

and that their properties can be studied with success only in the living state. The constituent parts of the mesoderm are as usual represented by a transparent ground-mass, by stellate or fusiform cells and cellular elements of amœboid character. The amœboid cells differ from the first-mentioned apart from their general shape by their nucleus being comparatively larger. It is generally accepted that the amœboid cells in the sponges give origin to the generative products; both the specimens of *Ianthella* proved, however, to be sterile; in one of them, indeed, I found here and there large egg-shaped bodies, but since I did not succeed in discerning in them anything like a nucleus, I am far from being sure whether they were really ova or something else. The stellate mesodermic cells, as well as those of fusiform shape, do not differ from those of *Sycon raphanus* as described by F. E. Schulze,¹ but it must be said that while their fusiform modification is very seldom found in *Sycon raphanus* and the *Calcarea* generally, it is far more common in *Ianthella* than the stellate form. Particularly near the outer surfaces these fusiform, probably contractile, cells are very numerous, surrounding in rows the pores and oscula (Pl. II. fig. 6). I have spoken of them in their special modification as spongoblasts before, and it only remains for me to mention the interesting hypodermic elements, without entering upon the discussion of the question as to whether they are really modified stellate and not amœboid cells. At any rate they are larger than both the stellate and the amœboid ones, and their protoplasm is far richer in granules. It is indeed difficult, when seeing these elements lying separately amid fusiform muscle-cells (as drawn on Pl. II. fig. 6), to resist the idea that these elements are of a nervous nature, and their histological properties, so far as they could have been studied from the material preserved in alcohol, agree tolerably well with what we regard as typical nerve-cells. I must say, however, that I was unable to discern any connection between them and the fusiform cells, and on the whole consider their nervous nature to be as doubtful as that of certain mesodermic cells described by Sollas² in *Thenaea muricata*, as well as that of the anastomosing "Stränge" discovered by F. E. Schulze³ in the Spongidae. I believe these cells to be equivalent to the gland-cells stated by v. Lendenfeld⁴ to be present in his South Sea *Aplysinidae*, and five years before by Merejkowsky⁵ in his *Halisarca (Oscarella?) schulzei*. I have found similar cells in *Aplysilla sulphurea* and *Darwinella aurea*, and I am the more inclined to compare the enigmatic elements of *Ianthella* with these gland-cells, since, as I remarked before, the external surface of this sponge is covered by a thin cuticle. Of course they are larger than common spongoblasts, while the gland-cells of v. Lendenfeld agree with these latter both in shape and size, but this difference seems to me to be of no great importance. The best methods for rendering these, as well as hypodermic fusiform cells, visible are cosine and gold, for which latter the alcohol must be previously extracted.

¹ *Zeitschr. f. wiss. Zool.*, Bd. xxv., Suppl., p. 253.

² *Ann. and Mag. Nat. Hist.*, ser. 5, vol. ix. p. 446.

³ *Zeitschr. f. wiss. Zool.*, Bd. xxxii. p. 629.

⁴ *Ibid.*, Bd. xxxviii. p. 278.

⁵ *Mém. Acad. Sci. St. Petersb.*, vol. xxvi. No. 7, pl. ii. fig. 9.