

The 1st leg is more robust than the rest, it is without spines, but the propodus has a tubercle on the inner side bearing 2 small teeth. The remaining legs are sparsely spined but provided with furry pads on the usual joints.

The 1st pleopod has the peduncle rather short and crowded against the rami. The inner ramus is rather longer than broad and the outer about the same length; there are no marginal teeth as in *Cerceis*, etc., but there is an outstanding proximal spine as in so many Hemibranchiatae. In the 2nd pleopod the peduncle is also crowded up, the rami are similar to those of the 1st pair, the *appendix* is longer than the endopod and originates at its base. In the 3rd pleopod the endopod is very convex on its outer margin, the exopod has an oblique division line rather near the end, on the 4th and 5th pleopods the branchial rugae are very strongly developed, the outer ramus of the 4th with a proximal lobe has an increase of surface, the inner ramus also has large rugae and it is tipped with 2 plumose setae. The outer ramus of the 5th pleopod is also provided with a proximal lobe; distally there are 2 outstanding spinuliferous lobes with a small group on the inner side close to the division line.

The uropods are lamellar, the inner ramus the larger not reaching the end of abdomen, the outer ramus is ovate with a slight insinuation of the margin on the outer side near the end.

A female of this species is smaller and without visible brood. The mouth parts are normal, there is only a median lobe on the posterior division of abdomen, and this part is not so strongly pointed at the end. The 2nd antenna is not quite so robust. The 1st leg bears a few spines and there is no tubercle on the propodus.

Length of male, 18 mm.; breadth, 10 mm.

Collected by Dr. Torr at Port Arthur, Tasmania.

The type is in the South Australian Museum, C. 1258.

In 1908 (Trans. Roy. Soc. S. Austr., vol. xxxii.) I established a genus, *Moruloidea*, knowing very little of its affinity. I now believe it to be very close to the present genus, and may have to be united to it in the future. I am also of opinion that the genera *Cassidias*, Richardson, and *Euvallentinia*, Stebbing, are closely related to *Cassidinopsis*, Hansen, and that these 4 genera form a group at least with very close affinities.

Group PLATYBRANCHIATAE, Hansen.

Waiteolana, n. gen.

The body is narrow. The eyes are large. The epimera are uniform, vertical in direction, the 5th and 6th a little larger than the others. The abdomen is laterally contracted.

The basal antennular joints only very partially lodge in excavations of the head, the anterior portions of the 1st and 2nd joints project and are visible from above, as also projects the free apex of epistome.

The mandibles and maxillipeds are of the usual structure.

The legs are stout and uniform.

The endopod of 1st pleopod is nearly three times as long as broad. The 3rd pleopod has a division line on the exopod, both rami with many marginal plumose setae. The exopod of the 4th pleopod has a division with a few terminal setae. The exopod of the 5th is also divided with 4 lobes on inner margin scarcely salient. The endopods of 4th and 5th pleopods are more membranous than their exopods, and there are vertical or oblique wrinkles but no transverse branchial folds.

It will be seen that this genus makes a new group in the Platybranchiatae. I have pleasure in dedicating it to the Director of the South Australian Museum, Mr. E. R. Waite, who collected a single specimen of the genotype.

Waiteolana rugosa, n. sp.

Pl. I., figs. 3-6.

The body is convex, glabrous, narrow, eroded with small sculpturings difficult to define, including a row of very small tubercles on the posterior margins of the segments of thorax. The abdomen is contracted and granulate.

The head is transverse with a strong ridge in front with a less defined one behind it. The eyes are large. The small rounded tip of epistome, which is free, and anterior portions of basal joints of antennules are visible from above. The segments of thorax have their exposed parts in relief and do not differ much in length, except the last, which is shortest. The epimera are vertical in direction, are not visible from above, and except the 1st are uniform and obtusely rounded below, that of the last reaching down as much as the preceding. The anterior division of abdomen projects a little convexly on its posterior margin; the suppressed segments are well marked. The posterior division is moderately domed and tapers behind to an obtuse point which carries a \wedge -notch; below there is a slight insinuation in the vertical direction (in the specimen, which is somewhat damaged, the notch is malformed).

The 1st antennular joint is strongly indurated, the 1st and 2nd joints have slight sulcations parallel to their anterior margins, the 2nd joint is half as long as the 1st, the 3rd is a little longer than the 2nd, the flagellum has 7 joints. The antenna is robust, its peduncular joints are laterally compressed, the joints of the flagellum are 7, which are strongly ciliated.

The epistome is conical and has a small labrum.

The left mandible has a strong entire incisory process, strong secondary plate, also spine row; the molar process is small.

The maxilliped has the 2nd joint rather large at the base, the plate is also broad, the palp is strong with lobes of joints moderately produced.

The legs are stout, rather short; there are some short teeth on merus, carpus, and propodus of 1st and 2nd pairs, the others are poorly spined, the dactyles are strong.

The pleopods as a whole are narrow.

The endopod of 1st pleopod is nearly three times as long as broad with a folded inner margin and subacute apex reaching beyond the exopod, the exopod is ovate and has a small proximal outstanding spine. The appendix of the 2nd pleopod is slender and longer than its endopod. The exopod of the 3rd pleopod has a division, the endopod is longer than broad with a thickened convex outer margin. Both rami of the 4th pleopod have a few distal plumose setae. The exopod of the 5th pleopod has 4 setuliferous lobes on the inner margin. The exopods of the 4th and 5th pleopods are divided. The endopods of 3rd, 4th, and 5th pleopods are membrane-like, somewhat wrinkled in oblique direction, but there are no branchial folds.

The uropod is indurated, the inner ramus is rather large and distally emarginate, the outer is small with a deep cleft.

Length, 8 mm.

One specimen, from "Thetis" Expedition Station 57.

The type is placed in Australian Museum, Sydney.

DESCRIPTION OF PLATES XXXVIII. to LIII.

PLATE XXXVIII.

Fig. 1: *Sphaeroma quoyana*, male. Fig. 2: *id.*, lateral view. Fig. 3: *id.*, anterior region from below. Fig. 4: *id.*, left mandible. Fig. 5: *id.*, 1st maxilla. Fig. 6: *id.*, maxilliped. Fig. 7: *id.*, 1st leg. Fig. 8: *id.*, 3rd leg. Fig. 9: *id.*, 5th leg. Fig. 10: *id.*, 7th leg. Fig. 11: *Sphaeroma terebrans*, anterior region from below. Fig. 12: *id.*, posterior division of abdomen, inferior view. Fig. 13: abdomen of dry specimen found with *S. terebrans*, Queensland.

PLATE XXXIX.

Fig. 1: *Exosphaeroma intermedia*, n. sp., male. Fig. 2: *id.*, lateral view. Fig. 3: *id.*, anterior region from below. Fig. 4: *id.*, end of abdomen and uropod from below. Fig. 5: *id.*, 7th leg. Fig. 6: *id.*, 5th leg. Fig. 7: *id.*, maxilliped. Fig. 8: *id.*, 1st leg. Fig. 9: *Exosphaeroma alata*, male, 1st leg. Fig. 10: *id.*, abdomen of female. Fig. 11: *id.*, anterior region from below, male.

PLATE XL.

Fig. 1: *Exosphaeroma alata*, male. Fig. 2: *id.*, 7th leg. Fig. 3: *id.*, end of abdomen and uropod from below. Fig. 4: *Cymodoce bidentata*, male. Fig. 5: *id.*, side view of abdomen. Fig. 6: *id.*, end of abdomen and uropod. Fig. 7: *Cymodoce aculeata*, male. Fig. 8: *id.*, anterior region from below. Fig. 9: *Cymodoce aspera*, anterior region from below. Fig. 10: *id.*, end of abdomen and uropod. Fig. 11: *id.*, side view of abdomen.

PLATE XLI.

Fig. 1: *Neosphaeroma laticauda*, anterior region from below. Fig. 2: *id.*, end of abdomen and uropod. Fig. 3: *id.*, 1st pleopod, male. Fig. 4: *id.*, 2nd pleopod, male. Fig. 5: *id.*, 3rd pleopod. Fig. 6: *Neosphaeroma australe*, male. Fig. 7: *id.*, antennule, antenna, and epistome. Fig. 8: *id.*, end of abdomen and uropod, male. Fig. 9: *id.*, 1st pleopod. Fig. 10: *id.*, endopod of 2nd pleopod. Fig. 11: *id.*, 3rd pleopod.

PLATE XLII.

Fig. 1: *Cymodoce aspera*, female. Fig. 2: *Cymodoce gaimardii*, male. Fig. 3: *Cilicacopsis ornata*, male. Fig. 4: *Cilicaca spinulosa*, male. Fig. 5: *Cilicacopsis ornata*, end of abdomen and uropod from below. Fig. 6: *Cilicacopsis halei*, female. Fig. 7: *Cilicacopsis stylifera*, end of abdomen and uropod from below. Fig. 8: *Cilicacopsis halei*, end of abdomen and uropod from below. Fig. 9: *id.*, antennule, antenna, and epistome.

PLATE XLIII.

Fig. 1: *Cilicaca crassa*, male. Fig. 2: *id.*, end of abdomen and uropod from below. Fig. 3: *Paracilicaca stebbingi*, male. Fig. 4: *id.*, abdomen, female. Fig. 5: *id.*, anterior region from below. Fig. 6: *id.*, end of abdomen and uropod from below, male. Fig. 7: *id.*, 1st pleopod, male. Fig. 8: *Paracilicaca pubescens*, male. Fig. 9: *id.*, anterior region from below. Fig. 10: *id.*, end of abdomen and uropod, female. Fig. 11: *id.*, end of abdomen and uropod, male, immature.

PLATE XLIV.

Fig. 1: *Cilicacopsis corpulentis*, male. Fig. 2: *id.*, antennule, antenna, and epistome. Fig. 3: *id.*, right mandible. Fig. 4: *id.*, end of abdomen and uropod from below. Fig. 5: *id.*, 1st leg. Fig. 6: *id.*, 1st pleopod, male. Fig. 7: *id.*, 2nd pleopod, male. Fig. 8: *Cilicacopsis obesa*, female. Fig. 9: *id.*, maxilliped. Fig. 10: *id.*, anterior region from below. Fig. 11: *id.*, end of abdomen and uropod from below.

PLATE XLV.

Fig. 1: *Cymodopsis latifrons*, male. Fig. 2: *id.*, anterior region from below. Fig. 3: *id.*, end of abdomen and uropod. Fig. 4: *id.*, 2nd leg. Fig. 5: *id.*, 7th leg. Fig. 6: *Cymodopsis plumosa*. Fig. 7: *id.*, anterior region from below. Fig. 8: *id.*, end of abdomen and uropod from below. Fig. 9: *id.*, 1st pleopod. Fig. 10: *Cymodopsis gorgoniae*. Fig. 11: *id.*, anterior region from below. Fig. 12: *id.*, side view of abdomen. Fig. 13: *id.*, end of abdomen and uropod from below.

PLATE XLVI.

Fig. 1: *Cymodopsis crassa*, female. Fig. 2: *id.*, lateral view. Fig. 3: *id.*, anterior region from below. Fig. 4: *id.*, 1st maxilla. Fig. 5: *id.*, 2nd maxilla. Fig. 6: *id.*, maxilliped. Fig. 7: *id.*, 1st leg. Fig. 8: *id.*, 7th leg. Fig. 9: *id.*, end of abdomen and uropod from below. Fig. 10: *id.*, 1st pleopod. Fig. 11: *id.*, 2nd pleopod. Fig. 12: *Cymodopsis wardi*, antennal region and epistome.

PLATE XLVII.

Fig. 1: *Cymodopsis wardi*, female. Fig. 2: *id.*, end of abdomen and uropod. Fig. 3: *Cymodopsis albanicensis*, male. Fig. 4: *id.*, 1st leg. Fig. 5: *id.*, 5th leg. Fig. 6: *id.*, end of abdomen and uropod from below. Fig. 7: *id.*, epistome. Fig. 8: *Bregmocrella grayana*, 1st pleopod. Fig. 9: *id.*, 3rd pleopod. Figs. 10 and 11 represent a sphaeromid from Mast Head Island, Great Barrier Reef, 17 faths.; it was dry and partially rolled up, not lending itself to description—Col. A. R. McCulloch.

PLATE XLVIII.

Fig. 1 (*Paracilicaca pubescens*, 2nd pleopod, young male?). Fig. 2: *Cassidinella incisa*, antennae and epistomial region. Fig. 3: *id.*, end of abdomen and uropod from below. Fig. 4: *Dynamenella rubida*, male. Fig. 5: *id.*, epistome and antenna. Fig. 6: *id.*, end of abdomen and uropod. Fig. 7: *id.*, 1st pleopod. Fig. 8: *Haswellia anomala*, female. Fig. 9: *id.*, end of abdomen and uropod. Fig. 10: *Exocerceis nasuta*, male, posterior region. Fig. 11: *id.*, anterior region from below. Fig. 12: *id.*, 2nd pleopod.

PLATE XLIX.

Fig. 1: *Cerceis ovata*, female. Fig. 2: *id.*, anterior region from below. Fig. 3: *id.*, end of abdomen and uropod. Fig. 4: *id.*, 1st pleopod, male. Fig. 5: *id.*, 2nd pleopod. Fig. 6: *Haswellia juxtacarnea*. Fig. 7: *id.*, posterior region from below. Fig. 8: *Haswellia carnea*, anterior region from below. Fig. 9: *id.*, posterior region from below. Fig. 10: *id.*, posterior region from above, process of 7th segment of thorax removed. Fig. 11: *id.*, end of 7th segment of thorax from below.

PLATE L.

Fig. 1: *Cerceis tridentata*, var. *intermedia*, male. Fig. 2: *id.*, anterior region from below. Fig. 3: *Waiteolana rugosa*, male. Fig. 4: *id.*, anterior region from below. Fig. 5: *id.*, 2nd pleopod. Fig. 6: *id.*, 1st pleopod. Fig. 7: *Isocladus howensis*, male. Fig. 8: *id.*, antennae and epistome. Fig. 9: *Isocladus ? laevis*, female, anterior region from below. Fig. 10: *id.*, end of abdomen and uropod from below. Fig. 11: *id.*, 1st leg. Fig. 12: *id.*, 7th leg.

PLATE LI.

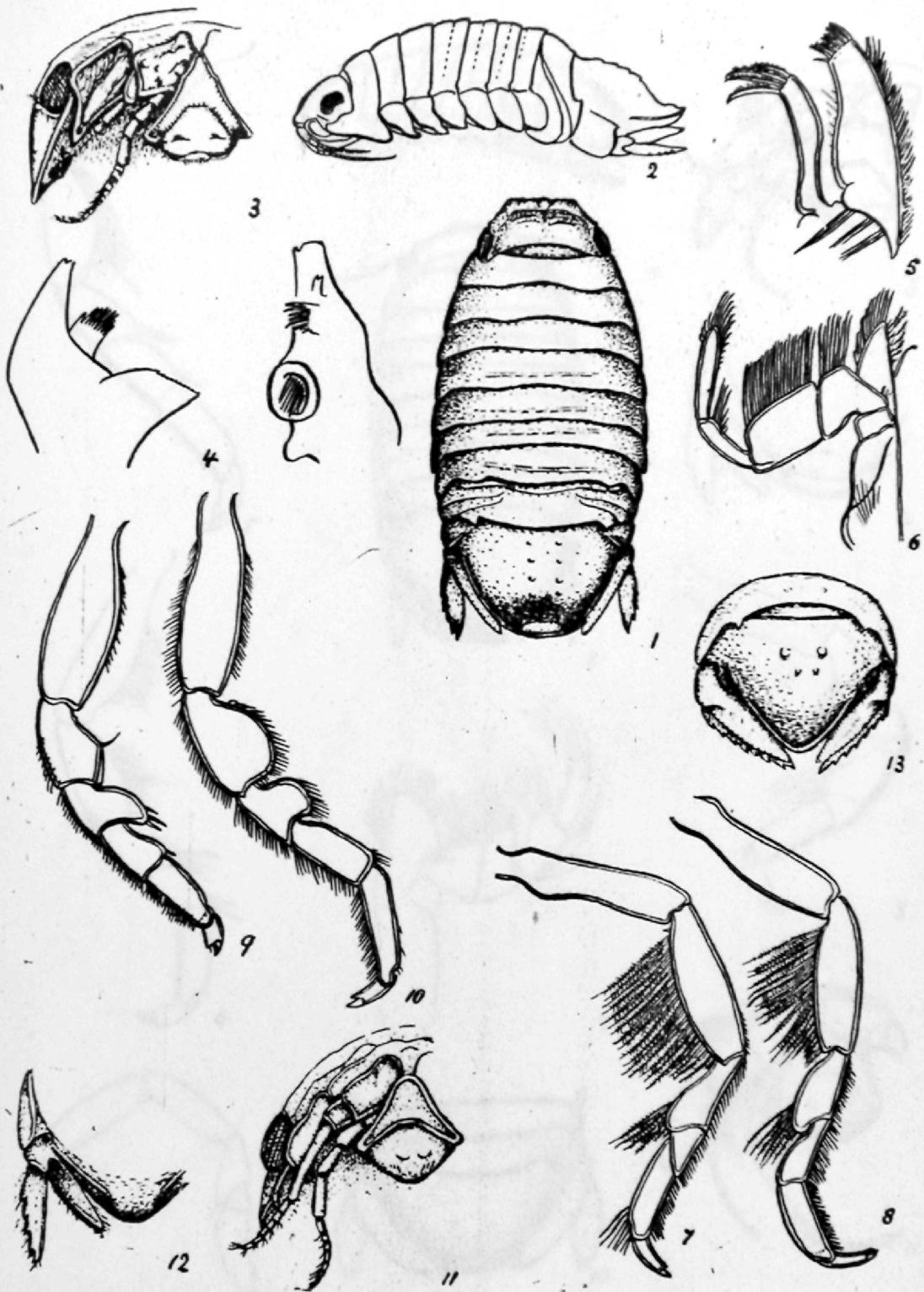
Fig. 1: *Neosphaeroma ? pentaspina*, male. Fig. 2: *id.*, anterior region from below. Fig. 3: *id.*, 5 joints of 1st leg. Fig. 4: *id.*, 1st pleopod. Fig. 5: *id.*, 2nd pleopod. Fig. 6: *Exosphaeroma alii*, male. Fig. 7: *id.*, epistome, 1st and 2nd antenna. Fig. 8: *Exosphaeroma bicolor*, 1st pleopod. Fig. 9: *Exosphaeroma alii*, 2nd pleopod. Fig. 10: *Exosphaeroma bicolor*, 7th leg.

PLATE LII.

Fig. 1: *Exosphaeroma bicolor*. Fig. 2: *id.*, side view. Fig. 3: *id.*, uropods adjacent region from below. Fig. 4: *id.*, epistome and 1st and 2nd antennae. Fig. 5: *id.*, 2nd pleopod. Fig. 6: *Platycerceis hyalina*, male. Fig. 7: *id.*, uropod, etc. Fig. 8: *id.*, anterior region from below. Fig. 9: *id.*, 1st leg, female. Fig. 10: *id.*, 1st pleopod, female. Fig. 11: *id.*, 2nd pleopod, male.

PLATE LIII.

Fig. 1: *Haswellia intermedia*. Fig. 2: *id.*, front view. Fig. 3: *id.*, anterior region from below. Fig. 4: *id.*, uropod, etc., from below. Fig. 5: *id.*, abdomen, etc., of female from above. Fig. 6: *Cassidinopsis tasmaniae*. Fig. 7: *id.*, anterior region from below. Fig. 8: *id.*, 1st leg of male. Fig. 9: *id.*, uropod and abdomen from below. Fig. 10: *id.*, 2nd pleopod.



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1-10 *Sphaeroma quoyana* ♂

11-13 *Sphaeroma terebrans*

