

VICTORIAN HYDROIDA.  
With Description of New Species.

PART V.

By J. F. MULDER and R. E. TREBILCOCK.

(With Plates VII to IX).

PLUMULARIA SETACEOIDES, var. CRATERIFORMIS.

(Plate VII., figs 3, 3a, & 3b.)

Since describing this variety (G. Nat., Vol. IV., p. 118), we have examined a number of specimens in their fresh state, and now think this variety practically the same as the "Small form" described and figured by Mr. Bale in Proc. Linn. Soc., N.S.W., Vol. III. (2nd Ser.), Pl. XX., fig 8. The specimens referred to are from Bream Creek. They are less than  $\frac{1}{8}$  of an inch in height, and have the walls more thickened than the variety from Bondi, N.S.W., figured by Mr. Bale. In most cases there is only one hydrotheca to a pinna, but occasionally there are two. The hydrorhiza bears tube-like sarcothecæ along its edges. The polyp is very large in

proportion to the size of the hydrotheca, and bears a ring of about 18 short, rather thick tentacles round the base of a large flattened dome-like proboscis. The fresh specimens did not bear gonothecæ. In our former description we stated that the gonothecæ do not show any trace of annulation. It is possible, however, that the annulation has disappeared in mounting.

Hab.—Bream Creek, growing on *Cymodocea zosterifolia*.

PLUMULARIA CRATEROIDES, M. & T.

(G. Nat., Vol. IV., p. 123.)

*Fraser* — This name will have to be erased. An examination of a number of specimens from Barwon Heads leads us to the conclusion that it is a form of the above variety of *P. setaceoides*, which has become shrunken in drying.

The gonothecæ on the Barwon Heads specimens are similar to those of *P. setaceoides*, as described by Mr. Bale (Cat. Austr. Hydr. Zooph., p. 136). The sporosac contains a circle of refractive granules near its summit.

PLUMULARIA LUCERNA, M. & T.

(G. Nat., Vol. IV., p. 122.)

A careful examination of a large number of specimens of *P. filicaulis*, Poeppig, convinces us that the type specimen of *P. lucerna* is merely an abnormal growth of *P. filicaulis*, var. *indivisa* in a bad state of preservation. The name therefore must be struck out.

PLUMULARIA CALICULATA, Bale.

A specimen, with gonothecæ, from Bream Creek.

PLUMULARIA SETACEIFORMIS, n. sp.

(Plate IX., Figs. 2—2b.)

Hydrorhiza a simple tube; hydrocaulus attaining a height of about half an inch, polysiphonic, branched; pinnae alternate, usually two, but sometimes only one borne on each internode; divided into alternate long and short internodes of which only the former bear hydrothecæ. Hydrothecæ, one borne on the lower part of each long internode of the pinnae, small, cup-shaped,

much expanded upwards, adnate to margin, aperture at an angle of about 70 degrees with the pinna. Sarcothecæ, bithalamic, canaliculate, slender at base and moveable; one below each hydrotheca, and one on each side above it, one between every two hydrothecæ, on the intermediate internode, generally three (but sometimes only two) in the axil at the base of each pinna, where there is also a mammilliform pore, one sometimes borne on the lower part of such stem internodes as bear only one pinna, and a few scattered over the supplemental tubes of the polysiphonic stem.

Colorless and transparent.

Gonothecæ (?).

Hab., off Barren I., 20 fath.

This species was found growing on *P. buski*, Bale. The larger stems and branches are polysiphonic in their proximal proportions, but many of the smaller are monosiphonic and sometimes unbranched. Some of the branches give rise to secondary branches. The branches spring from the upper part of the stem-internodes, and are usually in pairs, both, however, lying on the same side of the stem and springing one from the front and one from the back of the process which bears the pinna, the pinna thus lying between them. The branching is not at all regular.

Each pinna is borne on a prominent process, and between this process and the first hydrotheca-bearing internode is a short internode which bears no appendages.

The arrangement of the sarcothecæ in the axils is similar that in *Plumularia spiralis*, Billard, where it is described as follows:—"Les hydroclades sont supportés par une apophyse qui montre deux dactylothèques axillaires et une médiane, il existe en outre un mamelon basal percé d'une ouverture."

PLUMULARIA CORRUGATISSIMA, nov. nom.

*P. Corrugata*, M. & T. (G. Nat., Vol. VI., p. 43.)

Dr. C. McLean Fraser, Canada, has kindly drawn our attention to the fact that the name "*P. corrugata*," given by us to a species described in our own last paper, is preoccupied, C. C. Nutting having given that name to an American species. We have therefore re-named the species described by us "*Plumularia corrugatissima*."

## HEBELLA SCANDANS, Bale.

Numerous specimens from Queenscliff, parasitic on *Sertularia unguiculata*. The main hydrorhiza of the *Hebella* travels up the front of the *Sertularia* crossing from one side to the other in a zig-zag manner and sending a branch up each pinna.

Hydrothecæ are borne on the main hydrorhiza only at the points where it crosses the nodes of the *Sertularia*. The hydrorhizæ on the pinnæ pass along the front of the pinnae and between the hydrothecæ of the *Sertularia*. These branch-hydrorhizæ bear hydrothecæ, which lie alternately to the right and left, one lying between each pair of hydrothecæ of the *Sertularia*.

c.f. Bale's figure of this species, parasitic on *Sertularella divaricata*. (Proc. Linn. Soc., N.S.W. III; Pl. XIII., fig. 16.)

## SERTULARIA MARGINATA, Kirch (?).

(Pl. VIII., fig. 5.)

A specimen from Torquay we have with considerable doubt referred to this species. It resembles the typical form in some respects, but differs from it, having alternate pinnæ. The specimen is less than a quarter of an inch in height.

## SERTULARIA TUBATHECA, M. &amp; T.

Fig. 1 on Plate VIII. should have been included in our last paper, but had to be omitted for want of space.

## SERTULARIA MACROCARPA, Bale.

A fine specimen from Port Phillip Bay has, in addition to the long rows of gonothecæ on the stem, in many cases, a row of gonothecæ along the pinnæ.

## SERTULARELLA ANNULAVENTRICOSA, N. Sp.

(Plate VII., fig. 1; Plate VIII., figs. 4—4a.)

Hydrorhiza stout, hydrocaulus attaining about half an inch in height, stout, simple, unbranched, or only slightly branched, with several pronounced constrictions

below the proximal hydrotheca, and immediately above each hydrotheca. Hydrothecæ large, adnate for about half their height, aperture slightly contracted, peristome thickened, and often doubled, with four short teeth of equal size; a distinct annular swelling of the hydrothecæ a little below the peristome. Operculum very conspicuous, consisting of four triangular pieces of chitin.

Gonothecæ (?).

Hab.—Queenscliff.

The distance between the hydrothecæ on a shoot varies. Usually the hydrothecæ are distant, as shown in Plate VII., fig. 1, but occasionally a shoot is found in which they are close together, as in Plate VIII., fig. 4. (The latter specimen has been twisted in mounting.)

One specimen shows signs of having been slightly branched. The remainder are unbranched.

## SERTULARELLA CYLINDRICA, Bale.

(Plate VII., fig. 2.)

A fine specimen growing on a root of alga at Torquay, just below low water mark. The hydrocaulus below proximal hydrotheca, and also the lower part of internodes is often annulated. The peristome is very often doubled or trebled, and sometimes everted. Some hydrothecæ are adnate for only one-third of their length or less, but most are adnate for about half their length.

The polyp has 20 tentacles springing from the base of a short, flattened, dome-shaped, neckless proboscis.

Bale queries the existence of an operculum. The specimen referred to, which is in a perfect condition, shows none.

This species was described by Bale from a specimen from Port Jackson.

## SERTULARELLA SOLIDULA, Bale.

(Plate VIII., fig. 3.)

Specimens from Torquay nearly an inch in height.

A specimen from Queenscliff has the hydrothecæ so closely set that they nearly touch each other. (Pl. VIII., fig. 3.) One shoot is slightly branched.

## SERTULARELLA ROBUSTOIDES, sp. nov.

(Plate IX., fig. 1.)

Hydrorhiza a simple robust tube. Hydrocaulus straight, simple, unbranched, robust, divided by inconspicuous, oblique joints into internodes. Hydrothecæ very large, alternate, borne at the distal end of internodes, adnate for about one-half their height, contracting towards the mouth, swollen below, especially on the side nearer the hydrocaulus; aperture with four, short, equal, marginal teeth, one superior, one inferior, and two lateral; also three large, compressed vertical, internal teeth.

Gonothecæ (?).

Hab.—Erean Creek.

The size of the hydrothecæ at once distinguish this from any other Victorian species. None of our specimens exceed a quarter of an inch in height. The joints are often missing. The internal teeth, though large, are thin and often difficult to see.

## CAMPANULARIA TINCTA, Hincks, var. (e).

(G. Nat., Vol. VI., p. 13. Plate II., fig. 12.)

(Plate VIII., figs. 2—2f.)

An examination of specimens of this variety in a living condition shows the formation of the calyces to be very different from what we thought. Running up each of the narrower sides of the bell is a broad flange of chitin (See Pl. VIII., fig. 2d.) The actual formation is not very obvious in a specimen mounted under pressure, and it was only on viewing a living specimen and looking down into the bell from above that we realised the actual structure.

This chitinous flange on drying disappears almost completely, and then the specimen has the appearance shown in G. Nat., Vol. VI., Plate II., fig. 12. The same result is obtained if the specimen be removed from one fluid to another of much greater density.

Abnormal forms, such as that figured in Pl. VIII., fig. 2c, are not uncommon.

Some specimens have the peduncles twice the length of the bell, but in most they are rather short. At the base where they spring from the hydrorhiza the peduncles

are enlarged, and there is an internal contraction, followed by an expansion of the tube of the peduncle, immediately below the spherule. The peduncle is more or less oval in section.

The gonothecæ are as previously described by us. They are often very irregular in shape. As a rule, there are only three or four rugæ.

Var. g.

(Plate VIII., fig. 2g.)

This variety differs from the former in the shape of the gonothecæ, which are much shorter in proportion to their breadth, and instead of having a few transverse rugæ on the upper side have their upper surface covered with a large number of close fine, transverse ribs.

## LOVENELLA BRIGGSI, n. sp.

(Plate IX., figs. 3—3f.)

Hydrorhiza, usually running over another Hydrozoa or a Polyzoa, sending off numerous branches at right angles. Hydrocaulus attaining a height of about a quarter of an inch, simple, branched, spirally constricted throughout its whole length. Hydrothecæ turbinate, slightly constricted at diaphragm, with a considerable space between the diaphragm and the base; operculum formed of 8 or 9 blunted wedge-shaped segments; no distinct line of demarcation between margin of hydrotheca and base of segments.

Gonothecæ borne on the hydrorhiza, sessile, turbinate, aperture terminal.

Hab.—Corio Bay, Hobson's Bay, Torquay.

Notwithstanding that there is no line of demarcation between the margin of the hydrotheca and the base of segments, and although the gonothecæ are borne on the hydrorhiza, we have no hesitation in assigning this species to the Genus *Lovenella*. These points we do not consider to be of generic importance.

The manner of branching of the stem is worthy of notice. Each internode terminates in a hydrotheca. A little less than the length of a hydrotheca below the base of this hydrotheca springs a spirally-constricted peduncle, a little shorter than the length of a hydrotheca, and bearing a hydrotheca on its extremity. (This pedunculate hy-

drotheca is, however, sometimes missing.) Immediately below this peduncle springs the next internode, which lies in a plane at about right angles to the two hydrothecæ, and, immediately bending upwards, forms an angle of about 155 degrees with the preceding internode. The next internode springs, in a similar manner, from the opposite side, thus lying approximately parallel with the last but one preceding. This gives the stem a zig-zag appearance.

In addition to the branched stems, the hydrorhiza bears a number of hydrothecæ on spirally constricted peduncles a little shorter than their own length.

The gonothecæ observed vary considerably in size—probably on account of being at different stages of maturity. When mature they appear to discharge their contents by a ragged rupture of their truncate tops. Of this, however, we are not quite sure.

We desire to acknowledge our indebtedness to Mr. E. A. Briggs, of the Australian Museum, Sydney, for his kindness and trouble in looking up literature that we had not access to, and supplying us with lengthy extracts therefrom.

(To be continued.)

#### EXPLANATION OF PLATES.

##### PLATE VII.

- Fig. 1. *Sertularella annulaventricosa*, n. sp., x40.  
 „ 2. *Sertularella cylindrica*, Bale, x40.  
 „ 3. *Plumularia setaceoides*, var. *crateriformis*, x80.  
 „ 3a. *Plumularia setaceoides*, var. *crateriformis*, x120.  
 „ 4. *Hebella scandans*, Bale, growing on hydrocaulus of *Sertularella unguiculata*, x40.  
 „ 5. *H. scandans*, growing on pinna of *S. unguiculata*, x40.

##### PLATE VIII.

- Fig. 1. *Sertularia tubatheca*, M. & T., x40.  
 „ 2. *Campanularia tinctoria*, Bale, var., showing broad chitinous flange, x40.

- „ 2a. *Campanularia tinctoria*, Bale, var., showing view of narrow side, x40.  
 „ 2b., 2c. *Campanularia tinctoria*, Bale, var., with polypes, x40.  
 „ 2d. *Campanularia tinctoria*, Bale, var., transverse section of hydrotheca, x40.  
 „ 2e. *Campanularia tinctoria*, Bale, var., abnormal form, x40.  
 „ 2f. *Campanularia tinctoria*, Bale, var., gonotheca, x40.  
 „ 2g. *Campanularia tinctoria*, Bale, var., closely ribbed var. of gonotheca, x40.  
 „ 3. *Sertularella solidula*, Bale, compact specimen, x40.  
 „ 4. *Sertularella annulaventricosa*, n. sp., compact specimen (twisted in mounting), x40.  
 „ 4a. *S. annulaventricosa*, n. sp., with double peristome, x40.  
 „ 5. *Sertularia marginata*, Kirch (?), x25.

##### PLATE IX.

- Fig. 1. *Sertularella robustoides*, n. sp., x40.  
 „ 2, 2a. *Plumularia setaceaformis*, n. sp., x80.  
 „ 2b. *Plumularia setaceaformis*, axil, showing mammilliform pore (m), one sarcotheca not shown, x360.  
 „ *Lovenella briggsi*, n. sp., x25.  
 „ 3a, 3b. *Lovenella briggsi*, n. sp., x100.  
 „ 3c. *Lovenella briggsi*, pedunculate hydrotheca growing from hydrorhiza, and with valves closed, x100.  
 „ 3d. *L. briggsi*, n. sp., gonotheca, x100.  
 „ 3e., 3f. *L. briggsi*, n. sp., gonotheca (probably immature), x100.







