described by Prof. F. E. Schulze.[1] Now, so far as the delicate construction of Renieridæ is concerned, I can but confirm Dr. Vosmaer's statements as to the striking resemblance of these Monactinellida with *Euplectella*. Prof. Schulze lays stress, however, also on the fact that in *Euplectella aspergillum*—and as he told me in Hexactinellida in general—the flagellated chambers are comparatively very large, and, in appearance, typically pouch-shaped, recalling the radial tubes of the Syconidæ. In the species of *Reniera* I had for examination, *Reniera aquæductus*, *Reniera filigrana*, *Reniera semitubulosa*, *Reniera fibulata*, and two or three Renieridæ not determined, I found their flagellated chambers to be always of *roundish* outline, therewith not larger, or at least but little larger, than those of, *e.g.*, *Psammoclema vosmaeri*. I would be, however, scarcely right to lay stress on the contradiction in question, for, firstly, it is but too possible that there are representatives of the genus *Reniera* with radial tube-like flagellated chambers, and, secondly, the differences between flagellated chambers of this kind and those characterising my genus *Psammoclema* are of a thoroughly quantitative nature. At any rate, it is clear that, so far as the Monactinellida, the most closely allied to the Keratosa, are concerned, they are characterised by an arrangement of the canal-system of a more primary character than that distinguishing the majority of the Keratosa. Is this not an evident proof that they are to be regarded as palæontologically older sponges?[2] I think all these circumstances together speak so decidedly for the supposition I am now asserting that the matter can be regarded as scientifically proved. This deduction is of great consequence, for under these conditions there are absolutely no grounds for regarding the group of Keratosa as an order, *i.e.*, a systematically higher unity than the families Chalinidæ, Renieridæ, &c., the more so as it is even impossible to say that Keratosa are less closely connected with Chalinidæ than these latter with the Renieridæ. Of course the thorough absence of proper spicules in their skeletal fibres admits of their very sharp diagnosis, while the diagnoses of Chalinidæ and Renieridæ are of a more conditional nature; but who can warrant that the genus *Spongelia* is in closer relationship with *Euspongia* than with *Chalina*? who can guarantee that the relative characters distinguishing *Spongelia* from *Euspongia*, and concerning the internal organisation of the soft parts, are of less importance than the equally quantitative distinctions concerning the properties of the skeleton differentiating the

[1] *Trans. Roy. Soc. Edin.*, vol. xxxix., 1880, p. 661.

[2] The type of canal-system characterised by an entire absence of special cameral canaliculi, and by clearness of the ground-mass surrounding the flagellated chambers, can be regarded as characteristic of Monactinellida in general. Apart from the Renieridæ above mentioned, I can state this with respect to the following forms I had the opportunity of examining—*Suberites domuncula*, N.; *Esperia hauriana*, O. S.; *Myxilla rosacea*, Lbn.; *Myxilla veneta*, O. S.; *Raspailia viminalis*, O. S.; *Acanthella acuta*, O. S.; *Axinella polypoides*, O. S. On the contrary, the canal-system of the representatives of the genus *Papillina*, O. S. (*Papillina suberea*, *Papillina nigricans*), is not less highly developed than that of *Aplysina aërophoba* or *Corticium candelabrum*; but it must be added that the genus *Papillina*, although undoubtedly closely allied to the genus *Suberites*, seems also through the genus *Osculina*, O. S., to be still more closely connected with the Chondrosidæ, and may, together with these latter, represent a family palæontologically not less recent than that of Ceraospongiæ.