

reous instead of chitinous, as it is in *Hydractinia calcarea*, then the identity in structure with *Parkeria* would be so far complete.

Thus, although *Parkeria* cannot be identified with *Caunopora*, there is still no reason whatever why it should not be indirectly connected through *Hydractinia* with *Stromatopora* by being a Hydroid, if I am right in assuming that the animal of the latter was of this nature ('Annals,' 1878, vol. ii. p. 304 &c.).

With reference to the examination of the microscopic section of *Stromatopora mamillata*, Fr. Schmidt (Rosen, "Ueber die Stromatoporen," p. 71 &c., Taf. viii.), I have only to repeat what Nicholson and Murie, in their excellent memoir, have already stated, viz. that the skeleton of *Stromatopora* is "composed of non-spicular, granular, calcareous matter" (Linn. Soc. Journ. Zool. 1878, vol. xiv. p. 241).

Selecting a rolled portion, from the "Parson and Clerk" rocks at Teignmouth, of the species above mentioned, in which the so-called "hexactinellid structure" is sharply defined, I thought, as I had lately been successful in bringing out the spicules of the fossilized Calcispongiæ of the Coral Rag from Faringdon, that I might be equally successful in doing so with *Stromatopora* under similar circumstances, if there were any present; but although the slice was reduced almost to transparency, the skeletal fibre of the *Stromatopora* throughout never presented any thing but a granular composition, the minute grains of which contrasted strongly with the clear rhomboid crystalline calcespar of the intervening spaces, without the most remote trace of any kind of sponge-spicule in any part.

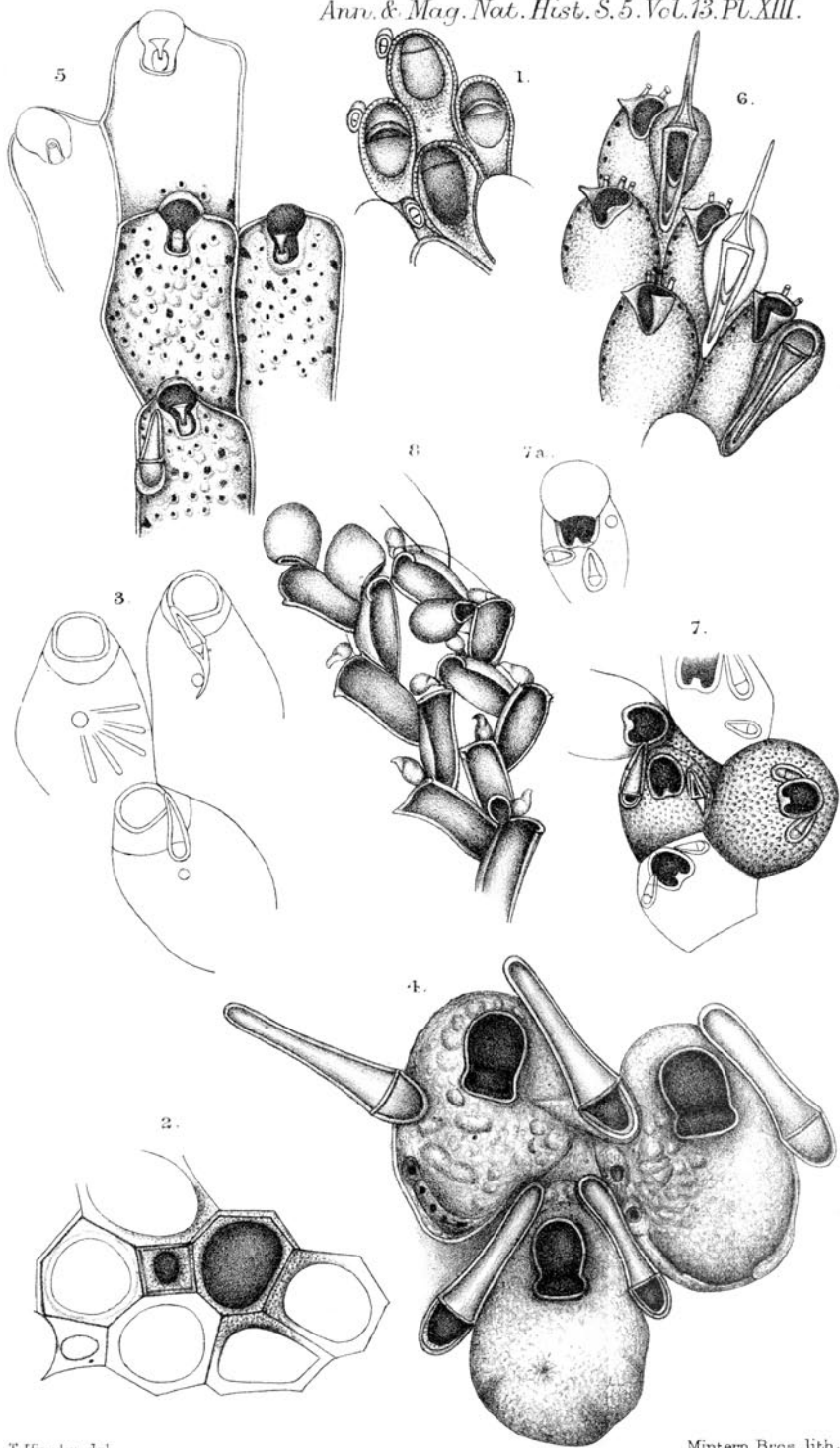
XLI.—*Contributions towards a General History of the Marine Polyzoa.* By the Rev. THOMAS HINCKS, B.A., F.R.S.

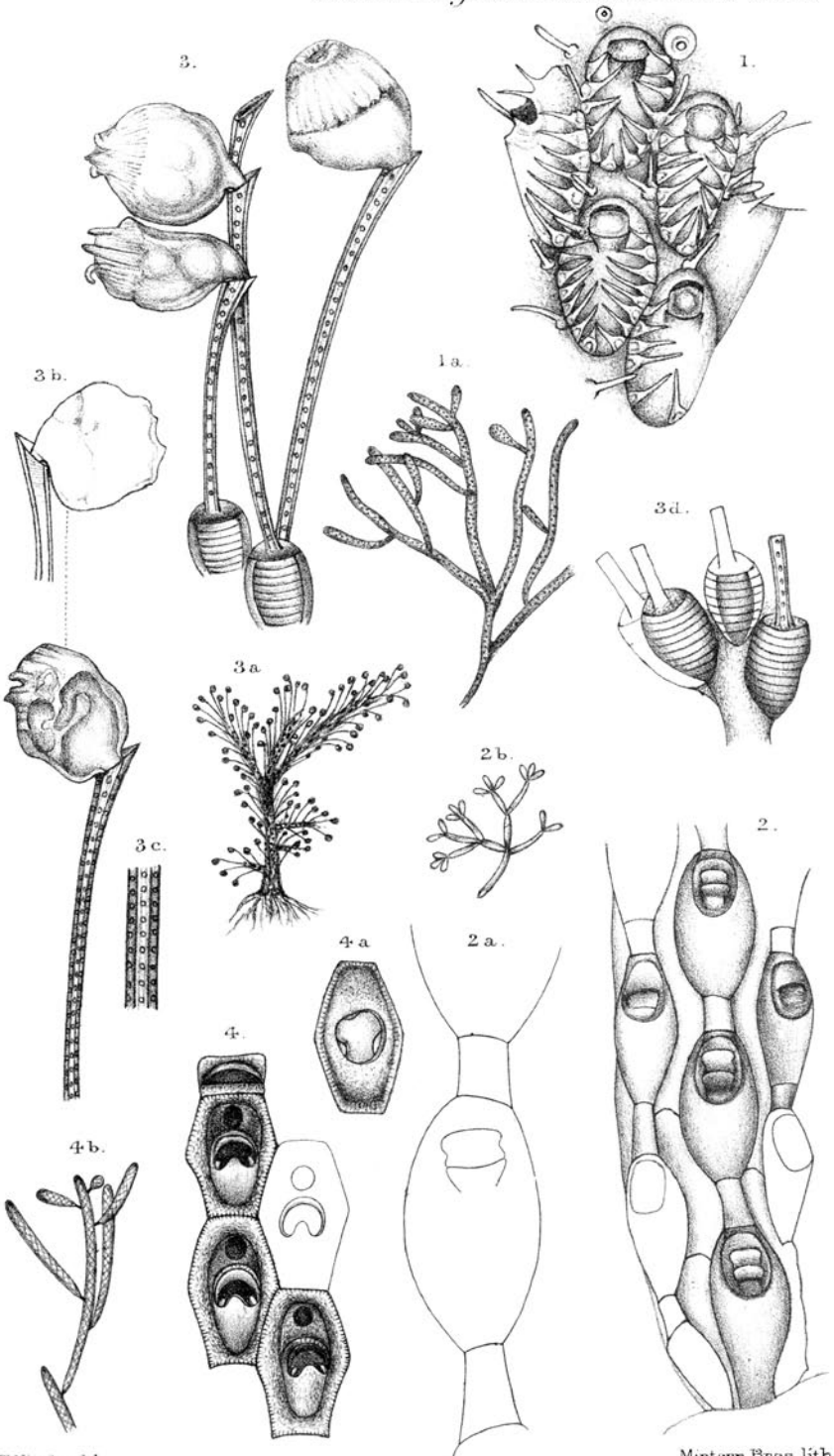
[Continued from vol. xi. p. 202.]

[Plates XIII. & XIV.]

XII. POLYZOA FROM INDIA (coast of Burmah).

A small gathering of Polyzoa from an island in the Mergui Archipelago, off the coast of Burmah, obtained by Dr. J. Anderson, F.R.S., Superintendent of the Indian Museum, Calcutta, has been placed in my hands for examination by





my friend Mr. H. J. Carter. It consists of fourteen species, of which four are probably undescribed; the rest are well-known forms, but they have a definite interest as coming from a new locality, and one which has hitherto, so far as I know, been little explored.

The following is the list of species :—

Suborder CHEILOSTOMATA.

Family Cellulariidae.

SCRUPOCELLARIA, Van Beneden.

Scrupocellaria diadema, Busk.

Range. Queensland.

Family Bicellariidae.

BEANIA, Johnston.

Beania mirabilis, Johnston.

On shell.

Range. Scandinavia, Great Britain, Adriatic.

Family Membraniporidae.

MEMBRANIPORA, De Blainville.

Membranipora favus, n. sp. (Pl. XIII. fig. 2.)

Zoecia oval, or hexagonal, or suborbicular (presenting many irregularities both in form and arrangement), of considerable depth, closely packed together, surrounded by a narrow brown line, which forms a kind of keel on the top of the cell-wall; inner surface of the margin granular; area occupying the whole front of the cell, closed in by a delicate membrane; numerous small cells of various shapes (sometimes quadrate, with an orbicular area) interspersed amongst the larger ones. *Avicularia* none.

Zoarium forming a rather thick crust, and (especially in the absence of the membranous front wall) closely resembling a honeycomb.

The species is without striking features. The dwarf cells, which are present in large numbers, are, perhaps, the most notable peculiarity.

Membranipora marginella, n. sp. (Pl. XIII. fig. 1.)

Zoecia rather small, quincuncially arranged, ovate or pyriform, sometimes pointed below, with a rather thick, unarmed, minutely granular margin; aperture occupying about two thirds of the front and closed in by membrane, contracted above and expanded and rounded below; a small oval *avicularium*, elevated above and sloping downwards, borne on the margin of the zoecia, usually placed on the side, near the top. Occasionally cells with a very large oral operculum of a dark horn-colour, occupying nearly half the area, and enclosed by a thin raised border (? avicularian or reproductive).

Family **Steganoporellidæ**.

STEGANOPORELLA, Smitt.

Steganoporella magnilabris, Busk.

Range. Abrolhos Islet (south tropical Atlantic), Alcoa Bay, Bass's Straits, Florida.

Smitt places this genus amongst the Microporidae, and I have given it the same position in my 'History of the British Marine Polyzoa.' But I am now inclined to agree with Dr. J. Jullien* so far as to regard the dithalamic condition of the zoecium which distinguishes it as entitling it to rank in a separate *family* group. It is only right, however, that the name of this group should be taken from Smitt's genus *Steganoporella*, which is founded on the division of the zoecium into an upper and lower chamber by the interposition of a calcareous lamina beneath the membranous front wall.

I am unable to follow Dr. Jullien in his proposed distribution of the Cheilostomata into two principal groups, characterized by the presence or absence of this "double ectocyst." It seems to me that he assigns a significance to this structural peculiarity to which it is by no means entitled. There is room, however, for a fuller investigation of its history and meaning.

SMITTIPORA, J. Jullien.

Smittipora abyssicola, Smitt.

Range. Cuba, Florida, Singapore or Philippines.

* See his interesting paper entitled "Note sur une nouvelle division des Bryozoaires Cheilostomiens," Bull. de la Soc. Zool. de France, t. vi. (1881).

There seem to be two generic types at least* included in the group of the *Steganoporellidæ*, one of them represented by *S. magnilabris* and the forms which agree with it in the structure of the zoecium, the other by such forms as the present. For the latter I have adopted (provisionally) Jullien's name *Smittipora*, though I am not prepared to accept his diagnosis of the genus in all points, and should be disposed to make it much more comprehensive than he has done. The genus *Steganoporella* (as I propose to limit it) is distinguished by the tubular passage leading from the inner chamber towards the external orifice and the corresponding modification of the internal orifice ("opesia" of Jullien), which is a simple opening in the calcareous lamina communicating directly with the inner chamber in *Smittipora* and kindred forms †.

I at one time referred the present species to *Setosella*, mihi, but the British species (*S. vulnerata*) for which this genus was founded does not possess the dithalamic cell.

The specimens of *S. abyssicola* from Burmah are crustaceous in habit.

Family **Microporellidæ.**

MICROPORELLA, Hincks.

Microporella violacea, Johnston, form *plagiopora*, Busk.
(Pl. XIII. fig. 3.)

Range. Off Tortugas, Florida; France (south-west): English Coralline and Red Crag, Italian Pliocene.

Zoecia large, ovate, very irregularly placed, punctured or areolated round the margin; orifice (primary) arched above, lower margin straight; peristome often much raised, giving a tubular character to the orifice; pore subcentral, simple, round; *avicularium* originating a little below the orifice, bent towards one side of it, and extending obliquely to the margin; mandible slender and finely pointed, curved at the extremity.

The Burmese specimens agree in all essential particulars with Busk's Crag species. The only peculiarities are the very irregular arrangement of the zoecia and the elevated tubular peristome which occurs on many of the cells. I see no reason for regarding *M. plagiopora* as any thing more than a slightly modified form of *M. violacea*.

* There are probably more, but I confine my attention at present to the two noted above.

† See 'Annals' for Feb. 1882, "Contributions towards a General History of the Marine Polyzoa."—IX., pl. v. figs. 8, 9.

Microporella Fuegensis, Busk.

Range. Tierra del Fuego.

A small erect and branched specimen of this species occurs. The suboral pore presents some peculiarities. It is placed *immediately* below the rim of the orifice in front, and is only found in the adult cell. In the marginal zoecia the orifice is suborbicular and the peristome not elevated; but in a more advanced stage the peristome rises considerably round the back and sides of the orifice, but not in front, the result being that a sinus is formed here. In a still more advanced stage the *margin* of the side walls of the peristome is extended across the upper part of this sinus, forming a narrow rim, and converting the open fissure into a circular pore, which communicates directly with the interior of the tubular peristome. It is evident that this is a very different structure from the ordinary pore of the *Microporellæ*, as it occurs in *M. ciliata* and *M. Malusii*, where it opens into the interior of the cell itself, and must be placed in a very different category.

Family **Myrizoidæ** (part), Smitt.

SCHIZOPORELLA, Hincks.

Schizoporella biaperta, Michelin.

The single specimen which occurs is crustaceous in habit and referable to the form *divergens* of Smitt. It is furnished with large spatulate avicularia as well as the small circular form so characteristic of the species; the walls of the cell are smooth and white. The oecium is very unlike that figured by Smitt for his *Hippothoa* (*Schizoporella*) *biaperta*; and this dissimilarity, in conjunction with the difference in the shape of the orifice, may prove that he was right in regarding the form *divergens* as a species. The ovicell in Dr. Anderson's specimen (which is a very typical example of Smitt's *S. divergens*) is small, rounded, and thickly covered with raised punctures; the opening is closed by the oral operculum of the cell.

Family **Escharidæ** (part), Smitt.

LEPRALIA, Johnston (part).

Lepralia robusta, n. sp. (Pl. XIII. fig. 4.)

Zoecia very large, ovate, quincuncial, flattish, separated by a rather deep furrow, which is occupied by a line of large

punctures; surface uneven, rather coarsely granulose, usually a small depression (? pore) in the centre; orifice large, much taller than wide, arched and expanded above, somewhat contracted below, constricted a short distance above the inferior margin, which curves outwards; on each side of the orifice (or sometimes on one side only) a much elongated subspatulate *avicularium*, which originates some way below the orifice and slants obliquely upwards to a little above the top of it; mandible long, blunt and slightly expanded at the extremity, and directed upwards. *Oæcium* rounded, somewhat prominent, moderate in size, surface roughened.

A fine characteristic member of the genus, of which the size of the cells and the elongate *avicularium* are the striking features.

PORELLA, Gray.

Porella malleolus, n. sp. (Pl. XIII. fig. 5.)

Zoæcia rectangular, disposed in linear series, depressed, separated by delicate raised lines; surface covered with small punctures and nodulous ridges; a line of larger foramina round the sides; orifice arched and expanded above, much contracted below, the margin about the centre projecting inward on each side, lower lip slightly curved (nearly straight); within it an *avicularium* with a hammer-shaped mandible. Occasionally an *avicularium* at one side, which takes its origin some way down the cell and slopes upward to the top of the orifice; mandible elongate, slightly expanded at the base, slender above it, and pointed at the extremity, directed upwards. *Oæcium* (?).

Zoarium incrusting, whitish, of very delicate material.

The hammer-shaped mandible of the *avicularium* is a curious peculiarity, and, when elevated and standing erect within the lower lip, a very conspicuous one.

SMITTIA, Hincks.

Smittia trispinosa, Johnston, vars.

Range. Norway and Arctic seas, St. Lawrence, Mazatlan, North Pacific (Queen Charlotte Islands), Florida, Cape Horn, Aden, Adriatic, Britain, Bass's Straits.

Of this cosmopolitan species several varieties occur.

i. Peristome usually not elevated, and the marginal denticle very prominent (as in the Arctic form); sometimes the usual triangular *avicularium* present, but in some of the cells

replaced by an elongate form, originating below the orifice, and stretching up alongside it, with a long slender mandible (occasionally subspatulate) directed upwards. *Zoæcia* very irregularly placed and turned in all directions (Pl. XIII. figs. 7, 7a).

ii. *Zoæcia* very regularly disposed in lines. *Oæcium* thickly punctured, and with a penthouse-like projection in front; a triangular *avicularium* below the orifice.

iii. Form *bimucronata* (Pl. XIII. fig. 6). *Zoæcia* ovate, moderately convex, in linear series, radiating regularly from the central primary cell, separated by raised lines, punctured round the margin; surface reticulated, silvery; orifice suborbicular, with a denticle on the lower lip; peristome (in the older cells) much elevated, thin, rising on each side into a prominent mucronate process, more or less produced in front, two spines on the upper lip; frequently on one side a gigantic *avicularium*, which originates alongside the peristome (near the top of the orifice), and extends straight downwards to the base of the cell; beak deeply channelled, broad at the base, and narrowing gradually towards the rounded extremity; an elongate subtriangular opening on the upper half of it; mandible long, very slender above the expanded basal portion, formed of very delicate membrane, directed downwards.

This variety also occurs in Australia (*J. B. Wilson*).

This has much the appearance of a distinct species; but it is connected by intermediate varieties with the typical form. We might expect the most widely distributed forms to be the most liable to variation; and this is certainly so in the case of the present species and *Microporella ciliata*, which are both eminently cosmopolitan.

Family Celleporidæ.

CELLEPORA, Fabricius (part).

Cellepora, ? n. sp.

A *Cellepora* occurs amongst Dr. Anderson's specimens which is identical with that described in my "Report on the Polyzoa of Queen Charlotte Islands" under the provisional name of *C. brunnea*.

Suborder CYCLOSTOMATA.

Family Lichenoporidaæ.

LICHENOPORA, Defrance.

Lichenopora Novæ-Zelandiæ, Busk.

Range. New Zealand.