

The right mandible has incisory process entire, is rather slender, the spine row and molar are well developed. The molar has some longish denticles on the margin. The palp is large.

The maxilliped has the distal plate of 2nd joint large and the palp has long lobes to joints.

The legs are sparsely spined, a conspicuous plumose setum is found at the end of propodus of some.

The pleopods have unusually long peduncles. 1st pleopod has endopod much longer than broad, the exopod with small, scarcely projecting proximal spine turned up at tip. Peduncle with 2 or 3 coupling spines on inner angle and sparsely hairy on the outer side. In the 3rd pleopod the exopod is without division—that I could detect—and the endopod is curiously folded obliquely—this occurs on both. The exopod of the 5th pleopod has 3 lobes on the distal division and 2 on the proximal; the distal division is triangular in shape, and on the outer side there is a group of bristles at the end of the division line.

The uropod has a strong inner ramus which is obliquely truncate at the end with the inner angle produced to a point; it does not reach the end of abdomen. The external ramus is very small.

Length, 4 mm. One non-ovigerous female in bad preservation, collected by C. W. Mulvey, trawler "Goonambee," 78-80 faths., off Port Jackson.

Type placed in Australian Museum, Sydney.

### *Cymodopsis albanensis*, n. sp.

Pl. xlvii, figs. 3-7.

The body is short, deep, with a very coarse and scanty tomentum. The head is short, the eyes of moderate size. The 1st segment of thorax is longest, the rest becoming shorter posteriorly. The anterior division of abdomen is short, the suppressed segments faintly marked above but distinctly cut on the lateral margin. The posterior division is marked by two domes not very prominent and not deeply divided from each other medianly, the surface then has an abrupt descent to the scarcely produced and obtusely pointed end, which is very obscurely trilobed, the lateral lobes only visible from a side view; the exit channel from the cavity of abdomen is moderately deep.

Basal antennular joint is broad, 2nd joint small, 3rd rather short, flagellum of 10 joints. Antenna slender, flagellum of 10 joints.

The epistome is arcuate and a little tumid anteriorly; this portion stands out from the head and projects downward, so that there is a small excavation between it and the rostrum.

Mandibles with incisory plates entire, the secondary plate on the left mandible is slightly bifid, the spines in the spine row are strong, and there is a large molar.

The maxilliped is rather large, the distal plate of 2nd joint large with some strong dark-tipped spines on its inner fold below the apical spines, which are crowded; the palp is large with lobes rather long, the terminal one slender.

The legs are robust. The 1st with very strong spines on merus, carpus, and propodus, the 5th with some thorn-like spines on the basos.

The first 2 pleopods are very similar to those of *C. latreillei* and *P. pubescens*. There is a distal insinuation on the endopod of the 1st, which is longer than broad and slightly insinuate on the outer margin; the exopod is narrow with a strong out-standing proximal spine; there are 4 coupling spines on the peduncle. The 2nd pleopod has a long whip-like appendix.

The uropod has a large peduncular portion, the endopod is broad at the base, where it is fused to this, tapering to a truncate end, which does not reach

as far as the end of the abdomen; the exopod is much narrower and shorter with a strong tooth on the outer side, the terminal half is minutely serrate on the margin.

This species is like *C. aspera*, Haswell; it also is like the young female of *C. latreillei*, also female of *P. pubescens*.

Length, 7 mm., one specimen from Albany Island, not in good preservation.

The type is in the Australian Museum, Sydney.

#### CASSIDINELLA INCISA, Whitelegge.

Pl. xlviii, figs. 2, 3.

*Cassidinella incisa*, Whitelegge, "Thetis" Scientific Results Isopoda, pt. i., p. 242.

The median region of the anterior division of abdomen is tumid; the posterior division has 2 rather obscure bosses above; the acute end is raised above the lateral processes, forming a partial channel or exit to the abdomen below. The acute epimera are thickened, as also are the uropods.

The 3rd joint of the antennular peduncle is very short, and the 1st joint of the flagellum is subequal to it; the flagellum is short with 8 joints. The flagellum of the antenna has the same number of long joints; both are scarcely setose.

The pleopods, which are those of a female, are in rather bad condition; both exopod and endopod of the 4th are tipped with a few plumose setae; the exopod of this has a division, as also has the exopod of the 3rd pleopod. The pleopods themselves are narrow, but otherwise do not differ from those of Hemibranchiatae.

Length, about 5 mm.

There are in the collection three rather damaged specimens with one slide of pleopods.

Collected by C. W. Mulvey, trawler "Goonambee," 75-80 faths., off Port Jackson.

#### Group EUBRANCHIATAE, Hansen.

##### *Dynamenella rubida*, n. sp.

Pl. xlviii, figs. 4-7.

The body is slightly granular or punctate, glabrous.

Head short and rather narrow. The eyes are large.

The 1st segment of thorax is longer than those which follow, these being subequal in length.

The epimera are vertical in direction, not showing distinct sutural lines.

Anterior division of abdomen is quite short, the markings of coalesced segments obscure.

The posterior division of abdomen is moderately dome-shaped, shelving away gradually to an obtusely pointed end, and which bears a small  $\wedge$ -shaped notch which is partially tubular, the exit of a channel which widens inwardly.

The epistome is elongate, apically obtuse, carrying a very broad and long upper lip.

The 2nd joint of the antennule is half as long as the 1st, the 3rd nearly as long as the 2nd, tumid; the flagellum has 8 short joints. The antenna is stout, the peduncle with short joints, flagellum of 12 short moniliform joints.

In the maxilliped the plate of 2nd joint is subequal to the joint itself.

The legs are short and stout, not differing much in length, with furry pads in the usual positions, few spines and strong dactyli. In the 7th the merus and carpus are subequal in length, the propodus equal to merus and carpus together; the ischium is also subequal to the propodus. The fringing plumose setae on the pleopods are unusually long.

The exopod of the 1st pleopod is much larger than the endopod; it, as well as a portion of the endopod, is indurated and areolate, there is a ledge on the endopod on which the contiguous part of the exopod rests. This structure is seen in other related species and has been noted by Barnard and others. There is no outstanding spine on the exopod. The endopod of the 2nd pleopod also has a ledge on which rests the *appendix*; this is thick, and reaches to the end of the lamina, in this case the endopod is much larger than the exopod, being about as long as broad. There are 4 coupling spines on the peduncle. The exopod of the 3rd pleopod is unjointed. Any divisions that may be on the exopods of the 4th and 5th pleopods are obscured by branchial folds.

The uropod has subequal rami; they are ovate-laminar with entire margins. One male specimen from Maroubra, New South Wales. The colour is pinkish with scattered dark markings. Length, 5 mm.

The type is in the Australian Museum, Sydney.

*CERCEIS TRIDENTATA*, Ml. Edw., var. *intermedia*, n. var.

Pl. 1., figs. 1, 2.

*Cerceis tridentata*, Ml. Edw., Hist. Nat. Crust., t. iii., p. 221.

*C. tridentata*, Baker, Trans. Roy. Soc. S. Austr., vol. xxxii, 1908, p. 153

The posterior division of abdomen has 2 very obscure bosses, each capped with an obscure tubercle. The posterior notch is deep, and there is a median process whose free part is small, but there are indications on the integument of a much larger uncut base. The channel below is long and deep, the abdominal walls being turned in below, as also are the epimera of the thoracic segments.

The epistome acuminate to an acute point. The upper lip has a setose fringe which, with the setae on the plates of the maxillipeds, covers the mandibles.

The inner distal angle of the 1st antennular joint is produced to the end of the 2nd joint, which itself is also distally pointed; the outer angle is scarcely produced, the flagellum carries 8 or 9 joints. The antenna is slender, its flagellum has 12 joints.

There are five females in the collection and one male, which apparently is not quite mature, as the *appendix masculina* is still undetached from its lamina. All are much smaller than the southern specimens of *C. tridentata*; they are devoid of pubescence on the abdomen, which is sometimes the case with that species from southern waters.

From floating sargasso weed, south-west of Vanderlin Island, Sir E. Pellew Group, Gulf of Carpentaria, June, 1923, Dr. N. G. J. Paradice, R.A.N., 4 females, 1 male; also 1 female, Bowen Jetty, Queensland, E. H. Rainford.

Australian Museum, Sydney.

*Cerceis ovata*, n. sp.

Pl. xlix., figs. 1-5.

The body is ovate, strongly convex, almost glabrous.

The head is short, anteriorly there is a transverse ridge and a faint indication of 2 lobes, posteriorly there is a distinct median boss near the border in the female.

The eyes are moderate in size.

The first segment of thorax is a little longer than those which follow and these do not vary much in length; they are marked by some obscure, short, longitudinal ridges towards the sides.

The epimeral plates of thorax project obliquely, the 2nd, 3rd, and 4th are narrower than the following two, the last a little shorter.

The anterior portion of the pleon is short and squared laterally, the coalesced segments well marked at the sides. The posterior portion is dome-shaped, then tapers to an obscure end, on which is a rounded simple notch, shallow, and not conspicuous from above; this is the exit of a rather deep channel.

In the male the anterior portion of the pleon has an obscure median tubercle, and the dome on the posterior portion is very obscurely divided into 3 lobes.

The 1st antennular joint is broad, its outer distal angle is acute and a little turned outwards, the inner embraces the 2nd joint for the whole of the joint's length. The 3rd peduncular joint is rather longer than the 2nd. The flagellum carries about 13 joints.

The peduncle of the antenna is longer than that of the antennule by the length of the 5th joint, its flagellum also has 13 joints.

The epistome is elongate and tapers anteriorly to an obtuse point which stands out a little from the obscure rostrum.

The right mandible is moderately robust, and has a prominent incisory process cut into 4 dark teeth; the secondary plate is small, also dark, and is followed by 4 curved spines. The molar is long, robust, and edged with small teeth. The left mandible has the secondary process stronger.

The hypopharynx is more prominent than usual.

The outer branch of the 1st maxilla has 7 strong simple spines.

The maxilliped has the plate of the 2nd joint rather broad with few terminal spines; the palp is large with joints lobed and well spined.

The legs are robust and moderately spined and of usual type.

The 1st pleopod has the exopod more than twice as broad as long, distally truncate, bearing 7 strong teeth on its external border; there is only a small projecting spine on the proximal external angle. The endopod is about twice as broad as long. The inner angle of peduncle has 3 coupling spines.

In the 2nd pleopods the rami are similarly proportioned with *appendix masculina* attached to the endopod at about the middle of its inner margin, and it reaches beyond the plumose setae. The exopod has 12 teeth on the outer margin.

The endopod of the 3rd pleopod reaches nearly as long as the exopod, which has a division line nearer the middle of the lamina than the end.

In the 4th pleopod the exopod has a distal emargination, but a division could not be seen.

The exopod of the 5th pleopod has 3 distal lobes with the division line rather near the end; there is another small lobe and a few setules on the inner margin.

The inner ramus of the uropod is broad, reaches to the end of the pleon, and is terminally truncate with a rounded inner angle. The outer ramus is shorter and distally very obtusely rounded and toothed.

The female is much larger than the male with the posterior channel not quite so deep. The mouth parts are modified. The brood seems to be deep in the body.

There are three specimens in the collection from 6 faths., Gulf St. Vincent—an ovigerous female and a non-ovigerous, and a male.

Length of male, 7 mm.; female, 12 mm. long, 7 mm. broad.

Types, with two slides, are in the South Australian Museum.

#### *Exocerceis*, n. gen.

Head narrowing much anteriorly.

Posterior division of abdomen with a notch and raised median process in the notch in the male.

1st joint of antennule with distal angles not prolonged.

Maxillipeds with long lobes on palpal joints.

Exopod of 3rd pleopod not jointed.

111

Otherwise as in *Cerceis*.

Type of genus, *Exocerceis nasuta*, Whitelegge.

*EXOCERCEIS NASUTA*, Whitelegge.

Pl. xlviii., figs. 10-12.

*Cerceis nasuta*, "Thetis" Scientific Results Isopoda, pt. ii., p. 276.

The posterior division of abdomen has a median tubercle rather obscure with a small furrow below it. The submedian tubercles are keel-like.

The epistome is convex and the very setose upper lip covers the mandibles.

The *appendix masculina* on the 2nd pleopod is as in *Cerceis*, but the exopod in both sexes carries several strong subterminal comb-like spines.

The exopods of pleopods 4 and 5 are unjointed.

The rami of the uropods are broadly lamellar, serrate on margins, nearly equal, the outer one is slightly spoon-excavate.

*Platycerceis hyalina*, n. subgen. and sp.

Pl. lii., figs. 6-11.

The body is much compressed dorso-ventrally, smooth, almost glabrous, in the living state hyaline. The head is somewhat triangular, produced laterally to acute angles in front of the eyes; these are large with many ocelli. The segments of thorax are all laterally produced to acute outstanding processes, which become more curved backwards towards the posterior region. The 7th segment is shorter and laterally not so much outstanding. Faint lines mark off the epimera. The abdomen is little convex; the anterior division is marked in the usual way by the coalesced segments, and laterally is acute and projecting; the posterior division also acute at the sides terminates in two spiniform projections.

The epistome is rather large, the anterior portion a little swollen, the apex is acute.

The antennule has the 1st joint moderately expanded, distally it is produced at the inner angle, but not so far as the end of 2nd joint, 2nd joint less than half the length of the 1st, the 3rd joint is narrow. The 10-jointed flagellum has the 1st joint nearly equal in length to the 3rd peduncular joint. The antenna has the last joint of peduncle longest, the flagellum of 12 joints.

The mandibles have slender incisory plates divided into 4 teeth, the molars and palps are large.

The 1st maxilla has the inner branch with 4 curved feather setae and a small cluster of setules on its inner side; the outer branch, which is robust, has also some setules on its inner margin.

The lobes of the maxilliped palp are rather short and are sparsely setose.

The legs, except the 1st pair, are slender; there are no furry pads and spines are not numerous.

The 1st pleopod has a rather broad peduncle with 3 coupling spines, which are broad and different from those found in such genera as *Cymodoce*, etc. The exopod is much broader than long and has no outstanding proximal spine; besides the plumose setae there are 6 strong teeth on the distal margin, as in *Cerceis*, etc. The endopod is small, about twice as broad as long. The 2nd pleopod is larger than the 1st; there are 17 strong teeth on the exopod, the endopod is larger than the exopod. There is a curious hump near the inner angle of the peduncle. The 3rd pleopod has a narrow divided exopod with several distal teeth. The 4th and 5th pleopods are narrow; all rami of these are branchial, the exopod of the 5th has two outstanding rasp-like lobes.

The uropods have subequal rami, long, narrow-lanceolate, spreading, slightly curved outwards much exceeding the end of abdomen, strengthened by ridges above and below, the outer rami slightly serrate.

Length, 7 mm.; breadth, 4 mm. One female, Gulf St. Vincent, 4 faths., taken by H. M. Hale.

The type is in the South Australian Museum. Since the above was written a male specimen has been taken. The following points have been noticed:—The epistome is apically much more attenuate. The antennule has a flagellum of 18 joints and is much more robust than in the female. The legs have strong spines on the propodal joints, except in the last pair, which is more slender. The appendages on the 7th sternum are short and thick. The exopod of the 1st pleopod has only 3 teeth. In the 2nd pleopod the exopod has 9 teeth. The *appendix masculina* is very long, reaching nearly to the end of the abdomen, and capable of forming, with its fellow of the opposite side, a cylindrical tube whose wall becomes very thin distally. The colour of this elegant species has been observed in the fresh state:—As a ground translucent, or nearly so, with brownish spots and small blue elongate areas, as follows, 1 median on the head, 4 submedian on 1st thoracic segment, 2 lateral on the 3rd, 2 submedian on the 4th, 2 lateral on the 5th, 2 lateral on the 6th, 2 on each side of the anterior division of abdomen, 2 submedian and 2 lateral on the posterior division of abdomen. There is also a median concentration of brown and yellow, more conspicuous on the posterior division of abdomen, which besides has a mottled appearance.

#### HASWELLIA ANOMALA, Haswell.

Pl. xlviii., figs. 8, 9.

*Sphaeroma anomala*, Haswell, Trans. Linn. Soc. N.S. Wales, p. 473, pl. xvi., fig. 4; also Cat. Austr. Crust., p. 288.

This is the female or young of some species of *Haswellia*. The produced 7th segment of thorax is very pronounced, its apex extending to the posterior margin of the first division of abdomen.

The pleopods are as in *H. carnea* and *H. emarginata*; the general aspect is like the female of *H. emarginata*, except for the produced 7th segment of thorax.

#### HASWELLIA CARNEA, Haswell.

Pl. xlix., figs. 8-11.

*Calyptura carnea*, Trans. Linn. Soc. N.S. Wales, p. 476, pl. xvii., fig. 4; also Cat. Austr. Crust., p. 302.

The apex of process from 7th segment of thorax is slightly depressed, and below there is a broad shelf behind the cavity of the abdomen; the abdomen itself is very short and steep behind, its upper surface is very obscurely trilobed.

The antennular joint has a furrow for about half its length, the inner margin has a recess into which the side of the anterior portion of epistome rests. The epistome itself is unusually sculptured.

The tooth on inner margin of endopod of uropod is strong and rests in a small recess on the abdomen close to the side of the posterior notch. The uropods end in dense ciliae.

The legs are stout and very sparsely spined.

The pleopods are of *Cerceis* form, the 1st has endopod broader than long, exopod with small outstanding spine curved backwards, and scale-like markings on the surface; on its margin are 6 strong teeth, and the distal end is truncate; outer distal angle rather acute, inner rounded. On the inner side of the broad peduncle are 3 coupling spines and the outer side is furry.

The margin of exopod of 2nd pair carries 14 or 15 teeth, the union of the short *appendix* to the endopod is nearer the distal end.

The exopod of the 3rd pleopod has a division and 5 or 6 teeth on margin. The exopod of 4th pleopod has a blunt tooth or lobe on its outer margin near the base.

The exopod of the 5th pleopod has two long lobes on the distal part, a very obscure division quite near the end, and a small lobe on the proximal part on the inner side.

The species seems to be fairly plentiful on the New South Wales coast.

**Haswellia juxtacarnea**, n. sp.

Pl. xlix., figs. 6, 7.

There is a dried specimen in the collection from Lord Howe Island very much like *H. carnea*.

The process from 7th segment of thorax is minutely rugose and there are depressed areas on the same; this process completely covers the uropods as well as the abdomen. In an inferior view the exopods of uropods are seen, the endopods being largely concealed. This curious structure of end of abdomen is very different from that of *H. carnea*, as the figure shows. There is a similar sculpturing of the epistome and the antennular joints as in that species.

Length, 10 mm. Type in Australian Museum, Sydney.

**Haswellia intermedia**, n. sp.

Pl. liii., figs. 1-5.

The body is rough and becomes distinctly granulate behind, while the abdomen is coarsely granulate.

The head is long with a small rounded projection in front visible from above. There is a strong ridge on each side, being the outer margins of the channels, which probably have a respiratory function when the animal is rolled up; these reach nearly to the eyes, which are rather large.

Of the segments of thorax the 1st and 6th are subequal in length, the 7th is produced to a long process reaching beyond the end of abdomen, and its base almost completely covers the anterior division of the abdomen. The epimera are downward and backward directed, each with a slight excavation at the extremity. The posterior division of abdomen has a median tubercle ill-defined and narrows considerably to the end, where there is a deep notch widening inwardly with a median process which fills it, leaving only lateral slits scarcely visible from below; the process itself is distally truncate with 1 or 2 denticles reaching to the opening of the notch.

The epistome is rather long.

The distal angles of the 1st antennular joint only partially embrace the 2nd joint, which is short, the 3rd a little longer than it; the flagellum has about 15 short joints. The flagellum of the antenna has 12 joints.

The right mandible has a slender incisory process which is obscurely dentate, a small secondary process, row of spines, and molar fringed with denticles. The 1st maxilla with inner branch shorter than the outer, terminating in 4 feather-curved setae with a few setules on the inner margin. The outer branch terminates in several stout spines, none of which appear to be branched. The 2nd maxilla is well developed with its 3 lobes reaching to the same level. The maxilliped has narrow basal joints, the plate of the 2nd has 1 or 2 large-bodied setae along with those of usual size; the lobes of palp are rather sparsely setose.

The legs are robust, are sparsely spined, and do not show any notable characters except that the dactyles are short.

The pleopods are of the usual *Cercois* type. The 1st pair are rather small, the peduncle short and square cut on outer and inner margins with 3 coupling spines, both rami are transverse in position, and thus are much broader than long, they are about the same size; the exopod with 6 distal teeth. In the 2nd pleopod the peduncle has a small gap or insinuation near the inner margin. The

endopod is a little larger than the exopod, the *appendix* is small and joins the endopod about the middle of the lamina. The exopod has 12 teeth on the distal margin. The exopod of the 3rd pleopod has a division, the endopod is larger and has a slight insinuation of the outer margin; there is a small tuft of setae on the outer distal angle of the peduncle. The 4th and 5th pleopods are rather narrow; the respiratory folds are numerous and well developed; the exopod of the 5th has 3 setuliferous lobes all outstanding.

The uropods are rather broad, moderately indurated, the inner ramus more so than the outer, granulate on the surface and reaching a little beyond the end of abdomen, the outer ramus reaching not so far as the inner, both are truncate and denticulate on the distal margins.

Length, 11 mm.

A female of this species has young well showing in the marsupium and the mouth parts are modified. The 7th segment of thorax is only slightly produced not covering the anterior division of abdomen, the posterior notch is very shallow and obscurely trilobed, but there is a very deep exit channel below. The uropods are reduced.

This species is from Garden Island, Western Australia, and the type is deposited in the Western Australian Museum.

#### *Cassidinopsis tasmaniae*, n. sp.

Plate liii., figs. 6-10.

Body glabrous, not very convex, with obliquely directed epimera visible from above, rather smooth or faintly granulate anteriorly, capable of folding together with the hinge about the 5th segment of thorax.

The head is small, there is a transverse furrow between the eyes which are rather small. The 1st segment of thorax is largest, considerably broader than the head; the 5 following segments are short, subequal in length, the 7th a little shorter. The anterior division of abdomen is short, projecting laterally as the segments of thorax. The posterior division of abdomen is convex, there is a median lobe with 2 converging submedian lobes not very salient, then the surface is gradually declivous to the pointed end, which has a shallow channel below but no notch.

The epistome is broad, the apex receding between the two basal antennular joints viewed from below.

The anterior parts of the 1st and 2nd antennular joints are visible from above; the distal angles of the 1st joint do not much embrace the 2nd, which is rather small, the 3rd being a little longer than it, the flagellum has its 1st joint longer than the rest, which are very short, numbering about 23. The antenna is very robust, the last 2 joints of peduncle are long, the last bent back, the flagellum has 20 short joints with the 1st the longest.

The mandibles have cutting plates nearly entire, the left one with a small secondary plate also entire. The spine rows bear few spines, the molars being quite near the cutting plates. The 1st maxilla has the distal spines of the outer ramus very much worn, the inner ramus bears 4 strong feather spines, and there is a distinct articulation at about half its length. The 2nd maxilla is robust, the 3 lobes reach to an equal level, the spines on the 2 more outer lobes are more robust than those of the inner lobe, whose attachment to the body of the limb is much more proximal. The maxilliped is rather slender, the lobe of the 2nd joint bears coarse spines, some of which are branched. The lobes of the palpal joints are rather crowded together.