

so frequently repeated in these pages. Of Prof. Hæckel's statements many have proved to be erroneous, but it must not be forgotten that it was his Monograph that called forth and facilitated later investigations, and if we are forced to agree to a certain extent with the judgment of M. Barrois upon the work just mentioned, that "l'imagination y a trop souvent pris la place de l'observation scientifique et froide," every one will also agree with the other judgment of the same naturalist, that with the appearance of Prof. Hæckel's Monograph "l'histoire des Éponges entra dans une phase nouvelle."¹

I might now pass on to the description of the forms brought home by the Challenger Expedition. I prefer, however, at this point to summarise the few observations of histological interest which I was able to make during the examination of the Challenger material. I have already spoken of the interesting modifications which the pavement-cells undergo under certain circumstances. The flagellated cells are so sensitive to every kind of preservation that I can state nothing new about their properties.

There consequently remains only the mesoderm to be discussed. Besides its usual cellular elements, distinguished by Prof. Schulze² as amœboid and stellately ramified cells, which I was able to discern in all the Challenger Calcarea, in two cases (*Ute argentea* and *Leuconia multiformis*) I observed some very remarkable elements which seem to be intimately connected with the formation of the skeleton. Their form is shown on Pl. VI. fig. 3c. In comparison with the other elements of the mesoderm, these cells are pretty large, but flatly compressed, and forming with their protoplasm—perhaps under the influence of the preservation in alcohol—a kind of irregular network; all are provided with a comparatively large oval, or round nucleus. Such cells I found always in twos and threes upon spicules, upon large acerate spicules of *Ute argentea*, and large triradiate spicules of the parenchyma of *Leuconia multiformis*. It is known (Metschnikoff³) that calcareous spicules develop in the interior of the mesodermic cells. It may, however, happen—and this is very plausible—that in the cases where the spicula reach a considerable size, some other mesodermic cells are also concerned in their growth.

In addition to the spicules, there are in the sponge generative elements which in their turn are products of the mesoderm. Indubitable young ova—at least in large numbers—I have observed only in two cases: in *Leucetta vera* and in *Pericharax carteri*. In *Pericharax carteri* the ova were of the extraordinary size of 0.3 mm. in diameter, and seemed, like ova of *Spongilla* (Ganin⁴), to be surrounded by an endothelium. Larvæ I found in the following species:—*Sycon raphanus*, *Sycon arcticum*,

¹ Embryologie, &c., p. 8.

² *Ibid.*, Bd. xxxii. p. 370, 1879.

³ *Zeitschr. f. wiss. Zool.*, Bd. xxv. Suppl. p. 253, 1875.

⁴ Contributions, &c., p. 14.