denying the possibility of establishing the homology of the Ascon with the radial tube. M. Barrois[1] also, supported by facts drawn from the domain of embryology, remarked the great affinity between Sycones and Leucones, not Ascones; but it is the merit of Dr. Vosmaer[2] to have submitted the question to a detailed and critical examination.

Relying upon the observations of F. E. Schulze and Barrois, as well as upon his own anatomical researches into *Leucandra aspera*, H., Vosmaer urges that the radial tubes are nothing but a kind of flagellated chambers; he refutes the strobiloid gemmation hypothesis, on the ground of the difference in the disposition of the spicules in the radial tubes and in the walls of an Ascon, which had been already made out by Prof. Schulze, and which can be really regarded as a decisive proof against Hæckel's speculative hypothesis. As a second argument against it, he compares the disposition of the anchor-like spicules in *Sycandra raphanus* and in *Syculmis synapta*—an observation also due to Prof. F. E. Schulze, but, as Barrois had already shown,[3] hardly possessing any phylogenetic value. Finally, Vosmaer develops his own views as to the phylogenetic affinities of the three families of Calcarea; and I here quote the most important passages with some abbreviations:—

"The Ascones present the simplest form of the canal system. The thin wall of the sponge consists of three parallel layers, ectoderm, mesoderm, and endoderm. Here and there the cells separate, and thus give origin to the pores (Hæckel's 'Lochcanäle'). The water, flowing along the outer surface, enters through the pores into the interior, and washing the endodermic cells runs out through the osculum. Now, it is evidently advantageous to the sponge, that the surface washed by the water be extensive. One may consequently well imagine any increase in the surface to be a favourable factor in the struggle for existence. If in an Ascon such an extension of the surface, particularly of the layer of the flagellated cells ('in's Besondere der Kragenzellenschicht') take place, the layer just named will form folds and invaginations. Let us suppose that in such a manner small lateral pouches are formed, and again that these pockets grow larger and develop along the whole wall regularly; it is evident that we have before us the picture of a primitive Sycon. All this is quite in harmony with the facts of embryology. Hæckel, Barrois, Schulze, and others, have shown that an Olynthus-phase is passed through in the development of the Sycon, and yet Olynthus is nothing but a primitive Ascon. Lieberkühn had previously observed that the radial tubes are only invaginations of the gastric wall, and that the wall of the radial tubes is covered with flagellated epithelium, which is wanting on the gastric wall of the sponge. That this latter is covered with pavement-cells, Lieberkühn did not know; nor Hæckel either. Schulze first discovered it in the year 1875."[4]

[1] Embryologie de quelques éponges de la Manche, *Ann. d. Sci. Nat.*, sér. 6 (Zool.) t. iii. art. 11, p. 52, 1876.
[2] Ueber Leucandra aspera, *Tijdschr. d. Ned. Dierk. Vereen.* Dl. v., p. 156, 1881.
[3] *Loc. cit.*, p. 31.
[4] *Loc. cit.*, pp. 156, 157.