

*Remarks.*—This little sponge, 11 by 10 mm. in diameter, and 10 mm. high, is the only representative of Zittel's Megamorina in the Challenger collection. The family is chiefly known in the fossil state; only one existing species has been described previously to this, and that—*Lyidium torquila*, O. Schmidt—evidently belonging to a different species, or, if the published descriptions are complete, to a different genus, and perhaps family, since it is represented as not possessing triænes, microxeas, or spirasters.

Owing to the precious nature of the small amount of material I had at my disposal, I could not make quite so searching an investigation as I could have wished; at the same time, few points capable of determination have been left obscure. Most doubtful are the characters of the oscules and pores, but such few apertures as I did find of either kind were small, simple, and circular, not sieve-like.

The ectosome (Pl. XXXIII. fig. 9), about 0.6 mm. in thickness on the upper surface of the sponge, consists of a tender collenchyma containing numerous round or oval hollow cells, 0.02 to 0.023 mm. in diameter, with thin structureless walls and scanty granular protoplasmic contents, not taking a deep stain with reagents. A circular or annular nucleus, 0.004 mm. in diameter, lies embedded in the protoplasm, which is vacuolated.

The illustration (Pl. XXXIII. fig. 13) shows these cells in the collenchyma immediately beneath the outer epithelium; the wash of brown colour represents the collenchymatous matrix, which is not a solid mass as this would seem to suggest, but cavernous. The microxeas form quite a felt about the subdermal canals, much in the same fashion as in *Pæcillastra* (Pl. XXXIII. fig. 9).

*Choanosome.*—The mesoderm, except in the vicinity of the larger canals, where it becomes collenchymatous, is a richly granular sarcenchyma, which takes a deep stain with reagents. Numerous small round or oval cells, 0.02 mm. in diameter, with a nucleus 0.005 mm. in diameter, and resembling the vesicular cells of the ectosome, occur dispersed through it, each cell lying within a little cavity, produced no doubt by treatment. Sometimes these cells, instead of presenting a faintly stained protoplasm surrounding a thin structureless wall, are wholly composed of protoplasm which takes an unusually deep stain. In some cases a number of little, transparent, structureless, somewhat highly refractive, globules are seen surrounding the margins of both the deeply and faintly staining cells; they look somewhat like oil drops (Pl. XXXIII. fig. 14). Of their real nature I am ignorant. The flagellated chambers are large, 0.044 mm. wide by 0.04 mm. long, almost spherical, provided with a wide prosopyle, 0.02 mm. in diameter, and an also wide apopyle, 0.0237 mm. in diameter, which leads into an aphodus frequently as wide as it is long, sometimes, for instance, measuring 0.0275 mm. in both directions (Pl. XXXIII. fig. 10).

The choanocytes are large, frequently 0.0118 mm. in length, and sometimes nearly 0.004 mm. in diameter at the base. The collar or collum, I am not rightly sure which