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VIII.—Observations on Mr. Carter's paper "On two new sponges from the Antarctic Sea, and on a new species of Tethya from Shetland; together with observations on the reproduction of sponges commencing from Zygosis of the Sponge-animal"

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VIII.—*Observations on Mr. Carter's paper "On two new Sponges from the Antarctic Sea, and on a new Species of Tethya from Shetland; together with Observations on the Reproduction of Sponges commencing from Zygosia of the Sponge-animal."* By J. S. BOWERBANK, LL.D., F.R.S., &c.

MR. CARTER'S frank and straightforward, though not very courteous style of criticism, emboldens me to adopt a like free-and-easy style in making a few observations on the subjects of his paper published in the 'Annals and Magazine of Natural History,' No. 54, June 1872. Let me ask him, then, why he designates his proposed new genus *Rossella*, without giving us the slightest idea of its generic characters, as the author himself states, p. 415, "All that I have to offer respecting this sponge is the description of two forms of spicules;" and these organs are essentially specific characters. If he had described these spicula without going to the extremity of founding a new genus and species to account for them, it would, I think, have been quite sufficient for all scientific purposes. The term *Rossella* does not seem to be a happy one, and would certainly have been perfectly incomprehensible without his reference to Ross. In the first place we have already two genera named *Rossia*, one of birds and one of mollusca; so that a third founded on the same name appears to be rather superfluous; and, as constructed by the author, it is very possible that our French friends would understand the genus, from its name, as having been founded in honour of Rossel, the eminent communist who was summarily disposed of some time since by the military tribunals of Paris.

Tethya antarctica, Carter.

The specific characters of the sponge (upon which its whole history, both actual and imaginary, is based) are given from a single specimen of a gemmule apparently somewhat distorted; but this distortion gives the author an imaginary basal anchoring character, which, however, is quite a new habit among the *Tetheæ* in their adult and natural condition. The supposed new species is illustrated in a diagrammatic series of dots and lines, which may afford effective recollections to the author, but will certainly serve any other purpose rather than that of leading future students to the identification of the species, which, I have a strong idea, is, in reality, *Tethea similima*, from the South Sea, in the museum of the Royal College of Surgeons, and registered in the catalogue of "Contents of the Museum," part i. 1860, p. 128, B. 176, "from Tongatabue;" and he will see, in the last paragraph,

p. 148, vol. i. of 'Monograph of the British Spongiadæ,' that I have stated that that species has the same description of gemmule as the larger of the two described as belonging to *T. cranium*, but that the smaller and more simple ones which accompany the large one in that species are not present in the college specimen of *T. simillima*. A difference in the amount of the projection of the spicula beyond the margins of some parts of the object prepared for microscopical observation, as represented by Mr. Carter in his pl. xx. fig. 2, is very likely to be caused by the process of preparation for examination. In the natural condition, as represented in the gemmules of *T. cranium*, in 'Mon. Brit. Spongiadæ,' pl. xxv. fig. 344, they do not appear beyond the external membrane of the gemmule. These facts are all stated in p. 147 of vol. ii. of my work, and might have been readily verified by Mr. Carter from the specimens of *T. cranium* in the British Museum, had he taken the trouble to carefully examine them. The fact of their not appearing beyond the surface of the gemmule militates strongly against Mr. Carter's imaginary base with its anchoring spicula; and neither in the adult state of the specimens of *T. simillima*, nor in any other among the ten species with which I am familiar, are there any such anchoring spicula in their natural state.

The author, in the last paragraph of p. 410 of his paper, has evidently fallen into the error of imagining that the "ovum or, rather, young *Tethya*" is, in point of structure, the exact representative of the mature sponge, when, in truth, a very considerable difference in structural arrangement exists between them—that is, if we are to take *Tethea cranium*, the structure of which we do know, as our example of the anatomy of the fully developed sponge and the gemmules within it.

Mr. Carter appears to have been somewhat shocked by finding a jar at the British Museum labelled "'Shetland. J. S. Bowerbank, 52. 3. 12. 70-73,' to which is added, in Dr. Bowerbank's blue ink and handwriting, '*Tethya lyncurium*.'" I think Mr. Carter will find that I have not labelled the jar *Tethya* but *Tethea*, if I have labelled it myself at all. At this distance of time I only recollect that I gave some British Sponges to the British Museum, and that among them were several specimens of *Tethea cranium*; and whether I mislabelled the jar myself inadvertently, or the label was cut from the list of species sent, and so stuck on it in error, I really cannot say; the numbers on the label were certainly not put on by me. In this jar Mr. Carter found "six specimens, two of *Tethya cranium* and four of another species of *Tethya* as

yet undescribed;" and the latter specimens he subsequently described as *Tethya antarctica*. Mr. Carter seems to have been exceedingly fortunate, if he be correct in his conclusions, in finding four specimens of a new species, as immediately on reading his observations on them I set myself to carefully examine the remainder of my stock of *T. cranium*, more than a hundred specimens, varying in size from a pea to an average-sized orange; and I could not find a single specimen among them that could not be satisfactorily identified as *T. cranium*. I therefore feel strongly inclined to believe that Mr. Carter has fallen into the error of making from small, unimportant differences in the same sorts of structures, two species out of one; but the dots and lines he has given in illustration of his paper are so vague and unsatisfactory, that they do not at all assist us in unravelling the mystery. The description of the gemmules of his *T. zetlandica* would apply quite as well to those of *T. cranium*; and every form of spiculum that he figures as from the former, may be readily found in the latter species.

The author, in p. 419, treating of "the small globular and compressed elliptical bodies" or gemmules of *Tethea*, writes, in the second paragraph, "In Dr. Bowerbank's 'British Sponges,' pl. 25. fig. 343, will be found a monstrous representation of one of these oviform bodies under the designation of 'gemmule,' which is only surpassed by his description (vol. ii. p. 87), where he applies the term 'sexual' to them, and conjectures that one may be the 'female or prolific gemmule;' but Dr. Bowerbank had never been able to discover any 'spermatozoa' in either! As this is a kind of physiology that I do not understand, let us go back to the term oviform &c."

If the author of the paper, in place of criticising the representation of the gemmules of *T. cranium* in vol. i. pl. 25. fig. 343, and the description of them in vol. ii. p. 87, of the 'Monograph of British Sponges,' in the flippant manner in which he has indulged, had communicated with me on the subject, I could have informed him that, instead of illustrating the anatomy of the subjects under consideration by dots and lines, the figures alluded to were drawn from the preparation still in my possession, by the aid of the microscope and the camera lucida, by one of the most talented and accurate microscopical artists that we have among us, Mr. W. Lens Aldous, and that his representation of the originals is not in the slightest degree exaggerated; on the contrary, the figure of the larger of the two is that of a gemmule rather less complicated in its structure than many of those closely adjoining it, in a slice of the sponge immersed in Canada balsam, about four lines square,

and which contains twenty-one such gemmules as the two represented—fourteen of the small and more simple ones, and seven of the so-called monstrosities; and I shall at any time be happy to show the originals of the figures to Mr. Carter, and to convince him that all that is monstrous in the matter is in his own imagination. Having had ample opportunity of verifying the correctness of the figures under consideration by access to the specimens in the British Museum, and having failed in this part of his researches, it is evident that he has much more to learn of the anatomy of the sponges under consideration before he will be master of his subjects. What we want in the investigation of such matters is careful minute observations and faithful figures and records of their structure, and not abstruse hypothetical imaginations illustrated by diagrams of dots and lines. And I think I may venture to predict that no naturalist will hereafter be able, by Mr. Carter's descriptions or his illustrations, to recognize either his *Tethya antarctica* or *Tethya zetlandica*.

I must acknowledge that I have not yet been able to realize Mr. Carter's idea that a sponge is a compound creature, and that every cilium with its basal cell is a separate or distinct animal. It is a step beyond my comprehension; for if it be so in sponges, why not also in human beings? from one of whom I have seen the cilia living and in motion. The late Professor Liston, of University College, many years ago had a patient in the University Hospital with polypus in his nose; and he invited me to come up one morning, and promised to show me the human cilia in motion on a small piece of the polypus from the nose of the man. I went, and had the satisfaction of seeing them, in rather languid motion, in some of their own fluid, in a cell slightly warmed by having been put into warm water and then placed beneath the microscope. The aërating surfaces of a great variety of animals, beside sponges, are abundantly supplied with cilia and ciliated cells; are we to regard all these as compound animals?

IX.—On a new *Species of Timalia from Eastern India*.

By ARTHUR Viscount WALDEN, P.Z.S., F.R.S.

Timalia Jerdoni, n. sp.

Timalia pileata, Horsf. ap. Jerdon, B. of Ind. ii. p. 24, nec Horsf.

A narrow frontal band extending over the eyes, the cheeks, chin, and throat white; forehead and crown deep chestnut; remainder of upper surface dark olive-grey; quills and rec-