

# THE ANNALS

AND

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[THIRD SERIES.]

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"..... per litora spargite muscum,  
Naiades, et circum vitreos considite fontes :  
Pollice virgineo teneros hinc carpite flores :  
Floribus et pictum, divæ, replete canistrum.  
At vos, o Nymphæ Craterides, ite sub undas ;  
Ite, recurvato variata corallia trunco  
Vellite muscosis e rupibus, et mihi conchas  
Ferte, Deæ pelagi, et pingui conchylia succo."  
*N. Parthenii Giannettasii* Ecl. 1.

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I.—*Notes on the Hydroida.* By Prof. ALLMAN.

I. *On the Structure of Corymorpha nutans.*

I AM indebted to one of my pupils, Mr. John W. Macfie, for my attention having been called to the occurrence of specimens of a *Corymorpha* among the contents of a dredge brought up from about 14 fathoms' depth, during a dredging expedition in the Firth of Forth with the Natural-History Class of the University of Edinburgh. Though the species found does not entirely agree with the diagnosis proposed by Sars (Wieg. Arch. 1860, transl. in Ann. Nat. Hist. 1861, vol. viii.) for his *C. nutans*, I believe nevertheless that it must be regarded as identical with the *C. nutans* of the eminent Norwegian zoologist. A considerable number of specimens were obtained, and thus this interesting Tubularidan has been for the first time added to the recorded fauna of the Forth.

The largest specimens found were about 2 inches in height, the polype measuring from tip to tip of its extended tentacula about  $\frac{3}{4}$  of an inch.

*Corymorpha* presents among the *Hydroida* the very unusual condition of a solitary polype, the complication from budding being confined to the production of gonophores. For greater facility of description, it will be convenient, in the following ac-

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count of the structure of this Hydroid, to divide the animal into the *polype*, the *stem*, and the *gonophores*.

*The Polype.*—The polype may be described as flask-shaped; it bears towards its base a zone of about thirty-two long and imperfectly contractile tentacula arranged in a single series, while at a considerable interval in front of this zone, and a little behind the oral extremity, is a brush-like group of about eighty very contractile tentacula, much smaller and finer than the posterior, and arranged in six or seven closely placed alternate series.

Immediately within the zone of posterior tentacula are the branched stalks of the gonophores; their axis is occupied by a continuous tube, which communicates freely with the cavity of the polype, and they carry the gonophores in clusters upon the extremities of the branches. They are usually from fifteen to twenty in number, arranged in two alternate series. The gonophores will be afterwards described.

When a longitudinal section is made through the polype from the mouth to the stem, it will be seen that the body, as far back as the zone of posterior tentacula, presents a continuous cavity, with the endodermal lining of the narrow anterior portion thrown into prominent rugæ, and with the floor of the cavity projecting as a broad conical elevation into the wide posterior portion. This conical projection consists of a very much vacuolated endoderm; and the same vacuolated structure is continued backwards as far as the origin of the stem, giving to the whole of the posterior part of the polype the appearance of being filled with the vacuolated tissue, and destitute of any distinct cavity. A careful examination, however, will show that this vacuolated mass is perforated in its axis by a tubular prolongation of the cavity of the polype, though, in consequence of temporary obliteration by the approximation of its walls, this continuation of the polype-cavity is usually very difficult to detect. It is continued to the summit of the stem, and then, becoming somewhat wider, receives the longitudinal canals of the stem, to be presently described.

The posterior tentacula are destitute of any trace of a cavity, and consist of a simple prolongation of the vacuolated endoderm of the body, surrounded by a layer of ectoderm, the endoderm becoming somewhat closer in texture as it enters the tentacula.

The anterior tentacula seem to admit the cavity of the polype for a short distance into their interior; but their tube soon becomes obliterated by the vacuolation of their endoderm, which assumes the usual septate appearance. For some distance from their extremities the ectoderm is thrown into slightly elevated verrucæ in which minute thread-cells are accumulated, but to-



wards the base it becomes smooth. An accumulation of thread-cells takes place also at the tip of the tentacle, where they seem to indicate a tendency to the formation of capitula, as in *Coryne*, &c. The anterior tentacula, both by their structure and their disposition in alternate series, remind us of the tentacula of *Coryne*; and I believe that we must regard them as the true equivalents of the latter, while the posterior set must be viewed as superadded structures.

The endodermal lining of the polype-cavity, as far back as the vacuolated portion, contains great abundance of brownish-red pigment-granules, which are included in the inner cells of the endoderm. The same pigment is continued into the stalks of the gonophores, from which it may be traced into the manubrium of the medusoids, and, in their young state, into the radiating canals. The whole of that portion of the body of the polype which lies behind the posterior tentacula is destitute of pigment-granules, and is accordingly colourless.

*The Stem.*—The form of the stem is subcylindrical, usually, however, enlarging towards the base, and again contracting and tapering away to a blunt point. I have always found this pointed posterior part of the stem bent at nearly a right angle to the rest, and, when the animal is in its natural position, plunged into the sandy sea-bottom.

To the naked eye, the stem is seen to be traversed from one extremity to the other by narrow longitudinal bands or striæ. Under a low magnifying power, these bands are seen to inosculate here and there with one another, while towards the base of the stem they usually become broader and fewer by coalescence. They owe their distinctness to the accumulation in them of opake corpuscles.

I have satisfied myself that the longitudinal bands represent canals excavated in the endoderm of the stem. They lie just within the ectoderm, while the whole of the axis of the stem is occupied by a sort of pith composed of a large-celled, or, perhaps, more correctly speaking, vacuolated tissue. Occasionally, very distinct currents may be seen in the canals; so that the whole structure and phenomena presented by these parts closely correspond to what we meet with in the stem of different species of *Tubularia*.

Under a high power of the microscope, delicate parallel longitudinal striæ may be detected lying external to the canals just described. They are situated between the ectoderm and endoderm, apparently more intimately connected with the former, and may be traced upwards on the body of the polype as far at least as the zone of posterior tentacula. They seem to consist of fine tubular fibres, and are apparently the equivalents of the



fibres (muscular?) visible beneath the ectoderm of *Clava*, *Coryne*, &c.

Still finer striæ may also be occasionally witnessed running in a circular direction round the stem; but I have not been able to determine whether these represent fibres or mere rugæ in the ectoderm.

Peculiar processes are given off from the stem towards its posterior end. They are in the form of short blunt cones, and are arranged in longitudinal series, which follow the course of the canals, the stem immediately over each canal bearing two alternating rows. They are tubular, with the cavity apparently communicating with the canal, and with the free extremity imperforate. They appear to be extensile, for they may occasionally be here and there seen much elongated, and then with their extremities slightly clavate. In the form now described they are confined to a region of the stem at some distance from its lower end. They do not seem to be here employed as organs of adhesion; and I am unable to throw any further light upon their nature. When, however, a specimen of *Corymorphæ*, after being captured, has the lower end of its stem free from sand, and is then transferred to a jar of sea-water, it soon begins to fix itself to the bottom of the vessel, and at the end of about twenty-four hours its base is seen to be surrounded by a delicate web, which closely adheres to the vessel, and in a few days has spread itself over a surface of a square inch or more in extent. Under the microscope this web is found to be composed of a multitude of fine tubular filaments, which are given off from the stem all round, close to its lower end; and after repeatedly crossing one another so as to form an entangled web-like tissue, they terminate each in a slightly expanded or clavate and imperforate extremity. The filaments are composed of a granular substance, which, as it continues to elongate, invests itself with an exceedingly delicate structureless tube or polypary. In these filaments of adhesion it is impossible not to recognize structures essentially similar to the conical tubular processes given off from the stem a little higher up.

The entire stem is invested by a very delicate, colourless, and transparent polypary. For the greater part of the length of the stem the polypary lies close to it, and may be easily overlooked; but further down it becomes separated by a considerable interval, and here constitutes a loose corrugated sac, in which the lower end of the stem is enveloped.

*Gonophores*.—The gonophores are borne on the extremities of the branched tubular stalks already mentioned, where they are grouped in compact clusters consisting of buds in every stage of development, from the minute tubercle in which no medusoid



structure can as yet be detected, to the completely formed actively contracting medusoid on the point of becoming free.

I have been unable to demonstrate in the gonophores any trace of an ectotheca. They are thus truly naked medusoids. When arrived at that stage in which they detach themselves from the stalk and become free, they present a deep umbrella (*nectocalyx*, Huxley), becoming slightly narrower towards the aperture, and having its summit continued into a short conical projection traversed by a narrow canal which had kept the cavity of the manubrium in communication with that of the stalk. There are four radiating canals, each of which expands into a bulb at the point where it enters the circular canal. Of these bulbs one is much larger than any of the other three; this bulb is continued into a tentacle, while none of the others present any trace of such an appendage: they all contain reddish-brown pigment-granules; and an obscure ocellus may generally be recognized in a little accumulation of granules of a somewhat redder colour situated beneath the ectoderm of the outer side of the bulb. There is a broad velum.

The solitary tentacle is largely developed, and consists of a very extensile moniliform cord, presenting, when extended, the appearance of ten or twelve little spherules distributed at equal distances upon a cylindrical string: the last of these spherules exactly terminates the string, and is larger than the others, while one or two situated near the proximal end are smaller and less distinct. The spherules are composed of accumulations of thread-cells; and the connecting cord seems to have its axis occupied by an uninterrupted tube directly prolonged from the cavity of the bulb at its root. During contraction, the spherules assume the form of circular disks; and in extreme contraction, the connecting cord disappears, and the surfaces of the disks are brought into contact.

The manubrium is large and subcylindrical, and the mouth is without tentacula or lobes.

From the above description it will be at once apparent that the medusoid of *Corymorpha nutans* belongs to a form to which Edward Forbes has given the generic name of *Steenstrupia*. Of this relation between *Steenstrupia* and *Corymorpha* Forbes himself had a suspicion; indeed, he expresses a belief that his *Steenstrupia rubra* will turn out to be the free medusoid of *Corymorpha nutans*.

The medusoids, when they become free, are about  $\frac{1}{25}$  inch in diameter, and as yet show no trace of generative elements; and though I kept them alive for more than a week, they scarcely increased in size, and never showed any appearance of ova or spermatozoa.



I obtained, however, by means of the towing-net, in the neighbourhood of the locality which produced the *Corymorpha*, a little Medusa regarding which there can be no doubt that it is a more advanced stage of the medusoid of our *Corymorpha*, with which in all essential points it is identical. It was about four times the size of the newly liberated medusoid; and the tentacle had proportionately increased in length, and presented upwards of forty spherules, while the radiating canals at their origin curved upwards towards the summit more decidedly than in the younger form. The generative elements (not yet, however, fully developed, and apparently male, though, from their immature condition, no active spermatozoa could be detected) were very distinctly visible as a pale yellow mass between the endoderm and ectoderm of the manubrium, which was rendered tumid by their presence. In all other respects the little Medusa was identical with the younger ones, and continued to present the acuminate summit, which was even still traversed by the canal which originally maintained a communication between the tube of the supporting stalk and the cavity of the manubrium.

*Development of the Medusoid-bud.*—The medusoid first shows itself as a minute tubercle consisting of ectoderm and endoderm, and containing a simple diverticulum from the cavity of the supporting stalk. It is very difficult to follow satisfactorily the several steps by which this primordial tubercle becomes ultimately converted into the complete medusoid; but if I am right in my interpretation of the appearances which I have observed during a laborious examination of the bud in its different stages, the steps of its development would seem to be as follows:—

First, a differentiation takes place in the ectoderm of the summit or distal portion of the bud, by which this layer becomes here divided into two laminæ, an outer and an inner—the latter remaining adherent to the endoderm.

Next, the cavity of the bud extends itself upwards in the form of four thick cæcal processes occupying a peripheral position and placed symmetrically round the axis. They are composed of the endodermal lining of the bud-cavity, having outside of it the general ectoderm of the bud; while the inner of the two laminæ into which this ectoderm splits at the summit extends itself downwards as the processes continue to elongate, and invests them on the inner side, or that turned towards the axis of the bud, the space between the two laminæ becoming at the same time larger and larger, and ultimately forming the cavity of the nectocalyx.

The four processes are destined to form the four radiating canals of the medusoid; and shortly after their first appearance another cæcal process has begun to grow up between them, in



the axis of the bud; it gradually elongates itself, and is to become the manubrium of the medusoid.

The four peripheral processes continue to elongate, and are soon seen to be dilated into bulb-like expansions at their extremities. The bulbs increase in size, and come in contact by their sides; while one of them, enlarging much more rapidly than the other three, gives a marked preponderance to its side of the bud, and makes the distal end of the bud appear as if obliquely truncated. It then begins to extend itself beyond this distal end into a thick hollow tentacle.

In the mean time the four bulbs which had come in contact have coalesced, and their cavities now communicate with one another; but by the gradual enlargement of the distal end of the bud the bulbous ends of the radiating canals are again drawn away from one another; the communication, however, between their cavities is not thereby interrupted, but continues to be maintained by a tubular elongation of their original points of union; and in this tube we now recognize the circular canal of the medusoid.

The cavity of the nectocalyx is still closed by the more external of the two laminae into which the ectoderm had originally split at the distal end of the bud. In the final stage this lamina becomes perforated in the centre, and forms the velum of the medusoid; while the manubrium, previously imperforate, acquires a mouth at its extremity. The solitary tentacle, too, has now become elongated, and presents its characteristic moniliform structure; the nectocalyx rapidly contracts and expands with vigorous systole and diastole; and the medusoid at last hangs upon its stalk, a true *Steenstrupia*, ready to break away from the restraint of its fostering polype and enter upon an independent existence.

Besides the production of medusoid sexual buds, I have also witnessed in *Corymorpha nutans* another process of reproduction, very remarkable, but of whose exact significance I am unable to speak with entire confidence. In a glass jar containing living specimens of *Corymorpha*, which had been in my possession for more than a fortnight, I observed attached here and there to the surface of the glass minute oblong bodies, about  $\frac{1}{2}$  a line in their longer diameter, and  $\frac{1}{8}$  line in the shorter. They appeared to be composed of a soft, minutely granular, white substance; and their interior was occupied by a very distinct cavity. They were destitute of cilia, and were invested by an extremely delicate membranous or mucous tube, quite structureless, which extended for some distance beyond their ends, and adhered for its whole length to the sides of the jar.

Besides these little bodies, others, which I do not hesitate to



regard as the same bodies in a more advanced stage, were also found attached to the sides of the jar. They consisted of a white tubular filament, about 4 lines in length, attached to the glass by one extremity, and developed at the opposite into a minute polype having a general resemblance to the polype of *Corymorpha*, but with only six or eight tentacles composing the posterior verticil, while the anterior tentacles were about the same in number, thicker and shorter than the posterior, with blunt, almost capitate extremities, and, like the posterior tentacula, disposed in a single verticil.

Other still more advanced stages were also found attached to the sides of the jar. They had attained to about double the size of the last, had the posterior tentacles composed of a verticil of sixteen or twenty, while the anterior tentacles, though still disposed in a single verticil, had become multiplied to about the same extent.

Beyond these three stages I was unable to trace the development through any further steps; the last of them, however, manifestly requires little to convert it into the form of the adult *Corymorpha*.

If it were not that the medusoids thrown off from the adult polype in my jars had, so far as I could find, all perished before the formation in them of generative elements, I should have regarded the little organisms just described as presenting three stages in the development of the embryo from the ovum. In the absence, however, of all evidence of the presence of ova, I believe it will be safer to view them as different stages in the development of a gemmule liberated, in some way unknown, from the adult specimens in the jar.

## II. Diagnoses of new Species of Tubularidæ obtained, during the Autumn of 1862, on the Coasts of Shetland and Devonshire.

### *Clava diffusa*, mihi.

*Polypes* about  $\frac{1}{4}$  inch in height, light rose-colour, developed at intervals upon a creeping reticulated stolon; tentacula about twenty.

*Gonophores* scattered, commencing just behind the posterior tentacula, and thence extending singly or in small clusters for some distance backwards upon the body of the polype.

In rock-pools at low-water spring-tides, Out Skerries, Shetland Isles.

The present species differs from all other described species of *Clava* in the gonophores being scattered and extending for some distance backwards, instead of being aggregated in closely approximated clusters immediately behind the posterior tentacula.



## TUBICLAVA, mihi, nov. gen.

*Polype* claviform, supported on the summit of free stems, which rise at intervals from a creeping stolon, and are invested by a chitinous polypary. Tentacula filiform, scattered.

*Gonophores* dense clusters of sporosacs aggregated immediately behind the posterior tentacula.

*T. lucerna*, mihi.

*Zoophyte* about two lines in height; stems quite simple, or rarely with a short lateral branch; polypary clothing the stem, corrugated, dilated at the base of the polype, pale yellowish-brown. *Polype*, when extended, about equal to the stem in height, white, with pale ochreous centre; tentacula about twenty, confined to the anterior third of the polype.

Creeping over the surface of loose stones in the bottom of a rock-pool, Torquay. On stones between tide-marks, Dublin Bay.

In none of the Torquay specimens were gonophores present; but I do not hesitate to identify the present species with a Tubularidan obtained several years ago in Dublin Bay, and which I had carefully figured at the time, though I never published a description of it. In the Dublin Bay specimens the gonophores were present, and exactly resembled in structure and position those of *Clava multicornis*.

The genus *Tubiclava* differs from *Clava* in the fact that the polypes are no longer sessile upon the basal stolon, but borne upon distinct branches enveloped by a polypary. This character, taken in connexion with the form of the polypes, shows an affinity also with *Cordylophora*, from which, however, it is separated by the entirely different plan and position of the gonophores.

*Eudendrium humile*, mihi.

*Zoophyte* delicate, rising to about  $\frac{3}{4}$  inch in height, much and irregularly branched; main stems and branches distinctly annulated throughout. *Polype* yellowish-vermilion, vase-shaped, with a circular groove near its base, and a trumpet-shaped proboscis; tentacula twenty or twenty-three, with the alternate ones elevated and depressed in extension.

*Gonophores* (male) surrounding the body of the polype, and springing each by a short stalk from the circular groove which passes round the polype near its base, each gonophore consisting of two superimposed chambers. Female gonophores consisting of a single chamber, borne both by the base of the polype and by the cœnosarc immediately behind it.

Rooted to the bottom of rock-pools near low-water spring-tides, Torquay.



Male specimens of a Zoophyte closely resembling the above, but rather more delicate, and with the polypes which bear the gonophores all destitute of tentacula and mouth, so that they become converted into *gonoblastidia*, have also occurred to me in a rock-pool near Torquay. Though I am tempted to regard this as a distinct species, I believe it will be safer for the present to view it as a variety of *Eudendrium humile*. I shall therefore provisionally designate it as *E. humile*, var. *corymbifera*.

*Eudendrium vaginatum*, mihi.

*Zoophyte* much branched, rising to about  $1\frac{1}{4}$  inch in height; polypary deeply and regularly annulated throughout. *Polypes* vermilion, with about eighteen tentacula, and having the body as far as the origin of the tentacula enveloped in a loose corrugated membranous sheath, which loses itself posteriorly upon the polypary.

*Gonophores* not known.

In rock-pools at extreme low-water spring-tides, Shetland.

This beautiful little *Eudendrium*, though in considerable abundance, had, at the time of my finding it (August), evidently passed the period of its greatest perfection, gonophores having been in no instance present, while in many specimens the polypes had fallen from the branches. In the absence of all knowledge of the gonophores, the above diagnosis must accordingly be regarded as incomplete.

*Perigonymus serpens*, mihi\*.

*Zoophyte* consisting of short simple erect stems, about 2 lines in height, terminated by the polypes, and rising at short intervals from a creeping stolon, which forms an irregular network upon the surface of other bodies; the whole of the stems and stolon occupied by a reddish-orange cœnosarc and clothed with a delicate transparent polypary, which does not form a cup-like dilatation at the base of the polypes. *Polypes* reddish-orange, with about twelve or fourteen tentacula, so disposed that, in complete

\* The dismemberment of Ehrenberg's genus *Eudendrium* into two genera, *Eudendrium* and *Atractylis*, was proposed some years ago by Dr. T. Strethill Wright. Dr. Wright was apparently not aware, when he gave the name of *Atractylis* to one of these subdivisions, that Sars had already proposed the name of *Perigonymus* for a genus identical with the *Atractylis* of Wright. Dr. Wright had undoubtedly a more accurate appreciation than Sars of the characters on which the separated genus should be based, finding these characters mainly in the form of the polype, rather than in the position of the gonophores; but the laws of priority render necessary the retention of the original name of *Perigonymus* rather than the later one of *Atractylis*.



extension, they are held with alternate tentacula elevated and depressed; body of polype oval, with proboscis conical.

*Gonophores* medusiferous, borne by the creeping stolon and elevated each upon a rather long peduncle. *Medusoids* dome-shaped, with the vertical slightly exceeding the transverse diameter; manubrium reaching to about one-half the depth of the bell, with a simple mouth destitute of tentacula; marginal tentacula two, opposite, very extensile, and with large reddish-orange bulbous bases, without evident ocelli, the intermediate radiating canals terminating each in a very small bulbous dilatation.

Growing over the stems of *Plumularia setacea*, dredged from about 12 fathoms, Torbay.

*Perigonymus minutus*, mihi.

*Zoophyte* very minute, consisting of simple stems rising to the height of about  $1\frac{1}{2}$  line from a creeping stolon, and bearing the polypes upon their summit; polypary dilated round the base of the polype. *Polypes* ash-brown, with seven or eight, rarely twelve, tentacula, held irregularly during extension, and with little or no curvature.

*Gonophores* pyriform, medusiferous, borne at various heights upon the stem, and supported on rather long peduncles. *Medusoid* with the summit suddenly contracted, so as to give a somewhat conical form to the nectocalyx, and having two opposite radiating canals terminating each in a pale brown bulb which is continued into a very extensile filiform tentaculum, and two alternate canals terminating each in a much smaller bulb without tentacle; no evident ocellus; manubrium short, with a four-lobed lip, but without oral tentacula.

Forming a fringe round the edge of the operculum of *Turritella communis* dredged in Busta Voe, Shetland. Out of between twenty and thirty specimens of living *Turritella* examined, not one was free from this remarkable little Zoophyte.

The present species manifestly comes very near to *Atractylis repens* of Dr. T. S. Wright. Judging, however, from Dr. Wright's description and figures (Proc. Roy. Phys. Soc. Edinb. 1858, p. 450, pl. 22. figs. 4, 5), *Perigonymus minutus* differs from *A. repens*, Wright, in the form of the umbrella of the medusoid, which in *A. repens* shows no approach to the conical figure presented by the species here described, and in the entire absence from the medusoid (at least at the time of its liberation) of the small intermediate tentacula. It also comes very near to the *Eudendrium pusillum* of the same author (*op. cit.* 1857, p. 231, pl. 11. figs. 8 & 9); but the conical form of the medusoid separates it also from this species, from which it still further differs in the much longer peduncles of its gonophores.



*Perigonymus Muscus*, mihi.

*Zoophyte* consisting of numerous erect stems, about half an inch in height, not composed of coalesced tubes, springing at intervals from a creeping stolon, and sending off short branches, which are themselves for the most part without further ramification; polypary light brown, slightly corrugated, and with a well-marked cup-like dilatation at the base of the polype. *Polypes* semi-retractile, light reddish-brown, with about sixteen tentacula directed, in extension, alternately backwards and forwards.

*Gonophores* medusiferous, borne upon a rather long peduncle, and springing from the branches at a short distance behind the polype. *Medusoid* dome-shaped, with the four radiating canals terminating below, each in a large reddish bulb, which sends off two very extensile filiform tentacula, having an ocellus at the base of each; manubrium extending to about a third of the entire depth of the umbrella, and with four short oral tentacula. The medusoid is thus in all points undistinguishable from that of *Perigonymus ramosus*, Van Beneden.

In a rock-pool, Torquay, where it occurred abundantly, creeping over the bottom in small moss-like tufts.

The small size and general habit of the present species, its more simple ramification, and the fact that its stems consist of a single tube, instead of being composed of numerous tubes coalesced into a dense bundle, at once separate it from *P. ramosus*, Van Beneden, notwithstanding the fact that the medusoids of the two species are indistinguishable.

*Tubularia Bellis*, mihi.

Basal portion of *cænosarc* prostrate, creeping, and sending up short, free, sparingly branched stems, which rise to  $\frac{3}{4}$  inch or 1 inch in height; polypary, where it covers the lower part of the upright stems, and the whole of the prostrate portion, marked by wide but distinct annulations; *cænosarc* orange, deepening in tint towards the base, expanding into a collar immediately below the polypes. *Polypes* measuring, in full-sized specimens, about 5 lines from tip to tip of the extended tentacula; body of polype scarlet.

*Gonophores* borne upon short, erect, branched peduncles; each gonophore with four well-marked tentaculoid tubercles on its summit; peduncles and spadix scarlet.

A beautiful little Zoophyte, conspicuous by the bright colour and large size of its polypes. It occurs attached to the bottom of rock-pools at extreme low-water spring-tides, Shetland.





Allman, George James. 1863. "I.—Notes on the Hydroida." *The Annals and magazine of natural history; zoology, botany, and geology* 11, 1–12.

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