

the sponge is very peculiar and will be best understood by reference to the annexed woodcut (Fig. X.) (see also the description on p. 95, and figs. 9, 9a on Pl. XX.). Embedded in the soft tissues all round the upper margin of the sponge are found, arranged in a single circle, a large number of small, yellow, globular bodies (woodcut Fig. X., *a*, and Pl. XLIX. fig. 4, *g.b.*). What these bodies may be is an extremely difficult question to decide. That they are proper to the species and not foreign objects or parasites is rendered almost certain by the fact that they occur in the same position in all three of the specimens present; and this view of the case is further strengthened by their histological structure, which we have worked out to the best of our ability in two specimens. Unfortunately the sponges are in a very bad state of preservation, but the following details of structure are quite certain.

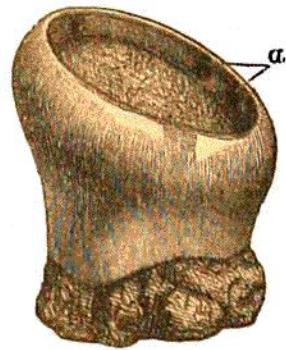


FIG. X.—*Cladorhiza* (?) *tridentata*. Specimen attached to a stone, showing the natural position of the sponge; *a*, globular bodies of unknown function. $\times 2$.

In radial vertical sections through the margin of the sponge (Pl. XLIX. fig. 4), we find that each globular body consists of a central, more deeply staining and granular portion (Pl. XLIX. fig. 4, *g.b.*), surrounded by and embedded in a matrix of faintly staining, perfectly hyaline ground substance (Pl. XLIX. fig. 4, *s*). The central portion is sharply marked off from the matrix in which it lies by a much more darkly staining ring, or several concentric rings of a similar substance. Within this ring we find a clear, jelly-like ground substance containing very numerous embedded cells, which give to the central part of the structure the granular appearance already mentioned. The cells themselves (Pl. XLIX. fig. 4a, *c*) are irregular in shape, nucleated and highly granular, averaging about 0.018 mm. in diameter. Outside the darkly staining ring we find a very similar hyaline ground substance, but less deeply staining than the inner portion and without the cells. Towards the centre of the sponge this ground substance becomes gradually vacuolated and finally merges into the network of tissue constituting the choanosome (Pl. XLIX. fig. 4, *ch.*). Above, and towards the periphery of the sponge, it appears to extend almost or quite to the dermal membrane, becoming, however, considerably vacuolated (? owing to the action of the spirit). In these parts also, but chiefly towards the periphery of the sponge, there occur, embedded in the gelatinous-looking matrix, a great number of very peculiar, cup-shaped organs (Pl. XLIX. fig. 4, *gl.*, and fig. 4b). Each of these is about 0.1 mm. in diameter, and consists of a large number of small (? spherical), deeply staining cells packed close together so as to form a thick-walled cup, the mouth of which is turned towards the centre of the globular body. Judging from the number to be seen in a single thin section there must be a very great many of these organs present to each of the globular bodies. Around them the hyaline matrix is frequently shrunk away from their walls (probably owing to the action of the spirit), but usually remains connected at the mouth. The gelatinous