different regions of one stock. In Pl. LXXII. fig. 4 I have represented a fragment of a specially elongated tubular system. This was trawled to the west of Manila (Station 207, lat. 12° 21′ N., long. 122° 15′ E.) from a depth of 700 fathoms and a blue mud ground, while in contrast to this the specimen trawled in the Bay of Sagami by Dr. Döderlein, from about 150 fathoms and a clay bottom (Pl. LXXI. fig. 2), exhibited quite short tubular branches of at most 1 cm. in length. In the largest specimen of this lot, which is figured in Pl. LXXII. fig. 1, the tubes have a length of only 1·5 to 2 cm.

In the spirit specimens, in which the whole soft tissue remains perfectly intact with the dermal and gastral membrane, both the external and the inner surface are uniformly marked by fine dark points arranged in transverse and longitudinal rows crossing at right angles (Pl. LXXI. fig. 2). Where the soft tissue has been removed by maceration or by mechanical means, the beautiful quadratic network of the dictyonal framework is more or less distinctly seen (Pl. LXXII. figs. 1, 3).

The diameter of the tubes increases continuously from the simple basal portion to the freely projecting, widely open, terminal cups. On quite young specimens only a few centimetres in height, the stalk measures hardly 3 mm. in breadth, just above the plate of attachment, while in older specimens external thickening results in a transverse diameter of 5 to 10 mm. While the cup-shaped ends of the tubes in young specimens have usually a width of only 5 mm. or so, the terminal openings of the large stocks are frequently 15 to 20 mm. in diameter.

Since the dichotomous ramification begins at a very early stage at variably distant intervals and not in the same plane, but in planes often disposed at right angles to one another, no long straight main trunk results, but an irregular much twisted system of tubes, expanding on all sides. The anastomosis seems to occur partly as the result of direct union between newly formed tubes which meet one another in their growth, and partly as the result of the apposition of adjacent tubes which are at first externally united, and afterwards come into direct communication by the absorption of the intervening partition. Now and then, but on the whole rarely, I have observed one or other of the tubes, bent downwards or to the side, and closed by a transverse porous plate, while all the others remained open. I can only regard such a closure as an abnormality, which has probably resulted as a protection against the injurious influence of mud or the like.

In regard to the microscopic structure of the *dictyonal* framework, I have in the first place to notice, in opposition to the previous statements of other investigators, that the greater part of the whole tubular system, and especially the superior youngest portion, is supported by a single-layered network, but that in the lower, and therefore older portions, and also at the base of all the stocks which are not very young, the framework exhibits two layers or more (Pl. LXXIII. fig. 2; Pl. LXXVI. fig. 3). The network encloses approximately cubical meshes. This many-layered framework has undoubtedly arisen in this way, that to each distal ray of the single-layered lattice-work the proximal