

NOTES ON SOUTH AUSTRALIAN DECAPOD CRUSTACEA
PART V.

By W. H. BAKER.

[Read July 2, 1907.]

PLATES XXIII. to XXV.

The species here dealt with are of a very varied character, and several of them are submitted with a good deal of diffidence. The two species of *Pinnotheres* are established chiefly on the fact of the absence of the dactylus of the external maxillipeds. I have not attempted to figure *P. subglobosa*, on account of its untoward shape; it would appear to be deeper sunken in parasitism than other members of the same genus.

With regard to the two species of *Processa*, while they are sufficiently distinguished from each other, I must confess that I have not been able to compare them with any foreign species.

Very few species of the actively-swimming crustacea are known from the southern coast of Australia, there not having been any systematic attempts to collect them. We are looking forward to results from the efforts which are about to be made by the Federal Government in the direction of trawling.

I wish to express my sorrow at the death of Mr. F. E. Grant, F.L.S., of Sydney, which took place in January last. I owe him for many good services, especially in relation to references I could not make myself.

Order BRACHYURA.

Tribe CYCLOMETOPA.

Family XANTHIDÆ.

Sub-Family XANTHINÆ.

Genus *Cyclozanthus* (?), A. Milne Edw.

Cyclozanthus (?) *carinatus*, n. sp. Pl. xxiii., fig. 1.

The body is almost totally glabrous.

The carapace is considerably broader than long, not very convex, the surface is uneven, the regions very indistinctly indicated, covered with numerous minute punctations amongst which larger pits are scattered, which are more numerous on the antero-lateral margins and the front.

The front is more than one-third the width of the carapace; it is strongly arched, lamellar, cristate, and projects

far beyond the eyes, and is transversely sinuate and obliquely depressed; its outer ends have distinct closed incisions, but there is no sign of a median notch.

The antero-lateral margins are arcuate, much longer than the postero-lateral, cristate, thin, and divided into four lobes by distinct notches. The postero-lateral margins are concave and much converging, making the sharply-accentuated posterior margin narrow.

The sub-orbital and pterygostomial regions are granular, as also is the epistome and basal joints of the antennæ.

The sternal plastron is punctated.

The pleon of the male is narrow, five-segmented, the first two segments occupying all the space between the last pair of legs, the three coalesced segments are wider at the base and tapering, the last segment is a small truncated triangle.

The orbits are oval, rather small, with two closed incisions above and one below near the exterior angle, the internal sub-ocular angle is only slightly accentuated. The ocular peduncles are much curved, do not fill the orbits, and each has a small tubercle close to the eye.

The fossettes are slightly oblique beneath the strongly over-arching front; the basal joint of the antennule has a strong oblique lip-like ridge.

The epistome is narrow and sunken, anteriorly it is continuous with the interantennular septum, an oblique line traverses it from the bases of the antennæ, becoming obliterated medianly.

The basal joint of the antenna is very oblique and tightly wedged in between the sub-frontal thickening and the subocular region, its distal anterior half is cut away on account of this thickening, the end reaches the sub-ocular angle. The remaining joints and the flagellum are very small and lie in the orbit.

The buccal frame is subquadrate, its anterior margin is somewhat arched and is somewhat sunken, dipping a little in the middle; it has a median and two lateral closed incisions.

The external maxillipeds completely close the buccal orifice. The merus is granular, with a depression on the external surface, subquadrate, with the internal distal angle truncated and the distal margin slightly oblique; it is about half as long as the ischium, the division-line between them having an insinuation; the ischium is less granular and somewhat punctate, and has a longitudinal groove. The exopod nearly reaches the external angle of the merus.

The chelipeds are robust, the merus is trigonous, not reaching as far as the margin of the carapace; its upper edge bears some irregular tubercles and a few coarse hairs. The

carpus is rounded above; its surface, like the upper surface of the palm, is strongly reticulate, caused by anastomosing strings of densely-packed granules and pits; there is a small tubercle on the inner angle. The palm is moderately compressed, rounded externally, and abruptly declivous and smooth internally, carinate above and below. The fingers are strongly compressed and carinate, the immobile one is strongly toothed, the mobile one less so, there is a small hiatus between them, they are slightly hooked, and not excavated at the tips.

The ambulatory legs are much shorter than the chelipeds, the joints much compressed, expanded, and carinate, the meri are trigonous, the dactyli are straight, five or six carinate strongly, with the claws sharp and slightly curved.

Length of carapace,	20 mm.
Breadth „ „	26 mm.
Length of cheliped,	25 mm.
„ „ first leg,	21 mm.

Males only, from Port Willunga, Mr. W. J. Kimber, Port Lincoln.

C.(?) punctatus, Haswell, which does not bear a detailed description, differs from the present species in the following points:—The carapace is more convex and polished, with the regions more strongly defined; the front and antero-lateral margins are much thicker and not cristate, and there are no incisions on the outer ends of the front; this also projects rather more, and is slightly pointed. An oblique and sinuous groove extending from the second antero-lateral notch across to the strong depression behind the gastric region is well-marked. The posterior margin is thickened, without being sharply defined. The subocular regions are nearly smooth; the sternal plastron much more deeply pitted. The merus of the external maxillipeds is about one-third the length of the ischium, with the distal margin much more oblique; the merus also is nearly smooth, marked with a narrow pit externally. The groove of the ischium is nearly obsolete. The chelipeds are nearly smooth in comparison, and not carinate. The ambulatory legs are scarcely compressed, and non-carinate, while the dactyli are sub-cylindrical, being marked with longitudinal lines of pits, the interspaces between which, however, may assume a carinate form.

I agree with Messrs. Fulton and Grant (Proc. Roy. Soc. Victoria, 19 N.S., pt. i., p. 6) that this species should not be retained in the genus *Cyclozanthus*, but am unable to agree that its place is in *Liozantho*, Alcock—where they doubtfully put it—not being able to examine any species of that genus.

Tribe CATAMETOPA.

Family GONOPLACIDÆ.

Sub-family, RHIZOPINÆ.

Genus *Ceratoplax*, Stimpson.***Ceratoplax punctata***, n. sp. Pl. xxiii., figs. 2, 2a, 2b.

Body rather thick.

The carapace is broader than long, very convex in the antero-posterior direction, much less so in the transverse; smooth, polished, and, except on the margins, glabrous with scattered pits; two of these, situated about the middle, and rather distant apart, are more conspicuous, and below them is a faint marking of a broad H in pits; behind this, on each side of the intestinal region, is a small area of wrinkles.

The front is almost vertically depressed, less than one-third the width of the carapace rounded at the external ends, and medianly a little insinuate and slightly notched. The antero-lateral margins are slightly cristate, obscurely lobed by two or three faint notches, shorter than the postero-lateral margins. Postero-lateral margins nearly parallel. Posterior margin broadly arcuate and raised to a ridge. Except on the posterior margin the carapace has a dense fringe of long cilia, which traverses the ocular peduncles; beneath the fringe the surface is more or less granulate. The orbits are moderately large and excavated into the upper surface; they are also somewhat elongated. The ocular peduncles almost completely fill them, and are levelled off to be nearly flush with the sub-ocular surface; the internal sub-ocular angle is not produced. The eye is narrow and slit-like.

The antennules which fold transversely are partially hidden by the front.

The basal joints of the antennæ close the hiatuses of the orbits and extend beyond the sub-ocular angles, but scarcely reach the front; the second joints extend a little beyond the front.

The epistome is narrow—transverse.

The sub-ocular and pterygostomial regions are slightly concave or flat.

The external maxillipeds are very hairy and almost close the buccal orifice; the ischium is slightly sulcated longitudinally and jointed to the merus obliquely-straight. The merus is sub-quadrate, with its internal distal angle not much truncated, the distal margin slightly insinuated; much produced with a rounded lobe at the external distal angle, that portion covering the end of the exopod. The succeeding joint is articulated at the inner angle of the merus. The exopod is broad.

The chelipeds are short, equal, and densely hairy on the margins. The merus has a small tubercle on the upper margin. The carpus has the internal angle obtusely projecting, with a small area of granules close to it on the upper surface. The hand is short, very much compressed, its external surface marked by a few rather coarse granules inclined to become spinuliform; the lower margin is strongly carinate, the carina granulate, the upper margin is obtuse. The fingers are much compressed, shorter than the palm, not meeting, except at their tips, the mobile one sulcate, and with a cluster of granules above at the proximal end; the immobile one slightly toothed.

The ambulatory legs are moderately long, longer than the chelipeds; the first pair is shorter than the others, these being sub-equal in length; all the exposed margins of the joints are densely hairy; the propodi have longitudinal sulcations and some pits on their anterior and posterior surfaces; the dactyli are stiliform, and rather shorter than the propodi, almost totally covered with short fur and some long hair.

The pleon is fringed as the other parts, and scarcely pitted; seven-segmented, the basal segments not nearly covering the sternal plates; the first segment is drawn out to a point on each side, and the terminal one shovel-shaped.

Length of carapace, 12 mm.

Breadth „ „ 16 mm.

One female in the museum collection, which I describe as belonging to the southern coast, on the strength of having received from Mr. H. Flecker a carapace, which undoubtedly belongs to it, from Edithburg, the type I received from the Museum; locality doubtful.

Family, PINNOTERIDÆ.

Sub-Family, PINNOTERINÆ.

Genus, *Pinnoteris*, Latreille.

Pinnoteris holothuriensis, n. sp. Pl. xxiii., figs. 3, 3a.

The integument is of firm consistence.

The carapace is broadly ovate or subcircular, smooth, glabrous, convex in both directions, with the regions not defined, ornamented with dark lines, which are chiefly meridional, which extend below to the lateral regions, slightly depressed between the gastric region and the front, also in the metabranchial regions. Front advanced a little beyond the eyes, about one-third the width of the carapace showing arcuate above but depressed to a V shape between the fosses. Lateral margins faintly defined.

The sternal plastron is hairy at the border, which limits the end of the pleon, and at the bases of the chelipeds.

The pleon of the male slightly tapers from the third segment, the second segment is very short, the last four subequal in length. The pleon of the female is fringed with hairs.

The orbits are circular, completely filled by the ocular peduncles. The eyes are well pigmented.

The fossettes are subcircular, large, and occupy almost all the interocular space, there being a very thin septum between each.

The antennæ are very small.

The epistome is narrow, transverse, and a little sunken.

The buccal frame is transversely broad; its upper margin shows four shallow arches with a small median V-shaped point.

The external maxillipeds are slightly pubescent, and are without sutural line in distinguishing the ischium from the merus; they completely close the buccal cavity. The palp consists only of the carpus and propodus, there being no dactylus; the propodus is hatchet-shaped, and the carpus has on the inner side a tuft of hair at the distal end, which reaches nearly to the end of the propodus. The exopod is compressed and hidden.

The chelipeds are well developed in both sexes, longer than the legs, unarmed, smooth; the merus is trigonous, the carpus is rounded above with a tuft of short hairs at the inner angle, the palm is scarcely compressed, vertically narrow at the proximal end, the upper margin ascending to the base of the mobile finger, it is hairy on the lower border. The fingers are nearly as long as the palm, not gaping, curved, or hooked at the tips, especially the mobile one, minutely toothed on the inner margin, with one or two larger teeth.

The ambulatory legs are scarcely compressed, unarmed, and not different notably in length; the carpi and propodi of the second and third pairs with a fringe of hairs on the lower margins, and the propodi with a fringe near the upper margins, continued on the posterior surfaces of the carpi in an oblique line, the first and last pairs are less hairy. The dactyli are rather short, strong, curved, with sharp, slender claws, and more or less hairy on their inner margins.

Specimens found inside holothurians and ascidians; those from ascidians are smaller, but without specific difference. This crab is able to swim, and probably does not spend all its time within the host.

Length of carapace, 10 mm.

„ of cheliped, 11 mm.

Dredged by Dr. Verco, 12 fathoms, St. Vincent Gulf. Ascidian specimens from 5 fathoms.

Pinnoteres subglobosa, n. sp.

The body is soft, subglobose, or slightly quadrate owing to the swollen body, the pleon loaded with ova having a greater bulk than the thorax, destitute of hairs except on the margin of the sternal plastron, which limits the pleon anteriorly, and a few on the lower margins of the palms of the chelipeds.

The carapace is very convex, much depressed anteriorly, the front truncate, and very scarcely in advance of the eyes, nearly straight and less than one-third the width of the carapace. The pleon is very large and cup-like, and slightly umbonate medianly.

The orbits and fossettes are smaller than those of the preceding species, and the septum between the fossettes is thicker.

The eyes are almost destitute of pigment.

The buccal frame and external maxillipeds also are similar in shape to the preceding species, except that in the maxillipeds the propodus is less expanded and setose, the dactylus also is wanting.

The chelipeds are slender, not much more robust than the ambulatory legs, scarcely compressed; the merus is cylindrical and curved, the carpus not much shorter than it, the palm widens slightly in the vertical direction towards the distal end. The fingers are rather more than half as long as the palm, slightly gaping, scarcely hooked, with very small teeth, and one or two larger ones near the proximal ends.

The ambulatory legs do not differ much in length, the first pair is rather shorter than the chelipeds, the dactyli are strongly curved.

The ova are small and very numerous.

This species was found in pectens.

Dredged by Dr. Verco, 17 fathoms, S.A. coast.

Order, BRACHYURA, PRIMIGENIA, or DROMIACEA.

Tribe, DROMIIDEA.

Family, DROMIIDÆ.

Genus, *Dromia*, Fabr.

Dromia octodentata, Haswell. Pl. xxiii., fig. 4.

Dromia octodentata, Haswell, Cat. Aust. Crust., p. 140.

I find in this species that the characteristic teeth of the antero-lateral border are variable in position, and that frequently there is an extra tuberculiform tooth just anterior to the last, but in the same slightly-curved line with the others.

The body is covered with a very harsh tomentum of barb-

ed hairs, and is indeed very hirsute on the chelipeds and legs in large specimens; the hairs are, however, very scanty on the carapace, and when rubbed off leave the surface polished and marked with minute pits.

The carapace is pentagonal in outline and very convex; there is a slight median groove extending from the front a little back, and another wider and oblique proceeding from the interval between the external angle of the orbit and the first antero-lateral tooth. In some specimens a longitudinal indentation exists on each side of the cardiac region, but the cervical groove is very indistinctly marked.

There is a tooth about the middle of the upper orbital border and another close to the external angle, the angle itself is occupied by a V-shaped notch.

Two teeth are on the external angle of the buccal frame, the anterior one of which is covered with granules.

The epistome is sunken.

The basal joints of the antennæ lie slightly obliquely towards the middle line.

The internal margins of the ischium and merus of the exterior maxillipeds bear a row of granules or spinules.

A rather common species. S.A. coast.

Genus, *Dromia*, Fabr.

Sub-genus, *Cryptodromia*, Stimpson.

Cryptodromia depressa, n. sp. Pl. xxv., figs. 1, 1a, 1b.

The body has a harsh, short, brown tomentum, which is spare or absent on the surface of the carapace and exposed parts.

The carapace is slightly broader than long, subpentagonal in outline, a little uneven behind, with the cervical groove well marked, smooth, except for a few small tubercles near the antero-lateral borders and orbits. The front is composed of two prominent obliquely compressed processes with a median one, which is small, depressed, and obtuse, not visible from above; there is a supra-orbital tooth and another at the external angle of the orbit. The antero-lateral margins are arched and somewhat cristate—being a little excavate underneath—nearly in the same line with the orbital and frontal teeth when viewed horizontally; they are marked by one large compressed tooth, followed by four or five of varying size, somewhat irregularly placed, one of which is on the posterior side of the cervical notch. The postero-lateral margins scarcely converge, there is a slight insinuation behind the cervical notch. The posterior margin is broad and marked by a sinuate ridge.

The lower orbital border is composed of two compressed tubercles, with a deep notch between the outer one and the external angle. The suborbital region is marked by 6-9 small, scattered papilliform tubercles. Two oblique, compressed, and prominent tubercles form the external angle of the buccal frame, while the front border of the buccal frame is horizontal and cut by two deep narrow notches and a small median one.

The first peduncular joint of the antennæ is large and nodular, with two distal projections, the outer one throwing out a branch behind over the base of the ocular peduncle; the next two joints are of moderate width and the flagellum is small.

The epistome is sunken, very narrow in the longitudinal direction, with a triangular process above, the apex of which projects a little and meets a process of the front.

The chelipeds are moderately robust—rather more so in the male—the carpus and propodus are scarcely compressed and are very irregularly nodular; the merus is trigonous, its upper edge bears some small, irregular tubercles, with a large nodular tubercle near the distal end; the carpus and palm are subequal in length. The fingers are broadly excavate, their outer margins provided with strong interlocking teeth. The mobile finger has a deep groove filled with hair on the outer side, the immobile one is grooved on both sides, making the lower border carinate.

The first and second pairs of legs are nearly equal in size, they are robust and nodular, the meri having strong distal tubercles on the upper margins. The meri, carpi, and propodi are subequal in length, the dactyli are strongly spined. The third and fourth pairs are a little roughened, but not nodular, the third is considerably shorter than the fourth, with very short propodi bearing each four or five distal, slightly-curved spines, two of which are opposed to each dactylus; the dactyli are strong and much curved. The fourth pair is similarly spined.

The pleon of the male has the first segment laterally produced to a point on each side, the second has the shape of a truncated triangle, the third, fourth, fifth, and sixth have the median ridge with transverse depressions, thus presenting in each case an anterior and posterior tubercle, the distal angles of each of these segments are strongly emphasized, the terminal segment is triangular. The pleon is covered with scattered papilliform tubercles.

The sternal sulci of the female reach, and are deeply cut into, a transverse prominence or tubercle, which is situated quite between the coxæ of the chelipeds.

Length of carapace, 21 mm.
 Breadth „ „ 22 mm.
 Length of cheliped, 28 mm.
 „ „ first leg, 28 mm.

St. Vincent Gulf. Dredged by Dr. Verco. Mr. W. J. Kimber.
 Types in Adelaide Museum.

Order MACRURA.

Tribe, THALASSINIDEA.

Family, CALLIANASSIDÆ.

Borradaile, Ann. and Mag. Nat. Hist. Ser. 7, vol. xii.

Genus, *Callianassa*, Leach.

Sub-genus, *Callichirus*, Stimp.

Callianassa æquimana, n. sp. Pl. xxiv., figs. 1-8.

The carapace is considerably less than one-third the length of the body, excluding the telson, mostly smooth and firm, a little punctate on the protogastric region, somewhat elevated in the median regions. The cervical groove is well marked, its posterior border reaches back a little further than the middle of the carapace. A little behind this the carapace is marked by a transverse suture, which soon sends a branch forward in a straight line to the antennal notch and another backward to the posterior margin; the transverse suture is continued on to the branchiostegite, where it ends in numerous small areolæ; from this point lines extend forwards and backwards, the forward line takes a slightly oblique and sinuous course to a point below the antennal notch; in crossing the subhepatic region it is ridge-like, below this ridge are also numerous areolæ.

The front has a very slight rostral projection, and behind it two short longitudinal grooves, more or less well marked, diverge, and are soon lost, more prominent are projections of the margin below the ocular peduncles; the antennal notch has a small lunate suture or ridge just behind it, the antero-lateral angles are rounded; in some specimens a short furrow runs obliquely on the side of the metagastric region and the upper portion of the hepatic region is somewhat uneven and punctate; the branchiostegites scarcely project behind.

The postero-lateral expansions of the pleon segments are small; the first segment is anteriorly narrowed and subcylindrical, its pleura being obsolete; the second segment, which is the longest, is produced postero-laterally to a greater degree than the three which follow. The first, third, and fifth segments are subequal in length, and the fourth shortest, the sides of the third, fourth, fifth, and sixth segments have short

transverse grooves or depressions, each of which carry a line of fine hairs, otherwise the pleon is nearly glabrous. The sixth segment tapers a little from near the anterior end, and there are two well-marked projections on the lateral margin; the posterior margin is slightly arcuate.

The telson is short, about twice as broad as long, it bears on its anterior half a sharp, transverse ridge, notched in the middle, the ends not reaching the lateral margin, the posterior margin is strongly insinuated and devoid of cilia, except one or two long ones near each posterior angle.

The ocular peduncles are much longer than broad, slightly flattened above, and distally pointed, the inner margins parallel and close together for nearly their whole length, the outer strongly curved. The eyes are small and subapical.

The antennules have the first peduncular joint scarcely reaching the end of the ocular peduncle, the second joint is nearly twice as long as the third, the flagella are equal in length and are longer than the peduncle, the lower one is setose, the upper nearly naked, except at its end.

The antennal peduncle exceeds in length that of the antennule, the first joint has the aperture of the green gland projecting, the second joint reaches to the level of the eye, the third joint is small, distinct below, but on its upper surface is a small, circular plate, which may be a rudimentary scale, the fourth joint is long, the fifth joint is about two-thirds the length of the fourth, the flagellum is long, slender, and not setose.

The external maxillipeds have the ischium and merus expanded, subequal, and together operculiform, their outer surfaces are flat for the most part, the line of articulation is curved, both are fringed with setæ on the inner margins, the ischium has a short oblique ridge near its base bearing a few hairs, the apex of the merus is thickened and obliquely truncated just behind the articulation of the carpus; the inner surface of the two joints has a longitudinal ridge about the middle, bearing on the ischium minute white teeth which are not noticeable on the merus. The next three joints are setose and together longer than the ischium and merus together; of these the carpus is the longest and is not much expanded below, but the propodus is expanded to a large lobe on that side, the terminal joint is compressed, rather broad, and distally rounded and hairy.

The chelipeds are nearly equal, the ischium is compressed with a faint longitudinal ridge on the outer surface, and one or two small teeth at the distal end of the lower margin, the merus is smooth, slightly longer than the ischium, with a faint, sigmoid ridge on the outer surface. The carpus and

propodus are deep, compressed, and strongly carinate on the upper and lower margins, externally convex and smooth, the inner side is excavate and a little tumid in the middle. The lower carina of the propodus is thickened behind, and defines a groove on the outer side. The palm is longer than the carpus, proximally slightly deeper, it tapers a little, it has a few small fascicles of hairs near the lower border, and near the upper margin is a row of pits carrying hairs, its lower margin bears a fringe of rather long hairs springing from just inside the margin—the lower anterior angle of the carpus also has a tuft of hairs—a short ridge extends from about the middle of the immobile finger backward for a short distance. The fingers are about half as long as the palm, sharp overlapping at their apices with a small hiatus when in that position, the mobile finger is without teeth and bears some fascicles of hair above and below, the immobile finger has a tooth about the middle, with a few denticles proximally from it.

The following two pairs of legs are rather short, compressed, and stout. Of these the first has the palm of the propodus very short, and the fingers, when closed, have no hiatus or teeth, the limb is setose on the margins of the joints. The carpus of the second pair is distally broad, with a tuft of long hairs on its posterior angle, and a fringe on the distal margin, the propodus is subtriangular and compressed, its outer surface bears many hairs in fascicles, as also does the small, compressed dactylus.

The next two pairs of legs are longer and slenderer, reaching forward to the base of the maxillipeds, in the first of these the coxa is very much expanded, the propodus is compressed and thin, but not much expanded, and with the dactylus is very setose. The last pair is subchelate, the propodus and dactylus bearing an elegant brush of hairs.

The sternal aspect shows the coxa of the first three pairs of pereopods close together in the middle line, but the fourth pair are separated by an apparatus which is best shown by the figure, the fifth pair are wide apart.

The first two pairs of pleopods are more or less rudimentary or modified in the female—especially the second—to carry the eggs, the three following pairs are strongly developed and foliaceous.

The uropods are not so large as in other species of the genus, the outer ramus is large and subtriangular, capable of folding beneath the inner ramus its inner border when in that position, extending some distance under the telson; it has a submarginal curved ridge, which extends from the outer margin about half way across the surface, this and the distal margin are thickly clothed with short hairs,

amongst which are shorter and thicker spine-like hairs, which spring from minute sockets; the distal end of the inner ramus also bears a tuft of hairs. The rami reach much further than the telson.

Length, 6 cm. 4 mm.

.. of cheliped, $3\frac{1}{2}$ cm.

From Mr. D. T. Redman, Kingston.

Types in Adelaide Museum.

Tribe, CARIDEA.

Legion, POLYCARPINEA.

Family, NIKIDÆ.

Genus, *Processa*, Leach.

Processa australiensis, n. sp. Pl. xxv., figs. 2-2e.

The animal is moderately compressed laterally and moderately robust.

The carapace is smooth, well produced latero-posteriorly; it is about equal in length to the first three segments of the pleon. The rostrum is very short—merely a spine—slightly depressed, not reaching to half the length of the ophthalmopods, transversely broad at the base but soon tapering to an acute point, tipped with a few hairs and very obscurely bifid. The antero-lateral borders of the carapace are produced to subacute angles just below the eyes, but there are no spines, the antero-lateral angles are rounded.

The pleon has the second, third, and fourth segments dorsally subequal in length, the rest are shorter. The pleura are moderately deep, that of the first segment is well produced anteriorly, somewhat acutely, and overlapping the carapace, that of the fifth has a small tooth on its lower margin. The posterior angle of the sixth is very acute, and there is a small rounded lobe projecting over the base of the telson.

The antennule has the first joint very much compressed in the vertical direction, curved and excavate, strengthened by a strong keel below, with a transverse fringe of hairs at the upper distal end, it bears a short, broad, lamellar, and truncate stylocerite, whose outer distal angle ends in a small acute tooth, which does not reach to half the length of the joint. The second and third joints are subequal in length, and together are shorter than the first. The upper flagellum has the thickened portion slightly longer than the peduncle, it terminates in a short, slender portion. The lower flagellum is slender and about twice as long as the upper.

The ophthalmopods are large, pyriform, being very slen-

der at the proximal ends, touching each other in advance of the rostrum.

The antenna has a long, narrow scale, truncate at the end, the sides are nearly parallel, reaching a little beyond the antennular peduncle, the external rigid border ends in a small distal spine which scarcely extends beyond the lamellar portion, the fringe is very long. The peduncle reaches about three-fourths the length of the scale. The flagellum is longer than the animal.

The third maxillipeds are very robust, extending forward beyond the upper flagellum of the antennule; of the three joints the first is flattened on the inner side, and its proximal end is narrowed, it is much longer than the two succeeding joints taken together, the second and third joints are subequal in length, slightly setose; the third, which is directed outwards, quickly tapers to a strong, slightly-curved terminal tooth, the inner side bears some strong spines, as also does the distal end of the second joint on the same side. The exopod is small.

The first pair of legs has the chelate one on the right side, it is short and robust; the merus is nearly as long as the carpus and propodus together, the propodus tapers somewhat from the proximal end, the fingers are shorter than the palm, curved, and end in simple sharp claws, which cross each other. In the opposite limb, which is slightly setose, the propodus tapers considerably to a simple, narrow, curved, and sharp dactylus.

The second legs are slender and nearly equal to each other: that on the left has the ischium compressed, long, and apparently divided about the middle, with a slight expansion near the proximal end, tipped with a few recurved setæ. The merus has 5-7 obscure annuli, it is subequal in length with the ischium. The carpus is about one and a half times as long as the merus, multi-jointed, the joints short and nearly equal in length, except the last, and expanding slightly towards the distal end; the propodus is short, the palm being about as long as the last carpal joint, the fingers are about as long as the palm.

The ambulatory legs are long and moderately robust, the carpal joints are as long and sometimes longer than the meri, and longer than the propodi, except, perhaps, in the last pair, the propodi are slightly compressed and furnished with minute hairs behind, the dactyli are short and only slightly curved, simple, and bear two fascicles of minute hairs near the ends. Of these legs the first pair have two spines on the outer side of the ischium and three on the merus. The second has one spine on the ischium and

three on the merus, the last of these being near the distal end; these spines are short and are difficult to see, being so closely pressed to the joint as to have almost the nature of scales.

The uropods are longer than the telson, the peduncle is very short, its outer lobe is rounded, the rami are moderately broad, the external margin of the outer one nearly straight, ending in a well-marked tooth with two spines close to it. The division is curved.

The telson is rather narrow, tapering to end in four spines—besides the small teeth at the angles—two each side, the inner ones longer; medianly there are two well-developed plumose setæ. The quadrately-placed spines of the dorsal surface project considerably.

The ova are small and numerous.

Length, omitting rostrum and telson, 16 mm.

„ of carapace, 6 mm.

„ „ third maxilliped, 9 mm.

South Australian coast.

Types in Adelaide Museum.

***Processa gracilis*, n. sp.** Pl. xxv., figs. 3-3c.

The body is slender, the carapace is about as long as the first four segments of the pleon, slightly depressed. The rostrum is short and slender, almost to the base, bears a few hairs at the tip, and projects more than half the distance of the ophthalmopods. The antero-lateral margin bears a small tooth below the eye peduncle, followed by a faint insinuation behind the antennal peduncle, below this the lateral margin quickly slopes backwards.

The segments of the pleon do not differ much in dorsal length, and the pleura are not deep; that of the fifth segment is without a tooth near the posterior angle.

The ophthalmopods are robust, pyriform, but swollen at their bases on the inner sides, then abruptly becoming very narrow at the joint. The eyes are well developed, and do not touch anteriorly.

The antennular peduncle is robust, the first joint vertically compressed and hollowed in the usual manner, the stylocerite is spiniform and well separated from the body of the joint, reaching about three-fourths its length, the second and third joints are subequal in length, the upper flagellum is robust, rather longer than the peduncle, and clothed with dense cilia; the lower flagellum is very slender, and more than twice as long as the upper.

The antennal scale is long, rather narrow, rigid on the external margin, the distal spine scarcely projecting farther

than the lamellar portion which is distally truncated, it projects beyond the antennular peduncle. The peduncle reaches more than half the length of the scale, the flagellum is slender and long.

The third maxillipeds are similar to those of the preceding species, reaching forward nearly as far as the upper flagellum of the antennule.

The first pair of legs are strong, with the chelate limb on the right side, in this the merus is longer than the carpus and propodus together, the carpus is short, the palm a little longer than the carpus, the fingers are shorter than the palm, they are acute and simple. On the opposite limb the propodus tapers much, and is slightly longer than that of the right side, and slightly setose, the dactylus is short, sharp, and curved.

The second legs are very slender, the ischium joints are considerably more expanded than in the preceding species, that of the right side has the ischium and merus subequal in length, the carpus being as long as these two together, very mobile, and composed of about 40 articuli, which do not expand towards the distal end: the limb ends in very minute chelæ. The limb of the left side is shorter and has the carpal joint with about 20 articuli, which become gradually more expanded distally, the propodus and chelæ being well developed. In these limbs the meri have very obscure annulations.

The three pairs of ambulatory legs are long and slender, with—except in the last pair—the carpi slightly longer than the propodi, the propodi have on their anterior margins a close row of very minute and regular hairs, the posterior margins are setose in scattered fascicles. The dactyli are short, simple, and have one or two small fascicles of hairs near the terminal claw, which is minute. The ischii and meri of the two first pairs of these legs are obscurely spined, as in the preceding species.

The pleopods are robust.

The telson is narrow, long, tapering to a narrow end, and on its dorsal surface minutely and sparingly pubescent, the quadrately placed spines are obsolete or nearly so—the terminal spines are broken off in this specimen.

The uropods are about as long as the telson, the outer ramus has its external margin straight, terminating in two small spines; the division, which is well marked, is somewhat arched.

Length of body, excluding rostrum and telson, 18 mm.

„ „, carapace, 6 mm.

South Australian coast.

One male; type in Adelaide Museum.

Legion, MONOCARPINEA.

Family, PONTONIIDÆ.

Borradaile, Ann. and Mag. Nat. Hist. Ser. 7, vol. ii., p. 376.

Genus *Pontonia*, Latreille.

Pontonia minuta, n. sp. Pl. xxiv., figs. 9-12.

The body is short, moderately robust, the pleon rather more bulky than the thorax in the female.

The carapace is about as long as the first four segments of the pleon, much broader than deep, with a triangular, subacute, infra-ocular tooth, and with the antero-lateral angles projecting a little beyond the base of the antennal scale, and also subacute. The postero-lateral lobe overlaps the first segment of the pleon. The rostrum is short, entire, depressed broad dorsally, rather obtuse at the apex, with a faint, broad median ridge, which scarcely extends on to the carapace, and is slightly pinched between the eyes, it has lateral sinuate ridges continuous with the orbits behind, and is rather deeply carinate below, even at the distal end, it reaches rather more than twice the length of the ophthalmopods.

The pleon is smooth and considerably narrowed behind in both directions, the terga of the second, third, and fourth segments are subequal in length, the first and fifth shorter, the sixth very short and narrow, with rather obtuse postero-lateral angles.

The telson is rather broad and regularly tapering, rounded distally, and scarcely fringed at the end, about two and a half times as long as the sixth segment of the pleon, with a broad, longitudinal sulcation, reaching quite to the end, it bears the usual quadrately placed spines, which are rather low down, and near the margin and scarcely project.

The ophthalmopods are short, without ocelli.

The antennular peduncle is a little longer than the rostrum, it is strong, the first joint is hollowed a little above, and has a very small stylocerite, the second joint is conspicuous, but the third is very small; the upper flagellum is about as long as the peduncle, and is folded back above, it is thick proximally, but soon tapers to a distal slender portion on the thickened portion, the sensory filaments are long and numerous, it is one-branched—or the splitting is very obscure; the lower flagellum is very short, and projects normally.

The antennal scale is rather ovate, it reaches as far as the antennular peduncle, the external distal spine is strong, terminating a thickened outer margin, it is subterminal in relation to the lamellar portion, the peduncle reaches as far as the scale; the flagellum is short and curves backwards.

The third maxillipeds are suboperculiform, of the three joints of the endopod the first is stout and compressed or ex-

panded, especially at the base, the next two joints are small, and both together shorter than the first. The exopod is very small.

The first pair of legs are slender and chelate, the merus a little curved and subequal in length to the carpus, the carpus expands a little distally, the propodus is much shorter than the carpus and bent at an obtuse angle from it, it is a little compressed and expanded, and bears a brush of stiff setæ at the base of the immobile finger, the fingers are subequal in length to the palm, are slender, and do not gape.

The second legs are moderately robust, symmetrical, and equal, the ischium and merus combined are considerably shorter than the carpus and propodus combined, these together are a little compressed laterally and somewhat spindle-shaped in outline; the carpus is a little excavated on its outer surface, the propodus is more than twice as long as the carpus, the fingers are equal, rather narrow, curved, slightly setose, ending in acute points, and have a wide gape, they are about half the length of the palm.

The next two pairs are missing in this specimen. The last pair is more robust than the first, the propodus is strongly compressed, and its anterior margin is a little curved, its posterior margin nearly straight, it has a small distal spine with a longer one just above it, and a few hairs; the dactylus is strong, simple—or perhaps a little bifid at the tip—slightly curved, and is without a basal thickening.

In the first pleopods the inner ramus is small, the remaining pairs have the inner rami provided with long processes—*Stylamblys*.

The uropods are about as long as the telson, ovate, the subterminal spine of the outer one is very minute, and there is a very faintly-marked division.

There are five well-developed branchial plumes on each side.

The eggs are large and few.

Length, 11 mm.

Dredged by Dr. Verco: host unknown.

Type, one in Adelaide Museum.

DESCRIPTION OF PLATES.

PLATE XXIII.

- Fig. 1. *Cycloxanthus* (?) *carinatus*, n. sp., enlarged.
 ,, 2. *Ceratoplax punctata*, n. sp., nat. size.
 ,, 2a. ,, ,, pleon of female, enlarged.
 ,, 2b. ,, ,, cheliped, enlarged.
 ,, 3. *Pinnotheres holothuriensis*, n. sp., enlarged.
 ,, 3a. ,, ,, external maxilliped, enlarged.
 ,, 4. *Dromia octodentata*, Haswell, nat. size.

PLATE XXIV.

- Fig. 1. *Callianassa æquimana*, n. sp., nat. size.
 " 2. " " cheliped, enlarged.
 " 3. " " maxilliped, enlarged.
 " 4. " " 1st pereiopod, enlarged.
 " 5. " " 2nd " "
 " 6. " " portion of sternum, enlarged.
 " 7. " " 6th segment of pleon and tail-fan, enlarged.
 " 8. " " pleopod of 3rd segment of pleon, enlarged.
 " 9. *Pontonia minuta*, n. sp., enlarged.
 " 10. " " anterior portion, enlarged.
 " 11. " " end of 2nd maxilliped, enlarged.
 " 12. " " 3rd maxilliped, enlarged.

PLATE XXV.

- Fig. 1. *Cryptodromia depressa*, n. sp., nat. size.
 " 1a. " " pleon of male, enlarged.
 " 1b. " " cheliped, "
 " 2. *Processa australiensis*, n. sp., enlarged.
 " 2a. " " antennule, "
 " 2b. " " scale of antenna, enlarged.
 " 2c. " " 2nd maxilliped, "
 " 2d. " " 3rd " "
 " 2e. " " uropods and telson, "
 " 3. " *gracilis*, n. sp., enlarged.
 " 3a. " " 2nd pereiopod, right side, enlarged.
 " 3b. " " 2nd pereiopod, left side, "
 " 3c. " " tip of rostrum, "





