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The precise style or mode of appointment of the desired authority does not greatly matter if only zoologists will agree to accept it. But that it should consist of experts will doubtless be conceded. The ruling may be arbitrary, but it must none the less be made with knowledge of all the circumstances of the case and of the results that will follow from it. It must be clearly understood that the decision is to be made, not because it is in accordance with the rules, but because it is to produce practical convenience.

There is nothing particularly novel in these proposals. A similar one was made in 'Natural Science' for April and May 1896 (pp. 218–220, 302), but though "regarded with favour in various influential quarters," nothing has yet been done to give it effect. And even the recent discussion at the British Association, though unanimous in its resolutions, has so far been barren in its results. The next steps appear to be, first to find out whether a sufficient number of leading zoologists are in favour of these proposals, the next to approach whichever of the two bodies mentioned may be agreed upon, with a request that it will undertake this added responsibility. This would be better done by some society or some group of naturalists than by a single worker known only to a few. Perhaps the British Association would appoint a small committee to collect opinions and formulate the request.

P.S.—To prevent misconception, it may be added that this paper was written before the receipt of Mr. Springer's widely distributed appeal. He, however, deals only with a particular question, capable, as I have here shown, of various answers. My object is to press for a solution of the general question.

V.—*Notes on* Merlia normani, *Kirkp.*

By R. Kirkpatrick.

Prof. Weltner, to whom I had sent, at his request, some specimens of *Merlia normani* which I had dredged up off Porto Santo Island, has recently published a notice * entitled "Ist *Merlia normani* Kirkp. ein Schwamm?"

The pressure of other work prevents me from giving here a full description of *Merlia* adequately illustrated; nor am I yet able to answer the question "What is *Merlia*?"—this inability partly being due, I think I may fairly say, to the

* Archiv für Naturg. 75 Jahrg. 1 Bd., 1 Heft, 1909, p. 139.

nature of the organism itself; but, nevertheless, I beg to offer a few preliminary observations on the subject.

Towards the end of last year, Canon Norman sent me four little dried incrusting Polyzoa-like specimens which had been detached from a small mass of rock hooked up by a fisherman from 60 fathoms off Porto Santo Island. The specimens were covered with a yellow pellicle showing little conical prominences.

Below the pellicle was a white reticulate pattern with small polygonal meshes, and with little tubercles rising from the nodes of the network; a few larger meshes present appeared to have resulted from fusion of two smaller ones.

A vertical section revealed a series of vertical tubes divided up by horizontal perforate partitions, the vertical walls being imperforate, but having longitudinal sutures. A surface view in balsam showed three flanges radiating out from below each tubercle to meet similar ones from neighbouring tubercles, a suture separating the opposing flanges; further, I found what seemed to me to be a tuning-fork spicule with parallel tuberculated prongs (and therefore unlike a boring *Achlya*) imbedded in one of the tabulæ (Ann. & Mag. Nat. Hist. (8) ii. 1908, pl. xv. figs. 13, 14, 18). In the uppermost "cells" of this calcareous framework were bundles of very slender tylote spicules and rhaphide-like oxeas.

When acid was applied to the small scrap that could be spared, either these spicules were not included in the particle used for investigation, or they were washed away. I concluded * that the honeycomb structure had been made by a sponge; and my opinion was strengthened later when I came across a wonderful— and indubitable—Pharetron sponge with a dermal armour composed of large thick calcareous plates or scales with tuning-fork spicules imbedded in them.

Partly in the hope of getting living specimens of *Merlia*, I decided to spend a winter vacation in Madeira and the neighbourhood. In January, accompanied by Senhor A. C. de Noronha, I visited Porto Santo Island. After dredging for nine days we succeeding in finding specimens of *Merlia* in 60 fathoms off the islet of Cima, near Porto Santo.

The living specimens were always in the form of little patches or crusts, about a centimetre, more or less, in area, and of a bright vermilion colour. The crust was quite smooth at first, and nothing else was seen but the smooth bright patch of colour; but very soon the surface sank a little, and the tubercles and white network of the calcareous frame-

* Ann. & Mag. Nat. Hist. (8) ii. 1908, p. 510.

work became visible. On breaking a crust, the appearance presented was that of little square blocks of reddish-orange jelly in white porcelain-like "cells" or pots superposed one above the other, in from two to six storeys.

On examining the first thin sections made from a specimen decalcified by dropping alive into Flemming's solution, I realized that *Merlia* included siliceous as well as calcareous elements in its composition. A specimen decalcified whole presents a curious appearance, viz., of numerous closely packed but separate moniliform cylinders, about a millimetre or more in length, hanging down from a flat lamina. The lamina and the bulk of the layer of beads in the plane just below it compose the ectosome and choanosome of a siliceous sponge. All below the first layer is composed of hollow cylindrical cell-masses separated by very deep constrictions, and joined each to each merely by a narrow thread of tissue which had passed through the central hole, which is often, though not always, present in each tabula. The cells composing these masses are large, elongated, usually pyriform or fusiform cells applied like an epithelium, two or three cells deep, to the surface of the cavities of the calcareous honeycomb. A measured cell was 41 μ long, 10 μ broad at the inner end, and 3·5 μ broad at the outer end next the calcareous wall; the clear nucleus was 3·5 μ in diameter, and almost concealed by the crowd of deeply stained spheroidal granules each about 1 μ in diameter. Above, it was stated that the *bulk* of the uppermost layer of "beads" was composed of ordinary sponge-tissue; at the base of each of these upper beads is a layer of the large elongated cells, which rested on the upper surface of the highest tabula.

A surface view of a decalcified specimen shows, below the ectosome, node-like masses of soft tissue joined to each other by 5–7 radiating spokes; the nodes are the sponge-masses which dip into the upper spaces of the honeycomb, and the radii consist mainly of flagellated chambers lying between the surface-tubercles of the calcareous framework, the clear spaces between the radii being the gaps left by the dissolved tubercles. To what extent other tissues enter into the formation of the radii I have not yet discovered; but, in places, there can be seen, below the flagellated chambers, fusiform cells apparently in continuity with the cells on the surface of the uppermost tabulæ.

These large granular cells appear to be calicoblasts formed *in situ*, and not to be sponge "archæocytes" which have grown down into empty cavities—even to the fifth floor—of the calcareous honeycomb. The term "calicoblast" is here

used simply in a wide etymological sense, as a cell concerned either immediately or remotely in the formation of a calcareous skeleton.

In May I paid another short visit to Madeira and Porto Santo in the hope of finding larger specimens, and possibly some in reproduction. At Madeira, I saw, in the Seminario Museum, a dried specimen of an old and dead *Dendrophyllia* with a very large crust of *Merlia* upon it. The specimen had only recently been hooked up by a fisherman from 90 fathoms off Cape Garajau. On one portion of the crust were a few shallow circular depressions, about 450 μ in diameter and 150 μ deep, scattered among the ordinary meshes, which were only 180–200 μ in diameter, both kinds being barely visible to the naked eye. On the walls and floors of these larger meshes were 4 to 6 slightly developed radiating ridges; in fact, they presented some resemblance to extremely minute coral calices. Judging from the appearance and relations of the walls and ridges, these "calices" appear to have resulted from the fusion of several smaller meshes; at the bottom of some of them were sponge-spicules. These larger meshes may possibly not have any great significance, and be the result of extraneous influences, for there were numerous worm-tubes appearing level with the surface, and the presence of these might locally affect the growth of the vertical tubes in various ways.

Senhor Noronha and I took with us to C. Garajau the man who got the large specimen, but we were not successful in obtaining other examples. I spent three days at Porto Santo, and, just as I was leaving, a fisherman brought me a block of basalt hooked up from 90 fathoms, encrusted with a large patch of *Merlia* about 25 cm. in area; but unfortunately the specimen was dry, and I had no time to visit the spot whence it was obtained.

Prof. Weltner (*l. c. supra*) states that the calcareous framework reminds him of a stony coral. I, too, was struck with the resemblance of *Merlia* to a coral when I saw the specimen in the Seminario Museum.

Recent corals with tabulæ are found in three widely separate groups of corals, viz. Milleporidæ, Pocilloporidæ (*Pocillopora*, *Seriatopora*), and Helioporidæ.

The structure of *Merlia* resembles, in some respects, that of a Cœnothecalian coral. The flanges, with fibrillar structure, radiating out to meet opposing flanges, from which they are separated by a suture, recall what is found in *Heliopora*.

If the larger meshes of the Seminario specimen are really coral calices, the ordinary meshes would be cœnenchymal

tubules, and the masses of cells filling them would probably be ectodermal downgrowths as in *Heliopora* (G. C. Bourne, Phil. Trans. 1905, vol. 186 B, p. 455). But these are large assumptions to make, seeing that neither thread-cells nor zooids have yet been found.

Canon Norman has sent me a valuable reference to a paper by H. A. Nicholson and A. H. Foord, "On a new Genus of Devonian Corals," in Ann & Mag. Nat. Hist. 1886, (5) xvii.; pl. xvi. fig. 5 shows a tangential section of *Rhaphidopora* (*Chætetes*) *stromatoporoides* (Rœmer), from the Middle Devonian of Gerolstein in the Eifel. The figure shows a polygonal reticulation with tubercles at the nodes and with tabulæ perforated at the centre and marked with radial sutural lines (*cf.* my figure, *l. c.* pl. xv. fig. 13). Some figures of *Monticulipora* also, in Nicholson's 'Palæozoic Corals,' notably pl. i. fig. 1, of *M. moniliformis*, show marked resemblances to *Merlia*. The walls of the tubules in *Merlia* are unilaminate, however, and neighbouring tubules have a single common wall (as in the Chætetidæ).

Prof. Weltner mentions in his paper that possibly the siliceous sponge is a "Raumparasit" on the calcareous structure and that the sponge might be found separate. At present I am doubtful as to the real significance of the association of these two elements in *Merlia*, and it would be premature to express a definite opinion. I think, however, that the association is by no means an accidental one. I have found the two together, with one unimportant exception, in all the material examined, *i. e.* in over one hundred specimens. In an extremely small and young specimen, forming a little red spot about a millimtere in area, the young and very slender calcareous meshes are covered over by the young sponge. The calcareous partner grows by the spreading of a thin basal expansion, and slender ridges extend along this floor from the nodes of the already-formed meshes, and meet so as to form the youngest meshes, which are at first incomplete polygons. The exception referred to above was that of an old crust of *Merlia*, dead and washed out, so that sponge-pellicle and spicules, which had very probably been present, had disappeared. I was surprised at not finding more specimens in this condition.

I have examined numerous other sponge incrustations, especially red ones, but have not yet found by itself the siliceous partner of *Merlia*.

The sponge on the surface of *Merlia* has a tough semi-transparent ectosome. I failed to detect oscules or ostia in

living examples, but found surface-openings in a specimen which had been dropped alive into Flemming's solution.

The canal-system somewhat resembles that of *Oscarella*, the flagellated chambers being oval and 33×20 μ.

The skeleton is in the form of more or less isolated bundles of slender tyles and rhaphides. There is always at least one more or less vertical bundle in each node of sponge-tissue; sometimes several bundles form almost a floor on which the flagellated chambers rest. There are no special ectosomal spicules; microrhaphides which were originally described as possibly ectosomal are the ends of rhaphides which had been broken by the contraction of the sponge in drying.

The microscleres are very remarkable, being in the form of oval rings 45 μ long, 30 μ broad, and 3 μ thick at the rim, with a keyhole sinus on the inner margin at each end of the long axis; in some a web-like expansion extends in from each lateral margin.

I had at first thought that the siliceous sponge was a Clavulid, but a suggestion made to me by Canon Norman that the oval rings might be of a similar nature to the sphærancoræ of *Melonanchora* is nearer the mark. For at the edge of a very young specimen I have found developmental phases of the rings in the form of contorted C-shaped bodies with the free ends crossing each other. From the fact that there is a knob on each side of one of the free ends, I conclude that these spicules are related to anisanchorate forms, rather than to sigmas and diancistra (see Lundbeck, Danish Ingolf Exp., Porifera, ii. p. 211); the keyhole sinuses, however, call to mind the notches in the diancistra of *Hamacantha*. The axial canal is near the thick outer rim of the spicule. Sometimes six or seven rings follow one another in succession at short intervals and parallel—hence the specific name "*scalariformis*" given below. Possibly one of the functions of these spicules is to keep open the smaller canaliculi and lacunæ in this highly contractile sponge.

It is here assumed that the siliceous sponge on the surface of *Merlia* is an entity distinct from the calcareous framework. The sponge in question is placed in a new genus, to which I propose to give the name "*Noronha*," in honour of the distinguished Madeiran naturalist Senhor A. C. de Noronha, who treated me with never-failing kindness during my stay at Madeira and Porto Santo.

NORONHA, gen. nov.

Desmacidonidæ with a skeleton formed of more or less

separate bundles of tyles and rhaphides. Microscleres in form of oval rings.

Noronha scalariformis, sp. n.

Sponge incrusting. Tyles nearly straight, slender, 140 μ long, 1·8 μ thick; heads oval, 5 × 2 μ. Rhaphides 80 μ long, very slender, tapering to hair-like extremities, straight, or curved at one end. Microscleres, oval rings about 45 μ long, 30 μ broad, 3 μ thick, with keyhole sinus on inner margin at each end of long axis.

The definition of *Merlia* itself must be emended in a future paper.

VI.—*On a new Species and a new Subspecies of the Genus* Madoqua *and a new Subspecies of the Genus* Rhynchotragus.

By R. E. Drake-Brockman.

Having just completed an interesting journey along the western limit of the Somali country and through Abyssinia, I am able, by the help of my own collections and the material in the British Museum of Natural History, to throw a little more light on the distribution and local variations of several of the members of the genera *Madoqua* and *Rhynchotragus*. Passing from north to south through Somaliland and Eastern Abyssinia, we have as the most northerly species *M. saltiana* and a new species of *Madoqua* which I have described below as *M. cordeauxi*. South of these we soon come upon *M. phillipsi*, with its westerly subspecies *M. phillipsi harar-ensis* and the easterly or coast representative *M. phillipsi gubanensis*.

Still farther south of the *phillipsi* group we find *M. erlan-geri* in Ennia Galla, together with a new subspecies of *Rhynchotragus*, *R. guentheri wroughtoni*.

As one travels south along the river Web, *M. swaynei* is ubiquitous until the junction of the rivers Ganale and Dawa, when *R. guentheri* takes its place, and continues westward towards L. Rudolf and L. Stephanie, where it is replaced by *R. guentheri smithii* and *R. cavendishi*, the largest of this genus.

Travelling in a south-easterly direction from the junction of the rivers Ganale and Dawa at Dolo, we meet near the coast *R. kirkii*, the most southerly representative of the Somali dik-diks.