

contact with each other and anastomose, thus forming still larger sinus-like spaces."<sup>1</sup> This modification is, according to Hæckel, rare; it is to be found in *Leucilla amphora*, *Leuculmis echinus*, *Leucandra fistulosa*, *Leucandra cucumis*, *Leucetta corticata*, and *Leucaltis clathria*; in the two latter forms, however, it is not so well-marked.<sup>2</sup> The corresponding diagram refers to *Leucandra fistulosa*. The only specimen of this form I was able to obtain proved to be so badly preserved that there was nothing to be seen in the sections but spicules. There were, however, in the Challenger collection, some specimens which compensated me—at least in some degree—for this mischance. In *Leucilla uter*, n. sp., I found a form closely allied to *Leucilla amphora*; on the other hand, *Leucetta vera*, n. sp., and *Leucetta hæckeliana*, n. sp., show such an unmistakably intimate relationship to *Leucaltis clathria*, that there are just differences enough to separate these forms into distinct species.

The corresponding illustrations are given in Pl. VI. fig. 2*a*, and Pl. VIII. figs. 1 and 7. In the forms just mentioned I could discern neither the network of ramifying canals in Hæckel's sense, nor the fusion of the flagellated chambers, the structure of their canal system quite corresponding in its chief characters with that of all other Leucones. However, in one case (*Leucilla uter*) I found the flagellated chambers not to be round, but of an elongated, cylindrical form, and also of much larger dimensions than usual; and in another case (*Leucetta vera*) there were the smaller, more roundish chambers in addition to the cylindrical ones. I fancy that Prof. Hæckel must have seen something of this kind, and that it was just the difference in the size of the flagellated chambers which gave him the idea of a vesicular type of canal system. I think also that Prof. Hæckel must have had to deal with very badly-preserved specimens, and thus, having had no other guide but his phylogenetic speculations, came to conclusions which, seen from a modern point of view, sometimes appear rather singular.

I might now pass on to the question which has necessitated this digression, viz., the systematic value of the properties of the canal system, but that can be answered thoroughly only when we have acquired a perfectly clear conception as to the phylogenetic relations subsisting between the three families of Calcarea.

As I remarked before, Prof. Hæckel considers the Sycon to be equivalent to a colony of Ascones, which has originated by means of a strobiloid gemmation. According to him, every radial tube of the Sycon is the homologue of a whole Ascon, its conjectural dermal ostium a homologue of the osculum, its pores of the pores perforating the wall of an Ascon (comp. *Sycetta primitiva*, Kalkschwämme, Bd. iii. pl. xli.). Now, the case is quite different with regard to the Leucones. According to Hæckel, the Leucon is nothing but an Ascon whose walls have grown thick and whose pores have changed into canals<sup>3</sup>

Prof., F. E. Schulze<sup>4</sup> was the first to pronounce an opinion upon this subject,

<sup>1</sup> Kalkschwämme, Bd. i. p. 234.

<sup>2</sup> Kalkschwämme, Bd. i. p. 347.

<sup>3</sup> Kalkschwämme, Bd. i. p. 235.

<sup>4</sup> *Zeitschr. f. wiss. Zool.*, Bd. xxv., Suppl., p. 225, 1875.