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Thomas Hincks B.A. F.R.S.

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XVIII.—Notes on Norwegian Hydroida from Deep Water.

By the Rev. THOMAS HINCKS, B.A., F.R.S.

A PAPER of remarkable interest has just been published by G. Ossian Sars on the deep-water Hydroida of the Norwegian seas*. The investigations of this excellent observer, who worthily carries on the work of his distinguished father, have established the fact that a very varied Hydroid fauna exists in this region at depths varying from 50 fathoms to 300 fathoms. It comprises no less than fifty-eight species, of which sixteen appear to be new to science. From the tables (showing the distribution of the Norwegian Hydroids both vertically and horizontally) which are appended to the descriptive portion of the paper it appears that the most productive region lies between 50 and 100 fathoms. In this zone about two thirds of the whole number of species recorded for Norway have occurred (fifty-four out of eighty-four).

The littoral region, as might be expected, is barren, yielding only six forms—a striking contrast to the corresponding zone on our own shores, which teems with Hydroid life. The Laminarian is hardly more fruitful, giving eleven, of which two are common to it and the preceding. From 10 to 20 fathoms thirteen species have been obtained, from 20 to 50 (the "Coralline region") forty-two. Below 100 fathoms the numbers diminish with the increase of depth; from 300 fathoms only five species have been procured (*Plumularia gracillima*, n. sp., *Filellum serpens*, *Lafoëina tenuis*, *Campanularia verticillata*, and *Perigonimus abyssi*, n. sp.). The last of these alone passes the 300-fathom limit, and actually reaches 400.

If we except the fragments of a supposed Hydroid, brought up by the dredge of the 'Porcupine' from a depth of 2435 fathoms, of which nothing definite is known, the extreme vertical limit of Hydroid distribution would seem to lie between 600 and 700 fathoms, so far as our present knowledge goes. And it must be remarked that below three hundred fathoms a very small number only of forms have been obtained, a few straggling outliers, several of which seem to be much more at home in more moderate depths. In no sense can the Hydroida be considered an abyssal tribe.

In the chapter on "Distribution in Space" in Allman's 'Monograph of the Tubularian Hydroids' he places the maximum of development in the Coralline zone; but on the Norwegian coast it must be assigned to the "deep-water region" immediately succeeding it, which yields fifty-four species

* Bidrag til Kundskaben om Norges Hydroider. Af G. O. Sars. Med 4 autographiske Plancher. 1873.

against forty-two in the former. And the character of this "deep-water" fauna is as remarkable as its richness. It includes no less than thirteen of the sixteen undescribed species obtained by Sars, and (probably) three new generic types.

It is interesting to note the extended vertical range which these investigations have established for several well-known species. Thus *Tubularia indivisa*, which is common between tide-marks on the English coast, has been taken up at a depth of 200 fathoms; *Plumularia setacea*, a common denizen of our rock-pools, occurs only between 50 and 100 fathoms in the Norwegian seas; *Myriothele*, which is found near low-water mark, ranges to 100 fathoms; *Podocoryne carnea* is obtained on the shore and from 200 fathoms, and *Hydractinia echinata* at low-water mark and from 100 fathoms. It is also worthy of remark that Sars has obtained from a depth of 400 fathoms a Hydroid which he refers to *Perigonimus*, an Athecate genus, producing free reproductive zooids. In all previous cases the species dredged from great depths have been such as are propagated by means of fixed sporosacs and not by planoblasts*.

Passing to the descriptive portion of the paper, the first point of special interest is the occurrence of a small group of Plumularian Hydroids belonging to the genus *Aglaophenia*. This form is specially characteristic of warmer latitudes. On our own coasts it is comparatively rare in the north and north-eastern districts; in Shetland it is represented by a single species, *A. myriophyllum*. Still further north it has only occurred in the deep-water region, to which dredging has recently been extended. Near Stavanger, off the island of Hvitingsö, Sars has obtained three supposed new species of this fine genus, in depths varying from 80 to 150 fathoms. An examination of this group of southern strangers, thus encountered in the deep northern waters, discloses some points of interest. They were obtained on a muddy bottom at very considerable depths, and, we may therefore suppose, in one of the warm areas to which our attention has been drawn of late†.

The first species described (*Aglaophenia radicellata*) is

* *Vide* Allman's 'Monogr. Tubularian Hydroids,' part ii, p. 165. It is true that Sars did not actually observe the planoblast of his *Perigonimus abyssi*; but he had the opportunity of examining the gonophores, and had no doubt of the Medusan nature of their contents.

† This is a mere conjecture, as we have no *precise* account of the nature of the ground; but the deep-water region off Hvitingsö appears to possess a rich and peculiar Hydroid fauna which suggests the inference that it enjoys a comparatively high temperature. Allman mentions a new Plumularian genus, which was obtained during the cruise of the 'Porcupine,' at a depth of 682 fathoms, in water where the temperature ranged from 30°·5 Fahr. to 29°·8 Fahr. ('Tubularian Hydroids,' pt. ii. p. 165).

closely allied to the well-known *A. myriophyllum* of our own coasts, upon which, indeed, it is a very slight variation. In the shape of the calyces and in the minute structure generally the two are almost identical. The differences lie chiefly in size and habit, the points most readily affected by change of external conditions. The northern form is dwarfish as compared with our own; it looks stunted, and wants the elegant plumose appearance so characteristic of the latter. The stem, too, is simple and slender, instead of being composed, as in the normal *A. myriophyllum*, of several tubes bound together. One other difference between the two exists: in *A. radicellata* a large number of long and much-branched fibres are given off from the base of the stem, which form a spreading root-like appendage; by this the zoophyte fixes itself in the muddy ground, from which it was obtained. This, however, it must be remembered, is only an exaggerated condition of a structure which exists in *A. myriophyllum*. The latter zoophyte rises from a tuft of tangled fibres, a mere means of attachment when it grows on solid substances, but which, we can readily suppose, might be developed into a root-like organ under other conditions of life. The *corbula* of *A. radicellata* seems to resemble that of *A. myriophyllum*. The similarity of the two forms in minute structure* is really very striking, and the differences between them are just those which a change of locality might most readily produce.

The second species described by Sars (*A. bicuspis*) exhibits more distinctive characteristics; but its calyces are clearly of the *myriophyllum* type. It is somewhat larger than the preceding, but does not exceed a couple of inches in height. The stem is compound towards the base; and the pinnulated portion is much larger than in *A. radicellata*. The calyces in shape and arrangement resemble those of the last-named species and of *A. myriophyllum*; but the minute crenulation of the rim is wanting, and the central tooth on the front margin, which in *A. radicellata* was truncate and slightly sinuated at the top, is here divided down the middle so as to form *two acuminate processes*, which have suggested the name of the species. But the most remarkable peculiarity of *A. bicuspis* is found in connexion with the gonosome. The reproductive

* Sars seems to consider that the margin of the calyces is *more distinctly* crenulated in the Norwegian than in the British form; but the difference, if there is any, is of the slightest. Both are crenulated; and the crenations are of precisely the same character. A difference, however, does exist in the character of the anterior tooth, which in *A. myriophyllum* is pointed, in the northern form truncate and slightly sinuated at the apex.

capsules, instead of being borne, as in *A. radicellata*, on a certain number of the pinnules which are modified in structure so as to constitute a protective case for them (the *corbula*), are ranged along one side of the *main stem*; the usual *corbula* is absent; but at the base of many of the pinnules a bifid or trifid process is developed, and these processes, ranged in a row on each side close to the stem, bend inwards towards one another and so form a kind of protective covering for the gonothecæ. This structure is unique amongst the known Plumulariidae. The processes just described are furnished with many of the sarcothecæ (or nematophores) so characteristic of the Plumularian family, and closely resemble in structure the elements which compose the *corbula*. Indeed we may regard them as constituting a kind of *corbula*, which, however, is developed in the axis of the plume, corresponding with the altered position of the capsules, instead of laterally along the pinnule. *A. bicuspis* fixes itself upon sponges; and its fibrous base is merely a flattened disk for attachment.

In the third species (*A. integra*), which is of larger growth, of a graceful plumose shape, and occasionally branched, we have the very same type of calycle; but the tooth-like processes on the margin have disappeared as well as the crenulation, and the rim is now perfectly plain. The sarcothecæ are much the same as in the two preceding forms; the capsules are borne on the central stem, as in the last, but all traces of protective appendages are wanting. The gonosome exhibits the character which we find in *A. pennatula* and kindred species.

From this deep-water region, then, near Hvitingsö we have three species of *Aglaophenia* all referable to the *myriophyllum* type, which are distinguished by very slight differences in the minute structure of the trophosome, but exhibit three distinct modifications of the gonosome. In the one which comes nearest to *A. myriophyllum* we find the usual open *corbula*; in another, a set of appendages developed near the base of the pinnæ, constituting a kind of axial *corbula*; in the third we have the gonothecæ wholly unprotected, as amongst the Sertulariidae, and borne on the main stem. The first of these modifications of the gonosome is characteristic of Kirchenpauer's subgenus *Lytocarpia*, and the second, I believe, of Allman's genus *Gonocladium* (to be described in the report on the 'Porcupine' dredgings). If the genus *Aglaophenia* is to be dismembered, and the species composing it are to be distributed into groups distinguished by the character of the gonosome, I should propose the name GYMNANGIUM for those with unprotected gonothecæ.

Sars has also added to the Norwegian list several species of

the genus *Plumularia*, and a very beautiful new generic form (*Polyplumaria*) allied to the latter.

Heteropyxis norvegica, n. sp.

Amongst the new Plumulariidae we find a form which is referred to the *Heteropyxis* of Heller. I have given reasons elsewhere* for merging this genus in *Plumularia*; but I now find that I have misapprehended the characters on which it is based. In his brief generic diagnosis Heller makes no mention of the only peculiarity to which I should be at all disposed to attach any importance; and as I was unacquainted at the time with Meneghini's description of his *Lowenia* (which is identical with *Heteropyxis*), my decision was founded on an imperfect knowledge of the distinctive characters. The real peculiarity of the genus *Heteropyxis* is the subspiral arrangement of the pinnæ; in this it differs from *Plumularia* and makes an approach to *Antennularia*. The other characters are insignificant; but it may be convenient to retain the genus for those forms which, without being truly verticillate, have the pinnæ distributed round the stem. The curious point about *H. norvegica* is that it bears cornucopia-shaped capsules, exactly resembling those of *Plumularia cornu-copiæ* (mihi), a species from the Devonshire coast; the form is remarkable, and it is, as far as I can judge, absolutely identical in both. In *H. norvegica*, however, the position of the gonothecæ is peculiar: they are developed in pairs from a distinct process on the lowest joint of the pinna, a little above its point of origin.

Diphasia elegans, n. sp., and *Sertularia tenera*, n. sp.

These two new Sertularians were obtained from a bottom of soft mud or ooze, in depths ranging from 150 to 200 fathoms, and, we may therefore presume, in a comparatively warm area.

The *Diphasia* bears a strong general resemblance to *D. attenuata* (mihi). The chief points of difference seem to be the absence of joints on both stem and branches and of the tendril-like prolongations of the latter, the greater distance between the pairs of calyces, and the extraordinary development of the creeping stolon. The latter is the most marked character, and connects itself directly with the nature of the locality in which the species is found. A luxuriantly developed, much ramified, and sinuous fibre spreads over the muddy sea-bottom, through a great part of its length perfectly free, and only attached here and there to the small fragments of stone or shell sparingly

* "Notes on Prof. Heller's 'Catalogue of the Hydroida of the Adriatic' (Ann. & Mag. Nat. Hist. ser. 4, vol. ix. p. 119).

scattered about in the neighbourhood. From this, at very considerable intervals, rise the slender plumose shoots.

The *Sertularia*, which is of a dwarf and meagre habit, is also distinguished by the largely developed stolon, which creeps unattached over the mud. It is interesting to remark the modification of this portion of the structure in conformity with the nature of the base on which the zoophyte grows. One of the *Aglaopheniæ* and two of the *Sertulariæ* obtained by Sars from great depths have thus adapted themselves to the peculiar conditions of ooze life.

Ophiodes parasitica, G. O. Sars (n. sp.).

Perhaps the most interesting of the many interesting forms for a knowledge of which we are indebted to the energetic researches of the Norwegian naturalist, is the remarkable Hydroid which he has named *Ophiodes parasitica*. In general appearance and structure it closely resembles a *Plumularia*, and might pass on a slight inspection for a stemless variety of one of the smaller kinds. But, instead of the ordinary sarcothecæ characteristic of the Plumularian family, it is furnished with the curious snake-like appendages which distinguish the genus *Ophiodes* (mihi). Judging from Sars's description and figures, there is no appreciable difference between these organs as they occur in the Norwegian species and on the British *Ophiodes mirabilis*. In each case they consist of a slender and highly extensile tentaculoid body, protected at the base by a small chitinous cup, and terminated at the free extremity by a globose capitulum filled with thread-cells. In *O. parasitica* they are confined to the erect stems, and are not present, as in *O. mirabilis*, on the creeping stolon also; one of them is generally placed a short distance below the calycle; and sometimes there is another a little above it. But though there is this remarkable point of agreement between the Norwegian Hydroid and the British, they are plainly not referable to the same genus. The affinities of *O. parasitica* are with the Plumulariidae; those of *O. mirabilis* are as clearly with the Haleciidae. Probably the two families are closely related; in the forms now under consideration they seem to make a near approach to one another. *Ophiodes mirabilis* differs in some important particulars from the ordinary type of *Halecium*; and the points in which it thus differs approximate it to such a form as the *O. parasitica* of Sars. The large polypites, which cannot retract themselves within the calycle, are common to all the Haleciidae and to the genus *Plumularia*; and we now know that organs akin to the sarcothecæ are found in both the families.

As a new genus must be constituted for the Norwegian Hydroid, I propose for it the name *Ophionema* *. It may be defined as follows :—

Suborder THECAPHORA.

Family Plumulariidae.

OPHIONEMA, n. gen.

Generic character.—Shoots small, simple or slightly branched, jointed, not regularly pinnate or plumose, attached by a creeping stolon; hydrothecæ sessile, unilateral, cup-shaped; tentaculoid organs distributed singly on the shoots, extensile, filiform, terminating above in a globular capitulum filled with thread-cells, and protected at the base by a chitinous cup; gonothecæ of large size, borne singly near the base of the shoots; polypites not retractile within the calyces †.

Ophionema parasiticum, G. O. Sars (sp. unic.).

Halecium gorgonoide, G. O. Sars (n. sp.).

This is another of the specially interesting forms brought to light by the exploration of the deeper regions of the seabottom. In most of its characters it bears a perfect resemblance to the well-known *Halecium*; but it differs from it in being furnished with a peculiar tentaculoid organ, somewhat similar to that which occurs on *Ophiodes* and on the new genus *Ophionema*, which I have constituted in this paper. These curious appendages are minute offshoots from the coenosarc, which pass outwards through a simple orifice in the polypary, and project beyond it as naked, extensile, tentaculoid processes of a somewhat clavate figure, terminating above in a rounded capitulum filled with thread-cells. They differ from the similar structure which occurs on *Ophiodes* in the total absence of the chitinous covering at the base, and in the less distinctly capitate form of the free extremity. These appendages are distributed in great numbers over the stem and branches; and one of them is almost always present in the immediate neighbourhood of the calyces.

There can be no doubt, I think, that they constitute a character of generic value, and that the present species must be detached from *Halecium*. I propose to name the new genus

* From ὄφις, a snake, and νῆμα, a tentacle.

† I have included in this diagnosis some *family* characters.

that must be formed for its reception *Hydrodendron*; it may be characterized as follows:—

Suborder **THECAPHORA.**

Family **Haleciidæ.**

Hydrodendron, n. gen.

Generic character.—Zoophyte plant-like, much branched, rooted by a creeping stolon; hydrothecæ biserial, tubular, jointed to a short lateral process from the stem; polypites very large, partially retractile; tentaculoid appendages minute, filiform, naked, terminating above in a subglobose capitulum filled with thread-cells, distributed over the stem and branches, one below each calycle; gonothecæ unknown.

Hydrodendron gorgonoide, G. O. Sars (sp. unic.).

The polypites of this interesting form are remarkably large, furnished with about twenty-four tentacles, and of a bright yellow colour. The compound stem is thick and rugged and irregularly branched, and when covered with its conspicuous coloured polypites, the species bears, as Sars has remarked, a striking resemblance to a *Gorgonia*. It is peculiarly tree-like in appearance, and fully entitled to the generic name which I have given it. It has many characteristic features; but of course its principal distinction is to be found in the curious appendages to which I have referred.

Lafoëa fruticosa, M. Sars.

Amongst the Lafoëidæ included in Sars's catalogue of Norwegian species is the *L. fruticosa*, M. Sars, which was described many years since by his father in his 'Zoologisk Reise i Lofoten og Finmarken.' This form I have identified with the *L. gracillima*, Alder*; and in doing so I had the concurrence of Mr. Alder himself, who believed that his species was identical with the Norwegian, and that his name must yield to the earlier designation conferred by Sars. Mr. G. O. Sars, however, thinks that I have decided wrongly; he figures what he supposes to be his father's species, and holds that it is certainly distinct from *L. gracillima*. In this, I have no doubt, he is right; I have as little doubt that his figure does not represent *L. fruticosa*, but another and very different species. It is, in fact, referable to the form which I have elsewhere described as *Lafoëa grandis*†.

* 'History of British Hydroid Zoophytes,' i. p. 202.

† Vide a paper in the present Number of the 'Annals' on Icelandic Hydroida (*infra*, p. 148).

A reference to M. Sars's more detailed description of his *L. fruticosa*, in his paper "Bemærkninger over fire Norske Hydroider" (1862), will show that it is very different from the form which his son has now figured. The latter has a regular, campanulate calycle of considerable breadth; the calycle of the former is described as bearing a general resemblance to that of *L. dumosa*, and as being slightly bent, with the convex side of the curve turned upwards, or occasionally reversed. In short, it is represented as being *tubular* and *bent*, whereas the hydrotheca in G. O. Sars's figure is *campanulate* and *straight*. The only differences which Prof. Sars could detect between his species and Alder's were that in the latter the calycle was rather more slender than in the northern form, and the pedicle "loosely twisted" instead of being distinctly ringed. But Alder's *L. gracillima* has a long, narrow, tubular calycle, totally unlike that which the younger Sars has figured in his paper. I have, however, other and very conclusive evidence that the *L. fruticosa* is not what the last-named naturalist supposes it to be. Prof. Sars and Mr. Alder corresponded about their species and exchanged specimens; and I have in my possession a bottle sent me by the latter, and labelled by him, containing Norwegian examples of *L. fruticosa*, which he had received from its discoverer. From these specimens the figures (Plate VI. figs. 8-10) accompanying my paper on Icelandic Hydroids in the present number were drawn (with the *camera lucida*); beside them I have placed a pair of calyces (Plate VI. figs. 6, 7) from specimens of *L. gracillima* dredged at Oban. The close similarity between the two is at once apparent; the *form* may be said to be identical in both; and the only difference between them to which I should be disposed to attach the slightest significance is found in the character of the pedicle. In the British form it is merely *twisted* into two or three imperfect whorls; in the northern it is composed of three or four *rings*. Sometimes they are almost obsolete (Plate VI. figs. 9, 10); but traces of them may always be detected. I confess I cannot regard this trifling variation as a specific distinction, and must therefore continue to rank the *L. gracillima* of Alder as a synonym of the older *L. fruticosa* of Sars.

I may add that, in his account of the latter species, Prof. Sars has remarked on the thinness and delicacy of the material composing the calyces, and tells us that when dried they collapse and shrivel up. The same holds good of *L. gracillima*; but in the case of *Lafoëa grandis* (to which I refer G. O. Sars's figures) the walls of the hydrothecæ are of very stout material, and retain their form in dried specimens.

Calycella producta, G. O. Sars (n. sp.).

The species described under this name will probably prove to belong to the genus *Lovénella* (mihi). Its position cannot, of course, be absolutely determined until the history of its reproduction is known; but it closely resembles the *L. clausa* (Lovén), and is very unlike any known member of the genus *Calycella*. Its polypite too (so far as the figure affords the means of judging) is of a totally different type from that of *Calycella*; so that if the characters of its gonosome should separate it from *Lovénella*, it must still be referred to some other genus. *Lovénella* is propagated by means of medusiform planoblasts.

The present species differs from the British *L. clausa* principally in the comparative shortness of the conical operculum, and the absence of all annulation or crenation on the stem, except at the very base.

Lafoëina tenuis, M. Sars.

This remarkable Hydroid was first described by Prof. M. Sars in 1868*; but we have now a further account of it and an excellent figure from his son. Bearing a curiously close resemblance in its general character to *Cuspidella humilis* (mihi), it is distinguished from the latter form by the extraordinary appendages, allied in structure and function to the sarcothecæ of the Plumularians, with which it is furnished. These are distributed in great numbers along the creeping stolon, amongst the calyces; they consist of a filiform offshoot from the ectoderm, somewhat enlarged at the upper extremity and invested by a thin chitinous covering.

In the capitular portion are lodged a few large thread-cells; and immediately above it there is a circular orifice in the chitinous envelope, through which the long barbed threads are discharged. These appendages not unfrequently almost equal the calyces in height, and largely exceed them in number. They remind us of the tubular sarcothecæ of the genus *Aglaophenia*, though it does not appear that the sarcostyle has the power of emitting amœboid processes. They may be regarded as an intermediate form between the Plumularian sarcotheca and the tentaculoid organ of *Ophiodes* and *Ophionema*.

I have lately ascertained that specimens of a Hydroid from Shetland and from the Northumberland coast, which I formerly referred to *Cuspidella humilis*, really belong to the present

* "Fortsatte Bidr. til Kundskaben om Dyrelivets Udbredning i Havets Dybder," Vid. Selsk. Forh. f. 1868 (Christiania).

species, so that *Lafoëina tenuis* must take its place in our fauna. At the time I noticed the transparent clavate processes associated with the calyces, but supposed them to be some parasitic growth.

A question may arise whether *Cuspidella humilis* is a distinct form at all, or whether it has been founded on examples of *Lafoëina*. I have been able to settle this point conclusively by a reference to specimens of the former; and Sars, who is intimately acquainted with the latter Hydroid, includes *Cuspidella humilis* also in his list of Norwegian species, and therefore recognizes them as distinct.

I have carefully re-examined the other species of *Cuspidella* (*C. grandis* and *C. costata*), and find them to be undoubtedly destitute of the appendages.

Gonothyræa hyalina, Hincks.

This fine species I have referred provisionally to *Gonothyræa**, having only had the opportunity of examining immature gonophores on specimens preserved in spirit. Sars, however, has obtained it at Lofoten with fully developed gonophores exhibiting the characteristic structure of this genus, and has thus definitely settled its systematic position.

Acaulis primarius, Stimpson.

We have hitherto known this interesting Hydroid imperfectly, through the description of it given by Stimpson in his 'Marine Invertebrata of Grand Manan.' Sars, however, has obtained it in deep water (40-100 fathoms) off the Norwegian coast on muddy ground, and has thoroughly investigated its structure.

The two most important points which he has determined are the mode of its attachment and the history of its reproduction. Stimpson found his specimen floating in the open sea, and describes *Acaulis* as permanently free. It appears, however (as Allman had conjectured) that this is an error; the stalk-like portion of the body below the aboral wreath of tentacles is invested by an exceedingly thin hyaline skin, which passes far beyond its free conical extremity in the form of a perfectly transparent sheath, and towards the base is thickly covered with small grains of sand and fragments of mud. By means of this sheath the polypite no doubt roots itself in the sand or ooze, as *Corymorphæ* seems to do by the help of a very similar structure. The reproductive bodies are simple fixed sporosacs, developed in great number immediately above the proximal

* History of Brit. Hydr. Zooph. i. 184, pl. xxxv. figs. 2, 2a.

tentacles and amongst the capitate arms which thickly cover the whole of the upper portion of the body. *Acaulis* is closely related to the Tubulariidae (through *Corymorpha*) and the Pennariidae, but seems entitled to stand as the type of a separate family. *Myriothele*, on the contrary, I should connect more immediately with the Corynidae; and the present species, as Sars has suggested, may be regarded as an intermediate form between it and *Corymorpha*.

Myriothele phrygia, Fabricius.

The British species of the genus *Myriothele* has hitherto been identified with the *M. arctica*, M. Sars, and the earlier *Lucernaria phrygia* of Fabricius; and the specific name conferred by the latter author has taken its place in our nomenclature. It appears, however, according to Mr. G. O. Sars, that two distinct forms exist, both of which occur in the Norwegian waters, and that the one which has been observed on our coasts differs from that which Fabricius first discovered and Prof. M. Sars afterwards so well described. It becomes necessary, therefore, to revert to the earliest name conferred on the British species, which we owe to Vigurs (1849). It will stand hereafter as *M. Cocksii*, while the original species must retain the name of *phrygia*.

It is to be regretted that Sars has not given us a fuller description of the northern form, and indicated more precisely the points in which it differs from the British. He tells us generally that it is distinguished from it by its different mode of attachment, and that its gonophores are borne on more or less branched processes furnished with capitate tentacles, resembling those which are scattered over the body.

Syncoryne eximia, Allman.

To this species, an inhabitant of the Laminarian zone on our English coasts, Sars refers a *Syncoryne* taken at Bodö in 80–100 fathoms. Judging, however, from his brief account, his identification seems to me more than doubtful. He describes his species as having a peculiarly dark brown polypary, which is most obscurely ringed; the polypites have very few tentacles. *S. eximia*, on the contrary, has a transparent, light-coloured polypary, and its polypites are furnished with as many as from twenty to thirty tentacles. The annulation is very distinct so far as it goes, being confined, however, to the very base of the principal stems, and to certain portions of the branches. It will be found, I believe, that the Nor-

wegian deep-water *Syncoryne* is a different and probably a new species.

The following British Hydroids have their range of distribution extended to Norway as the result of the investigations recorded in this paper :—

Plumularia setacea, *Ellis*.
 Antennularia antennina, *Linn.*
 Diphasia alata, *Hincks*.
 — tamarisca, *Linn.*
 Sertularia Gayi, *Lamx.*
 Halecium Beanii, *Johnst.*
 — sessile, *Norman*.
 Calycella fastigiata, *Alder*.

Calycella syringa, *Linn.*
 Cuspidella humilis, *Hincks*.
 Gonothyræa hyalina, *Hincks*.
 Campanularia Hincksii, *Alder*.
 Tubularia simplex, *Alder*.
 Dicoryne conferta, *Alder*.
 Myriothele Cocksii, *Vigurs*.
 Hydractinia echinata, *Fleming*.

I cannot take leave of this important paper without congratulating its able author on his most interesting discoveries, and on the valuable contribution which he has made to the literature of the Hydroida.

XIX.—On a new Species of Fruit-Pigeon from Northern Queensland. By JOHN GOULD, F.R.S. &c.

THIS little pigeon, which I propose to call *Lamprotreron porphyrostictus*, is totally distinct from its ally, the *L. superbus*, from the same part of Australia. The most conspicuous character of this bird is the purplish-blue spot at the back of the head; hence its specific appellation *porphyrostictus*.

The throat is grey, and the abdomen crossed with two indistinct bars of yellowish white; this latter colour also pervades all the outer edges of the under tail-coverts; with the exception of the two middle ones, all the tail-feathers are obscurely tipped with greyish white; the secondaries and the larger wing-coverts are edged with yellow; feet bright orange; tarsi thickly clothed with green feathers; bill dark.

The young of the year, having nearly attained its full size, differs from the adult in the total absence of the purple spot at the back of the head, and in having the lesser and greater wing-coverts fringed with yellow.

Total length 7 inches, bill $\frac{3}{4}$, wing $4\frac{3}{4}$, tail $2\frac{3}{4}$, tarsi $\frac{5}{8}$.

The two specimens of this species I possess were obtained at Cape York; and I need scarcely say that before describing this bird I have compared it with all the species in our national collections, brought home by Mr. Wallace from the Papuan group of islands, and I find it quite distinct from each of them.