

H. SCHRÖDER (*Hamburg*, 37) exhibits some very commonplace microscopes.

A few unimportant instruments in this class may possibly have been overlooked in the foreign department.

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DESCRIPTIONS of new BRITISH POLYZOA, with REMARKS on some imperfectly known SPECIES. By JOSHUA ALDER, Esq.

THE branched calcareous Polyzoa have always commanded attention, from the beauty of their form and structure, while at the same time naturalists have experienced considerable difficulty in defining their specific distinctions. My object in the present paper is to endeavour to clear up some of the difficulties that beset the study of the British species, more especially in the genera *Cellepora* and *Eschara*, with regard to some species of which a more than usual difference of opinion exists. Dr. Johnston did much to unravel the synonyms of this class in his 'History of British Zoophytes.' But it is to Professor Busk that we are most indebted for a knowledge of their peculiar structure, and a careful definition of their generic and specific forms. In his 'Catalogue of the Polyzoa in the British Museum,' he points out the importance of those curious organs, the avicularia and vibracula, in the discrimination of species—an attention to which has very materially contributed to the accuracy of definition. The papers of the same distinguished observer, in the 'Journal of Microscopical Science,' still further increased our knowledge of the British species, particularly in the description of those got in Shetland by our lamented friend, Mr. Barlee. Still, however, much remains to be done. The eminent Norwegian naturalist, Professor Sars, has lately published a valuable paper 'On some Norwegian Polyzoa,' which throws much light on our British species, and especially those of Shetland. With the assistance of specimens of his new genera, which Professor Sars has kindly sent me, I shall be able to clear up some points in our Polyzoa hitherto misunderstood, while at the same time I shall have the opportunity of introducing a few new species into the British Fauna.

*Genus CELLEPORA.*

Some of the species of this genus have lately been removed to *Eschara*, including *Cellepora Skenci* and *C. levis*; also

the *C. cervicornis* of British authors, the propriety of removing which is doubtful. The only branched species mentioned by Dr. Johnston, now generally retained in this genus, is *C. ramulosa*. As one or two species have been confounded with this, it will be necessary to re-define it.

CELLEPORA RAMULOSA, Linn. (Pl. II, fig. 1.)

*Polyzoary* erect, white or yellowish, rather glossy, branching dichotomously, and arising generally from a broadish spreading base, the branches cylindrical, and tapering very slightly. *Cells* prominent, ventricose, rather irregularly heaped, smooth, and occasionally punctured round the sides; the apertures smallish, nearly circular, with a strong projecting rostrum below, terminating generally in a sharp point, and with an avicularium placed on one side. *Ovicells* smallish, subglobose, rather broader than long, smooth, and imperforate. Height sometimes reaching to three inches; lateral expansion variable, but often exceeding the height. Breadth of branches about one and a half tenths.

*Cellepora ramulosa*, Flem., 'Brit. Anim.,' 532; Johns., in 'Newc. Nat. Hist. Trans.,' v. ii, p. 267, t. 12, figs. 3, 4; 'Brit. Zooph.,' 2nd Ed., p. 296, t. 52, figs. 4, 5; Couch, 'Cornish Fauna,' pt. iii, p. 110, t. 20, fig. 2; Busk, 'Catal.,' p. 87, t. 109, fig. 1, 2, 3, (young?).

This species may generally be known by its roughened and spinous appearance. Large specimens are much branched; the branches are round, tapering a little towards the apex, where, occasionally, they are slightly flattened. Professor Busk says\* that the ovicells are punctured, but this, I think, is a mistake, as, according to my observation, they are smooth and imperforate, and in that respect are well distinguished from the following.

CELLEPORA DICHOTOMA, Hincks. (Pl. II, figs. 2, 3, 4.)

This species has been described by the Rev. T. Hincks, in his 'Catalogue of the Zoophytes of South Devon and Cornwall.' It is distinguished from *C. ramulosa* by its *less spinous* surface, the rostrum below the aperture being blunt, and, excepting in young cells, very slightly projecting. The stem is slender below, and scarcely expanded at the base, becoming

\* 'Fossil Polyzoa of the Crag,' p. 53.

broader as it ascends, branching dichotomously, and tapering to a blunt apex. The ovicells are larger and more numerous than in the last species, and are distinctly perforated. Besides the avicularium on one side of the rostrum, there are small, circular avicularia scattered over the surface and between the cells, with a few larger spatulate ones interspersed. The specimens got by Mr. Hincks appear to have been of small size; but on the coast of Northumberland, where the species is not uncommon, it grows rather larger, though seldom reaching above an inch in height. It varies a good deal in form, sometimes spreading in a palmate manner, like an elk's horn (fig. 3), sometimes consisting of more slender cylindrical branches of nearly equal thickness throughout (fig. 2). The typical form, however, is a little ventricose in the centre, and not much branched.

*CELLEPORA ATTENUATA*, n. sp. (Pl. II, fig. 5—8.)

*Polyzoary* very slender, white, cylindrical, nearly smooth below, a little roughened above, dichotomously branched, the branches of equal thickness throughout, and diverging on all sides. *Cells* immersed or very slightly raised, excepting those towards the extremities of the branches, which are a little more prominent; their surface is smooth, with small tubular perforations round the margins, and a few circular and slightly raised avicularia on the surface of the cells. *Apertures* nearly circular, with a slightly projecting rostrum below, bearing a small avicularium on one side; the rostra are obliterated in the lower portion of the stem and branches. *Ovicells* freq, semicircular, decumbent, a little perforated. Height, about an inch; lateral expansion, rather less; breadth of stem,  $\frac{1}{4}$ th of an inch.

The species has yet only been found in Shetland, where it was first got by Mr. Barlee, in 1858. It has lately been obtained in the same locality, by the Rev. A. M. Norman. *C. attenuata* comes rather near to some varieties of the last, from which it may be known by its more slender form and uniform thickness throughout, by its smoother and more even surface, and likewise by the absence of the numerous avicularia of that species. Young individuals of this and the two preceding species are, with difficulty, distinguished from each other. In its typical form this species is very slender, and the cells are placed rather more regularly than is usual in the genus *Cellepora*, but occasionally a cell may be found reversed, or placed diagonally.

## CELLEPORA CERVICORNIS, Fleming.

Much difference of opinion exists concerning the British species generally known under this name. The points in dispute are:—

1st. Is the species a Cellepora or an Eschara?

2nd. Is it the same as the Eschara cervicornis of Milne Edwards, and the Millepora cervicornis of Pallas?

3rd. Are more than one species confounded by British authors under the name of Cellepora (or Eschara) cervicornis; and does the species figured by Dr. Johnston belong to it?

With respect to the first of these questions, it may be stated that, in its young state, and at the ends of the branches, this species has the character of an Eschara; the polyzoary being much compressed, with the cells arranged back to back, in regular quincunx. The form of the apertures is ovate or nearly circular, and a little contracted below, with a central avicularium on the lower lip. In a more advanced state the apertures become orbicular, and the basal portion is contracted into a narrow slit or sinus. As age advances, additional layers are superimposed, giving the stem and branches a more rounded form, and on each layer the cells become more irregular, until they are confusedly scattered, heaped together, and raised at intervals. In this state the species assumes the character of a Cellepora. A different view of its generic position may therefore arise, according as its older or younger portions are taken for illustration. Admitting its adult state to be the perfect form, I agree with M. Milne Edwards in considering the species to belong to Cellepora rather than to Eschara.\*

On the second point I am also inclined to agree with M. Milne Edwards in the opinion expressed below. The *E. cervicornis*, so well described and figured by that able naturalist in his '*Recherches sur les Eschares*,' is more slender in form and less expanded at the top of the branches than in the British species. The cells in the young part are more prominent, and the apertures more elongated. But the chief difference is in the older part of the stem and branches, which

\* "*M. Fleming a décrit aussi sous le nom de Cellepora cervicornis* ('*British Animals*,' p. 532) un Polyfier qu'il a trouvé sur les côtes de l'Écosse, et qu'il considère comme identique avec le *Porus cervinus* d'Imperato, etc.; mais d'après l'inspection d'un échantillon qu'il a envoyé sous ce nom au Musée de York, nous ne doutons pas que ce ne soit une espèce: tout-à-fait distincte, et même un véritable Cellepore plutôt qu'un Eschare." —*Recherches sur les Eschares.*

is finely granulated, with the cells sunk and almost obliterated, very different from the heaped and prominent cells of our British species. M. Milne Edwards's specimens were from the Mediterranean. On turning to Pallas's 'Elenchus' for the original description of his *Millepora cervicornis*, we find it to agree more nearly with the species described by Milne Edwards than our own, while the locality, "*Mare Mediterraneum solum*," shows that he had not the British species in view at the time. Indeed, I am inclined to think that his *E. fascialis*, *a*, from the Isle of Wight, was really a variety of our *C. cervicornis*, some of the forms of which approach very closely in general appearance to that species; and, as far as I am aware, Pallas's statement here alluded to is the only authority for including *E. fascialis* in the British Fauna. The "Italian coral" figured by Ellis was most likely from the Mediterranean.

With regard to the third point. Through the kindness of my friends, I have had the opportunity of examining numerous specimens of this species, both from Shetland and the coast of Cornwall; and I am led to the conclusion that, though considerable difference exists in the external form of examples from the two localities, their minute structure does not warrant the separation of them into two distinct species. Those from the south coast are generally more massive, especially in their basal portions, than specimens from the Shetland seas. On referring to the descriptions of British authors, I find most of them agree pretty well in the essential characters of the species; and though Mr. Busk considers his *E. cervicornis* ('Catal. Mar. Polyzoa') to be identical with that of Milne Edwards, it is evident, from the latter part of his remarks upon it, that it has the characters of a *Cellepora*, and a specimen he has kindly presented to me shows it to belong to our well-known British species. Mr. Richard Couch was of opinion that the figure given in Johnston's 'British Zoophytes' represented a different species from that described in the 'Cornish Fauna,' and Professor Busk was inclined to agree in this opinion. Professor Sars has also suggested that Dr. Johnston's figure was probably taken from a specimen of the *E. rosea* of Busk. Dr. Johnston's own opinion, however, was in favour of the specific identity of the British forms. I have taken some pains to ascertain if the specimen figured in 'British Zoophytes' was still preserved and could be referred to, and have at length been able to make out pretty satisfactorily, through the kind assistance of Mr. Norman and Dr. Baird, that this specimen is in the

British Museum. A broken fragment of it, lent me for examination, proves, as I had expected, that it is only an aberrant variety of the *C. cervicornis* of British authors.

**PALMICELLARIA, nov. genus.**

*Polyzoary* erect, calcareous, inarticulate, cylindrical, smooth, branching dichotomously. *Cells* disposed in four longitudinal alternate series, those in the two opposite series being on the same level. Apertures circular, opening vertically, within a slight concavity (Pl. III, fig. 4,) with a broad projecting, palmate expansion in front, bearing an avicularium.

This genus is somewhat intermediate between *Cellepora* and the *Quadricellaria* of Sars. With the former it agrees partially in the form of the aperture, but it differs in the simplicity of its general structure and the regular arrangement of its cells, which have not the heaped appearance more or less characteristic of that genus in its adult state. With *Quadricellaria* it agrees in the arrangement of the cells, but differs in the form and position of their apertures. No ovicells have yet been observed.

**PALMICELLARIA ELEGANS, n. sp. (Pl II, figs. 1—4.)**

*Polyzoary* very slender, of ivory whiteness, two or three times dichotomously branched nearly on the same plane, and of equal thickness throughout, or expanding very slightly towards the top; composed of four longitudinal rows of cells alternately with each other, the opposite cells corresponding; they are oblong-ovate and smooth, young cells showing some minute perforations round their margins; the apertures are circular and sunk in a slight depression, with a long, curved, and expanded rostrum in front, bearing a circular avicularium on the centre of the upper surface. Height  $\frac{9}{10}$ ths of an inch; breadth of stem  $\frac{1}{30}$ th inch.

For the opportunity of describing this elegant and graceful little coral I am indebted to my friend Mr. Norman, who dredged it last summer in from eighty to ninety fathoms, eighteen to twenty-five miles north of Burraforth lighthouse, the most northern point in Shetland. *Palmicellaria elegans* is distinguished, not less by the simplicity of its structure than by the gracefulness of its form. It is of

small size and very little branched, and is more slender than any other member of the family.

Mr. Norman had previously dredged a small piece of this polyzoon in Loch Fyne, but not sufficiently perfect to allow of its characters being recognised; and he has since ascertained that similar imperfect specimens are in the Johnstonean collection in the British Museum, labelled *Pustulipora proboscidea*, showing that the species erroneously so named in 'British Zoophytes' was described from much worn examples of this genus. The *P. proboscidea* of Milne Edwards is quite distinct, and belongs to a different order.

#### *Genus QUADRICELLARIA*, Sars.

*Polyzoary* erect, calcareous, rigid, inarticulate, cylindrical, dichotomously branched. *Cells* disposed in four regular longitudinal alternate series, immersed; apertures slightly tubular (opening laterally), with the upper and lower margins a little projecting. *Polypides* with twelve to twenty tentacles, the lower ones shortest.

Professor Sars characterised a genus formed for a Polyzoon that he had formerly described as a *Pustulipora*. The same species has been referred by Prof. Busk to his new genus *Onchopora*, in the family *Salicornariadæ*. The latter comes nearer to its true affinities. The species, however, seems entitled to generic rank, and is now, I think, more correctly placed among the *Escharidæ*.\*

#### QUADRICELLARIA GRACILIS, Sars. (Pl. II, figs. 9—12.)

*Polyzoary* slender, white, much branched dichotomously, the branches cylindrical, nearly linear, and tapering a little towards the extremities. *Cells* arranged in four longitudinal rows, alternating with each other, so that the two cells on opposite side of the branches are on the same level. *Apertures* nearly circular, slightly tubular and bilabiate. There is a small tubular orifice below the mouth, and large oval radiating perforations surround the margins of the cells, the surface of which is finely striated in an undulating manner. Two, or sometimes four, small circular avicularia are seen at the sides of the cells, on a line with the perfora-

\* Mr. Busk informs us that the name *Quadrancellaria* has been already used by D'Orbigny for a genus of chalk fossils, and will have to be changed.

tions. The ovicells are few and very little raised. Height 1 to 1½ inches.

*Pustulipora gracilis*, Sars, 'Reise i Lof. og Finn.,' 1850, p. 26.

*Onchopora borealis*, Busk in 'Journ. Micros. Soc.,' p. 213, t. 28, figs. 6, 7.

*Quadrancellaria gracilis*, Sars, 'Norske Polyz.,' p. 15.

This interesting Polyzoon has, until lately, been much misunderstood. The only notice of it as a British species is that of Mr. Busk, who described it under the name of *Onchopora borealis*, from a small and imperfect specimen in Mr. Barlee's collection. That so imperfect a scrap only should have come into Mr. Busk's hands for description must have been by some mistake, as Mr. Barlee brought several specimens from Shetland in 1858, where it was also obtained last summer by Mr. Norman. It is a deep-water species, and has not been found in any other locality in Britain, but appears to be not uncommon on the Norwegian coast.

Prof. Sars considers this genus to be without avicularia. None is seen in the usual position on the under lip of the cell aperture, nor does the small tubular orifice below it appear to possess that character, but two other circular orifices, slightly tubular, are generally present one on each side of the central orifice already named, and continuous with the marginal perforations: these are certainly avicularia, and bear a horn-coloured semicircular mandible. Two other similar avicularia are frequently seen below these last on the margin of the cell. There is an obscure, slightly raised ovicell, with a striated surface in the usual position above some of the cells, with an opening within the upper lip. M. Sars appears to doubt this being a true ovicell, but the coloured contents shining through its transparent wall, as in other species, show its ovigerous character.

#### ESCHARA LÆVIS, Fleming. (Pl. III, figs. 8--11.)

*Polyzoary* white or yellowish, smooth and polished below, dichotomously branched; the branches cylindrical, rising from a short and stout stem, spreading much laterally, and slightly tapering to a blunt apex. *Cells* immersed, ovate, very obscurely granulated on the surface, and perforated at the sides. *Apertures* generally a little higher than broad, arched on the upper margin, slightly contracted at the side

and straight below; upon or a little within the under lip is a slightly raised circular avicularium. *Ovicells* smooth, prominent, hooded, or continued below into a projecting margin surrounding the mouth of the cell. Height, an inch and a quarter; lateral expansion, about an inch and a half; breadth of branches  $\frac{1}{10}$ th of an inch.

*Cellepora lævis*, Fleming, 'Brit. Anim.,' p. 532; Johns. 'Brit. Zoop.,' p. 299.

*Eschara teres*, Busk in 'Ann. Nat. Hist.,' 2nd series, vol. xviii, p. 33, t. 1, fig. 2.

*Eschara lævis*, Sars, 'Besk. over-nogle Polyz.,' p. 12.

This species was described by Dr. Fleming in 1828. from a single specimen got in deep water, Shetland. Since that time it does not appear to have been recognised by British authors, for the specimens got on the Cornish coast, which Mr. Richard Couch referred to this species, appear from his comparison of them with *C. cervicornis* to have been something else. Dr. Johnston did not know the species, and the supposed *C. lævis*, got by Mr. John Macgillioray, on the Aberdeenshire coast, was probably, as Dr. Johnston supposed, a worn variety of *C. ramulosa*. Professor Busk does not notice it in his 'Catalogue of Marine Polyzoa,' and in his 'Polyzoa of the Crag' quotes *C. lævis* as a synonym of *C. ramulosa*. The same naturalist has, however, described a species from the coast of Norway, brought home by Mr. McAndrew, under the name of *E. teres*, which proves identical with this. Mr. Barlee, in the mean time, had got several good specimens in Shetland, but probably considering it a variety of *E. ramulosa*, he had not placed it in Mr. Busk's hands for description. Prof. Sars finds this fine species pretty generally distributed on the coast of Norway, in deep water, from 36 to 150 fathoms, and has published an excellent description of it in his 'Beskrivelse overnogle Norske Polyzoer.' He very correctly recognises it as the *C. lævis* of Fleming. The species is perfectly distinct from the *C. ramulosa*; and I have great pleasure in vindicating the correctness of Dr. Fleming, and restoring it to its place in the British Fauna, from which there appeared some chance of its being expunged.

*Eschara lævis* is one of those species that form an intermediate link between *Cellepora* and *Eschara*; its rounded branches, with the cells ranged round an imaginary axis, agreeing with *Cellepora*, while the cells themselves bear the character of an *Eschara*. Occasionally, however, the branches assume a flattened shape. The lower parts of the branches are generally worn smooth, and the apertures often over-

grown or nearly obliterated; but the upper portions are usually studded with prominent globular ovicells, giving them a knotted appearance. There is no authentic record of this species having been found south of Shetland. A smaller and more slender variety was also met with there by Mr. Norman.

*ESCHARA LOREA*,\* n. sp. (Pl. III, figs. 5, 6, 7.)

*Polyzoary* yellowish white, shining, compressed, and dichotomously branched, rising from a slender flattened stem; the branches are slender, much compressed, and strap-shaped, of nearly equal thickness throughout, expanding a little towards the ends, which are blunt, and generally bifid; the branches are pretty nearly on the same plane, and occasionally anastomose. *Cells* prominent, oval, nearly smooth, but appearing finely granulated under a magnifier, placed in quincunx, seldom more than two or three in a transverse row. *Apertures* large, rounded above, and nearly straight below, with a slightly projecting, blunt rostrum, bearing a circular avicularium on its upper and inner surface. A few small circular avicularia are also seen scattered on some of the cells, and there are punctures occasionally round the margin. *Ovicells* few, small, globose, slightly granulated, without perforations. Height, an inch to an inch and a half; breadth of branches, about  $\frac{1}{5}$ th of an inch.

One or two specimens of this new species were obtained in Shetland by Mr. Barlee, but being rather worn, they were passed over at the time as a variety of *E. Skenei*. Mr. Norman met with it at the same place in 1861, and again in 1863, when he dredged fine specimens in eighty to ninety fathoms, to the north of Burraforth lighthouse.

*E. lorea* is nearly allied to *E. saccata* of Busk, but it is a much more slender and delicate species, with the cells rather larger in proportion, less closely set, and fewer in a transverse row. The cells in this species, too, have a distinct though blunt rostrum below the mouth, while those of *E. saccata* are not rostrated, but are uniformly cylindrical, with a much larger avicularium in front of the aperture. On the

\* I had proposed to call this species *E. ligulata*, under which name it is mentioned (but not described) in the Report of the British Association; finding, however, that the *Cellepora ligulata* of Esper is also an *Eschara*, and synonymous with the *E. fascialis* of Pallas, I have thought it best to avoid a repetition of the name,

other hand, this species approaches very near to some of the more slender branched varieties of *E. Skenei*, from which it can readily be distinguished, in a fresh state, by its more smooth and slender appearance, and by the absence of the pointed rostra, that give a prickly character to the latter species.

ESCHARA LANDSBOROVII, Johnston. (Pl. IV, figs. 1—3.)

*Polyzoary* consisting of very thin and delicate foliaceous plates, anastomosing irregularly, and undulating on the upper margin, which is a little expanded. *Cells* in longitudinal rows, placed alternately or in quincunx. They are oblong, thin, and perforated with large punctures. *Apertures* with the margin slightly raised, nearly circular above, and produced into a point below, where there is a small, slightly prominent, circular avicularium, behind which is a truncated denticle. *Ovicells* prominent, globose, or ovate, silvery and perforated, produced below into a raised margin, surrounding the mouth of the cell, and giving it a triangular form. A rather large, spatulate avicularium is seen in some cells, placed transversely by the side of an ovicell, and raised a little from the surface (fig. 3). The two layers of cells are separable. Height, two inches: breadth, about two and a half inches.

*Lepralia Landsborovii*, Johns., 'Brit. Zooph.,' p. 310, t. 54, fig. 9; Busk, 'Catal.,' p. 66, t. 86, fig. 1, and t. 102, fig. 1; Hincks, in 'Journ. Micros. Soc.,' v. viii, p. 277 (young state).

*Eschara foliacea*, Alder, in 'Trans. Tynes. Club,' v. iii, p. 151.

This delicate and fragile species was obtained some time ago on the north coast of Northumberland, by Mr. Embleton, of Beadnel Cottage, but was passed at the time of the publication of my 'Catalogue of the Zoophytes of Northumberland and Durham,' as a variety of *E. foliacea*. A second and more careful examination, however, convinced me that it was a distinct and very characteristic species, hitherto undescribed as an *Eschara*, but not entirely unknown to science, as the *L. Landsborovii* of Johnston turns out to be an encrusting form of this species, which has not until now been seen in its perfect state. Mr. Bean, however, has lately sent me a small specimen for examination, got at Scarborough, in which a double layer of cells rises to about an inch in height; and Mr. Norman has dredged a variety of this species in Guernsey,

consisting of a single layer, assuming the form of a hollow cylinder, with the edges slightly appressed at their junction. Mr. Hincks has also met with similar examples. It is rather singular that on this coast, where for the first time the species has been found in its perfect state, the Lepralian or rudimentary form is unknown. In its intermediate state this species has all the characters of the genus *Hemeschara* of Busk. At present, I am inclined to consider that genus as only a peculiar state of an *Eschara*, and which some species have more tendency to assume than others.

*E. Landsbovorii* differs from most of the other members of the genus, in having the two layers of cells readily separable—a character that has been considered generic by some authors, but which does not appear to be of any great importance.

#### ESCHARA PAVONELLA, Alder.

*Polyzoary* foliaceous, yellowish, forming continuous flabelliform or undulating expansions, arising from an encrusting or clasping base. *Cells* oval or oblong, with large perforations generally radiating from the centre to the circumference. *Apertures* orbicular, large, with a thin, plain margin, and a small mucro below, having a flattened and truncated apex. An oval avicularium on each side of the mouth. No ovicells have been observed. Height, about an inch and a half; breadth variable, but generally exceeding the height.

*E. cribraria*, Busk, in 'Journ. Micros. Soc.,' v. iv, p. 311, t. 10, figs. 7, 9.

Excellent figures of this beautiful species were given by Mr. Busk in the 'Microscopical Journal,' from specimens I had the pleasure of sending him from Newcastle a few years ago. That gentleman then considered it to be the *E. cribraria* of Johnston, an opinion which now proves to be erroneous. I was first led to this conclusion from observing that Dr. Johnston mentions, in his account of *E. cribraria*,\* having had a fragment of another native species sent him from Scarborough, by Mr. Bean, but too imperfect for description in so difficult a genus. Mr. Bean has favoured me with a sight of this fragment, which proves to belong to the present species, and which Dr. Johnston, therefore, evidently considered distinct from his *E. cribraria*. An examination of Dr. Johnston's specimen of the latter species in the British Museum, lately made for me by Mr. Norman, confirms this opinion,

\* 'British Zoophytes,' 2nd Ed., p. 353.

and makes it necessary to give another name to the species now under consideration.

*E. pavonella*, like the foregoing species, is sometimes found assuming all the three forms of a *Lepralia*, a *Hcmeschara*, and an *Eschara*, according to the substance on which it is developed, often clasping the stems of zoophytes in a single layer before rising into a double foliaceous expansion. It is a deep-water species, only yet found on the north-east coast of England, ranging from Cullercoats to Scarborough, and extending eastward to the Dogger Bank.

*Family* CELLULARIADÆ, Busk.

SCRUPOCELLARIA DELILII, Audouin. (Pl. III, figs. 4—8.)

*Polyzoary* slender, shining, dichotomously branched, conspicuously jointed, the internodes containing from five to ten cells each. *Cells* ovate, narrowed below; apertures oval, with smooth margins, bearing one stout spine (or sometimes two) on the upper and outer margins, and a smaller one on the inner margin. *Operculum* ovate, channelled with tubes, forming a lobated cavity. Marginal avicularia moderately prominent; there is also a tubular or conical avicularium in the centre, in front of each cell. Vibracular capsules (sinus of Busk) transversely wedge-shaped, stretching across the back of a cell and part of the adjoining one. *Vibracula* short, rising from the upper and outer angle of the capsule, below which is an aperture for one of the radical fibres, which are numerous and scattered over the whole of the branches. *Ovicells* small, smooth, and imperforate. Height half an inch.

*Crisia Delilii*, Aud., in Savigny's 'Egypt' (fide Busk).

*Cellularia scrupea*, Alder, in 'Trans. Tynes. Club,' v. iii, p. 148.

*Scrupocellaria Delilii*, Busk, in 'Journ. Micros. Soc.,' v. vii, p. 65, t. 22, figs. 1, 2, 3.

I obtained specimens of this delicate little *Scrupocellaria* a few years ago, from the deep-water fishing-boats on the Northumberland coast, but did not at the time observe its distinctness from *S. scrupea*, with which it agrees in having the cells operculated. It differs, however, in having an avicularium on the front of each cell, and in the peculiar shape of the vibracular capsule, which is transversely wedge-shaped, while in the other known species it is bilobed and

erect. Another example of this species has lately been dredged on the Durham coast, by Mr. G. S. Brady and Mr. Hodge. It appears to be a Mediterranean species, and has also been found in Madeira by Mr. J. Y. Johnson. This is the first notice of its occurrence on the British coast.

*Order* CYCLOSTOMATA, Busk.

*Family* IDMONEIDÆ, Busk.

*Genus* HORNERA, Lamouroux.

HORNERA BOREALIS, Busk. (Pl. IV, figs. 1—6.)

*Polyzoary* white, much and irregularly branched; the branches commencing almost from the base, stout below, undulating, and gradually tapering to the extremities; they are cylindrical or a little compressed, curving slightly inwards below on the smooth side, and rather bent outwards towards their extremities; the cell-apertures are arranged nearly in quincunx on the outside of the branches; the central ones are orbicular and slightly tubular, with an even rim; those towards the sides are more produced, dilated and expanded obliquely towards their extremities, and sometimes ending in an acute point, but more frequently slightly rounded; there are three or four cells in each transverse row. The surface on this side is striated in an undulating manner, and there are numerous small, sub-tubular perforations (some of which appear to be avicularia), somewhat irregularly disposed, but generally following the margins of the cells. The inner or back part of the branches is smooth, without cells, but with faint undulating ridges, and a few very small punctures like sunken tubes. The *ovicells* are placed on this side, generally near the junction of a branch, forming yellowish, sub-globular protuberances, of a hard, calcareous nature, and appearing reticulated or coarsely punctured under a magnifier; a tubular aperture is seen at one side (Pl. V, fig. 6). Height, about three quarters of an inch; lateral expansion about the same; thickness of the branches, from  $\frac{1}{16}$ th to  $\frac{3}{16}$ th of an inch.

*Hornera frondiculata*, Busk, in 'Ann. Nat. Hist.,' 2nd Ser., v. xviii, p. 34, t. 1, fig. 7; Sars (Reise i Lof. og Finm.), 'Nyt Mag.,' v. vi, p. 146.

*Hornera borealis*, Busk, 'Crag Polyzoa,' p. 103 (without description).

This interesting *Hornera*, the first of the genus discovered

in Britain, was got by Mr. Barlee in Shetland, in 1858, and recognised at the time, but, by some oversight, it has not hitherto been announced as British. It is stated by Professor Sars to be not uncommon on some parts of the Norwegian coast, in about forty fathoms. Professor Busk has recorded and figured it among the Polyzoa got by Mr. McAndrew on that coast, and in his 'Polyzoa of the Crag,' points out its distinctness from *H. frondiculata*, and proposes for it the name of *borealis*, which I now adopt. It differs from *H. frondiculata*, in being much smaller, less expanded, and more robust, in proportion to its size; the surface, too, is much less strongly striated; another difference will be found in the character of the marginal cells; these in the southern species are usually set in diagonal rows, which is not the case in *H. borealis*. But the most decided difference is in the ovicells. Those of *H. frondiculata* are oblong, strongly keeled along the top, and striated at the sides, with the aperture projecting above into a curved tube (Pl. V, fig. 7); but in *H. borealis* they are globose and reticulated, or punctured over the surface, with a tubular aperture at one side. The ovicells in this genus are very peculiar. They are large, and developed from the general polyzoary at the back of a branch, apparently unconnected with the individual polypides, thus showing a decided zoophytic character.

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*An ENDEAVOUR to identify PALMOGLŒA MACROCOCOA (Kütz.) with DESCRIPTION of the PLANT believed to be meant, and of a NEW SPECIES, both, however, referable rather to the GENUS MEOSTÆNIUM (Näg.).* By WILLIAM ARCHER.

(Read before the Natural History Society of Dublin, January 9, 1863.)

BEFORE proceeding to the subject proper of this communication I shall call to mind the characters of the genus *Palmoglœa* (Kütz.) itself, thus defined by Kützing:—“*Stratum gelatinosum difforme indeterminatum, ex cellulis sparsis polygonimicis in substantia gelinea nidulantibus, compositum.*” Now, such a diagnosis of the genus, while it does not seem calculated to exclude all that it ought, appears to me to omit an additional important character pervading all the species intended to be included therein (if we except, as we ought, *Palmoglœa Roemeriana* Kütz.), and that is the elon-

\* ‘Species Algarum,’ p. 227.