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Tasmanian Parastacidae

By

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(Read 14 November, 1938)

PLATES XII-XIII

Freshwater and land crayfishes of the family Parastacidae are found in most countries of the Southern Hemisphere. They occur abundantly throughout Tasmania, eleven species, contained in four genera, being known. In the following pages each of these is described and figured, making a complete list of the Tasmanian members of the family.

The genus *Astacopsis*, which includes the largest known species, is aquatic, each of the three species inhabiting both rivers and lakes, *A. tricornis* Clark being known only from the Lake St. Clair district.

It is interesting to find specimens of *Geocharax*, a semi-aquatic genus found throughout Victoria and on Kangaroo Island, occurring at Smithton on the north coast. The closely allied, semi-aquatic genus *Cherax* has not been found in Tasmania, although it is found abundantly in each State on the mainland of Australia, in New Guinea and in the Aru Islands.

Four species of the land-dwelling crayfishes *Engaeus* are found in the northern half of the island, but none has been found in the southern half. Several species of the genus occur in Victoria and one on King Island.

Parastacoides, a land-dwelling genus containing three species, is found in the extreme south-west of the island and on the south and west coasts.

The distribution of the various genera and species cannot be mapped out satisfactorily at present. Comparatively little collecting has been done with this family, particularly in the southern half of the island. The material collected by the recently-formed

Tasmanian Biological Survey, however, has enabled me to record specimens from many additional localities, and undoubtedly further collecting will add considerably to our knowledge of the distribution of these animals.

My research work on this group, which was carried out at the National Museum, Melbourne, was made possible by a grant from the trustees of the Commonwealth Research and Endowment Fund.

Genus **Geocharax** Clark

Geocharax Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 31.

Carapace higher than broad, punctate or tuberculate. Cervical groove deeply impressed, rounded. Rostral carinae smooth. Abdomen smooth, punctate, or setose; lateral margins rounded. Stem of each podobranch laterally produced into a small wing-like expansion bearing a few hooked filaments. Gill formula 21 + ep.r.

Geocharax gracilis Clark

Pl. XII, figs. 1, 1a, 1b

Geocharax gracilis Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 31, pl. vi., fig. 26.

The rostrum is long and slender; the lateral carinae very sharp; and the interantennal spine short and broad, sharply pointed. The sternal keel is slender and sharp. The pereopods are very slender, and the great chelae short and slender. Length of adult specimens 63 mm.

Three specimens from Smithton, collected by Miss J. Fenton, and one specimen from a shallow stream near Smithton, collected by J. W. Evans. This species is found also in the Gellibrand River, south of Colac, Victoria (type locality) (W. F. Hill); Portland, Victoria (L. R. Kurtze); and on Kangaroo Island, South Australia (South Australian Museum).

Genus **Astacopsis** Huxley

Astacus, Gray, *Eyre's Journ. Exped. Disc. Centrl. Austrl.*, i. (Appendix), 1845, p. 409; von Martens, *Monatsber. Akad. Wiss. Berlin*, 1868, p. 615.

Astacopsis, Huxley, *Proc. Zool. Soc. Lond.*, 1878, p. 764; Smith, *Trans. Linn. Soc. Lond.*, ser. 3, xi., 1908, Zool., p. 70; Haswell, *Cat. Austrl. Mus., Crust.*, 1882, p. 175; Smith, *Proc. Zool. Soc. Lond.*, 1912, p. 154; Faxon, *Proc. U.S. Nat. Mus.*, xx., 1898, p. 639; Faxon, *Mem. Mus. Comp. Zool.*, xl., 8, 1914, p. 402; Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 33.

Carapace with numerous small tubercles and punctures. Cervical groove deeply impressed, rounded. Rostrum broad, carinae blunt, tuberculate. Abdomen smooth, or punctate, lateral margins pointed,

usually with spines on lateral margins of only the first and second segments. First segment with lateral lobes large and rounded. Stems of podobranchs without broad wing-like expansions. Gill formula 21 + ep.r.

Astacopsis franklinii (Gray)

Pl. XII, figs. 2, 2a, 2b

Astacus franklinii Gray, *Eyre's Journ. Exped. Disc. Cent. Austrl.*, i. (Appendix), 1845, p. 409, t. 3, f. 1; Erichson, *Arch. f. Naturg.*, xii., 1846, p. 375; White, *List Crust. Brit. Mus.*, 1847, p. 72; von Martens, *Monats. Akad. Wiss. Berlin*, 1868, p. 616.

Astacopsis franklinii, Haswell, *Cat. Austrl. Mus., Crust.*, 1882, p. 176; Thomson, *Pap. Roy. Soc. Tas.*, 1892 (1893), p. 50; Faxon, *Proc. U.S. Nat. Mus.*, xx., p. 669, 1898; Ortmann, *Proc. Amer. Philos. Soc.*, xli., p. 292, 1902; Faxon, *Mem. Mus. Comp. Zool.*, xl., 8, 1914, p. 402; Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 34, pl. vii., fig. 27.

The rostrum is broad, the carinae blunt, with several small tubercles. The squame of the second antennae with three to five small, sharp spines on the outer margin. The interantennal spine is long and broad, sharply pointed, with the lateral margins serrated. The branchiostegites and the anterior of the carapace are studded with numerous small tubercles. The great chelae are short and stout, the upper surface being covered with numerous small tubercles and punctures. Length of adult specimens 127 mm.

Habitat: Saundridge (A. Bartholomew); Hobart (V. Hickman).

Local Variety.

Several specimens from the Mt. Wellington district, received from the Tasmanian Biological Survey, differ from the typical *franklinii*, in having the squame of the second antennae smooth, and the upper surface of the great chelae less tuberculate.

Habitat: Hobart Creek, Mt. Wellington; Cascade Creek, Mt. Wellington (D. Turner); Ridgeway (D. Tagg).

Astacopsis gouldi Clark

Pl. XII, figs. 3, 3a, 3b

Astacus sp. Gould, *Pap. Roy. Soc. Tas.*, 1870 (1871), p. 42.

Astacopsis franklinii, Huxley, *Proc. Zool. Soc. Lond.*, 1878, p. 764; Smith, *Trans Linn. Lond.*, ser. 2, xi., Zool., p. 70, 1908; Smith, *A Naturalist in Tasmania*, 1909, p. 110, fig. 30; Smith, *Proc. Zool. Soc. Lond.*, p. 154, 1912, pl. xiv.

Astacopsis gouldi Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 35, pl. vii., fig. 28.

The rostrum is broad, the apex sharp, carinae rounded, each with three or four tubercles; there is a sharp, longitudinal carina in the centre of the rostrum continued backward from the apex about half-way to the base. The squame of each second antenna is

large and smooth. The interantennal spine is rather long and narrow, sharply pointed, the lateral margins being either smooth or serrated. The branchiostegites and the anterior of the carapace with a few small scattered tubercles. The great chelae are very stout, the apex of both the propodus and the dactylus being densely tuberculate or spinous.

Habitat: Circular Head (J. Leadbeater) (type locality); Zeehan; Gordon River; Brid and Muddy Creeks, Bridport; Macquarie Harbour; Wynyard.

This is the giant Tasmanian crayfish, adult specimens of which measure up to 405 mm. in length, measured from the tip of the rostrum to the end of the telson. The species may be recognised readily by the conspicuous longitudinal carina in the centre of the rostrum. Immature specimens, 127 mm. long, show every detail of the adult armature.

Astacopsis tricornis Clark

Pl. XII, figs. 4, 4a, 4b

Astacopsis tricornis Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, pl. i, fig. 7; pl. vii., fig. 29.

Length of largest specimen 140 mm.

Rostrum broad, slightly longer than the breadth at base, carinae large and blunt, with four or five tubercles, apex of rostrum and carinae each produced into comparatively long, bluntly-pointed spines; a sharp spine and a small tubercle at base of carinae, with a large, rounded boss postero-laterally.

Eyes large. Squame of each second antenna reaching almost to end of third segment of second antennae, broad and sharply pointed. Interantennal spine short and broad, apex long and sharp, lateral margins serrated.

Carapace shorter than abdomen, broader than high, slightly more than twice as long as broad; cervical groove deeply impressed, branchio-cardiac grooves feeble; areola broad; surface of entire carapace densely punctate. Branchiostegites and anterior of carapace densely tuberculate.

Sternal keel slender; lateral processes erect, slender and sharp, posterior pair deeply grooved; a large, deep opening under lateral processes, largest on third and fourth pairs; processes between fourth pereopods long and stout.

First abdominal segment with a sharp spine on each lateral lobe; second segment with several sharp spines along lateral margins,

several tubercles and spines above the lateral spines; lateral margins of all following segments each produced to sharp points. One or two rows of small tubercles on dorso-lateral margins of each segment.

Telson one and one-third times as long as broad, with a spine on each lateral margin at posterior third. Uropods rounded, longer than telson, inner rami each divided by a feeble longitudinal median carina ending in a small spine near posterior margin; outer rami each with transverse suture at apical third, one large and several small, spines along the suture; lobes at base of uropods rounded, without spines.

Great chelae stout; propodus two and one-half times as long as broad, punctate, upper margin with several sharp spines, lower margin with two rows of blunt spines, three or four tubercles on both upper and lower surfaces near base of dactylus, cutting edge with two or three small tubercles; dactylus stout, with two rows of small, blunt spines on upper margin, cutting edge with two or three small tubercles, a row of small tubercles on upper surface, just above cutting edge. Carpus with one large, sharp spine and two or three small blunt spines on upper margin; merus with several sharp spines on upper margin.

Habitat: Lake St. Clair (B. Spencer) (type locality); Cradle Mountain; Lake St. Clair district, from a creek running into the Derwent River, one mile from Derwent Bridge (Handley); mouth of Cuvier River, Lake St. Clair (A. W. S. Powell).

As the type of this species is only 105 mm. in length, and larger specimens show several variations in character, due to size and age, the species has been redescribed and figured from a larger specimen taken from the Cuvier River, and received from the Tasmanian Biological Survey.

All the localities from which *A. tricornis* has been received are in the Lake St. Clair district or from the rivers leading from it; the altitude in this district is between 2000 feet and 3000 feet.

This is the most spinous of all the Tasmanian species; the abdomen of the largest specimens showing indications of rows of tubercles or spines, which suggest that larger specimens may be found with well-developed spines and tubercles on the abdomen similar to those in the species of *Euastacus*, occurring in the rivers of eastern Australia.

Great variation is shown in the armature of the series examined. The spines on the great chelae and carpus vary considerably, even on the same individual, and this applies also to the spines on the abdomen. Four of the specimens have a small spine near the centre of the outer margin of the squame of the second antennae.

Genus **Engaeus** Erichson

Astacus (Engaeus) Erichson, *Arch. f. Naturg.*, xii., 1846, p. 102.
Astacus, von Martens, *Monats. Akad. Wiss. Berlin*, p. 618, 1868.
Engaeus, Huxley, *Proc. Zool. Soc. Lond.*, 1878, p. 769; Haswell, *Cat. Austr. Mus., Crust.*, p. 178, 1882; Faxon, *Proc. U.S. Nat. Mus.*, xx., 1898, p. 670; Faxon, *Mem. Mus. Comp. Zool.*, xl., 8, 1914, p. 403; Smith and Schuster, *Proc. Zool. Soc. Lond.*, 1913, p. 118; Clark, *Mem. Nat. Mus., Vict.*, 10, 1936, p. 37.

Carapace higher than broad, punctate or feebly tuberculate, cervical groove either feeble or moderately well impressed, somewhat V-shaped. Rostral carinae smooth or feebly tuberculate. Abdomen smooth, punctate or setose; lateral margins rounded. First segment without lateral lobes. Stems of podobranchs without wing-like expansions. Posterior pleurobranch usually well developed, sometimes rudimentary. Gill formula 21 + ep.r.

Engaeus cunicularius Erichson

Pl. XII, figs. 5, 5a, 5b

Astacus (Engaeus) cunicularius Erichson, *Arch. f. Naturg.*, xii., 1846, p. 102.
Astacus cunicularius Er., von Martens, *Monats. Akad. Wiss. Berlin*, 1868, p. 169.
Engaeus cunicularius Er., Haswell, *Cat. Austrl. Mus., Crust.*, 1882, p. 179; Thomson, *Pap. Roy. Soc. Tas.*, 1892 (1893), p. 50, pl. 1, figs. 1-2; Faxon, *Proc. U.S. Nat. Mus.*, xx., 1898, p. 676; Ortmann, *Proc. Amer. Phil. Soc.*, xli., 1902, p. 292; Smith and Schuster, *Proc. Zool. Soc. Lond.*, p. 124, 1912; Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 38, pl. viii., fig. 35.

The rostrum is broad, reaching to base of third segment of first antennae, the apex blunt; the carinae are sharp and carried well back on to the carapace. The squame of each second antenna is large and sharply pointed. The interantennal spine is triangular and bluntly pointed. The sternal keel is narrow and very sharp. The great chelae are slender, with a few feeble tubercles on the upper margin, and the lower margin smooth.

Habitat: Glenore, near Hagley (A. Bartholomew); Launceston (A. Bartholomew); Mundan Farm, Longford (A. Bartholomew); South Esk River, Longford, taken from the stomach of a brown trout (P. L. Andrews).

Engaeus leptorhynchus, sp. nov.

Pl. XIII, figs. 6, 6a, 6b

Length of largest specimen 40 mm.

Rostrum very slender, reaching to base of third segment of first antennae, apex sharp; carinae sharp, carried well back on to carapace.

Squame very long and slender, reaching almost to end of third segment of second antennae, terminal spine sharp. Interantennal spine short and broad, bluntly pointed. Exopods of third maxillipedes rudimentary.

Sternal keel broad, bluntly rounded, between first and third pereopods; first three pairs of lateral processes small and blunt, processes between third pereopods not flattened, deeply grooved, margins blunt; processes between fourth pereopods long and slender. There are no openings on any of the lateral processes.

Telson narrowly cone-shaped, without spines on the lateral margins, shorter than uropods; inner rami of uropods rounded, divided by a longitudinal median carina, tapering away at posterior margin; outer rami rounded, divided by a longitudinal median carina, ending in a sharp spine on the transverse suture, the transverse suture placed at the posterior third of uropod, several small sharp spines along the suture.

Great chelae short and stout, punctate and setose; propodus twice as long as broad, with a row of tubercles on upper margin, lower margin smooth, two or three small tubercles along cutting edge, a smooth carina on both upper and lower surface above cutting edge; dactylus slender, punctate and setose, with one or two small tubercles on cutting edge, two smooth carinae along upper margin, a smooth carina on both upper and lower surfaces above cutting edge. Carpus with numerous small tubercles on upper margin, upper margin of merus with a feebly tuberculate carina.

Posterior pleurobranch well developed.

Habitat: Pioneer Mine, Derby (A. Bartholomew) (type locality); Bradshaw's Creek, three miles from Herrick.

Types in the National Museum, Melbourne.

Near *E. cuniculariius* Er., in general appearance, but it may be separated readily by the slender rostrum and squame, the form of the sternal keel, and by the great chelae.

Engaeus fossor Erichson

Pl. XIII, figs. 7, 7a, 7b

Astacus (Engaeus) fossor Erichson, *Arch. f. Naturg*, xii., 1846, p. 102.
Astacus fossor Er., von Martens, *Monats. Akad. Wiss. Berlin*, 1868, p. 618.
Engaeus fossor Er., Haswell, *Cat. Austrl. Mus., Crust.*, 1882, p. 178; Faxon, *Proc. U.S. Nat. Mus.*, xx., 1898, p. 676; Ortmann, *Proc. Amer. Phil. Soc.*, xli., 1902, p. 292; Smith and Schuster, *Proc. Zool. Soc. Lond.*, 1913, p. 119; Faxon, *Mem. Mus. Comp. Zool.*, xl., 8, 1914, p. 403.

Length of average adult specimen 75 mm.

Rostrum short and broad, reaching to base of second segment of first antennae, apex broadly rounded; carinae blunt, continued to apex, carried well back on to carapace.

Squame of second antennae short and very broad, with a small, sharp point. Interantennal spine short, broad posteriorly, sharply pointed. Exopods of third maxillipedes indicated by a small papilla.

Sternal keel slender and sharp between great chelae and second pereopods, obsolete between second and third pereopods. First

two pairs of lateral processes small, somewhat flattened, each with a small, round opening on upper surface; processes between second pereopods large, upper margin rather sharp, a deep groove separating the pair, each with a conspicuous large, round opening; processes between third pereopods somewhat flattened, deeply grooved in centre, each with a small, oval opening along outer margin; processes between fourth pereopods long and slender.

Telson broadly cone-shaped, as long as uropods, with a spine on lateral margins; inner rami of uropods rounded, divided by a longitudinal median carina, tapering away at posterior margin; outer rami rounded, divided by a longitudinal median carina, ending in a sharp spine on the traverse suture, the suture placed at posterior third of uropods, several small spines along the suture.

Great chelae large and stout, punctate, propodus twice as long as broad, with two rows of large tubercles on upper margin, lower margin with a tuberculate carina posteriorly and a smooth carina anteriorly, a smooth carina on upper surface below cutting edge, several large tubercles along cutting edge; dactylus long and stout, punctate, upper margin with two rows of tubercles, cutting edge with one or two large, and several small, tubercles; carpus and merus each with a few scattered small tubercles on upper margin.

Posterior pleurobranch well developed.

Habitat: Magnet Mine, West Coast; Clayton Rivulet (E. Scott); Muddy Creek, Bridport; Wynyard (A. G. Powell).

Engaeus ignotus, sp. nov.

Pl. XIII, figs. 8, 8a, 8b

Length of average adult specimen 75 mm.

Rostrum slender, reaching almost to base of third segment of first antennae, apex rounded, carinae blunt, carried well back on to carapace.

Squame of second antennae short and broad, with a small, sharp spine. Interantennal spine long and slender, bluntly pointed. There is no indication of an exopod on the third maxillipedes.

Sternal keel obsolete between great chelae and second pereopods, bluntly rounded between second and third pereopods. First two pairs of lateral processes obsolete; processes between second pereopods small, bluntly rounded, each with a small, round opening; processes between third pereopods flattened, deeply grooved in centre, each with a conspicuous, irregularly rounded opening on outer margin of upper surface; processes between fourth pereopods long and slender.

Telson narrowly cone-shaped, shorter than uropods, with a spine on lateral margins; inner rami of uropods rounded, divided by a longitudinal median carina, tapering away at posterior margin;

outer rami rounded, divided by a longitudinal median carina, ending in a sharp spine on transverse suture, the transverse suture placed at the posterior third of uropod, several small sharp spines along the suture.

Great chelae short and stout, punctate; propodus one and three-fifths as long as broad, with two rows of tubercles on upper margin, lower margin with a tuberculate carina posteriorly and a smooth carina anteriorly, a smooth carina on upper surface below cutting edge, a few large tubercles along cutting edge; dactylus very short and stout, punctate and minutely tuberculate, upper margin with two feeble carina, feebly tuberculate, cutting edge with one large, and a few small, tubercles; carpus and merus each with numerous small tubercles along upper margin.

Posterior pleurobranch well developed.

Habitat: Smithton (R. H. Champion).

Types in the National Museum, Melbourne.

This species somewhat resembles *E. fossor* Er., but may be distinguished at once by the form of the rostrum, the interantennal spine, and the sternal keel.

Genus **Parastacoides** Clark

Parastacoides Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 48.

Carapace as high as broad, minutely tuberculate. Cervical groove deeply impressed, rounded. Rostral carinae smooth. Abdomen without spines, lateral margins rounded. First segment with lateral lobes large and rounded. Stems of podobranchs without wing-like expansions. No pleurobranchs present. Posterior arthrobranchs rudimentary. Gill formula 12 + 5r + ep.r.

Parastacoides tasmanicus (Erichson)

Pl. XIII, figs. 9, 9a, 9b

Astacus (*Astacus*) *tasmanicus* Erichson, *Arch. f. Naturg.*, xii., 1846, p. 94.

Astacus tasmanicus Er., White, *List Crust. Brit. Mus.*, 1847, p. 72; von Martens, *Monats. Akad. Wiss. Berlin*, 1868, p. 618.

Astacopsis tasmanicus Er., Haswell, *Cat. Austrl. Mus. Crust.*, 1882, p. 178; Ortmann, *Proc. Amer. Phil. Soc.*, xli., 1902, p. 292; Faxon, *Mem. Mus. Comp. Zool.*, xl., 8, 1914, p. 402 (*Incertae sedis*).

Parastacoides tasmanicus Er., Clark, *Mem. Nat. Mus. Vict.*, 10, 1936, p. 48, pl. vii., fig. 30.

The rostrum is broad, the carinae sharp, and carried well back on to the carapace; the lateral carinae are blunt. The interantennal spine is long and slender. The uropods and telson all have the posterior margin rounded.

Habitat: Lake Margaret; Mt. Lyell (R. Murray); Strahan; Queenstown.

Parastacoides inermis, sp. nov.

Pl. XIII, figs. 10, 10a, 10b

Length of largest specimen 50 mm.

Rostrum broad posteriorly, slender anteriorly, reaching to base of second segment of first antennae, apex sharply rounded; carinae sharp, carried well back on to the carapace, lateral carinae blunt.

Eyes large. Squame broad, sharply pointed, reaching beyond base of third segment of first antennae. Interantennal spine long and stout. Exopods of third maxillipedes reaching to anterior margin of ischius.

Telson broadly rounded, with a spine on each lateral margin at posterior margin. Uropods longer than telson, inner rami each divided by a longitudinal median carina produced to a long, sharp spine beyond posterior margin, posterior margin without other spines, a sharp spine half-way along outer lateral margin; outer rami each with several sharp spines along the transverse suture, upper portion of each ramus divided by two parallel longitudinal median carinae, inner carina continued across posterior portion, ending in a long, sharp spine beyond posterior margin. Telson and uropods densely, minutely tuberculate.

Sternal keel slender and sharp between second and third pereopods; first two pairs of lateral processes slender and sharp, third pair deeply grooved, slender and sharp, fourth pair deeply grooved, sharp; processes between fourth pereopods short and stout. Below lateral processes of third pereopods is a pair of large, round openings.

Great chelae stout, propodus twice as long as broad, densely tuberculate; upper margin serrated, lower margin formed by two rows of tubercles, cutting edge with one large and two or three small tubercles; dactylus stout, densely punctate, setose, cutting edge with several small tubercles, upper margin feebly tuberculate. Carpus with a row of tubercles on upper margin, and numerous small tubercles and punctures on upper surface; merus punctate, upper margin serrated.

Habitat: Adamson's Peak.

Type in the National Museum, Melbourne.

Near *P. tasmanicus* Er. in general appearance of the carapace and chelae, but readily separated by the pointed uropods.

Parastacoides insignis, sp. nov.

Pl. XIII, figs. 11, 11a, 11b

Length of adult specimens 75 mm.

Rostrum broad, reaching to base of third segment of first antennae, apex blunt; carinae sharp, carried well back on to carapace, lateral carinae obsolete.

Eyes large. Squame broad, sharply pointed, reaching to base of third segment of second antennae. Interantennal spine long and very slender. Exopods of third maxillipedes reaching to anterior margin of ischius.

Telson broadly rounded, with a spine on each lateral margin, at posterior margin. Uropods pointed, longer than telson, inner rami each divided by a longitudinal median carina, produced to a long, sharp spine beyond posterior margin, several long, sharp spines along inner half of posterior margin, a spine at apical third of outer margin; outer rami each with several sharp spines along the transverse suture, upper portion of each ramus divided by two parallel longitudinal median carinae, inner carina continued across posterior portion, ending in a long, sharp spine beyond posterior margin. Telson and uropods densely, minutely tuberculate.

Sternal keel very broad between second and third pereopods, irregularly rounded, first two pairs of lateral processes small, slender, and sharp; third pair larger, sharp; fourth pair flattened downwards, upper margins sharp. Processes between fourth pereopods short and stout. Below lateral processes of third pereopods is a pair of large, round openings.

Great chelae stout; propodus twice as long as broad, densely tuberculate, upper margin serrated, lower margin formed by two rows of tubercles, cutting edge with one large, and two or three small, tubercles; dactylus stout, densely punctate, setose, cutting edge sharp or with a few feeble tubercles, upper margin feebly tuberculate, a smooth carina on upper surface near upper margin. Carpus with a row of tubercles on upper margin, and numerous small tubercles on upper surface, upper surface punctate; merus punctate, upper margin serrated.

Habitat: Melaleuca Creek, S.W. Tasmania. Collected by Mr. C. King, and presented to the National Museum by Mr. Consett Davis.

Types in the National Museum, Melbourne.

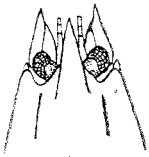
Collected in the button-grass *(Gymnoschoenus sphaerocephalus)* swamps, between New Harbour (near the west end of the south coast of Tasmania) and the head of Melaleuca Creek, which flows into Port Davey.

Although somewhat resembling *P. inermis*, sp. nov., this species may be separated at once by the absence of the lateral carinae of the rostrum, the form of the sternal keel, and the uropods. The spines on the posterior border of the inner rami vary considerably in number in the series examined, but all have at least three very conspicuous spines.

PLATE XII

Head: *a*, interantennal spine; *b*, great chela.

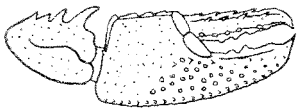
FIG. 1.—*Geocharax gracilis* Clark.
FIG. 2.—*Astacopis franklinii* (Gray).
FIG. 3.—*Astacopsis gouldi* Clark.
FIG. 4.—*Astacopsis tricornis* Clark.
FIG. 5.—*Engaeus cunicularius* Erichson.



1

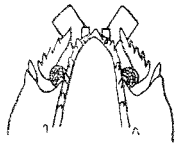
1a

1b



2b

2a



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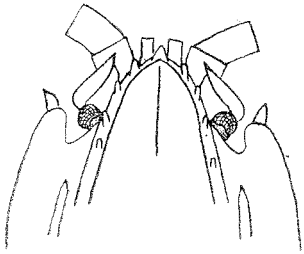
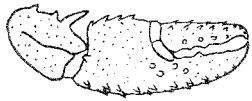


3

3a

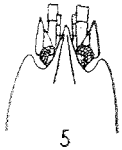
4a

3b



4b

5a



5

5b

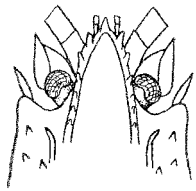


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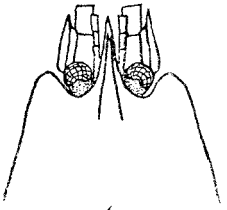
PLATE XIII

FIG. 6.—*Engaeus leptorhynchus*, sp. nov.
FIG. 7.—*Engaeus fossor* Erichson.
FIG. 8.—*Engaeus ignotus*, sp. nov.
FIG. 9.—*Parastacoides tasmanicus* (Erichson).
FIG. 10.—*Parastacoides inermis*, sp. nov.
FIG. 11.—*Parastacoides insignis*, sp. nov.



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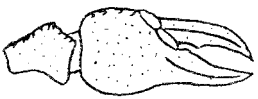

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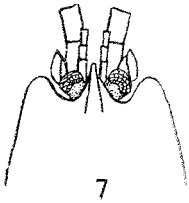

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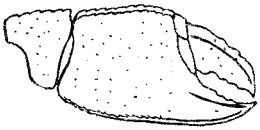
7a



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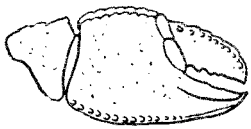

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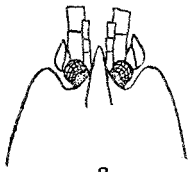

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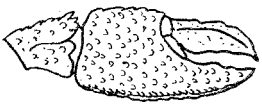


11b

10b

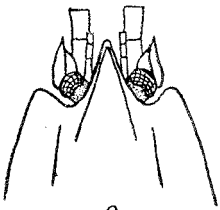
9a

8a

9b

11a

10b



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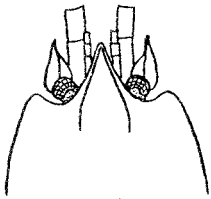

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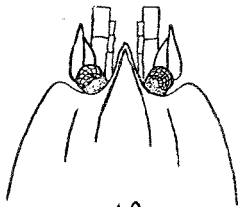

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