a memoir presented to a learned body; but the form and manners of a creature which has lately fallen under my notice appear so anomalous, that I am induced to bring it under the notice of the Linnean Society.

In the summer of 1855 I happened to have, in one of my marine aquaria, several specimens of a *Sabella*, which I believe to have been identical with the *Amphitrite vesiculosa* of Montagu (Linnean Transactions, vol. xi. p. 19). The largest of these had been some time in my possession, and, probably owing to the habitual stillness of the water in the vessel, not holding in suspension the particles of mud, that ordinarily enter into the composition of the tube, the latest-formed portion was composed of pure transparent *chitine*, without any perceptible earthy element. This clear terminal portion of the tube I perceived to be occupied by a curious parasite. About twenty bodies having a most ludicrously-close resemblance to the human figure, and as closely imitating certain human motions, were standing erect around the mouth of the tube, when the *Sabella* had retired into the interior; and were incessantly bowing and tossing about their arms in the most energetic manner.

As soon as I had a little recovered from my surprise at this strange display, I began to examine the performers more in detail. A slender creeping thread, irregularly crossing and anastomosing, so as to form a loose network of about three meshes in width, surrounded the margin of the *Sabella's* tube, adhering firmly to its exterior surface, in the chitinous substance of which it seemed imbedded (see Pl. XX. fig. *a*). Here and there free buds were given off, especially from the lower edge; while from the upper threads sprang the strange forms that attracted my notice. These were fusiform bodies, about $\frac{1}{40}$ th of an inch in height, whose lower extremities were of no greater thickness than the thread from which they sprang, with a head-like lobe at the summit, separated from the body by a constriction, immediately below which two lengthened arms projected in a direction towards the axis of the tube.

Such was the external form of these animals; and their movements were still more extraordinary. The head-lobe moved to and fro freely on the neck; the body swayed from side to side, but still more vigorously backward and forward, frequently bending into an arch in either direction; while the long arms were widely expanded, tossed wildly upward, and then waved downward, as if to mimic the actions of the most tumultuous human passion.

Whenever the *Sabella* protruded from its tube, these guardian forms were pushed out,

and remained nearly in contact with the Annelid's body, moving but slightly; but no sooner did it retire, than they began instantly to bow forward, and gesticulate as before. These movements were continued, so far as I observed, all the time that the *Sabella* was retracted; and were not in any degree dependent on currents in the surrounding water, whether produced by the action of the Annelid, or by other causes. They were not rhythmical; each individual appeared to be animated by a distinct volition.

Applying a higher magnifying power than I had yet used, to the animals, I found that the head-lobe enclosed a central cavity; that the arms were also hollow, with thick walls, marked with transverse lines (internal septa?), and muricated on the exterior; and that the body contained an undefined sub-opaque nucleus (see fig. *b*), doubtless a stomachal cavity.

I cut out with fine scissors a segment of the tube, including two of the parasites, with that portion of the network of threads that carried them. They were immediately paralysed by the division of the threads; but those that remained on the tube were unaffected by the violence. The hiatus in the continuity of the circle was healed in a day or two; not by the approach of the divided edges of the tube, but by the shooting of the threads across the chasm. One of the animals thus cut out is represented (at *d*), as it appeared immediately after the excision, magnified 240 diameters. When subjected to the action of the compressorium, with a power of 560 diameters, the arms were seen to be formed of globose cells, made slightly polyhedral by mutual pressure, set in single series (fig. *e*). The interior of these organs was divided by septa, placed at intervals of about the diameter. Some, at least, of the cells contained a small bright excentric nucleus (fig. *f*).

When the tissues were quite crushed down by the pressure of the compressorium, a quivering motion was visible among the disjointed granules; but it was very slight. No trace of cilia, nor any appearance of ciliary motion, was perceptible during life.

This larger *Sabella*-tube was not the only one infested with the parasites. I observed them on two, at least, of the smaller specimens, in the same situation, and with precisely the same movements. The extremity of one of these smaller tubes I cut wholly off, and placed in the live-box of the microscope. Two of the parasites only were on it, which were active at first, but in about an hour—probably from the exhaustion of the oxygen in the small quantity of water enclosed—they decomposed, or rather disintegrated; the outline dissolving, and the external cells becoming loose and ragged, and the whole animal losing its definite form.

One of these specimens, however, while yet alive and active, afforded me an observation of value. I had already associated the form with the Hydroid Polypes, and was inclined to place it in the family *Corynidae*, considering the arms to be tentacles, and the head-lobe to be homologous with them in character, but abnormal in form. It appeared to be a three-tentacled *Coryne*, with the tentacles simple instead of capitate. But while I was observing the individual in question, I saw it suddenly open the head-lobe, and unfold it into the form of a broad shovel-shaped expanded disk; not however flat, but with the two halves inclining towards each other, like two leaves of a half-opened book (fig. *g*). This immediately reminded me of the great sucking-disk, which I had seen evolved from

the obtuse summit of *Coryne Cerberus*, as I have elsewhere recorded*; and confirmed my suggestion of the natural affinities of the form.

The principal colony remained for many weeks under my observation, without any noticeable change. The terminal portion of the tube, which at first had been so diaphanous, gradually became more opaque, and disfigured by the growth on it of confervoid threads, and by the entanglement of a multitude of minute *Diatomaceæ* in its surface. At length the *Sabella* spontaneously quitted its tenement: the parasites appeared at first unchanged and unaffected; but, strange to say, before the lapse of two days, they all gradually died away; as if their existence depended on the presence of their patron. They seemed to become feeble, attenuated, and almost motionless, before they disappeared.

While they lived they afforded me much entertainment, as also to those scientific friends to whom I had opportunities of exhibiting them. When I used to see them surrounding the mansion of the *Sabella*, gazing, as it were, after him, as he retreated into his castle, flinging their wild arms over its entrance, and keeping watch with untiring vigilance until he reappeared, it seemed to require no very vivid fancy to imagine them so many guardian demons; and the Lares of the old Roman mythology suggested for them a name.

Bearing in mind the extraordinary cycle of phænomena that have been proved to occur in the reproduction of the Hydroid Polypes in general, and of the *Corynidae* in particular; it is highly probable that the animal, whose appearance and manners I have been describing, would, in the natural prolongation of its existence, have budded off some Medusoid forms, endowed with proper sexual functions. I detected, indeed, no trace of (so-called) *ovarian* capsules, nor any evidence of increase, except that of the gemination of the individual zooids from the common root-thread. This, however, by no means disproves the possibility, nor even the probability, of such developments, at a more mature stage of the polypoid condition. Had I discovered such, and were I able to follow out the life-history of the animal, and to show that it agrees in its reproductive phænomena with other Coryniform Polypes, it would still be an open question,—to which condition—whether the Coryniform or the Medusiform—specific identity is to be assigned; or, in other words, which ought to bear the *nomina generica et trivialia*, and to take its place in the System of Nature. Is the *Medusa* the animal, of which the Polype is the larva? Or is the *Coryne* the animal, of which the *Medusa* is but the detached and locomotive sexual organ?

I incline to affirm the former of these two hypotheses; but yet, in accordance with precedent, by which the *Corynidae* and *Campanulariadae* are reckoned as animals worthy of names, I may venture, provisionally at least, to register, under systematic appellations, the form before me, and wait for new light as to its future history.

Genus LAR (Gosse).

Zoophytum è familia Corynidarum, nudum, associatum sed sejunctum, erectum, e filo radicali repente retiformi saliens, tentaculis simplicibus filiformibus instructum.

* Devonshire Coast, p. 223, plate xiv. fig. 4.

Species, LAR SABELLARUM (Gosse).

Species unica. L. tentaculis tribus, filo radicali circa Sabellarum tubos parasiticè repente.

EXPLANATION OF THE PLATE.

TAB. XX.

- Fig. *a.* The extremity of the tube of *Sabella vesiculosa*, occupied by a colony of *Lar Sabellarum* (magnified 70 diam.).
- Fig. *b.* An individual *Lar*, displaying the hollow head-lobe and tentacles, and the sub-opaque digestive canal (magnified 120 diam.).
- Fig. *c.* A portion of one of the tentacles, showing the muricated surface.
- Fig. *d.* A single *Lar*, with the thread, attached to an excised portion of the tube, paralysed and somewhat contracted (magnified 240 diam.).
- Fig. *e.* A portion of one of the tentacles, flattened by pressure; showing the parietal cells, and the edges of septa (magnified 560 diam.).
- Fig. *f.* Nucleated cells from a crushed tentacle.



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