reference to macerated specimens. Only one of these can I regard as sufficiently diagnosed to permit of certain recognition, namely, the form lately described by Carter, and designated by him as *Farrea occa*, Bowerbank.

1. *Farrea occa* (Bowerbank) Carter (Pls. LXXI., LXXII., LXXIII.; Pl. LXXVI. figs. 1–3).

Both the material of the Challenger Expedition and the collection of the Hexactinellida brought by Dr. Döderlein from the Sagami Bay, Japan, include numerous specimens of this species of *Farrea*. These are partly spirit specimens with the tissue preserved, and partly dried forms. They exhibit considerable differences both in size and form.

It is unfortunate that not one of all the specimens is quite intact. The outermost ends of the tubes are generally broken off for a greater or less distance. I hope, however, that the representation given in Pl. LXXII. fig. 1, of a macerated skeleton in lateral aspect, and those in Pl. LXXI. figs. 1 and 2, from photographs of spirit specimens in lateral and superior aspect, will give a correct conception of the general habit of this sponge. It is frequently richly branched, forming composite masses sometimes 12 cm. in height.

The simple hollow stalk is attached by a flat expansion to a more or less compact substratum, sometimes consisting merely of a crumbly mass of clay. This expanded portion consists of an irregular tuberculate plate, which is closely appressed to the substratum. In its centre it has a thickness of 0·3 mm. or more, but becomes gradually thinner towards the irregularly frilled edge, forming a delicate smooth margin. On the free upper surface of this compact basal plate there are usually some radially disposed furrows, from 1 to 2 mm. in breadth, which sometimes divide externally into two or three narrower branches. From the lumen of the round tubular stalk which rises from the middle of the plate, a round excurrent aperture leads either through the plate itself straight downwards, or just above the plate through the wall of the tube (Pl. LXXII. fig. 2). The stalk, which usually stands erect at right angles, has a diameter of 5 to 10 mm. and an equally short length. It passes immediately by division and gradual expansion into the crowded anastomosing tube-work of the stock. The ultimate ends of the tubes form thin-walled smooth margined cups projecting freely on the somewhat uniformly arched convex surface of the whole complex. The dichotomous division of the single tubular ends takes place in the following fashion. The cup-shaped expansion extends transversely, usually at right angles to the last plane of bifurcation, the two long parallel margins thus formed approach one another in the middle and fuse, so that the cup becomes divided into two independent and diverging tubes (Pl. LXXII. fig. 3). After a more or less prolonged growth these again experience a dichotomous division of the same sort. The length of the tubular portion seems to vary greatly in different stocks and also in the