

at the points where they leave the peripheral fascicle that they show any decided approximation to an opposite disposition.

Under a low power the whole surface may be seen to be thickly studded with the little tubular sarcothecæ, which constitute so remarkable a character of the genus. The hydrothecæ project but slightly from the surface and are regularly alternate and distichous, with entire circular orifice. When the axial tube of the stem is carefully exposed by the removal of the investing peripheral tubes, it will be seen that close to the base of several of the hydrothecal peduncles a branch is sent out at nearly a right angle from the main tube, from which it scarcely differs in thickness. Some of these branches soon terminate abruptly, while others are continued beyond the peripheral fascicle, bear pedunculated hydrothecæ, and constitute the axial portion of a lateral ramulus or pinna. This becomes surrounded by a fascicle of peripheral tubes, which are given off from the peripheral tubes of the stem. The peduncle of every hydrotheca carries a sarcotheca similar to those of the peripheral tubes, while two or three similar bodies are also frequently borne by the lateral offset near its base. The peripheral tubes terminate at the distal end of the ramuli in truncated but apparently closed extremities, and no part of the axial tube is here exposed, as is always the case in *Cryptolaria*.

The walls of the peripheral tubes are much thinner than those of the axial, and under the action of certain reagents, as caustic potash, shrivel and collapse, while the axial tube retains almost completely its original form. About ten tubes usually enter into the composition of the peripheral fascicle of a pinna.

*Perisiphonia pectinata*, n. sp. (Pl. XXI. figs. 2, 2a, 2b).

*Trophosome*.—Colony with the main stem sparingly branched, attaining a height of about five inches, stem and branches thick, carrying pinnately disposed, equidistant, nearly opposite, slender ramuli. Hydrothecæ flask-shaped, curved away from the axial tube, and with the neck rather long and slender.

*Gonosome* not known.

*Locality*.—Station 169, off New Zealand; lat. 37° 34' S., long. 179° 22' E.; depth, 700 fathoms.

The very regular, nearly opposite, disposition of the ramuli in this species is accompanied by a somewhat rigid habit, which gives a pectinate aspect to the branches. The more elongated and more slender neck of the flask-shaped hydrothecæ, and its greater extension beyond the surface of the peripheral fascicle, are among the characters which distinguish *Perisiphonia pectinata* from *Perisiphonia filicula*. Another point in which the present species differs from *Perisiphonia filicula* will be found in the greater slenderness of the pinnately disposed ramuli, which have here not more than half the diameter of these ramuli in *Perisiphonia filicula*. The slenderness of the pinnæ in