diameter when not lobate, lobes of lobate forms about 0·13 mm. in length, measured along a radius from the centre.

3. *Oxea*, fusiform, slender, sharply pointed, no complete forms observed, probably 0·75 mm. and over in length by 0·0195 mm. in diameter.

II. Microscleres. 4. *Microxea*, fusiform, smooth, straight or curved, sharply pointed, 0·07 to 0·1 by 0·0039 mm.

5. *Microstrongyle*, ellipsoidal or cylindrical, smooth; 0·01 to 0·015 by 0·0035 mm.

Colour.—In the dried state, brownish-white.

Habitat.—Station 192, off the Ki Islands, south of Papua, September 26, 1874; lat. 5° 49′ 15″ S., long. 132° 14′ 15″ E.; depth, 140 fathoms; bottom, blue mud. Trawled.

Remarks.—The single specimen on which this species is founded presents an oval or somewhat ear-shaped, bilobed upper portion, 26 and 18 mm. in diameter; its maximum height is 18 mm. Scattered over the summit are some eleven or twelve small circular oscules, about 0·5 mm. in diameter. The pores are restricted to the sides of the sponge, and vary from 0·08 to 0·175 mm. in diameter. The subepithelial microstrongyles and microxeas cover the surface of the sponge, and extend through the pores and oscules over the walls of the underlying canals. The chief interest of the sponge lies in the ectosomal discotriænes, since owing to their complete preservation *in situ* one is able to arrive at a clear explanation of the diversity in form which these skeletal elements so constantly present throughout the "*Discodermia*" series. They occur within the ectosome in several layers, one above the other; the cyathiform triænes with entire margins are the most superficial, and are restricted in the specimens before us to the oscular surface; they extend up the sides of the oscular cones, and form the margins of the oscular apertures. Since the oscules are comparatively large, several of these discotriænes contribute to its marginal environment, and undergo no change of form in consequence (Pl. XXXII. fig. 23). It is otherwise with the triænes on the poral surface; the pores are small, and consequently are immediately surrounded by only few triænes, two to four, and the edges of these are adapted to the form of the pore, and thus one of the sinuses, it might be called the poral sinus, of the sinuous margin is produced. Sometimes the edge of the poral sinus is considerably thickened, and extended into an incomplete tubular form as an investment to the wall of the poral canal (Pl. XXXII. fig. 18).

The triænes which lie below the most superficial layer present numerous additional sinuses, and through each of these there passes the rhabdome of an overlying triæne. These might be known as the rhabdal sinuses. The rhabdal sinus of one triæne is frequently completed by that of another, or more than one other; a short circular tube is thus formed around the enclosed rhabdome (Pl. XXXII. fig. 22). Further complications arise from the fact that although many of the cladomes of the same layer are adjusted to