with uniform, imbricate, keeled scales. Pale brown above, with a darker broad dorsal stripe, which may be edged on each side by a fine blackish line; a blackish streak on the canthus rostralis, and a brown black-edged streak from the eye to the neck, passing through the tympanum; upper lip and lower parts cream-coloured.

	♂. millim.	♀. millim.
Total length	348	320
Head	18	17
Width of head	10	9
Body	60	63
Fore limb	33	32
Hind limb	52	50
Tail	270	240

Four specimens have been submitted to me by Professor Lütken, one of which I have been permitted to retain for the British Museum. They are from Riacho del Oro, Argentina, obtained in 1887 by Mr. W. Sörensen.

I beg to record my best thanks to Professor Lütken for his courtesy in allowing me to describe this interesting lizard.

XII.—*Contributions towards a General History of the Marine Polyzoa*, 1880–91.—*Appendix*. By the Rev. Thomas Hincks, B.A., F.R.S.

In the following Appendix such errors as have been noticed in the series of papers which it brings to a close are corrected, and at the same time any changes rendered necessary by the progress of investigation have been introduced. But the discussion of a number of systematic and other questions, suggested by the papers, must be reserved for a future occasion.

'Annals,' July 1880 (p. 3 sep.) *.

Membranipora crassimarginata, sp. n.

Busk has identified this species with a form which occurs in the 'Challenger' collection †; but there are important differences between the two, and after an examination of the 'Challenger' specimens I have little doubt that they must be

* Reference is made to the number of the 'Annals' in which the paper appeared and to the paging of the separate copies.

† 'Challenger' Report on the Polyzoa, pt. i. p. 63, pl. xv. figs. 3, 5.

accounted distinct. Busk describes two varieties of his species, one with a crustaceous the other with an erect habit of growth. It is with the former (var. *incrustans*) that he identifies the Madeiran species. The points of difference are the much more robust and massive character of *M. crassimarginata*, the unusual thickness and strong crenation of the cell-margin, the depth of the cell-wall, which can be seen in the interspaces between the zoœcia, and the form of the avicularian cell, which is perfectly oval, like the zoœcium, and bears a straight mandible, rounded at the extremity, whilst that of Busk's species is "broadly spatulate." The general character of the cell in *M. crassimarginata* presents a contrast to that of the 'Challenger' form, which is heightened by the entire absence in the latter of its most marked feature—the broad, deeply cut (crenated) margin.

Busk gives *Biflustra Lacroixii* of Smitt ('Floridan Bryozoa,' pt. ii. p. 18) as a possible synonym of his var. *incrustans*. It may be so, but it is certainly not the Madeiran species.

Ibid. (p. 6 sep.).

Cribrilina radiata, Moll, var.

Busk in his description of Madeiran Polyzoa in Quart. Journ. Micr. Sci. vol. vii. (1859), figures a variety of *C. radiata* which agrees in most respects with the above, and notably in the remarkable elongation of the avicularium. In the same volume of the Micr. Journ. he records the occurrence of *Lepralia Pouilletii*, Aud., and remarks that it is readily distinguished from *C. radiata* "by the absence of the large avicularia and the uniformity of the front of the cell."

But the avicularium is very commonly absent in *C. radiata*, and when present exhibits many varieties of form. The front wall, too, is liable to much variation, especially in the character of the transverse ridges and central keel *. When the keel is absent and the transverse ridges are but slightly developed the cell presents the appearance represented in Audouin's *Flustra Pouilletii*, which must certainly rank as one of the synonyms of *C. radiata*, Moll.

There is also a good deal of variability in the superficial characters of the oœcium, which does not seem to have attracted much attention. Savigny figures in *Flustra Pouilletii* a simple raised line passing backwards from the centre of the oral arch. In a form figured in my 'History'

* See my 'History of the Brit. Marine Polyzoa,' p. 187–189, and pl. xxv. figs. 1–9.

(pl. xxv. fig. 2) a subtriangular space on the front of the oœcium is inclosed by prominent raised lines, whilst in the Madeiran specimen its place is occupied by a smooth, subacuminate elevation which stretches upward from the oral arch. Such differences in superficial detail have little systematic significance.

Ibid. (p. 6 sep.).

Microporella decorata, Reuss (sp.).

Syn. *Microporella diadema*, MacGillivray, Prodromus Zool. Victoria, decade iv. p. 30, pl. xxxvii. fig. 6; Hincks, "Contributions" &c., Ann. & Mag. Nat. Hist. ser. 5, vol. xv. p. 249, pl. viii. figs. 3.

The oœcium is liable to considerable variation. Compare the figure in Manzoni's 'Bryozoi fossil. Italiani,' pt. ii. pl. i. fig. 6, with MacGillivray's. "The broad band of vertical beaded lines," which is so marked a feature of the recent form, is represented in the fossil by a line of small nodules round the base of the oœcium, which is not even referred to in the description.

In the account of *M. decorata* I have referred to *Microporella violacea*, Johnston (sp.); but this species, we now know, should probably be included in the genus *Adeona* *, Lamouroux, the genus *Reptadeonella* of the 'Challenger' Report being quite untenable.

Ibid. (p. 8 sep.).

Schizoporella sanguinea, Norman.

Additional Locality. South Africa (*Miss Jelly*).

Ibid. (p. 9 sep.).

Lepralia Kirchenpaueri, Heller, var. *teres*.

The Madeiran form, which I have regarded as a variety of Heller's species, Mr. Waters would refer to *L. Poissonii*, Audouin. On further consideration I am not disposed to adhere to my former opinion. The shape of the cell, which is much more distinctly given in Manzoni's figure than in Heller's, is very peculiar, and differs widely from that which is shown in my figure ('Annals,' ser. 5, vol. vi. pl. ix. figs. 7). A distinctive feature of Heller's species is the ribbed oœcium; but that of the Madeiran form is of small size and smooth

* See "Critical Notes on the Polyzoa," Ann. & Mag. Nat. Hist. ser. 5, vol. xix. p. 158.

and the front is enclosed by a raised line. I therefore no longer identify these two. At the same time I am not prepared to accept Mr. Waters's alternative without a more careful examination of *L. Poissonii* than I am able to make at present. Besides other differences, the lower margin is represented in Savigny's figure as mucronate. If the Madeiran form is ranked under Audouin's species, it must be as a strongly marked variety.

Heller's *L. Kirchenpaueri* Waters would refer to *L. adpressa*, Busk. I confess I should be more inclined to recognize it as a distinct species. The peculiar shape of the cell, to which I have already referred, and the absence of vibracula are good specific characters, which separate it from *L. adpressa*, Busk (=*L. lata*, Busk). It is true that the latter is sometimes furnished with small nodular risings on each side a little below the orifice *, but these never bear vibracula and have no special significance.

Ibid. (p. 13 sep.).

Membranipora albida, sp. n.

This species is recorded doubtfully in the 'Challenger' Report as occurring at two stations. Mr. Busk remarks that the close resemblance between it and the 'Challenger' specimens "leaves little room for doubt as to their identity," the chief point of difference being the larger size of the avicularia in the former. There is undoubtedly a great similarity between the figures of the two forms. The *position* of the avicularium is the same in both; but there seem to be not unimportant differences in its structure as well as in size. Unfortunately the 'Challenger' description of it is much too meagre to allow of a satisfactory comparison; but if the details of the figure may be trusted, the avicularia represent two different types. The question can only be settled by an examination of the 'Challenger' specimens, which I have not had the opportunity of making in time for this paper.

Ibid. (p. 16 sep.).

Membranipora villosa, sp. n.

Syn. ? *Flustra Isabelleana*, d'Orbigny, Voyage &c. pl. viii.

D'Orbigny, in his 'Voyage dans l'Amérique méridionale,' has described a species under the name of *Flustra Isabelleana*, which presents some rather striking points of resemblance to

* 'History of Brit. Mar. Polyzoa,' p. 307, pl. xxxiii. fig. 6.

the present form. The cells are characterized as "pilose" or "covered with minute pilosities," elongate and narrow, and bituberculate above.

It is said to form large radiating patches on floating weed off the coasts of Patagonia and Cape Horn.

The diagnosis, after the fashion of the period in which it was published, is brief and insufficient, and the figure is certainly not a correct representation of *M. villosa*; but the salient feature of both is the same. The slender spinules covering the membranous front wall, and giving it a pilose appearance, are present in both forms, and, so far as I know, they are unique. The cells are similar in shape, elongate and rectangular; but in those of *F. Isabelleana* the side-walls are carried up on each side above into a mucronate process which is entirely wanting in *M. villosa*. In this species the upper margin of the cell is straight and bears on each side a tall acuminate spine. There are also a few small lateral spines, which are absent in the Cape-Horn species, and also a broad, membranous, strap-like appendage, pointed above, which rises from the centre of the upper margin in many of the cells, and constitutes a curious and very puzzling piece of structure. Round the *inner edge* of the cell there is a line of close-set minute spinules. There are said to be two tubercles on the cell below in d'Orbigny's species, of which I can find no trace in *M. villosa*. Taking his description as it stands we should hardly be justified in identifying the two forms, though it is possible after all that his species may have been founded on examples of *M. villosa*.

Ibid. (p. 20 sep.).

Membranipora antiqua, Busk.

The structure of this species and of others kindred to it had not been thoroughly investigated when my paper was written. We are indebted to Dr. Jullien for a valuable contribution to our knowledge of them and a discussion of their systematic position*. He has founded the genus *Onychocella* for species agreeing in general character with the *Membranipora antiqua* of Busk and the family Onychocellidæ for this and a number of related forms. While the structural type is fully and ably defined, an unnecessary number of genera, in my judgment, have been created, and undue stress has probably been laid

* "Note sur une nouvelle division des Bryozoaires Cheilostomiens,' Bull. de la Soc. Zoologique de France, t. vi., 1881.

on the characters of the avicularia in the constitution of the family group *.

The present species has been identified with the *M. angulosa* of Reuss, and this as the earlier name has been adopted instead of Busk's. I have not Reuss's work at hand as I write, and cannot therefore compare his figure with that of Busk. But the species has been figured by Manzoni in his 'Bryozoi fossili Italiani,' and he specially notes the constancy of shape exhibited by the opesia ("la bocca," as he calls it), which he describes as always maintaining the characteristic campanulate or horseshoe form, as shown in the figures of Reuss and in his own. Now the opesia of *Onychocella antiqua* is distinctly trifoliate, and markedly so †; it is much larger in proportion to the size of the aperture than in *angulosa*, placed at the very top of it, and occupying entirely (in my specimens) rather more than half of it. It is arched above and constricted a little above the lower margin by two prominent denticular projections, which form a kind of loop in each corner. The lower margin is raised towards the middle and slightly everted. Of the avicularium of course we can know but little in the fossil; but the differences in an important element of structure which I have pointed out may justify, I think, the retention of a separate name for each of the forms. For the present I shall record the recent species as *Onychocella antiqua*, Busk (sp.).

Jullien has formed a genus—*Smittipora*—of which he makes *Vincularia abyssicola*, Smitt, the type. But, in point of fact, there are no differences of any significance between this species and *Onychocella antiqua*. The chief distinctive point seems to be that in the latter the tall, slender, chitinous rod with triangular base which constitutes the mandible has a membranous expansion along one side of it only, while the former has it on both sides. This, with a slight variation in the surface of the cryptocyst, is the basis of the genus. The genus *Smittipora* is surely needless.

Ibid. (p. 20 sep.).

Membranipora mamillaris, Lamx. ‡

I am now inclined to think that I had not conclusive grounds for identifying the species described under this name

* "Critical Notes on the Polyzoa," Ann. & Mag. Nat. Hist. for February 1887.

† Occasionally it is subtrifoliate, but the typical form is not lost.

‡ Histoire d. Polypiers Coralligènes Flexibles (English transl.), pl. i. fig. 6.

with Lamouroux's *Flustra mamillaris*. Certainly neither his diagnosis nor his enlarged figure gives any adequate idea of the form in question. There is a certain general resemblance in the shape and arrangement of the cells, but that is all. The figure of the *natural size* indeed does closely resemble my specimens, and the "marine plant" on which it is represented as growing is, I believe, the same in both cases. The colour, too, may probably be the same in the two forms; but no means of sure identification are supplied. Under all the circumstances of the case, however, it may be better to *assume*, on the strength of such minor resemblances as there are, that Lamouroux had the present species before him, and so, to avoid a change of name, the species will stand as *Thairopora mamillaris*, Lamx.* (sp.).

In my notes on this species I have drawn attention to the importance of the opercular characters, and raised the question as to their generic significance. MacGillivray has since instituted the genus *Thairopora* for this and kindred forms. I quite agree with him that this genus finds its proper place amongst the Microporidæ.

Ibid. (p. 21 sep.).

Membranipora transversa.

As already explained in the number of the 'Annals' for Feb. 1881, Hutton was before me in describing this interesting form, and his specific name (*cincta*) takes the place of the above. MacGillivray has founded the genus *Diploporella* for its reception†, and places it in the family Microporidæ; but there may be a question, I think, as to its true systematic position.

'Annals,' November 1880 (p. 25 sep.).

Membranipora pedunculata, Manzoni.

Waters refers this form to the *Membranipora confluens*, Reuss, and it would be premature to say that he is wrong. But I may point out that the Ceylon species agrees much more exactly with Manzoni's description and figure than with those which he supplies‡. The cells, as Manzoni

* For synonyms see Miss Jelly's 'Catalogue.'

† Trans. Roy. Soc. Victoria, April 1880.

‡ "Fossil Cheilostomatous Bryozoa from Mount Gambier, S. Australia," Quart. Journ. Geol. Soc. August 1882, p. 262.

has correctly stated, are suberect, and the aperture slopes towards the top, so as to be subterminal; as a consequence they have a very distinctive character. The aperture is oval, with a smooth raised margin, which is thin, except below, where it is elevated and sometimes thickened. There is a considerable space between the rim of the aperture and the membranous covering, and the inner cell-wall here is minutely speckled. The smooth porcellaneous outer wall is a striking feature, but this would hardly be preserved in the fossil. The cells taper downwards very decidedly, so as to be almost pedunculate; this is especially apparent in the uniserial colonies. Small rudimentary cells are scattered in considerable numbers amongst the normal zoœcia in the Ceylon specimens, but they are not noticed by Manzoni. The cells are very loosely aggregated.

The differences which I have noted are not without significance; but in the absence of specimens of the fossil form it is impossible to estimate their precise value. For the moment the point may be left *sub judice*.

Pyripora crassa *, MacGillivray, is another allied species, but I cannot satisfy myself of its identity with the form under consideration. "The thick projection from the lower margin of the aperture," which is made a capital character of *P. crassa*, is not represented in Manzoni's species. Its cells, too, seem to me to be much more Hippothooid in form than those which I have figured. If MacGillivray's species should prove to be identical with Manzoni's, his name would have precedence.

Ibid. (p. 26 sep.).

Membranipora polita, sp. n.

MacGillivray suggests that this species may be the *Cellepora alata* of Lamouroux; but there is no trace of the wing-like structure from which this species takes its name, to say nothing of other differences.

[To be continued.]

* 'Zoology of Victoria,' decade xi. p. 23, pl. cvi. fig. 4.