On the other hand, in *Luffaria* the horny laminæ and the central differentiation of its fibres resemble each other optically in a far greater degree; higher powers of the microscope are necessary in order to show this internal differentiation; when dried, the fibres still possess their core, and only after treatment with caustic alkali or ammonia do the fibres become hollow. Certain differences are also to be found in the structure of the pith-substance. While in *Aplysina* or *Verongia* the core is represented by a fine and irregularly twined network,[1] in *Luffaria* the structure of the core of its fibres appears similar to that of its horny envelope, being however represented not by continuous laminæ, but by minute horny splints, still disposed parallel to one another, as well as with regard to the surrounding laminæ, just as Schulze has figured[2] the central canal of the fibres of *Spongelia pallescens*. But though the core of the skeletal fibres of *Luffaria* appears to be structurally quite equivalent to that of *Euspongia*, and differs considerably from that of typical Aplysinidæ, it would still be premature to assume that *Luffaria* is but a specifically modified Spongid, and not a link connecting the Aplysinidæ with the Spongidæ, in consequence of the identical manner in which both kinds of fibres, the heterogeneous as well as homogeneous, develop.

It has indeed been stated—I allude to Dr. v. Lendenfeld's[3] observations—that the development of the heterogeneous fibres only slightly resembles that of the homogeneous ones; that while, according to Schulze,[4] the skeletal fibres of a *Cacospongia* or *Euspongia* grow by reason of the activity of *spongoblasts* exclusively, the growth of a heterogeneous fibre is dependent on the function both of spongoblasts and *spongoklasts*. Like F. E. Schulze, Dr. v. Lendenfeld distinguishes two kinds of spongoblasts—those of elongated, and those of polygonally massive, form; the first are to be found along the developing fibre, the second on its summit. He thinks, however, that the function of the last-named is not to secrete the pith-substance of the central canal, but to sink down into the interior of the developing fibre, in order to transform into pith-substance the original horny mass, secreted by the elongated spongoblasts (Ich nehme an, dass die Zellen in den Kuppeln, gleich den Osteoklasten der Wirbelthiere, die harte Rinde der Skelettheile auflösen und in Marksubstanz verwandeln). This statement Dr. v. Lendenfeld accompanies by an illustration, and recalls on this occasion the statements of Flemming as to the structure of the skeletal fibres of *Ianthella*, which he (Dr. Lendenfeld) supposes to be very nearly allied to his *Dendrilla*, and in whose fibres the presence of true cells has been proved. Of course there can be no doubt that the skeletal fibres of *Ianthella* are charged with true cells. The statements of Flemming have been corroborated by Carter, and, for my own part, I can only confirm their observations Yet these cells have been found not in the pith-substance, but between the surrounding

[1] Comp. F. E. Schulze's statements on this point in *Zeitschr. f. wiss. Zool.*, Bd. xxx. p. 401, and my drawing, Pl. X. fig. 3.
[2] *Zeitschr. f. wiss. Zool.*, vol. xxxii., pl. vi. fig. 6; comp. my drawing, Pl. IX. fig. 6.
[3] *Zeitschr. f. wiss. Zool.*, vol. xxxviii. p. 291.
[4] *Ibid.*, vol. xxxii. p 635.