

*Pachychalina megalorrhaphis*, Ridley and Dendy (Pl. V. fig. 6).

1886. *Pachychalina megalorrhaphis*, Ridley and Dendy, Ann. and Mag. Nat. Hist., ser. 5, vol. xviii. p. 328.

Sponge (Pl. V. fig. 6) composed of rather slender, long, cylindrical branches, which may anastomose. Maximum diameter of branches in the single specimen nearly 12 mm., but average diameter much less. *Colour* in spirit pale yellow. *Texture* compressible and elastic. *Surface* almost quite smooth, very minutely hispid. *Dermal membrane* thin, transparent, allowing the subdermal cavities to appear through it, and give to the surface a faintly mottled or reticulate appearance. *Oscula* rather small, subuniseriably arranged along the branches.

*Skeleton*.—(a) *Dermal*; not very distinct. A small-meshed reticulation of loose spiculo-fibre, echinated at the nodes by small tufts of projecting spicules which are the ends of the primary fibres. (b) *Main*; a subrectangular reticulation of spiculo-fibre and single spicules, with very distinct primary lines running vertically to the surface. The skeleton fibre is fairly strong and polyspiculous, but with no distinct sheath of spongin surrounding it. The main lines are five or six spicules broad.

*Spicules*.—Slightly curved, gradually sharp-pointed oxea; size about 0.245 by 0.016 mm.

The spicules of this species are large for a Chalinine sponge, and the amount of spongin is correspondingly small, but the elastic, fibrous texture, the external form, and the arrangement of the skeleton leave no doubt as to its systematic position.

*Locality*.—Station 163D, June 12, 1874; lat. 33° 57' 30" S., long. 151° 39' 15" E.; off the coast of New South Wales; depth, 120 fathoms; bottom, green sand. One specimen.

*Pachychalina elongata*, Ridley and Dendy (Pl. VI. fig. 1).

1886. *Pachychalina elongata*, Ridley and Dendy, Ann. and Mag. Nat. Hist., ser. 5, vol. xviii. p. 329.

Sponge (Pl. VI. fig. 1) digitate, ramose; branches very long, varying in diameter in different parts of their length, up to about 12 mm., which is, however, unusually wide, the average being about 8 mm. Greatest length about 300 mm. Branches sometimes anastomosing. *Colour* (?) (now dark reddish-brown, but this is probably due to packing in a metal case). *Texture* very compressible, elastic, tough and fibrous. *Surface* smooth, subglabrous. The dermal membrane, together with its supporting skeleton reticulation, forms a very tough, distinct skin, but very firmly adherent to the deeper portion of the sponge which it encloses. *Oscula* small, scattered, chiefly on one side of the sponge.

*Skeleton*.—(a) *Dermal*; a close-meshed reticulation of stout, compact, spiculo-fibre, echinated by projecting spicules; meshes small, only about 0.11 mm. wide. (b) *Main*; a rectangularly meshed reticulation of spiculo-fibre, very well developed, with a great