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Deep sea Majidae (Decapoda: Brachyura) new to New Zealand with a description of *Oxypleurodon wanganella* sp.nov.

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Three deep sea spider crabs (Brachyura: Majidae) from the south-west Pacific are examined: *Vitjazmaia latidactyla* Zarenkov, 1994 from the western Indian Ocean, is recorded from New Zealand, eastern Australia and the northern Tasman Sea; *Oxypleurodon wanganella* sp.nov. is described from north west of northern New Zealand; and *Cyrtomaia cornuta* Richer de Forges and Guinot, 1988 from New Caledonian waters, is now recorded from New Zealand.

Keywords: Majidae, Inachinae, Epialtinae, *Cyrtomaia, Vitjazmaia, Oxypleurodon, Sphenocarcinus,* New Zealand, Tasman Sea, Australia.

INTRODUCTION

This paper deals with three deep-water species of majid crab collected over a number of years around mainland New Zealand and on the southern Norfolk Ridge. Two of these species have also been collected from either New Caledonia, or the Lord Howe Rise and Australia, while one has recently been described from seamounts in the western Indian Ocean. Most of the material studied is deposited in the Museum of New Zealand Te Papa Tongarewa. The study was supported by specimens from various other sources.

Vitjazmaia latidactyla Zarenkov, 1994 described from the western Indian ocean, is a large spider crab, first collected off New Zealand in 1963 by the NZOI Research Vessel *Tangaroa.* In the New Zealand – Australian area, it has since proven to be a widespread species on soft bottoms occurring on both sides of, and in the north of the Tasman Sea. During the 1980s, deep-sea fishing and research vessels primarily interested in the New Zealand orange roughy trawl fishery, provided a considerable amount of material. At least thirty specimens of *V. latidactyla* have been collected from New Zealand waters: on the Wanganella Bank, from west and east of the North Island and south to the Chatham Rise. Two specimens have been dredged from Bass Strait by teams from the Museum of Victoria and one on the Lord Howe Rise by a team from the Australian Museum, both using RV *Franklin.* A further ten specimens were collected on the Lord Howe Rise by RV *Tangaroa*, and in addition RV *Kapala* has taken more than fourteen specimens from off New South Wales since 1979.

Oxypleurodon wanganella sp.nov. was collected in 1977 and 1981 by RV *Tangaroa* from the Wanganella Bank on the Norfolk Ridge, 580 km north west of the northern tip of mainland New Zealand. *Oxypleurodon* in our experience is a genus typical of deep water stylasterine coral substrates.

Cyrtomaia cornuta Richer de Forges and Guinot, 1988 was described from New Caledonian waters and until now was unknown south of the northern Norfolk Ridge. It is recorded here

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**ORSTOM, BP A5 Nouméa cedex, Nouvelle Calédonie

from the southern Norfolk Ridge and the northern half of the North Island of New Zealand. One specimen was collected by a fishing boat and three by RV *Tangaroa*.

The measurements given are carapace length (CL) taken from the "V" formed between the rostal and pseudorostral spines in *V. latidactyla*, *C. cornuta* and *Platymaia maoria* Dell, 1963, and from the "V" between the rostral spines in *O. wanganella*, to the median posterior margin of the carapace, and carapace width (CW) between the lateral extremes of the branchial regions, not including lateral spines or lateral projections. Measurements are given to nearest 0.1 mm in the 3 large species, but to nearest 0.05 mm in *O. wanganella*.

Abbreviations: AM – Australian Museum; MAF – Ministry of Agriculture and Fisheries, New Zealand; MNZ – Museum of New Zealand Te Papa Tongarewa; MV – Museum of Victoria; NZOI – New Zealand Oceanographic Institute (National Institute of Water and Atmospheric Research); BS – Bottom Station; FV – Fishing Vessel; RV – Research Vessel; Stn – station; P1–5 = pereopods 1–5. Numbers prefixed by letters are registration numbers – letters include abbreviations of names of institutions specimens are held in.

Family Majidae Samouelle, 1819

Subfamily Inachinae Macleay, 1838

Vitjazmaia Zarenkov, 1994

Type Species: *Vitjazmaia latidactyla* Zarenkov, 1994

While our study of the large, deep sea majid from New Zealand and Australian waters now known as *Vitjazmaia latidactyla* was in draft manuscript, we saw Zarenkov's (1994) description of the new inachine genus *Vitjazmaia* based on the new species *V. latidactyla* Zarenkov from seamounts in the western Indian Ocean. It is clear that our New Zealand and Australian inachine is conspecific with Zarenkov's *V. latidactyla* though there are minor differences between his description and figures of Indian Ocean material, and the description and figures of our relatively extensive, New Zealand and Australian material given here. Our proposed new generic and specific names for this species were inadvertently published in 1994 as *nomena nuda* and are not nomenclaturally available. We present here a relatively detailed discussion of the relationship of *Vitjazmaia* with the superficially similar genera *Cyrtomaia* Miers and *Platymaia* Miers, followed by a detailed description of New Zealand and Australian representatives of *V. latidactyla*. Our text and figures were prepared in their present form before the publication of Zarenkov's study in 1994.

Zarenkov (1994 : 121) characterises *Vitjazmaia* in brief as having a calcified integument, branchial and hepatic regions separated by a wide sunken area, branchio-cardiac grooves deep, orbits wide, dactyls of P3–P5 flattened and widened distally, propodus and dactyl of P2 armed with spines and forming (as in *Cyrtomaia* and *Platymaia*) a trap for catching prey. Zarenkov also states that in *Vitjazmaia* the *segments of the peduncle are cylindrical*, but it is not clear from his specific description as to what *peduncle* he is referring. In his generic characterisation he also states that the *dactyls of P2–P4 are flattened and widened (spoon-shaped) distally* but from his specific description, and from a comparison of his figs 14.6 (dactyl of P2) with 13 B7 (flattened and distally widened dactyl) that this is a slip for *dactyls of P3–P5* (translations from Russian in last two sentences italicised).

Revised Generic Diagnosis – Carapace subcircular to subpyriform, rather convex, sloping steeply away posteriorly, poorly calcified, spinulous and setose; rostrum long with a pair of pseudorostral spines; one very strong postorbital spine; one supraorbital spine. Eyes small. Basal antennal article short, moderately broad, spiny and moveable; two strong distal spines. Abdomen with seven segments. Cheliped propodus long and inversely tapered in adult males. Ambulatory legs (P2–P5) very long, depressed, oval in cross-section, covered by small, sharp, recurved spinules.

Remarks – *Vitjazmaia* is a genus in a group of similar genera of long-legged spider crabs including *Cyrtomaia* Miers, 1886 and *Platymaia* Miers, 1886, all three of which live in deep-water. The nearest genus to *Vitjazmaia* is *Platymaia* which is similar in having: a subcircular

carapace; a three spined rostrum; and long depressed legs, the second having the propodus and dactylus with rows of long spines.

Vitjazmaia and *Platymaia* differ in the following characters: the branchial regions, together with the gastric region of the carapace are more inflated in *Vitjazmaia* than in *Platymaia*; the eyes are smaller in *Vitjazmaia* (eye diameter < length of antennal peduncle) than in *Platymaia* (eye diameter ≥ length of antennal peduncle); the eyes of *Vitjazmaia* have from two to five spiniform "horns", those of *Platymaia* one "horn"; the postorbital spine in *Vitjazmaia* is long (≥ 3 times diameter of eye) and subparallel with the rostrum, in *Platymaia* short (≤ 2 times diameter of eye) and usually divergent; the propodus of P3–P5 is moderately compressed and slender (oval in cross-section) in *Vitjazmaia* but very compressed and usually broadened in *Platymaia*; P3–P5 are covered with sharp spinules in *Vitjazmaia* and usually smooth with only some long spines on the borders in *Platymaia*; the setae arranged in a row running from merus to propodus on P3–P5 of *Vitjazmaia* are short, upstanding, irregular in placement and generally, almost all broken off (? during collection) but in *Platymaia* the row is more regular and close-set, the setae long (also densely plumose), characteristically flattened against the flat upper surfaces of the carpus, propodus and dactylus, and generally not broken off on collection; the propodus of the chela in adult male *Vitjazmaia* is long and inversely tapered but in *Platymaia* is short and inflated (Fig. 4 A, B).

Vitjazmaia latidactyla Zarenkov, 1994

(Fig. 1 A-B, Fig. 2 A-C, Fig. 3 A-C, Fig. 4 A)

Ewdawsonia profundorum Webber and Richer de Forges, 1994 NOMENA NUDA (inadvertent publication of ms names dated "1993").

Vitjazmaia latidactyla Zarenkov, 1994: 121, fig. 1 B, 13 B 5–7, 14.1–8.

Material Examined

Primary Study Material – MNZ Cr.8584, MAF Stn WK1/10/85, W of Manukau Harbour 36°56.5′S 173°49.5′E, 956–964 m, 8 May 1985 FV *Wanaka*, 1 ♀ 65.3 × 65.8 mm (figured ♀). MNZ Cr.8585, MAF Stn K1/16/81, Bay of Plenty 36°36.2′ 176°20.4′E, 1170–1195 m, 22 November 1981, FV *Kalinovo* 1 ♀ 49.9 × 50.0 mm. MNZ Cr. 8586, SE of East Cape 38°07.8′S 179°04.5′E, 1024–1043 m, 10 June 1985, FV *Twofold Bay*, 2 ♂♂ 66.6 × 65.9 mm, 66.6 × 67.3 mm. MNZ Cr. 8587, off Cape Turnagain 30.5 miles, 1006–1189 m, 28 December 1984, FV *Twofold Bay*, 1 ♂ 66.8 × 66.6 mm. MNZ Cr. 8588, MAF Stn K1/145/81, off Wairarapa 40°49.8′S 176°58.5′E, 1058–1100 m, 18 December 1981, FV *Kalinovo*, 1 ♀ (ovigerous) 71.5 × 71.8 mm. MNZ Cr. 8589, W Challenger Plateau 39°49.7′S 167°11.8′E, 960 m, 2 December 1987, FV *Rijnmond V*, 1 ♂ 77.8 × 78.3 mm (figured ♂). MNZ Cr. 8590, MAF Stn A3/120/83, W of Hokitika 42°58.9′S 168°46.2′E, 1035 m, 14 October 1983, FV *Arrow*, 1 ♀ (ovigerous) 67.4 × 68.3 mm. MNZ Cr. 8591, MAF Stn A4/134/83, Challenger Plateau 37°32.9′S 169°25.9′E, 1081–1082 m, 26 October 1983, FV *Arrow* 1 ♀ (ovigerous) 71.5 × 70.6 mm. MNZ Cr. 8592, MAF Stn KTN/16/82, N of Chatham Is 42°46.5′S 176°36.6′W, 1070 m, 5 August, 1982, FV *Kaltan*, 1 ♀(ovigerous) 74.4 × 72.3 mm. MNZ Cr. 8593, MAF Stn COR/223/89, NW of Chatham Is 42°42.0′S 178°01.0′W, 1025–1055 m, 13 August 1989, FV *Cordella*, 1 ♂ (immature) 17 × 16.2 mm. AM-P.39417, Stn 27, Lord Howe Rise 27°59.3′S 162°48.6′E, 1250 m, 6 May 1989, RV *Franklin*, 1 ♀ 33.0 × 33.5 mm. MV – J16058, Stn slope 83, Tasmania, 41 km NE of Cape Tourville 41°54.54′S 148°45.15′E, 1273 m, 30 October 1988, RV *Franklin*, 2 ♂♂ 26.8 × 25.7 mm, 20.5 × 18.8 mm. AM-P.40772, Stn K79–20–15, New South Wales, East of Broken Bay 33°37′S 152°07′E, 1005 m, 6 December 1979 RV *Kapala*, 1 ♂ 34.3 × 34.1 mm. NZOI P–941, Stn A911, NW of Chatham Is 42°45′S 178°15′W, 497 m, 13 September 1963, RV *Taranui*, 1 ♀ 70.7 × 68.6 mm (dry specimen). NZOI P–942, Stn E902, Aotea Seamount 37°34′S 172°05′E, 1064–926 m, 26 March 1968, RV *Taranui*, 1 ♂ 65.4 × 64.6 mm (dry specimen).

Additional Study Material – MNZ Cr. 8594, MAF Stn J3/26/79, NW Mernoo Bank 42°58.2′S 174°35.0′E, 836–841 m, 14 March 1979, RV *James Cook*, 1 ♀(ovigerous) 75.0 ×

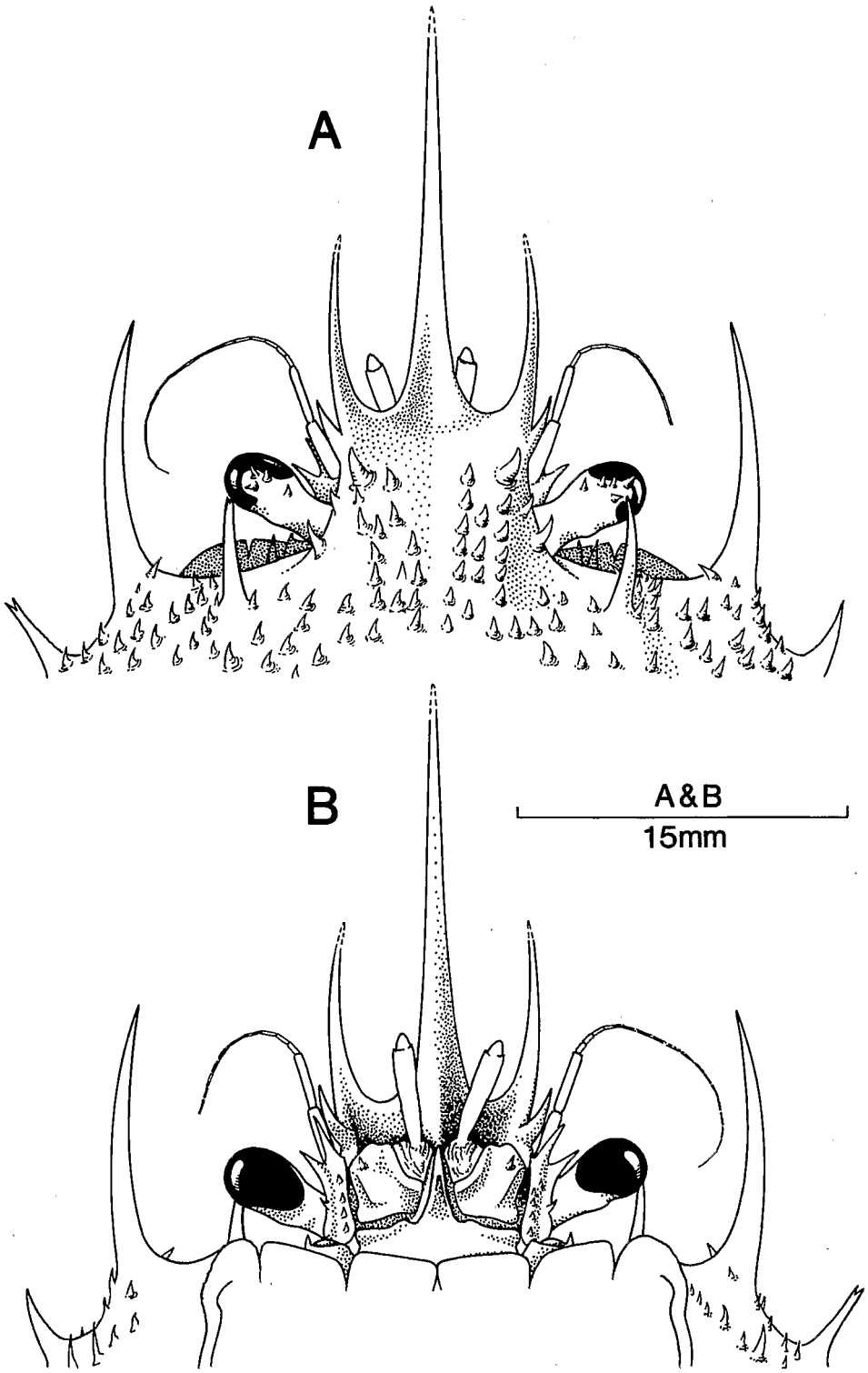

Fig. 1 – *Vitjazmaia latidactyla* Zarenkov, 1994, ♀ (MNZ Cr. 8584) 65.3 × 65.8 mm. Rostral region (rostral and pseudorostral spine tips worn off). A, dorsal view. B, ventral view.

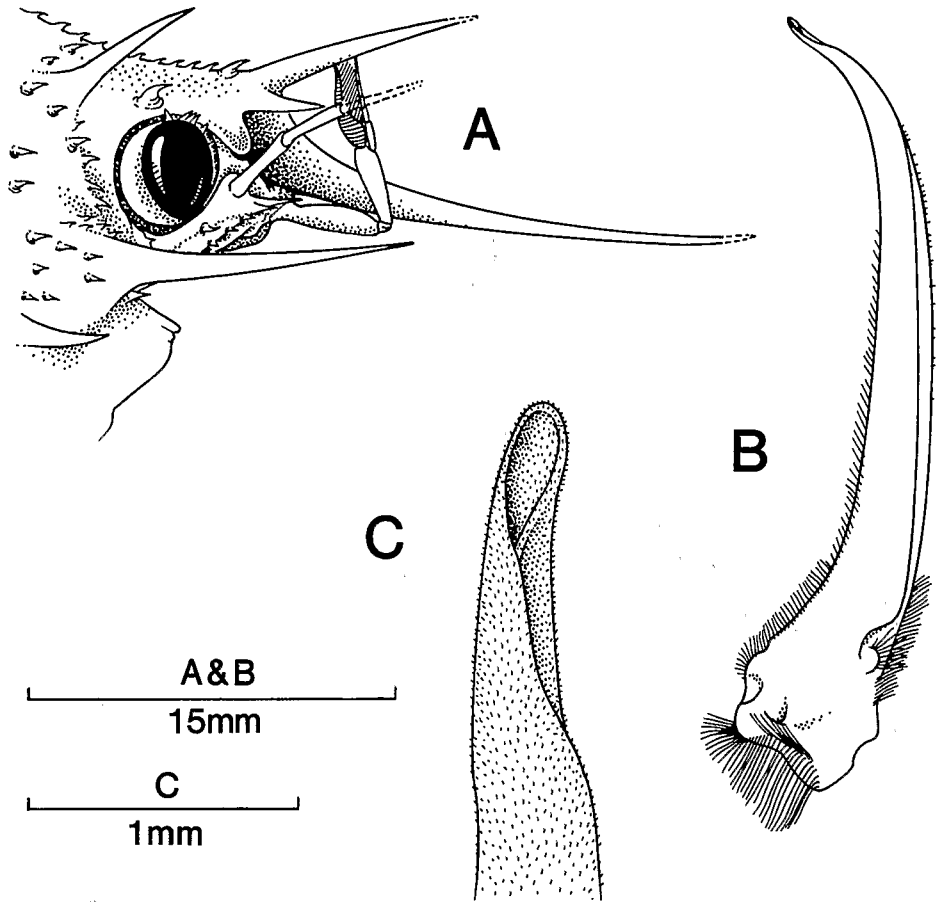

Fig. 2 – *Vitjazmaia latidactyla* Zarenkov, 1994, ♀ (MNZ Cr. 8584) 65.3 × 65.8 mm. A, rostral region, lateral view. ♂ (MNZ Cr. 8589) 77.8 × 78.3 mm. B, pleopod 1, posterior view. C, pleopod 1 tip, posterior view.

74.6 mm. MNZ Cr. 8595, MAF Stn COR/223/89, NE of Chatham Is 42°42.0′S 178°01.0′W, 1025–1055 m, 13 August 1989, FV *Cordella*, 1 ♀ (ovigerous) 74.5 × 73.0 mm. MNZ Cr. 8596, MAF Stn COR/221/89, NE of Chatham Is 42°46.2′S 177°44.6′W, 988–993 m, 13 August 1989, FV *Cordella*, 1 ♀ (ovigerous) 72.2 × 71.8 mm. MNZ Cr. 8597, MAF Stn A1/79/87, Tolaga Bay 38°45.2′S 178°47.6′E, 848–900 m, 9 July 1987, FV *Arrow*, 1 ♀ (ovigerous) 72.4 × 71.8 mm. MNZ Cr. 8598, MAF Stn KTN/17/82, N of Chatham Is 42°46.4′S 176°32.5′W, 1100 m, 5 August 1982, FV *Kaltan*, 1 ♂ 65.3 × 65.0 mm. MNZ Cr. 8599, MAF Stn J12/36/88, Ritchie Bank 39°36.9′S 178°12.6′E, 764–820 m, 12 October 1988, RV *James Cook*, 1 ♂ 64.3 × 63.6 mm. MNZ Cr. 8600, MAF Stn J10/44/86, E of Cape Kidnappers 39°46.1′S 178°21.5′E, 980 m, 29 August 1986, RV *James Cook*, 3 ♂♂ 72.8 × 72.8 mm, 71.0 × 70.9 mm, 60.8 × 59.0 mm. MNZ Cr. 8601, MAF Stn AE1/50/87, Challenger Plateau 39°48.0′S 167°10.0′E, 953–958 m, 22 June 1987, FV *Amaltal Explorer*, 2 ♂♂ (broken rostra), 54.7 mm wide, 65.7 mm wide. MNZ Cr. 8602, MAF Stn KTN/61/82, Chatham Rise 42°55.4′S 174°31.9′W, 1084 m, August, 1982, FV *Kaltan* 1 ♂ (crushed). MNZ Cr. 8525, MAF Stn WK5/21/86, NW Wanganella Bank 32°24.7′–22.6′S 166°20.6–21.7′E, 1059–1070 m, 7 June 1986, FV *Wanaka* 1 ♂ 77.7 × 77.4 mm. NZOI Stn U197, Lord Howe Rise 39°09.8′S 163°36.7′E, 1186 m, 25 September 1982, RV *Tangaroa*, 6 ♂♂ (immature) 8.7 ×

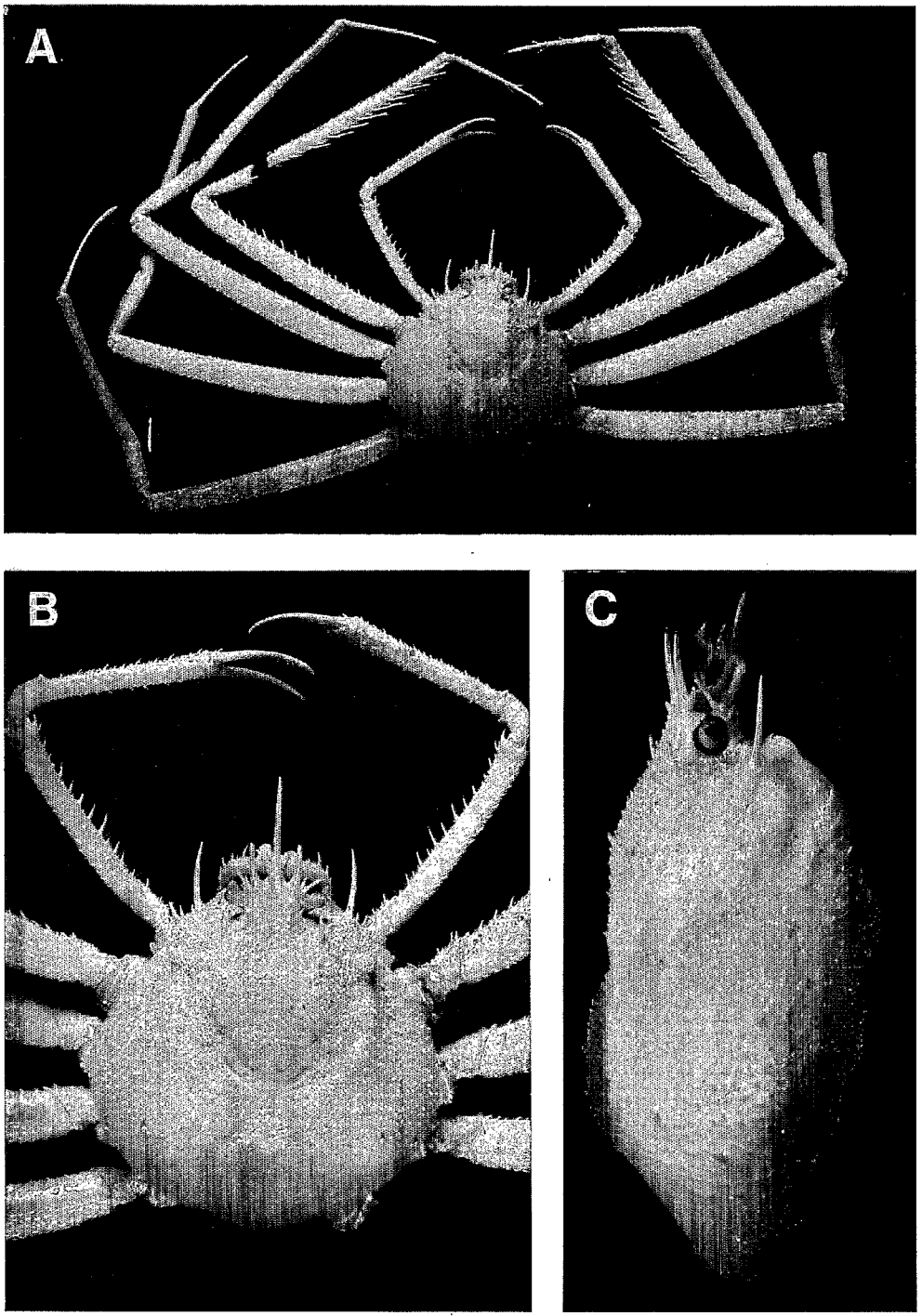

Fig. 3 – *Vitjazmaia latidactyla* Zarenkov, 1994, ♀ (MNZ Cr. 8584) 65.3 × 65.8 mm. A, whole animal, right P5 missing; B, carapace. ♂ (MNZ Cr.8589) 77.8 × 78.3 mm. C, carapace lateral view.

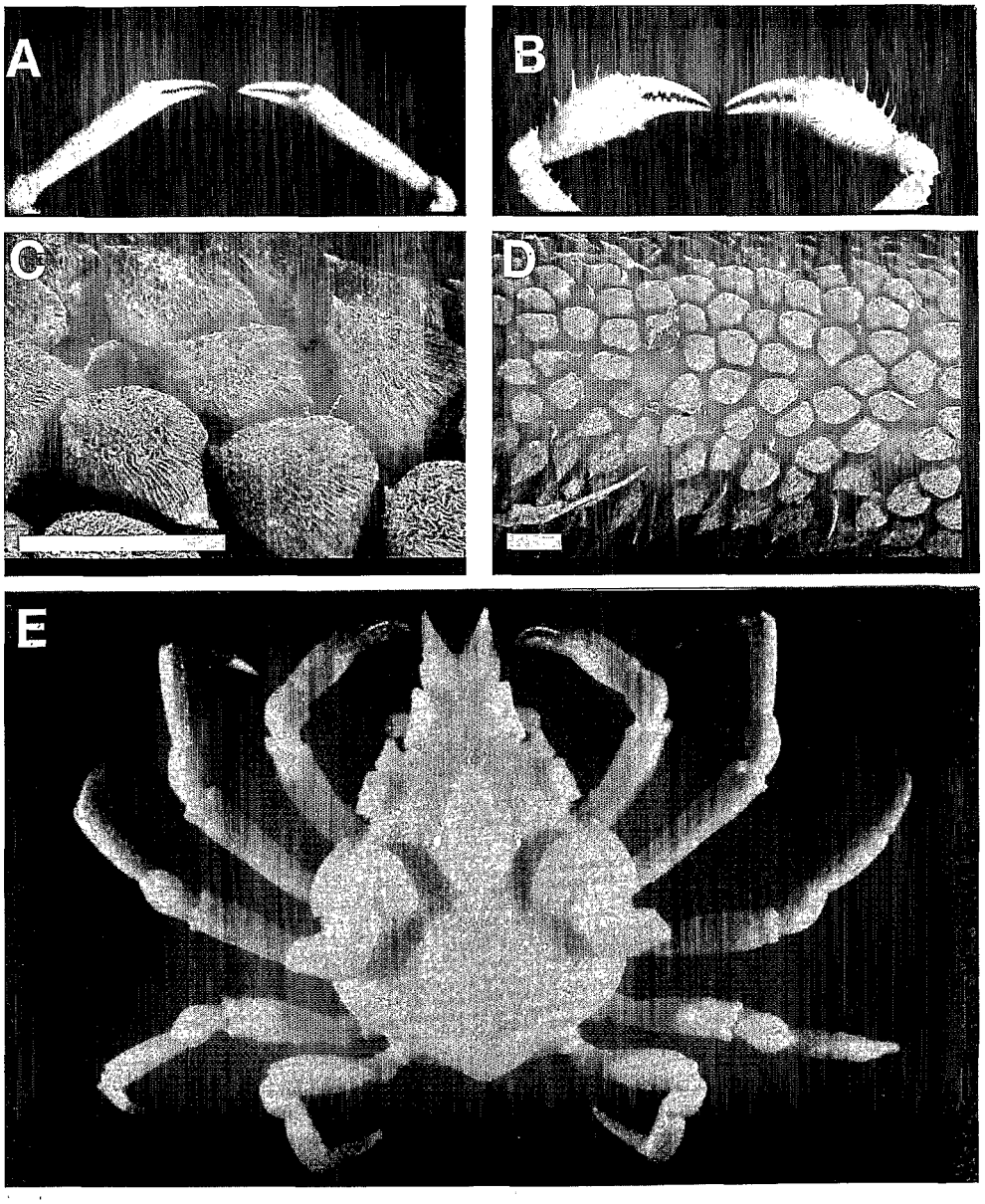

Fig. 4 – *Vitjazmaia latidactyla* Zarenkov, 1994 ♂ (MNZ Cr. 8589), 77.8 × 78.3 mm. A, chelae, dorsal view. *Platymaia maoria* Dell, 1963, ♂ (MNZ Cr. 6872) 46.0 × 45.8 mm. B, chelae, dorsal view. *Oxypleurodon wanganella* sp.nov., holotype ♀ (MNZ Cr. 8535) 14.55 × 10.30 mm; C-D "soft structures" on P5 of left side, scales = 0.1 mm; E, whole animal.

7.8 mm, 12.3 × 11.1 mm, 8.5 × 7.2 mm, 8.3 × 7.0 mm, 2 (not measured), 2 ♀♀ (immature) 24.9 × 24.05 mm, 17.7 × 16.7 mm, 1 (juvenile) 6.4 × 5.9 mm, 1 (part specimen, not measured or sexed). AM-P.40773, Stn K83–09–02, New South Wales, E of Norah Head 33°32′S 152°09′E, 960 m, 23 August 1983, RV *Kapala*, 1 ♂ 62.0 × 60.8 mm. AM-P.40774, Stn K83–14–06, New South Wales, E of Shoalhaven Bight 34°56′S, 151°13′E, 1115 m, 26 October 1983, RV *Kapala*, 5 ♂♂ 64.9 × 63.3 mm, 65.2 × 64.2 mm, 64.7 × 62.5 mm, 38.1 × 37.2 mm

(immature), 26.1 × 25.2 mm (immature), 2 ♀♀ 48.9 × 48.9 mm, 50.0 × 49.5 mm, 3 (crushed specimens, not measured or sexed). AM-P.40775, Stn K88–08–04, New South Wales, E of Tuncurry 32°02′S 153°09′E, 1080 m, 4 May 1988, RV *Kapala*, 1 ♂ 62.9 × 62.6 mm. AM-P.40776, Stn K83–13–02, New South Wales, E of Newcastle 32°59′S 151°42′E, 988 m, 18 October 1983, 1 ♀ 68.2 × 64.8 mm. AM-P.40777, Stn K83–18–02, New South Wales, E of Shoalhaven Heads 34°54′S 151°17′E, 1150 m, 30 November 1983, RV *Kapala*, 2 ♀♀ 70.1 × 68.2 mm, 41.3 × 40.6 mm.

Description – Carapace (Fig. 1 A-B, 2 A, 3 A-C) subcircular to subpyriform, with some small spines and numerous regularly distributed spinules, interspersed with numerous small plumose setae; spines, spinules and setae all curved anteriorly. One rostral and two pseudorostral spines, subparallel in dorsal aspect (Fig. 1 A); rostral spine horizontal or projecting slightly downward in relation to carapace (Fig. 2 A), about twice length of pseudorostral spines; pseudorostral spines sloping gently anterodorsally with two small spines at base of each, one preorbital directed anteroventrally, one smaller situated anterodorsally. Orbit not formed but long anteriorly directed postorbital spine present; one strong supraorbital spine; hepatic region moderately inflated with two to three spines posterior to postorbital spine. Branchial region inflated, a line of three spines between urogastric region and origin of P4 (Fig. 3 B); a similar spine laterally; two to three spines on anterior half of branchial region. Gastric region inflated, separated from branchial regions by a groove; a mesogastric spine and one or two sharp protogastric spines; one small metagastric spine. Cardiac region with a pair of spiniform tubercles, otherwise more or less continuous with intestinal and branchial regions and together with them sloping steeply to posterior border (Fig. 3 C).

Basal antennal article (Fig. 1 B, 2 A) short with two sharp terminal spines distally; 1–5 granules or small spines of various sizes and placement along ventral margin; one small spine (occasionally absent) ventrolaterally.

One small spine at lateral border of green gland opening (Fig. 1 B).

Ocular peduncle short, constricted, cornea inflated, oval; 3–5 spiniform "horns" dorsally on peduncle (Fig. 1 A).

Border of pterygostomial region with row of 3–4 spines and a few sharp spinules.

Maxilliped 3 variously armed; inner edge of ischium with about 20 small teeth and a row of coarse setae; a scattering of spines away from the inner edge; an irregular row of narrow sharp spines near outer (lateral) edge of ischium continues on merus near inner (medial) edge; distal, outer border of ischium and outer border of merus with a row of sharp spinules.

Sternum with a sharp spine adjacent to coxal articulation of cheliped and of P2, that of P2 more prominent in female than male. In male, sternal plate between coxal articulation of chelae forming a transverse crest bearing a row of strong, forwardly directed spines and some spinules; sternum posterior to crest, and abdomen, together forming a flattened ventral surface to the crab, bearing various small spines, spinules and small setae; sternum anterior to crest rising abruptly, vertically to buccal field. In female vertical sternal area posterior to buccal field the only part of sternum not covered by abdomen.

Abdomen of 7 segments, first segment curved to form rear of body of crab, capable of little movement; all segments spinulated and setose, setae most dense on first segment. Female abdomen pear-shaped, moderately inflated with first segment narrowest, fifth and sixth segments widest, sixth segment longest; second and third segments with smallest and fewest spinules, seventh segment with longest, sharpest spinules. Male abdomen tapered from second, widest segment, to seventh, narrowest segment; first and sixth segments longest, approximately equal in length; third to sixth segments shortest, subequal, with spinules of various sizes. In juvenile female (33 mm CL) and male (17 mm CL) first abdominal segment with a single posteriorly directed median spine.

Chelipeds and ambulatory legs (Fig. 3 A-B, 4 A) armed variously with spines and spinules interspersed with small setae all curved moderately to strongly distally. Female chelipeds short, slender; ischium spinulated and bearing 3–4 spines anteriorly and anteroventrally;

merus with two rows of sharp spines on anterior and anteroventral margins, distal end with four spines, remainder of surface spinulated; carpus short, spinulated; propodus long, slender, spinulated with rows of longer spinules dorsally and ventrally; fingers of chelae long, moderately curved medially with fairly evenly serrated cutting edges. Male (Fig. 4 A) chelipeds more robust than in female; spines on merus proportionately smaller but spinules in general stronger and more upstanding than in female; propodus in large males, particularly the largest (77.8 mm CL), noticeably thickened distally giving an inversely tapered shape in profile.

Ambulatory legs (including carpi) (Fig. 3 A) long, slender, compressed, oval in cross-section becoming more compressed from P2–P5. P2 and P3 of similar length, longer than P4 and P5. P2 ischium spinulated, with one long anteroventral spine and 2–3 smaller spines; remaining segments of P2 with two rows of spines anterodorsally and anteroventrally, spines on merus and carpus similar to those of cheliped merus but spines of propodus and dactylus very long especially anterodorsal row with every second spine of this row on propodus elongated, spines curved in distal direction; P2 merus with two spines on distal end, remainder of P2 spinulated but spinules along posterior margins enlarged into spines, especially some on dactylus. Dactyli of P3–P5 flattened distally; P3–P5 lacking rows of spines but otherwise armed similarly to P2 with spinules larger dorsally than ventrally, becoming progressively smaller from P3–P5; an irregular row of small, raised "pedestals" on P3–P5 runs anterodorsally along merus, dorsally across carpus, posterodorsally along propodus, in all specimens examined "pedestals" very rarely supporting a seta, usually containing stump of broken off seta.

Male pleopod 1 illustrated in Fig. 2 B-C.

Colour – In freshly caught specimens (except juveniles which are unpigmented), spines of rostrum and carapace are bright red-orange; remainder of carapace, female abdomen and most dorsal surfaces of legs unpigmented; abdomen, sternum and tips of chelae in male light red-orange; P3–P5 carpus, propodus and dactylus light red-orange dorsally; P3–P5 strongly red-orange ventrally. Freshly caught animals are often dun (grey-brown) coloured overall due in part to a covering of fine silt caught amongst the small setae of the carapace and legs.

Remarks – In the genus *Platymaia*, *P. fimbriata* Rathbun, 1916, a widespread species from Indonesia, the Philippines and the China and Japan Seas, is the most similar to *V. latidactyla*. The similarity lies mainly in the long, three spined rostrum. *P. fimbriata* also has numerous small carapace spines and the meri and carpi of the walking legs are spinulated, although the spinules are considerably larger in *V. latidactyla*. The propodi of the walking legs in both species are not broadened but, as in other *Platymaia* species those of *P. fimbriata* are decidedly flattened. Amongst the remaining generic differences between *Vitjazmaia* and *Platymaia* covered earlier, *V. latidactyla* and *P. fimbriata* are separable most obviously by the difference in size of their eyes and the much greater prominence of the rows of setae on the walking legs of *P. fimbriata*. In addition *P. fimbriata* lacks the distinctive supraorbital spine present in *V. latidactyla*.

The only representative of the genus *Platymaia* in New Zealand is the endemic species *P. maoria* Dell, 1963 (for male chelae see fig. 4 B).

Distribution and Depth – Western Indian Ocean; Bass Strait, New South Wales, Lord Howe Rise, Wanganella Bank, east and west of North Island, Challenger Plateau, Chatham Rise and Chatham Islands; depth range 497–1290 m, one of the deepest living majids known.

Cyrtomaia Miers, 1886

Cyrtomaia cornuta Richer de Forges and Guinot, 1988

Cyrtomaia cornuta Richer de Forges and Guinot, 1988: 44, fig. 3 A-C, pl. 2 a-e.

Material Examined – MNZ Cr. 8894, BS761 (= NZOI Stn R119), N.E. Mayor Island 37°22.0′S 176°40.0E, 616–666 m, 21 January 1979, RV *Tangaroa*, 1 ♂ 21.6 × 22.6 mm. MNZ Cr.8895, BS821 (= NZOI Stn O 566), SE Manukau Harbour 37°32.5′S 174°05.3′E, 502 m, 12 January 1981, RV *Tangaroa* 1 ♂ 46.6 × 51.8 mm (specimen with densely packed

hydroids on propodi and dactyli of P2–P5 and on abdomen). MNZ Cr. 8896, 12 miles NW White Island, 439 m, 14 May 1987, FV *Jo Anne*, 1 ♀ (ovigerous) 41.4 × 46.6 mm. MNZ Cr.8897, BS886 (= NZOI Stn O 632), Wanganella Bank 32°35.3′S 167°41.8′E, 437–422 m, 29 January, 1981, RV *Tangaroa*, 1 ♂ 36.6 × 38.7 mm.

Remarks – All these specimens agree well with the description of New Caledonian material given by Richer de Forges and Guinot (1988) with only one small difference in the surface structure of the meri of P4 and P5. In the specimens from New Caledonia the meri are "finement granuleux" (i.e. finely granulose) while they are smooth in all four New Zealand specimens.

These records represent a considerable extension to the range of *C. cornuta,* which was previously recorded only from southern New Caledonian waters.

The genus *Cyrtomaia* is also represented in New Zealand by a second species, *Cyrtomaia lamellata* Rathbun, 1906, although its specific status is in contention. *Cyrtomaia*, an Indo-Pacific genus has been reviewed twice recently. In the first of these reviews Guinot and Richer de Forges (1982) maintained *C. hispida* (Borradaile, 1916) as a valid species, but in the second, Griffin and Tranter (1986) reduced *C. hispida* (along with *C. platypes* Yokoya, 1933) to synonomy with *C. lamellata* Rathbun, 1906. Both opinions are supported by detailed arguments not debated any further here. McLay (1988) has accepted the judgement of Griffin and Tranter (1986) and in using the name *C. lamellata* we have followed suit but, until more evidence is gathered to connect these otherwise isolated populations (*C. hispida*, New Zealand, New Caledonia, Timor; *C. platypes*, Japan, Ryukyu, Ogasawara-shotō; *C. lamellata*, Hawaii) we consider the case for synonomy of these three species is still debatable.

Distribution and Depth – Northern Norfolk Ridge, south of New Caledonia, south to northern half of North Island of New Zealand; depth range 270–666 m.

Subfamily Epialtinae Macleay, 1838

Genus *Oxypleurodon* Miers, 1886

Oxypleurodon wanganella sp.nov.

(Fig. 4 C-E, Fig. 5 A–B, Fig. 6 A–C, Fig. 7 left)

Material examined

Holotype – MNZ Cr. 8535, BS888 (= NZOI Stn O 634), Wanganella Bank, NW of Cape Reinga, NZ 32°39.1′S 167°40.0′E, 357–487 m, 29 January 1981, RV *Tangaroa*, coral and shell bottom, 1 ♀ 14.55 × 10.30 mm.

Paratypes – NZOI Stn P14, north of Wanganella Bank, 31°47.2′S 167°51.6′E, 319–316 m, 25 January 1977, RV *Tangaroa*, coral and shell bottom, 2 ♂♂ 18.0 × 11.75 mm, 11.70 × 7.65 mm, 1 ♀ (ovigerous) 15.55 × 10.55 mm.

Description – Carapace (Fig. 4 E, 5, 6A, 7 left) subtriangular. Frontal region large with rostrum deflected slightly downward. Rostrum composed of two broad-based short, flat spines with parallel lateral margins; "V"separating spines broad, penetrating less than half distance between spine tips and eye stalks. Dorsal and lateral faces of carapace with a small number of raised plates (Fig. 4 E, 5 A, 6A, 7 left) of various shapes and sizes, with overhanging edges and glabrous, but uneven and punctate, surfaces.

The form and placement of the carapace plates in the holotype female is as follows: a longitudinal gastric plate; an oval cardiac plate; a submarginal intestinal plate, broadest medially, tapering submarginally on to posteroventral branchial area, terminating above basis of P3; branchial region with a branchial plate of similar elevation to other plates but sinuous with a notch on inner margin and projecting posterolaterally into a blunt point; an oval sub-branchial plate; a sub-reniform hepatic plate clearly separated from a small postorbital plate, latter dished anteriorly to accommodate retracted eye; a crescent shaped preorbital plate over each eye; upper edges of left and right preorbital plates separated by a distance

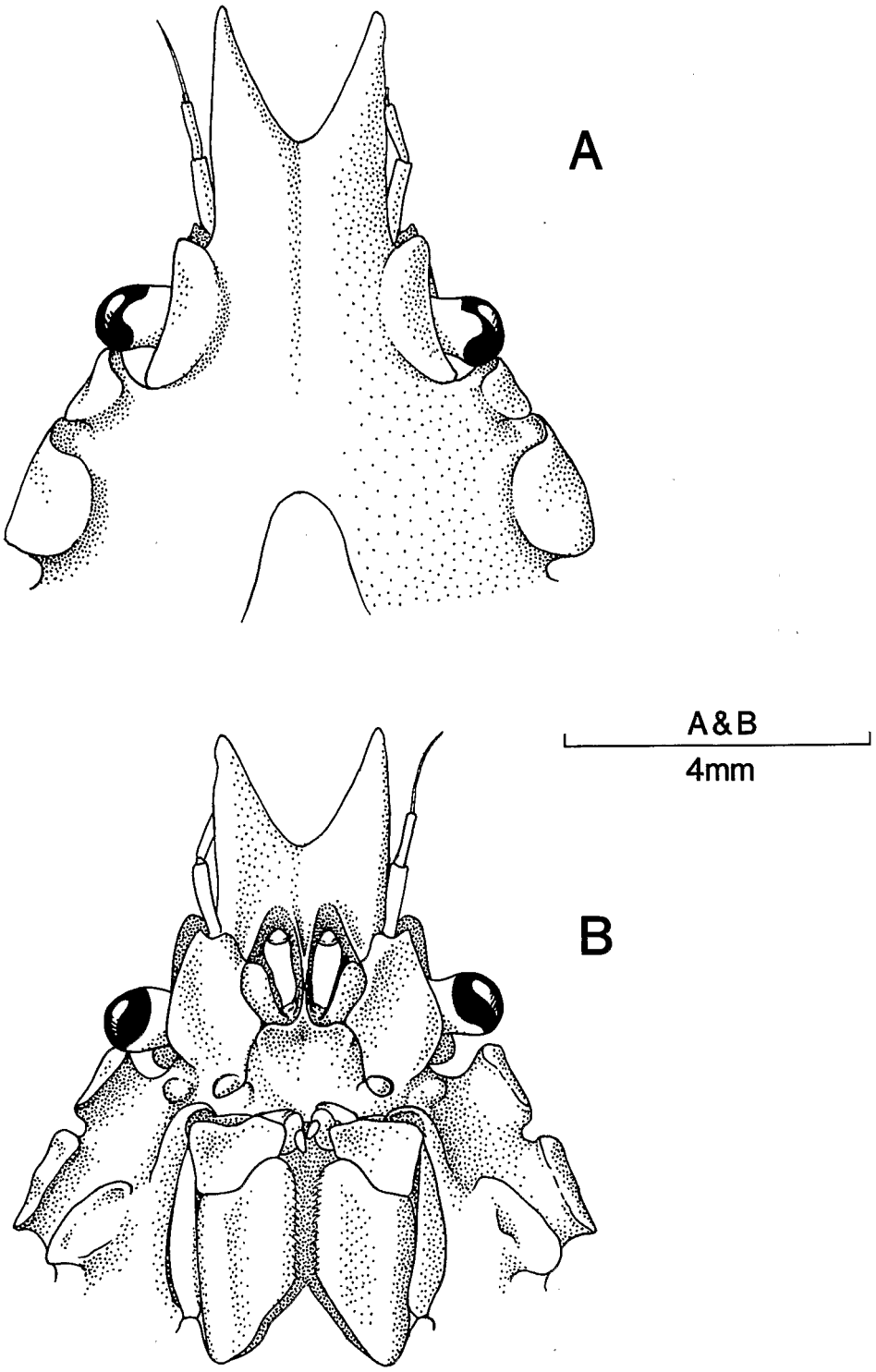

Fig. 5 – *Oxypleurodon wanganella* sp.nov., holotype ♀ (MNZ Cr. 8535) 14.55 × 10.30 mm. Rostral region, A, dorsal view, B, ventral view.

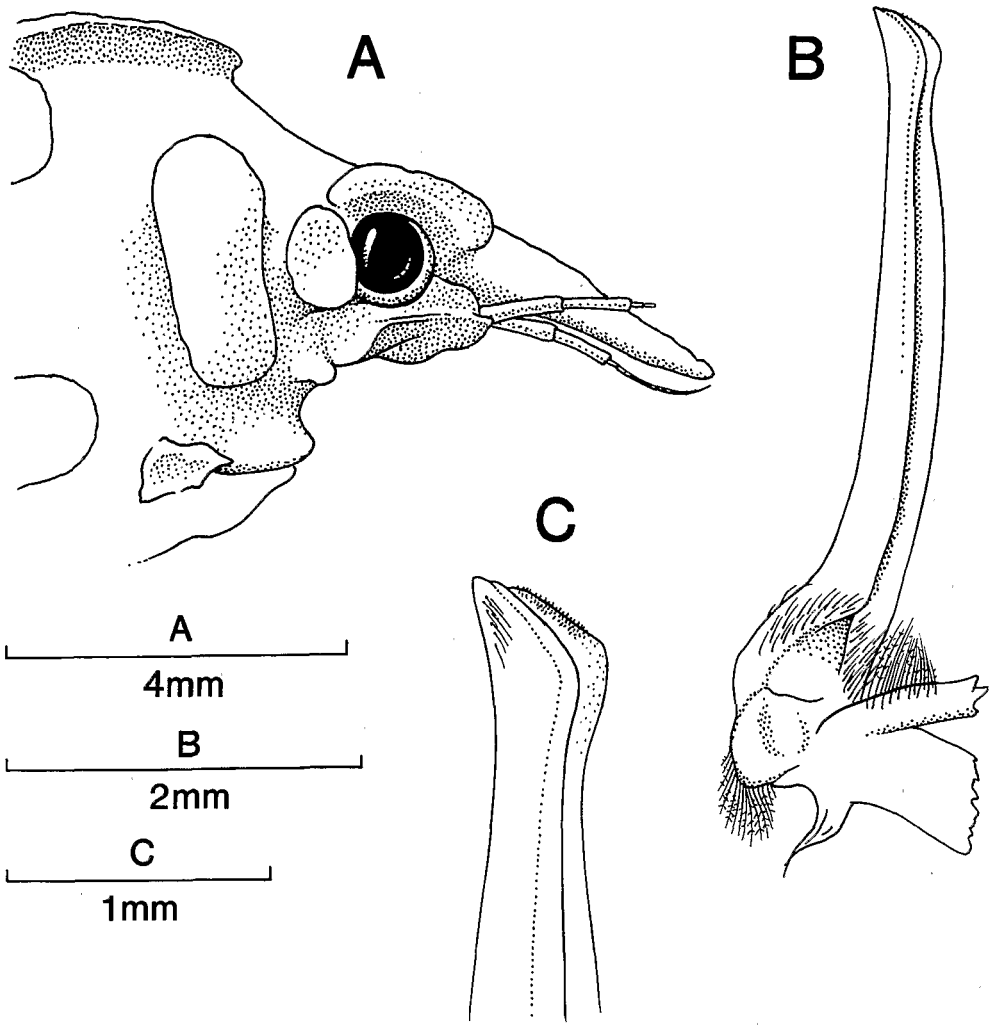

Fig. 6 – *Oxypleurodon wanganella* sp.nov., holotype ♀ (MNZ Cr. 8535) 14.55 × 10.30 mm. A, rostral region, lateral view. Paratype ♂ 18.0 × 11.75 mm. B, pleopod 1, posterior view. C, pleopod 1 tip, posterior view.

similar to that between tips of rostral spines; a single small irregularly shaped pterygostomial plate followed by a smaller blunt plate-like knob above P1 on the right side which is almost absent on left side.

The form and placement of the carapace plates in the paratype male and paratype females are as described for the holotype, except that in the male the cardiac plate has a small v-shaped notch at midpoint of posterior margin; in the male the branchial plate has the "notch" on inner margin extended somewhat anterolaterally as a fine groove and the posterolateral "blunt point" distinctly less pointed; the sub-branchial plate differs somewhat in shape in each of the type specimens; in the male the upper edges of left and right preorbital plates are separated by between two-thirds and three-quarters of the distance between tips of rostral spines; the blunt plate-like knob above P1 also varies in relative size from side to side among the paratypes.

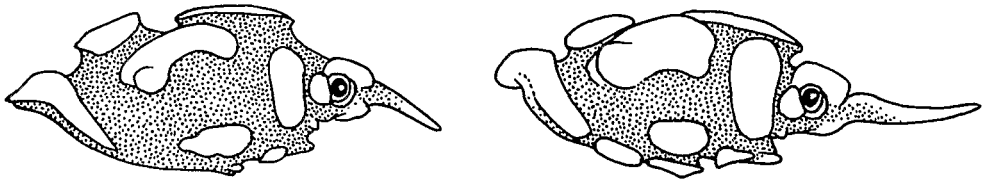

Fig. 7 – *Oxypleurodon wanganella* sp.nov., (left) and *O. orbiculatus* (Guinot and Richer de Forges, 1986), (right). Diagrammatic lateral view of right sides of carapaces. Carapace plates unshaded.

Rostrum and all carapace surfaces between plates with small, membranous, inflated "soft structures" (e.g. Fig. 4 C-D) each with a small pointed tip (leaf-like in profile). "Soft structures" least dense on dorsal surfaces of frontal region, dense on borders of rostral spines and denser (in holotype at least) on lateral branchial regions between branchial and subbranchial plates. A few long setae dorsally on rostral medial margins and dorsal surface of rostrum, more numerous setae with recurved tips anterior to cardiac plate (in holotype), similar setae distributed on lateral branchial region. Carapace surfaces otherwise uneven and punctate.

Female abdomen of seven segments with tapered, longitudinal median ridge (containing hindgut) almost petering out on sixth segment; distal margins of each segment produced to form a "rim" on each of first to fourth segments; abdomen inflated each side of median ridge; most of surface covered by "soft structures".

Male abdomen of seven segments, tapered from third, widest segment, to seventh, narrowest segment; fifth hardly wider than sixth, distal margin of sixth distinctly wider than proximal margin of subtriangular seventh; first to sixth segments with progressively smaller, median, rounded knobs; most of surface covered with "soft structures".

Basal antennal article (Fig. 5 B, 6A) dished ventrally, fused with epistome and rostrum; medial margin forming posterolateral margin of antennular fossa.

Ocular peduncle short, slightly constricted (Fig. 5 A).

Chelipeds in female holotype (Fig. 4 E) shorter and a little more robust than P2, merus with a proximal small tubercle ventrally, palm not inflated, fingers curved inward and downward slightly, evenly serrated cutting edges. Chelipeds in male paratype a little shorter but distinctly more robust than P2, merus with a proximal tubercle ventrally (larger female paratype with several small tubercles similarly placed), palm heavy but not inflated, distal third of fingers meet with about 5 close fitting teeth, very distinct proximal gape between fingers.

"Soft structures" generally in greater density on appendages (Fig. 4 C-D) than on carapace, occurring on all surfaces of chelipeds and P2–P5 (except tips), on distal two segments of antennal peduncle, and on anterior surface of ocular peduncle.

Male pleopod 1 illustrated fig. 6 B-C.

Colour – Colour in life not known.

Etymology – The species is named from the holotype locality on the Wanganella Bank near the southern limit of the Norfolk Ridge, 580 km north west of the northern tip of mainland New Zealand. The Bank itself is named after MV *Wanganella* which first located this seafloor feature in 1949 (Wanoa & Lewis 1972). "Wanganella" is the Australian Aboriginal name of a town near Deniliquin in the Riverina district of southern New South Wales.

Remarks – The closest species is *Oxypleurodon orbiculatus* (Guinot and Richer de Forges, 1986) but the two are separable by the following characters: in general the spines, plates and appendages of *O. wanganella* are less robust than in *O. orbiculatus*; the rostrum in *O. wanganella* is shorter than in *O. orbiculatus*; the rostral spines of *O. wanganella* have

parallel lateral margins and are gently deflected downward whereas those of *O. orbiculatus* diverge and are distally curved upward; the preorbital plates in *O. wanganella* are more widely separated than in *O. orbiculatus* (in dorsal aspect these plates are separated by a space three times the width of either preorbital plate in *O. wanganella* but less than the width of either plate in *O. orbiculatus* of similar size); in *O. wanganella* each branchial plate is notched on the inner margin and projects laterally into a blunt point whereas this plate in *O. orbiculatus* lacks a notch and its lateral projection is considerably larger with a rounded tip; the small plates along the lateral carapace margins are smaller and fewer in *O. wanganella* than *O. orbiculatus* and the intestinal plate is submarginal in *O. wanganella* but marginal posteriorly in *O. orbiculatus* and the two differ markedly in profile (Fig. 7); the basal antennal article of *O. wanganella* is dished ventrally but is flat to slightly rounded and also narrower in *S. orbiculatus*; in *O. wanganella* there are no ridges on the meri and carpi of P1–P5 but ridges are present in *O. orbiculatus*, more conspicuously on P1–P2 in which the ridges form a flattened area dorsally on each carpus; soft structures cover most surfaces of *O. wanganella* but are fewer in *O. orbiculatus* and virtually absent from the pereopods in specimens of similar size to the holotype of *O. wanganella*.

Tavares (1991) drastically altered the genus *Sphenocarcinus* A. Milne Edwards, 1878 by reallocating the species previously attributed to it to four separate genera. He retained the genus *Sphenocarcinus* for only the two American species, *S. corrosus* A Milne Edwards (the type species) and *S. agassizi* (Rathbun), characterised by a rostrum of two, long, contiguous spines. For a second group of species, with the rostrum consisting of a single spine, Tavares created the new genus *Nasutocarcinus* with *N. difficilis* (Guinot and Richer de Forges) as the type species, and included *N. cuneus* (Wood-Mason), *N. aurorae* (Alcock) and *N. pinocchio* (Guinot and Richer de Forges). We agree that these two subdivisions are necessary.

The remaining species previously attributed to *Sphenocarcinus* have a rostrum of paired, non-contiguous and usually divergent spines and, typically for that genus, several raised plates on the carapace. Tavares (1991) divided this group on the basis of *inter alia* the form of the rostrum, the ornamentation of the carapace, and the relative lengths of the chelipeds and P2. He resurrected the name *Oxypleurodon* Miers, 1886 to accommodate those species of this group with a rostrum of paired, clearly separate spines, either relatively short and widely open in a V-shape, or short and thick-set, with the carapace bearing flattened unspined plates, and with chelipeds longer than P2. In *Oxypleurodon* with *O. stimpsoni* Miers as the type species, he placed *O. auritus* (Rathbun), *O. sphenocarcinoides* (Rathbun), *O. bipartitus* (Guinot and Richer de Forges), *O. mammatus* (Guinot and Richer de Forges) and *O. orbiculatus* (Guinot and Richer de Forges).

In contrast to the *Oxypleurodon* species, Tavares (1991) transferred those species with a rostrum of paired, well separated and spread out spines, with the carapace bearing tubercles, spines or flattened plates (or a combination of all three), and with chelipeds shorter than P2, to the already large and wide spread genus *Rochinia* A. Milne Edwards, 1875. These additional *Rochinia* species, transferred by Tavares, comprised *R. velutina* (Miers), *R. carbuncula* (Rathbun), *R. luzonica* (Rathbun), *R. nodosa* (Rathbun), *R. bidens* (Sakai), *R. corraliophila* (Takeda), *R. stuckiae* (Guinot and Richer de Forges) and the new *R. confusa* Tavares. Following Tavares's (1991) redistribution of the *Sphenocarcinus* species, Richer de Forges (1992: 5) recognised, in an addendum, that his new *Sphenocarcinus lowryi* Richer de Forges, 1992 from the Tasman Sea guyots "would be placed under *Rochinia*".

While accepting in general the need for the redistribution of the non-American, *Sphenocarcinus* species with clearly separated rostral spines, we do not consider that the relative lengths of the cheliped and P2 constitute a reliable generic character. Cheliped lengths vary, even within an individual species depending on the sex and size of the individual animal.

For the present we consider that *Sphenocarcinus*-like species with paired, clearly separated rostral spines, and flattened, unspined plates on the carapace should be placed in *Oxypleurodon*, whether their chelipeds are shorter or longer than their corresponding 2nd pereopods. Thus

we place our new *O. wanganella* from the southern Norfolk Ridge in *Oxypleurodon* even though both male and female have chelipeds shorter than P2, and consider its closest species to be *O. orbiculatus* with chelipeds in the type male longer than P2.

Distribution and Depth – Wanganella Bank on the southern Norfolk Ridge, coral and shell bottoms; depth range 316–487 m.

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