

The Sponges also are not to be placed among the Cœlenterata as a class, as suggested by Ganin.¹ The peculiarities of their canal system, the early development of the mesoderm, the circumstance that it is just the mesoderm which in them gives origin to the generative products, and finally, the absence of cnidoblasta and nervous elements, these latter having been recently observed in the Hydroida also (Jickeli)²; all these differences taken together, though perhaps not justifying the establishment of a new type, are yet important enough to entitle the Sponges to occupy an independent subdivision of the Cœlenterata in the position of a sub-type. That within this sub-type, the Calcarea, constituting a quite isolated group, are to be opposed as an independent Class to all other Sponges is so evident that I hope no further arguments in favour of the position will be deemed necessary, and this Class I propose, in accordance with my foregoing statements, to divide into two Orders:—

HOMOCÆLA, including the single Family of Asconidæ (Ascones), and

HETEROCÆLA, including the Families of Syconidæ (Sycones), Leuconidæ (Leucones), and Teichonidæ (Teichonia, Teichonellidæ).

The necessity for the establishment of this third Family, the Teichonidæ, having been urged some years ago by Mr. Carter,³ who described two calcareous sponges which differ from all the Calcarea hitherto known, by one peculiarity of such vital importance that the establishment of a new Family was really the only issue. This peculiarity consists in the differentiation of the outer surface of the sponge into two quite different parts,—that bearing oscula and that bearing pores,—and I am the more disposed to agree with Mr. Carter, as I found amongst the Challenger Calcarea some specimens which are constant to the main character differentiating the genus *Teichonella*, C., from other Calcarea, although they differ from it in their general shape—which in a form so highly organised is not without significance—and in their spiculation so much that I really cannot place them as a third species in that genus, but must create a new one for their reception.

I have now done with Orders and Families; I return to the genera. It was stated that the properties of the constituent parts of the skeleton as to whether they be composed of triradiate, quadriradiate, or acerate spicules are by no means to be utilised as generic characters; and hence that the seven genera established by Prof. Hæckel in each of his three Families are not natural, but artificial.

How then is a natural classification to be devised? The answer is easy:—by the consideration of all the organs of the animal in their mutual correlation. Hæckel has pointed out the high systematic significance of the canal system, and he clearly understood, moreover, that the disposition of the spicules depends upon its modifications, and that the disposition of the spicules in its own turn influences their form. He dedicates to these questions a considerable number of pages (*loc. cit.*, Bd. i. pp.

¹ Contributions to the Anatomy and Embryology of the Sponges, Warsaw, 1879, p. 83 (Russ.).

² *Morphol. Jahrb.*, Bd. viii. p. 373; *Ibid.*, p. 580, 1882. ³ *Ann. and Mag. Nat. Hist.*, ser. 5, vol. ii. p. 35, 1878.