

itself all the others, concerns the systematic arrangement of the class Calcarea, proposed by Prof. Hæckel in his monograph, *Die Kalkschwämme*.

Although it is twelve years since this work made its appearance, yet no serious attempt has been hitherto made to criticise Prof. Hæckel's systematic principles, although there has been no want of consciousness that such an attempt was desirable. Some zoologists, it is true, captivated by the ingenuity of the system established by Hæckel, not only proclaimed the Monograph an "Epoche machendes Werk" (Keller), which I quite agree with, but went so far as to express their conviction that there could be nothing further added to the natural history of the class Calcarea, all having been done by the illustrious professor of Jena. Other voices, however, were heard, which spoke of the necessity of a revision; as for instance, those of Leuckart, P. Wright, and more decidedly Metschnikoff and Claus.

A complete revision of all the Calcarea described up to this time is at present scarcely possible. The originals are scattered over all Europe, if not over the whole world, and some of them are not to be obtained at all. I have done my utmost in this direction, and I think that, including the Challenger specimens, the number of forms at my disposal is sufficient to permit me to hope that the systematic arrangement of the group Calcarea here proposed will serve as a sufficiently sure basis for further investigations.

I limit myself in this paper to a revision of the families and genera, this being the most important part of the task. With respect to the species established by Hæckel and later investigators, I am disposed on the whole to accept them. There are among them some doubtful ones, but a discussion of these would lead me beyond the range of my proper work, and I defer it to another opportunity. I think it also superfluous to give here a historical report of the literature of the group. Prof. Hæckel's Monograph gives this very amply up to the date of its publication, and the memoirs of the last twelve years being principally embryological, I shall refer to them, when necessary, in the sequel. A short historical report is also to be found in Dr. Vosmaer's paper on *Leucandra aspera*.<sup>1</sup>

In accordance with the above, I propose to divide my memoir into two chapters; the first will be devoted to general morphological and systematic questions, the second to the description of the forms collected during the cruise of the Challenger.

<sup>1</sup> Aanteekingen over *Leucandra aspera*, &c., Leiden 1880, pp. 1-34.