relied on for specific or even varietal distinctions. In some of the specimens from Station 163A and from Port Jackson the dichotriænes are characterised by cyathiform cladomes (Pl. XIII. fig. 19) (*i.e.*, the protocladi are curved as along the sides of a cup), in others the cladomes are infundibular (*i.e.*, the protocladi are straight, diverging as along the sides of a funnel) (Pl. XIII. fig. 3). The cyathiform character is found to vary considerably, so that sometimes the cladomes approximate to the infundibular type, and at others become more cyathiform than usual; indeed, variations in this respect may be observed in the same individual sponge.

Carter has made use of the angle which the cladi of the chief triænes make with the rhabdome in the Geodiidæ to separate the sponges of this family into smaller groups; it is true that a character which is inconstant in one family may become of great importance in another, but it does not seem probable that a character which is not even of varietal importance in the Stellettidæ can be employed for making large divisions in the Geodiidæ; nor, on further examining into the value of this character in the Geodiidæ, do we find it more constant there than from the present instance we might expect.

The limits assigned to the dimensions of the spicules in the description above given were obtained from an examination of a considerable number of specimens, and apply to the species, not to the individual; within the limits of an individual the range of variation is comparatively slight. I do not suppose that this species is markedly more variable than others I have described; the simple explanation lies in the fact that more specimens were examined.

The smallest specimen measures about 8 mm. in diameter, the largest 48 by 38 by 40 mm.

The ectosome, which on an average is about 0·08 to 0·09 mm. thick, consists of cavernous collenchyma, and is so extensively excavated by the ectosomal canals that the tissue is restricted to forming the roof and floor of these canals, and the connecting pillars which are traversed by the spicular sheaves. Transverse vela, perforated by sphinctrate apertures, cross the ectosomal canals at intervals. Fusiform cells are present in the collenchyma, especially in the roof of the ectosomal canals; they are not more abundant in the floor, which passes into the choanosome, than elsewhere. Round or oval cells containing somewhat large, round, deeply staining, highly refringent granules (Pl. XIII. fig. 7) are common in the collenchyma, thickly dispersed through it; they also occur in the choanosome. The exterior of the ectosome contains a dense layer of anthasters.

From the ectosomal canals others arise which descend radially, parallel to the spicule sheaves into the choanosome; they are crossed at close intervals by the usual transverse vela. At the entrance of some of these canals into the ectosome, the latter is much thicker than elsewhere, and the ectosomal canal large and subdivided by horizontal partitions; this appears to distinguish in some cases the excurrent from the incurrent canals,