APPENDIX II.

MONAXONIDA.

The description of most of the Monaxonid sponges, including the Tethyidæ, which form the subject of this Appendix, was at first undertaken by my colleague, Mr. Ridley, who on finding a difficulty in assigning a position to them amongst the Monaxonida, requested me to include them in my Report of the Tetractinellida, with which group he conjectured they might naturally be associated; at first I could not assent to this view, but subsequently I agreed to treat the subject in an Appendix; still later, when Mr. Dendy joined Mr. Ridley in the Report on the Monaxonida, I returned the *Tethyæ* and some other Monaxonid sponges to them, as I could find no place for them amongst the Tetractinellida. On further consideration it seemed to me probable that the genus *Tethya* might stand in the same relation to the Stellettidæ that *Placospongia* does to the Geodiidæ, and I therefore requested my colleagues to return these sponges to me, and as they were still of the opinion that their place was not with the Monaxonids, they with the kind permission of Mr. Murray graciously acceded to my request. On examination of the minute structure of *Tethya*, the genus of which the position was most doubtful, I found that although possessing a well-developed cortex and sarcenchymatous mesoderm, the choanocytes do not present that concrescence of the collars which is so characteristic of all Tetractinellid sponges, in which the other two characters are present. I therefore was unable to include the genus with the Tetractinellida, and should have once more returned these exceptional Monaxonid sponges but for the fact that I had nearly completed their description, and time was pressing.

The characters which led Vosmaer and Ridley to suppose that *Tethya* and its allies are closely related to the Tetractinellida, appear to be the radiate arrangement of the megascleres, the character of the cortex, and the presence of spherasters. The first character does not appear to me to possess that value which Vosmaer has assigned to it. I have already shown that it is not constant in the Tetractinellida, and Ridley and Dendy show that it may be present (*Phelloderma*) in the Desmacidonidæ, which are included in Vosmaer's order Halichondridæ, and are otherwise reticulate sponges. The