

conclusion, as stated before, is founded on actual facts ; as to the first, I have no decisive proofs for it, but I believe it will yet be adopted, at least provisionally, as a hypothesis of comparatively great probability. That it is so, when compared with that of Dr. v. Lendenfeld, is evident, since it does not, as does his theory, contradict the actual facts ; that, again, the intussusception theory of Prof. Schulze¹ is not plausible has been indicated by Dr. v. Lendenfeld² himself.

The foregoing remarks have had two distinct aims : first, to give a plausible explanation of the phenomenon of the formation of the horny fibres ; and second, to show that this phenomenon is the same with regard both to the homogeneous and heterogeneous fibres. Whether I have succeeded in my first task will be shown by later investigations ; at any rate we must assume that the elements forming the homogeneous horny skeletal fibres are just the same as those secreting the heterogeneous fibres ; and since in both cases no special functional transformations of any of these elements take place, we must come to the conclusion that, in thorough harmony with the fact that homogeneous and heterogeneous horny fibres differ from one another only quantitatively, the development of both kinds of fibres admits also of only relative distinction ; and that, accordingly, the subdivision of the Keratosa into two groups, the one characterised by homogeneous, the other by heterogeneous, skeletal fibres, would be thoroughly artificial. Whether such a subdivision may be made according to the structure of the canal system will be discussed later on. I proceed for the present to treat of the modifications of the skeleton, and now pass on to those influenced by the tendency of most of the Keratosa to take up foreign bodies into their skeletal fibres.

As is well known, this tendency is characteristic only of Keratosa with homogeneous skeletal fibres. Beginning with forms like most *Coscinodermata* and *Hippospongiæ*, whose fibres contain foreign bodies only exceptionally, here and there a sand-grain or fragment of a spicule, going on to forms like many representatives of the genera *Euspongia* and *Cacospongia*, whose primary fibres are full of foreign enclosures, but the secondary ones in most cases quite free from them, and, further, passing by forms like *Psammoclema vosmaeri* or *Spongelia avara*, both kinds of fibres of which are overcharged with foreign enclosures, we come to the genus *Psammopemma*, characterised by an entire absence of any fibres, the supporting skeleton consisting of sand-grains, portions of Foraminiferal shells, fragments of spicules, &c., all lying separately, the secretion of the horny substance being reduced to the formation of a thin horny envelope around each foreign body.

To this tendency, again, a high systematic importance has been ascribed. Gray³ and Marshall⁴ characterise their family of Dysideidæ mainly by the richness of their fibres in foreign enclosures. The systematic application of this character plays also a great

¹ *Zeitschr. f. wiss. Zool.*, vol. xxx. p. 403.

² *Proc. Zool. Soc. Lond.*, 1867, p. 503.

³ *Loc. cit.*, p. 291-292.

⁴ *Zeitschr. f. wiss. Zool.*, vol. xxxv. p. 92.