

but rather woolly. *Surface* even and fairly smooth where intact. *Dermal membrane* thin and transparent, mostly abraded. *Oscula* minute, arranged along the branches in small groups, which often have radiating cracks proceeding from them, and thus acquire a stellate appearance. *Pores* scattered.

*Skeleton*.—Fibre not very distinct; several main fibres run up the centre of each branch, not very distinct from one another, forming a kind of ill-defined central axis from which primary fibres radiate at more or less acute angles towards the surface, where they terminate in dense brushes of stylote spicules. The fibre itself, though not very well defined, is clearly arranged on the Axinellid plan, *i.e.*, it consists of stylote spicules whose bases lie together in the centre of the fibre while their apices project outwards and upwards at acute angles. The primary fibres are everywhere linked together by individual spicules, which commonly lie at right angles to them in the horizontal plane. In the centre of the branch there seems to be a fair development of horny cementing substance.

*Spicules*.—*Megasclera*; these are, almost exclusively, short, stout, slightly curved, rather abruptly pointed styli, very constant in size, measuring about 0·28 by 0·024 mm. Occasionally also one meets with a strongylote spicule of about the same size, but these are of rare occurrence and should probably be regarded merely as abnormal forms of the styli.

This is a fine, showy species, with a very characteristic external form.

The spiculation is characterised by its simplicity, and by the unusual constancy in size of the styli; the arrangement of the skeleton, however, in columns radiating from a loose central axis, seems to mark the true position of the species as a member of the genus *Axinella*.

*Locality*.—Port Jackson; depth, 30 to 35 fathoms. One specimen.

*Axinella balfourensis*, Ridley and Dendy (Pl. XXXIII. fig. 1).

1886. *Axinella balfourensis*, Ridley and Dendy, Ann. and Mag. Nat. Hist., ser. 5, vol. xviii. p. 480.

Sponge (Pl. XXXIII. fig. 1) erect, stipitate, consisting of a spreading, much branched root surmounted by a long, cylindrical stem, which at a height of 112 mm. above the root divides into two branches, each branch again dichotomising; altogether giving rise to a large head of long, thick, dichotomously branching, finger-like processes, the different branches often anastomosing with one another, and terminating in tapering points. Total height of specimen (including root) 350 mm.; diameter of stem a little over 6 mm. Diameter of finger-like processes in head 8 mm. or a little more. *Colour* in spirit yellowish-grey. *Texture* of stem firm and compact; of finger-like processes in head exceedingly soft and spongy, fragile. *Surface* very slightly hispid, fairly smooth. *Dermal*