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6 College Street, Sydney NSW 2010, Australia



# CARCINOLOGICAL NOTES

No. 2.\*

By FRANK McNEILL.

Curator of Crustacea and Lower Invertebrates, The Australian Museum, Sydney.

(Plate vii.)

The contribution is an accumulated collection of observations on Decapoda from the western Pacific Ocean region, notably eastern Australia. Included are several interesting additions to the Australian fauna, arguments in support of the relegation of certain species to the synonymy of earlier established names, and notes on some newly acquired material which serve to ratify the presence in Australian waters of early recorded species.

In the illustrations of *Medaesus haswelli* and of the carapace of *Manella spinipes* are seen some interesting results of a photographic technique having great possibilities with subjects of small size. The originals of these were made by Mr. H. Hughes, A.R.P.S., of the Museum staff, with the aid of a 2½ inch focal length lens and critically arranged lighting.

## Family PALAEMONIDAE.

Genus *Anchistus* Borradaile.

*Anchistus gravieri* Kemp.

Kemp, Rec. Indian Mus., xxiv, II, 1922, 252, figs. 82-84.

The present pair of specimens appear to be the first seen since the species was described from a single example in the Paris Museum. Kemp was unable to name a host for his holotype, and it is doubly interesting to record here a normal and expected habitat for the genus. A critical comparison of the specimens with Kemp's description and figures shows the only slight difference to be an understandable variation in the total of spinules on the dorsum of the rostrum. The female and larger example of the pair (18.5 mm. between rostrum and telson) bears five spinules, but the male rostrum is as illustrated by Kemp.

The colour of the specimens when received (freshly preserved in formalin) was a light orange ground, with dark orange-red spots scattered over both body and limbs.

*Locality*.—Tarawa I., Gilbert Grp., Polynesia; from the mantle folds of a species of *Pinna*. Collected Dr. J. R. Catala of Noumea, New Caledonia.

Previously recorded from Vanikoro, Santa Cruz Is., Polynesia.

## Family PALINURIDAE.

Genus *Linuparus* Gray.

*Linuparus trigonus* (von Siebold).

*Palinurus trigonus*, de Haan, Siebold's Fauna Japonica, Crust. v, pt. v, 1841, 157, Pls. 39-40.

*Puerulus carinatus*, McNeill (*nec.* authors), Aust. Mus. Mag., ix, 10, 1949, 337, illustration.

*Linuparus trigonus*, Barnard, Ann. Sth. African Mus., xxxviii, 1950, 820 (refs.).

\*Carcinological Notes, No. 1, McNeill and Ward, 1930, REC. AUST. MUS., xvii, No. 9, p. 357.

A fine example of the species was received by the Australian Museum in Sept., 1948, and constitutes a notable addition to the Australian marine fauna. It has an overall length of 16 inches, and when fresh the colour markings were cream, pink and red, with the thick, short antennae a brighter red than elsewhere.

In a popular account (*tom. cit.*) the unfortunate error was made of recording the species under an incorrect name. Dr. Barnard was one of several who drew attention to this fact by letter. He has since, in his monograph (*tom. cit.*), mentioned the present record as "apparently the same species" as the above and makes mention of the misidentification. The specimen has now been critically checked and there is no doubt about its true identity.

*Locality.*—Off Botany Bay, N.S.Wales, 65 fathoms; from the net of a steam trawler. Presented Capt. T. H. Webb.

*Distribution.*—Japan; Portuguese East Africa; N.S.Wales, Australia.

#### Family PORCELLANIDAE.

Genus **Neopetrolisthes** Miyake.

**Neopetrolisthes ohshimai** Miyake.

Miyake, Zoological Mag., 49, 1 (Kyushu Imperial Univ., Fukuoka), 1937, 34, figs. 1-2.

When this unusual crab associate of a sea anemone was described, the author commented that he was unaware that any representative of the "group as commensal with other animals has ever been discovered in the Indo-Pacific region". It is doubted that a second record of the species has ever been published. In view of this the facts that can now be supplied should be of interest to carcinologists: the range of the species can be considerably extended and a noteworthy addition be made to the Australian fauna.

The receipt of a female example (carapace 12 mm. wide) collected from a "large violet *Stoichactys*" by Dr. J. R. Catala of Noumea, led to the present identification. It also facilitated the naming of another smaller female in the Australian Museum collection. Both examples agree perfectly with Miyake's description and figure of the female allotype.

*Localities.*—Makaluva, Fiji Is. (Dr. Catala); Hope I., North Queensland—collected late A. R. McCulloch ("commensal of *Discosoma*"). Previously known from "coral reef, Shika, Ishikaki-shima, Yæyama-Group, Riukiu Iss."

A further interesting discovery is that an old record of Saville-Kent's (1897)\*, dealing with a commensal crab (unnamed) from the Great Barrier Reef, Queensland, can now also be associated with the present species. The accompanying illustration shows the crab among the tentacles of the anemone, *Discosoma*. It is a reproduction from a photograph and dark shading is present over most of the crab's carapace and in patches over the upper surfaces of the hands and propodi of the chelipeds. This marking suggests a variation from the typical red spotting on a cream ground, but might be due to shadow. Despite it, however, and the impossibility of checking details of the finer characters, the record is considered safely applicable to the present species.

In 1923† reference was made to Saville-Kent's illustration by McCulloch and McNeill, when it was referred to as "an unidentified crab of the family Porcellanidae" to be found associated with the fish *Amphiprion percula*, and the shrimp "*Periclimenes (Ancylocaris) brevicarpalis*",‡ in the large anemone, *Discosoma*.

\*Naturalist in Australia, p. 220, Pl. 39.

†REC. AUST. MUSEUM, xiv, 1, p. 58.

‡Now *P. (Harpilius) brevicarpalis* (Schenkel).

## Family RANINIDAE.

Genus *Lyreidus* de Haan.***Lyreidus tridentatus*** de Haan.

*Lyreidus tridentatus* de Haan, Siebold's Fauna Japonica, Crust. v, 1841, 140, Pl. xxxv, fig. 6; Haswell, Cat. Aust. Crust., 1882, 144; Henderson Rept. "Challenger", Zool., xxvii, Anomura, 1888, 33; Whitelegge, Mem. Aust. Mus., iv, 2, 1900, 165; Sakai, Studies on Crabs of Japan, II Oxystomata (Sci. Rpts. Tokyo Bunrika Daigaku, Sectn. B, Suppl. 2), 1937, 169, Pl. xvi, fig. 5.

*Lyreidus australiensis* Ward, Aust. Zoologist, 7, 5, 1933, 377, Pl. xxiii, fig. 10; Sakai, *tom. cit.*, 1937, 168; Richardson and Krefft, Tuatara, ii, 2, (Journ. Biol. Soc. Vic. Univ. College, N. Zeal.), 1949, p. 69.

It seems necessary to introduce into Australian literature some notice of the discredited status of Ward's *L. australiensis*. Sakai (1937) in his monumental work on the Crabs of Japan deals with all known species of *Lyreidus*, and states that "the discriminations enumerated by Ward between *australiensis* and *tridentatus* are artificial, and I am quite at a loss how to discriminate these species". Richardson and Krefft (1949) were unaware of this opinion of Sakai's when they published their record of a unique female specimen from New Zealand waters under the name *L. australiensis*. They did, however, qualify this by stating that "the present specimen fits well with Haswell's description from Australian specimens, agrees with Bourne's figures\* of the venter and of various appendages, etc., of an Australian specimen, and other than in the hands, which are not as heavy, with the photograph of Ward's holotype male". Earlier, the present author had grave doubts as to the validity of *australiensis*, for there are so many species of the Decapoda common to both Japan and Australia. It was arranged with Sakai to send Japanese examples of *L. tridentatus* to the Australian Museum. A critical comparison of these with Ward's holotype male of *L. australiensis* in the Australian Museum collection fully supports the claim that the two species are identical.

## Family LEUCOSIDAE.

Genus *Nursia* Leach.***Nursia abbreviata*** Bell.

Bell, Trans. Linn. Soc., Zool., xxi, 1855, 303, Pl. xxxiv, fig. 5; Miers, Rep. Zool. "Alert", 1884, 253; Alcock, Journ. Asiat. Soc. Bengal, n.s., lxxv, ii, 2, 1896, 180, 184 (references); Ihle, Rés. explor. "Siboga" Expd., Monogr. xxxixb<sup>2</sup>, 1918, 235, 311.

Miers (1884) published the first Australian record of this species, based on specimens from Moreton Bay, Queensland, in the collection of the British Museum. Another specimen recently acquired by the Australian Museum from the same locality has drawn attention to the older record, and provides the means of verifying the occurrence. Furthermore, a check of the collection in the same institution has disclosed three additional specimens which considerably increase the range of the species along the eastern Australian coastline. The hub of distribution appears to be in the northern Indian Ocean. It is doubted whether there are any records in literature from intermediate localities between there and the eastern Australian waters.

*Localities*.—Manly, Moreton Bay, Queensland; mud, zosteria, etc. One female, 9 mm. wide. Coll. J. S. Hynd, 27 July, 1946.—Bowen Harbour, Port Denison, Queensland. One male, 7 mm. wide, from stomach of small whiting (fish). Coll. E. H. Rainford, 1925.—Port Jackson, New South Wales, 7 fathoms. One male, 9 mm. wide. Coll. F. E. Grant. Another female specimen, 13 mm. wide, from the same locality, has no other details than the date collected—11th June, 1902.

*Distribution*.—India; eastern Australia.

\*Journ. Linn. Soc., Zool., xxxv, No. 231, 1922.

## Family MAJIDAE.

Genus **Paramithrax** H.M.Edw.**Paramithrax latreillei** Miers.

*Paramithrax barbicornis* Miers, Ann.Mag.Nat.Hist. (4), xvii, 1876, p. 219 (*nec* *Pisa barbicornis* Latr., 1825); Miers, Cat.Crust.N.Zeal., 1876, 6, Pl. 1, fig. 2; Haswell, Cat.Aust.Crust., 1882, 13.

*Paramithrax latreillei*, Miers, Ann.Mag.Nat.Hist. (4), xvii, 1876, p. 220; Rathbun, Proc.U.S.Nat.Mus., xvi, 1893, 66 and 82 (refs. and synonymy).

A review of literature discloses that this species has, until now, not been recognized with certainty from the Australian region. Miers' somewhat confused early references under the name *P. barbicornis* (Latr.) give the impression that it was readily accessible and abundantly represented in Australia. Haswell in 1882 (*tom. cit.*) was very definite in doubting the occurrence when he stated that "no specimens of the New Zealand species referred to *P. barbicornis* by Mr. Miers are known with certainty to have been found in Australia". Subsequent evidence has proved that the species, now established as *P. latreillei*, has its principal habitat in New Zealand waters; it is one of the commonest of the six members of its genus found there and grows to a comparatively large size. Authentic Australian specimens have seemingly not been collected until the last couple of years. These serve to ratify the presence of *P. latreillei* in the Australian marine fauna after a lapse of nearly eighty years since it was first described.

While two of the three specimens in the Australian Museum collection are from New South Wales, the species is considered to occur more rarely along this eastern seaboard than it does in sheltered positions along the Victorian coast. During the course of a recent searching ecological study in Victoria my colleague, Miss E. Pope, listed it as fairly common in weed growths between tide marks at a number of localities.

*Localities*.—Shark Is., Port Jackson, N.S.Wales; under stones between tide marks. One female (carapace 27 mm. wide); collected R. Mackay—Moruya Heads, N.S.Wales. One male (carapace 14 mm. wide); collected Miss E. Pope—Walker-ville, Waratah Bay, Victoria; under stones between tide marks. One male (carapace 25 mm. wide); collected Miss E. Pope.

*Distribution*.—New Zealand, south-eastern Australia.

## Family CANCRIDAE.

Genus **Carcinides** Rathbun.**Carcinides maenas** (Linn.)

*Carcinus maenas*, Alcock, Journ.Asiat.Soc.Bengal, n.s., lxviii, ii, 1, 1899, 13 (references); Fulton and Grant, Victorian Naturalist, xvii, 8, 1900, 145.

*Carcinides maenas*, Rathbun, Bull.U.S.Fish.Comm., xxiii (for 1903), pt. iii, 1906, 867.

The unusual distribution of this common North Atlantic and Mediterranean species of shore crab has been enlarged upon by Alcock (*tom. cit.*). He records a penetration eastwards to the Red Sea and India, mentions a reported occurrence in the Hawaiian Is., central Pacific Ocean, and adds "Australia" as an additional but doubtful locality. Only a year later Fulton and Grant (*tom. cit.*) recorded the species as common in Port Phillip, Victoria, emphasizing that the occurrence was of comparatively recent origin and that the crab was probably introduced. They could have

claimed verification of Alcock's doubtful Australian record, but apparently were not aware of this. Since 1900, no further reference has appeared in Australian literature and it is therefore considered opportune to record some additional data.

In 1951 it was noted that the species is well established on the shores of the open coast in Victoria at a place nearly 400 miles north-eastward and northwards from Port Phillip. It is firmly believed that this increase in range has occurred since 1900. The specimens have been critically checked and there is no possibility of error in their identification.

*Locality*.—Coast near entrance to Mallacoota Inlet, Victoria. Two adult specimens taken from hiding places in rock crevices in the high littoral zone. Collected Miss E. Pope. From the number of additional examples observed it was obvious that the species was quite common.

Family PORTUNIDAE.

Genus *Aeneacancer* Ward.

*Aeneacancer mölleri* Ward.

(Plate vii, figs. 1, 2.)

Ward, Aust.Zoologist, vii, pt. v, 1935, 381, Pl. xxiii, fig. 11.

All the known material of this striking species has been secured by the one collector. Since it was described and figured a large number of excellently preserved specimens has been received by the Australian Museum, including one example which is the only known female. Opportunity has been taken of comparing the characters of the additional material with Ward's lengthy description of the male. Figures can now also be provided of (a) the female abdomen, and (b) a perfect male specimen, superior to the one published of the incomplete holotype which is lodged in the Australian Museum. An examination of the single female specimen shows that the general characters agree closely with those of the male except for the proportionately shorter chelipeds. The female abdomen is a little more than  $1\frac{1}{2}$  times longer than broad, while the length of the fifth segment is nearly twice that of the fourth.

The nearest relative of *A. mölleri* is *Ovalipes iridescens* (Miers)\* from 140 faths., near the Ki [Kei] Is., west of New Guinea. The body colour of the latter has the same highly iridescent sheen, but it lacks the pair of characteristic, semi-transparent, tympana-like areas present on the carapace of *A. mölleri*. It is a matter for regret that Ward has introduced another generic name into nomenclature. In every way his *Aeneacancer* has affinities with the well-established genus *Ovalipes*.

*Localities*.—Off Broken Bay, N.S.Wales, 120 faths.; 26 adult males and 1 ovig. female. About 20 mls. W. of Babel Is., Bass Strait, 80-85 faths.; 1 adult male. All the specimens were collected by Capt. K. Möller when in command of steam fish trawlers.

The damaged male holotype (Reg'd No. P.10623) was taken by the steam trawler "Durraween" S. of Montague I., N.S.Wales, in approximately 40 faths. A series referred to by Ward as from E. of Port Jackson, N.S.Wales, 110 faths., is, presumably, still in that author's possession.

Family XANTHIDAE.

Genus *Hypothalassia* Gistel.

*Acanthodes* de Haan, Siebold's Fauna Japonica, Crust. i, 1833, 20. Genotype, *Cancer (Acanthodes) armatus* de Haan, tom. cit., ii, 1835, 52.

\* Rpt. "Challenger", Zool., xvii, Pt. xlix, 1886, 202, Pl. xvii, figs. 2-2d.

It has apparently been proved by Gistel (Naturg. Thierreich hoh Schulen, 1848, p. viii) that this monotypic genus is preoccupied by *Acanthodes*, of Agassiz in Poiss. Foss., ii, 1, 1833, p. 19.

**Hypothalassia armatus** (de Haan).

*Cancer (Acanthodes) armatus* de Haan, Siebold's Fauna Japonica, Crust. ii, 1835, 52, Pl. B (part) and Pl. lv.

*Acanthodes armatus* Rathbun, Biol. Res. F.I.S. "Endeavour", v. 3, 1923, 128, Pls. xxxi-xxxii, fig. 1 and text-fig. 3 (references); Sakai, Studies on the Crabs of Japan, iv, 1939, 516, Pl. lxiii (references); McNeill, Aust. Mus. Mag., ix, 10, 1949, 338, illustr.

A large and striking male of this species (McNeill, 1949) was received in a fresh condition at the Australian Museum in 1943; it measures five inches across the widest part of the carapace. Splashes of bright red were distributed over a general ground colour of pale pink to cream; the bases of the numerous long spines were brown.

The occurrence constitutes a notable extension of range southward along the eastern Australian coast. Previously the only specimens from an Australian locality were those taken by the F.I.S. "Endeavour" off the southern coast in depths between 80-190 fathoms. In that case the route of distribution must have been along the western coast of the continent. There is ample evidence to support the belief that species of Decapoda from warm water regions are unable to cross the barrier of cold temperate water in Bass Strait and environs.

*Locality*.—10 miles east of Point Plummer, north of Hastings River, New South Wales, 65 fathoms; from a crayfish-pot. Collected by T. Radley, fisherman.

*Distribution*.—Japan; Great Australian Bight, South Australia; N.S.Wales.

Genus **Lydia** Gistel.

**Lydia annulipes** (H.M.Edw.).

*Ozius, Euruppellia annulipes* Alcock, Journ. Asiat. Soc. Beng., n.s., lxvii, ii, 1, 1898, 188 (references and synonymy).

*Euruppellia annulipes* Miers, Rep. Zool. "Alert", 1884, 533 (refs.).

*Lydia annulipes* Rathbun, Bull. U.S. Fish. Comm., xxiii (for 1903), pt. iii, 1906, 862; Sakai, Studies on the Crabs of Japan, iv, 1939, 521, 719, Pl. lxiv, fig. 3 (refs.).

No Australian record of this unmistakable and widely distributed Oriental species has previously been published. The nearest locality is Woodlark I., Louisiade Archip., S.E. New Guinea, given by Haswell in 1882 (Cat. Aust. Crust., p. 73).

*Locality*.—Brampton I., near Mackay, Queensland; shoreline, among oyster growths. Two adult specimens, male and female. Coll. A. Keast.

*Distribution*.—Northern Indian Ocean; East, South-west, Central and South Pacific Ocean.

Genus **Medaeus** Dana.

**Medaeus haswelli** Miers.

(Plate vii, figs. 3, 4.)

Miers, Report "Challenger", Zool., xvii, pt. xlix, 1886, 117, Pl. xi, figs. 2-2c.

This small species was described from three incomplete specimens (two males and one female—largest with carapace 8.5 mm. wide) secured off Twofold Bay, New South Wales, in 150 fathoms. The present record verifies the occurrence in the area

after a lapse of more than sixty-five years, and is the first mention of the species in Australian carcinological literature. One example, an ovigerous female, is proof of an adult state; on this point Miers expressed some uncertainty. Except for two missing ambulatory limbs in one specimen, the newly found material is perfect; it has been critically compared with the original description and figures. The only comment that should be made is that the granulation of the large cheliped is more prominent than shown by Miers and covers the whole surface of the palm (see figure).

*Localities.*—About 7 miles off Twofold Bay, N.S.Wales, 45 fathoms; Oct., 1929; one female with carapace 9 mm. wide. W.S.W. from Gabo I., N.S.Wales, 70 fathoms; Dec., 1929; one female (ovig.) with carapace 8.5 mm. wide.

Both specimens collected by Capt. K. Möller, steam trawler "Durraween".

*Distribution.*—South-eastern Australia.

#### Family GRAPSIDAE.

Genus **Plagusia** Latr.

**Plagusia dentipes** de Haan.

*Grapsus (Plagusia) dentipes* de Haan, Siebold's Fauna Japonica, Crust., pt. ii, 1835, 58, Pl. viii, fig. 1.

*Plagusia dentipes* Grant and McCulloch, Proc. Linn. Soc. N.S.Wales, xxxii, 1, 1907, 153; Rathbun, in Stimpson, Smith. Misc. Colls., xlix (No. 1717), 1907, 122 (posthumous work); Sakai, Studies on the Crabs of Japan, iv, 1939, 702, 732, Pl. lxxix, fig. 3 (references). Sakai, Studies on the Crabs of Japan, iv, 1939, 702, 732, Pl. lxxix, fig. 3 (references).

Based on Japan, this species apparently has a wide range southwards. It has been noted as common at Norfolk and Lord Howe Islands by Grant and McCulloch. A number of specimens from these localities is in the Australian Museum collection, but until now there has been no record of the species from the Australian mainland. The present newly recorded material has been critically checked with de Haan's excellent figure and constitutes an addition to the Australian marine fauna.

*Localities.*—Brennan Shoals, off Cape Moreton, south Queensland; clinging to growths on a light buoy. Two adults, coll. by S. Hynd, 18.12.46—Caloundra, south Queensland. Two juvs. (one small) and one megalop stage, coll. by A. A. Livingstone, 12.8.22—Point Cartwright, south Queensland. One adult and one small juv., coll. by A. A. Livingstone, 2.8.22.

*Distribution.*—Japan; Formosa; Easter I., eastern Pacific; Norfolk and Lord Howe Islands, south Pacific; eastern Australia.

#### Family PALICIDAE.

Genus **Manella** Rathbun.

**Manella spinipes** (de Man).

(Plate vii; figs. 5, 6.)

*Pleurophricus spinipes* de Man, Archiv fur Naturg., liii, 1, 1887, 344, Pl. xv, fig. 1.

*Manella spinipes* Rathbun, Bull. U.S. Fish. Comm., xxiii (for 1903), pt. iii, 1906, 837, Pl. vii, fig. 6 and text-fig. 3; Sakai, Studies on the Crabs of Japan, iv, 1939, 610, Pl. ciii, fig. 3.

*Manella brevimana* Ward, Aust. Zoologist, vii, v, 1933, 387, Pl. xxi, figs. 7-8.



*Synonymy.*—Sakai's work (1939) has an excellently reproduced photograph of the first recorded Japanese specimen of this species. It was this that confirmed the present decision reluctantly to place Ward's species, *M. brevimana* in the synonymy of *M. spinipes*. The male holotype of *M. brevimana* is from Queensland and is in the Australian Museum collection (Regd. No. P. 10636). Its accessibility has also enabled a critical comparison with de Man's description and figure (1887) of his holotype from Amboina, and with Rathbun's well reproduced photograph of an Hawaiian specimen (1906); Ward's figure is a very sketchy representation of his holotype. It is obvious that *M. spinipes* has a very wide range in the Pacific Ocean, and in a species with such abundant spinulation a certain minor variation can be expected. Furthermore, it is more than reasonable to expect that a species occurring in Amboina would range as far south as the Queensland coast; many eastern Australian species of Decapoda have a distribution which extends far beyond the East Indian region into the more distant Indian Ocean.

In a tabulated list of the characters of known species of *Manella*, Ward made an attempt to separate his *brevimana* from *spinipes*, but the differences recorded are neither convincing nor substantial.

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EXPLANATION OF PLATE vii.

*Aeneacancer mōlleri* Ward.

- 1.—Adult male; carapace 93 mm. wide. *Locality.*—Off Broken Bay, N.S.Wales, 120 fathoms.
- 2.—Abdomen (34 mm. long) of ovig. female; carapace 68 mm. wide. Same locality as adult male.

*Medaeus haswelli* Miers.

- 3.—Ovig. female; carapace 8.5 mm. wide. *Locality.*—W.S.W. from Gabo I., N.S.Wales, 70 fathoms.
- 4.—Chelipeds of same specimen.

*Manella spinipes* (de Man).

- 5.—Male holotype of *M. brevimana* Ward; carapace 17 mm. wide.
- 6.—Carapace of same.

