

CHAPTER II.—ANATOMY AND HISTOLOGY, AND EMBRYOLOGICAL NOTES.

A. ANATOMY AND HISTOLOGY.

We propose in this chapter to treat of the anatomy and histology of the Monaxonida under three principal headings—(I.) the skeleton, (II.) the soft tissues, and (III.) the canal system. This will be found to be on the whole a very convenient division, although not an absolute one, for we shall have to forestall our account of the soft tissues in so far as these are directly concerned with the formation of the skeleton. We hope in this manner to pave the way for a somewhat detailed discussion of the classification which we propose to give in the next chapter.

I. THE SKELETON.

(a) The Spicules.

If any apology be needed for dealing in some little detail with a subject which has already received perhaps more than its share of attention at the hands of previous authors, it is to be found in the present state of confusion with regard to the true shapes of some of the minuter and more complex forms of spicules, and with regard to the terminology employed to describe them. Perhaps we may be allowed to say a few words here in self justification.

The leading, and in fact the only really comprehensive work on the subject published in English is Bowerbank's Monograph of British Spongiadae, and this work leaves the matter in such an unsatisfactory condition that it is absolutely necessary to go over the ground again in order to facilitate a proper understanding of the subsequent pages. Let us see how far these remarks are supported by a brief examination of Dr. Bowerbank's system.

In the first place we are told¹ that "the spicula may be conveniently classed under the following heads:—1. The essential skeleton spicula. 2. The auxiliary spicula." The auxiliary spicula are subdivided into—"Connecting spicula. Prehensile spicula. Defensive spicula. Tension spicula. Retentive spicula. Spicula of the sarcodae. Spicula of the ovaries and gemmules." This appears to us an extremely artificial arrangement, moreover it would be very inconvenient in practice, for how can anyone decide whether a given "skeleton spicule" is "essential" or "auxiliary?" Or how are we to know whether a spicule is a "Tension spiculum" or a "Retentive spiculum?" We are told that these two classes of spicules are both appropriated to the "membranous tissues of sponges," and that "the office of the first of these is simply to strengthen and support those

¹ Mon. Brit. Spong., vol. i. p. 13.