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NOTES ON A FEW AUSTRALIAN EDRIOPHTHALMATA.

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[Plates XLVI. and XLVII.]

This short paper contains some notes on a few species of Australian Edriophthalmata, collected early in January of this year. Two species are from Coogee Bay, the others were taken from seaweed, &c., growing on the rocks exposed at low tide near the point known as Lady Macquarie's Chair, in Sydney harbour. I also append references to some remarks already published on a few Australian species that I have also taken in New Zealand.

ALLORCHESTES GRASSICORNIS. Haswell.

[Plate XLVI., fig. 1.]

Cat. Aust. Crust., p. 223 ; Proc. Linn. Soc., N. S. Wales, IV., p. 252, Pl. VII., fig. 5.

One male and several female specimens were taken on stones in rock-pools at Coogee Bay, in company with *Philougrina marina*. The male agrees fairly well with Mr. Haswell's description, but the inferior antennæ are not "very stout;" the superior antennæ slightly exceed in length the peduncle of the lower, thus agreeing with Mr. Haswell's figure; in the description he says "superior antennæ exceeding in length the first and second segments of the peduncle of the inferior pair," which must be a mistake since the first three segments of the peduncle of the inferior antennæ are very short in almost all the Amphipoda.

The female of this species does not appear to have been yet described; it differs from the male chiefly in the form of the second pair of gnathopoda. The first pair of gnathopoda

resemble those of the male ; the meros is produced inferiorly into a small rounded prominence, which presents a peculiar striated appearance apparently due to rows of very short setæ ; the carpus is sub-triangular, much longer than the propodos, the inferior margin is striated like the prominence on the meros, and bears an oblique row of stout setæ ; propodos oblong, slightly wider at distal end ; postero-distal angle rounded and striated ; numerous small setæ scattered about on the inferior margin, and a few also at the base of the dactylos ; palm not defined. (See fig. 1, b.) Posterior gnathopoda only slightly larger than the anterior ; meros similar to that of preceding gnathopod, but with striated prominence larger, carpus sub-triangular, slightly longer than propodos, bulging out inferiorly and having the integument of this portion striated, a small tuft of three or four setæ near distal end ; propodos long ovate narrower at base, infero-distal angle rounded and produced beyond the extremity of the very short dactylos ; inferior portion striated and marked off from the rest by a row of very small setæ ; a few setæ at base of dactylos.

I propose to give this variety the name of *Coogeensis*.

ALLORCHESTES RUPICOLA. Haswell.

Cat. Aust. Crust., p. 222 ; Proc. Linn. Soc., N. S. Wales, IV., p. 250, Pl. VIII., fig. 1.

Several specimens from rock-pools about high-water mark, Sydney Harbour, agreeing closely with Mr. Haswell's description:

~~GLYCERINA AFFINIS, N. sp.~~

[Plate XLVII., fig. 1, a, b.]

I have two specimens from Sydney Harbour, of what seems to be a new species of *Glycerina*.

This species closely resembles *G. tenuicornis*, Haswell, in general shape, but differs in the gnathopoda.

In the smaller of my two specimens the first gnathopod has the same general form as that found in *Lysianassa*, but is much slenderer, though scarcely "filiform." The propodos is longer than the carpus and narrows considerably towards the distal end ; it bears along nearly the whole of its inferior edge a single row of

very short setæ, a few longer ones are scattered over the propodos, carpus and meros, the greater number being found on the carpus. Posterior gnathopoda very long and slender, propodos not so long as carpus, sub-quadrate, nearly three times as long as broad, palm not defined. Both the carpus and propodos bear on their inferior margins, besides a few long setæ of the ordinary kind, a number of densely packed fine straight hairs, similar to those found on the second gnathopoda of some species of *Lysianassa*.

ATYLUS MEGALOPHTHALMUS. Haswell.

Cat. Aust. Crust., p. 244 ; Proc. Linn. Soc., N. S. Wales, IV., p. 102, Pl. VI., fig. 4.

Numerous specimens from Sydney Harbour. The cephalon is produced between the upper antennæ into a short rostrum about three-fourths as long as the first joint of the peduncle ; depth towards the distal end, where it is greatest, about one-third the length, extremity rounded. The telson, which has not yet been described, is oblong, broadest proximally where it is almost as broad as long ; postero-lateral angles rounded ; cleft for about half its length. It is somewhat curved so that if seen from above without being compressed it may appear narrower than it really is.

ATYLUS LIPPUS. Haswell.

Cat. Aust. Crust., p. 243 ; Proc. Linn. Soc., N. S. Wales, IV., p. 328, Pl. XX., fig. 1.

Three specimens from Sydney Harbour, taken in company with the preceding species. The antennæ agree closely with the description given in the catalogue, but the eyes appear quite regular, and the telson is rather oblong than triangular, differing from that of the preceding species only in being somewhat narrower.

MÆRA FESTIVA. N. sp.

[See plate XLVI., fig. 2, a. b. c.]

I obtained in Sydney Harbour several specimens of a species of *Mæra* which seems to be new.

The following is a description of my specimens :—

Male.—Superior antennæ about as long as the cephalon and pereion, second segment of the peduncle as long as the first but

narrower, third half as long as the second, flagellum considerably longer than the peduncle, secondary appendage of four articuli. Lower antennæ longer than peduncle of upper, flagellum longer than last joint of peduncle.

Anterior gnathopoda small, meros thickly covered on inferior edge with very furry setæ, carpus considerably longer than propodos, inferior edge bordered with many long setæ arranged in short transverse rows, many of the shorter setæ serrated, small tufts of setæ along the centre of the joint and at antero-distal corner a row of stout serrated setæ, the integument near the base of these being thickly covered with short furry setæ similar to those on meros; propodos nearly quadrangular, about twice as long as broad, narrower at base than at distal end, long setæ at base of the dactylos and a few in small scattered tufts over the joint; palm almost transverse, bordered towards the end by 4-5 short serrated setæ like those at end of carpus.

Second gnathopoda large, right and left equal in size, meros produced infero-distally into a short pointed process; carpus subtriangular, short; propodos about four times as long as carpus, quadrangular, greatest breadth about half the length, upper and lower borders nearly straight; palm slightly oblique, defined by a short acute tooth and having a blunt prominence in the centre, bordered with a few stout setæ, whole propodos thickly covered with transverse rows of long fine hairs, chiefly at upper and lower margins but with some also in the centre; carpus having two similar rows on anterior margin and 4-5 densely packed transverse rows of short stouter serrated setæ on posterior margin, two rows of long setæ in centre at base of propodos. Dactylos very short and blunt, truncate at end.

Female.—Differs from the above in having the second gnathopoda much smaller, right and left being equal in size as in the male; carpus three-fourths as long as propodos, subtriangular, thickly covered with transverse rows of setæ on anterior and posterior margins and on centre; propodos ovate, palm oblique, not defined, transverse rows of setæ on both margins; dactylos long, acutely pointed. The first pair of gnathopoda is precisely the same as that of the male.

In all my specimens the terminal pleopoda have been broken off, hence they were probably of large size. In their absence it is impossible to say whether this species is a *Mæra* or a *Melita*.

MÆRA SUB-CARINATA.

MEGAMÆRA SUB-CARINATA. Haswell.

Cat. Aust. Crust., p. 260 ; Proc. Linn. Soc., N. S. Wales, IV., p. 335, Pl. XXI., fig. 4.

MÆRA PETRIEI. G. M. Thompson.

Trans. N. Z. Inst., XIV., p. 236.

Among algæ in Sydney Harbour I took at low water several specimens which on examination proved to be without doubt the same as *Mæra petriei* Thomson, a species fairly common in Lyttelton Harbour, and after a careful comparison of the two descriptions, I have no doubt that this species is the same as *Megamæra sub-carinata*, Haswell. I am by no means sure of the generic importance of the differences separating *Megamæra* from *Mæra*, and therefore prefer to place the species under *Mæra* as Mr. Thompson has done.

The only point in which the two descriptions really differ is with regard to the length of the superior antennæ. That of *Mæra petriei* is "as long as the body" while that of *Megamæra sub-carinata* is "nearly as long as the cephalon and pereion;" the length of the superior antenna however, varies in this species as in many others of the Amphipoda.

I have both male and female specimens from Sydney, the females agreeing with the description given by myself in Transactions N. Z. Institute, XV., p. 82. Curiously enough the males agree with those described by Mr. Thomson and differ from my Lyttelton specimens in having the "whole lower surface (of the propodos of the posterior gnathopoda) very densely fringed with two rows of long simple hairs." These hairs which are of the same size throughout their whole length and thus differ from the ordinary setæ found in this genus are quite absent in the Lyttelton specimens. An interesting question thus arises, but must for the present remain unanswered—what is the function of these hairs and why should specimens from Sydney and Stewart Island have them while those from Lyttelton have not?

AMPHITHOE SETOSA. Haswell.

Cat. Aust. Crust., p. 268 ; Proc. Linn. Soc., N. S. Wales, IV., p. 270.

A few specimens from Sydney Harbour. One, probably a male specimen, agrees very closely with the description given; the others, presumably females, differ in having the second gnathopoda only as large as the first pair, which they closely resemble except that the carpus is shorter, and they do not bear the long slender hairs found in the male. Both male and female specimens have a very short secondary appendage on the upper antenna.

MICRODEUTEROPUS (1) MORTONI. Haswell.

Cat. Aust. Crust., p. 264 ; Proc. Linn. Soc., N. S. Wales, IV., p. 339, Pl. XXII., fig. 2.

I have a few specimens of this species from Sydney Harbour. In his description of the anterior gnathopoda Mr. Haswell makes no mention of the long hairs on the various joints. They are, I think, of sufficient importance to be given in the specific description, and so far as my experience goes the general arrangement of them is remarkably constant both in *Microdeuteropus* and many other genera. In this species in the anterior gnathopoda the basos has its anterior margin bordered with a fringe of long hairs, there is a tuft at the antero-distal corner of the ischios, the meros which is slightly hollowed anteriorly for the reception of the carpus has both sides, except towards the end, fringed with long hairs arranged more or less regularly in tufts, the carpus has then on the anterior margin, the propodos on both margins and the dactylos three or four tufts of them on its concave border. The hairs on the basos, ischios, meros and carpus are very delicate and sparsely plumose towards the distal ends only, those on the propodos and dactylos appear to be simple.

MICRODEUTEROPUS TENUIPES. Haswell.

Cat. Aust. Crust., p. 264 ; Proc. Linn. Soc., N. S. Wales, IV., p. 339, Pl. XXII., fig. 1.

(1). The Rev. T. R. R. Stebbing tells me by letter that "there seems to be a disposition to write *Microdeuteropus* instead of *Microdeutopus* on philological grounds, regarding the latter as merely a casual mis-spelling."

Along with the preceding species I took a few specimens which I refer without hesitation to *M. tenuipes*. One of my specimens was a mature female, and from its close resemblance to *M. Mortoni* in everything but the anterior gnathopoda, I very much suspect that they are only male and female of the same species. We have a similar case among New Zealand Amphipoda where *M. maculatus*, Thomson, which is certainly a female form, has for male either the form with large anterior gnathopoda which I have described (Transactions New Zealand Institute, Vol. XIV., p. 173), or *Aora typica*. (See Thomson's Trans. N.Z. Inst., Vol. XIII., p. 218.) All three forms are found in Lyttelton Harbour, and though *M. maculatus* ♂, Chilton, and *Aora typica* very closely resemble one another in other respects they differ constantly in the form of the anterior gnathopoda and in the arrangement of the long hairs thereon. Under these circumstances it is a little puzzling to know whether we are dealing with two species of which the males are distinct, but the females almost or quite alike, or with one species having two forms of the males. Until further evidence is forthcoming I prefer to consider the species as distinct. I have a similar instance with *Parancenia*. For two of the three species, viz., *P. typica* (1), and *P. dentifera* I know only one form of the female, and for the third species *P. longimanus* I have a female form which very closely resembles the female described for *P. typica*, but appears to differ from it in a few small points (2). I have also another instance of the same kind in two undescribed species of *Lysianassa* from Lyttelton Harbour in which the females are almost but not quite identical, but the males considerably different.

If *Microdeuteroopus tenuipes* is really the female of *M. Mortoni*, it will be another example of the same thing, for it is almost if not quite identical with *M. maculatus* ♀ Thomson, while *M. Mortoni* closely resembles both *M. maculatus* ♂ Chilton and *Aora typica* in everything except the first gnathopoda.

(1). Possibly *P. typica*, Chilton, is the same as *Mæra approximans*, Haswell, a species which I had originally overlooked, but neither the figure nor description is sufficiently detailed to warrant me in actually combining the two species without further evidence.

(2). See "Transactions N.Z. Institute, Vol. XVI., p. 258."

From what has been already said it will be seen that the genera *Aora* and *Microdeuteropus* will have to be combined, I leave this however to be done by some one who may hereafter attempt a re-arrangement of the Amphipoda on a larger scale.

PROTELLA AUSTRALIS. Haswell.

Cat. Aust. Crust., p. 311 ; Proc. Linn. Soc., N. S. Wales, IV., p. 276, Pl. XII., fig. 4.

A single specimen from Sydney Harbour. According to Haswell the form of the posterior gnathopoda varies ; in my specimen the palm has only one tooth, viz., the defining one at the proximal end. The antennæ are scarcely so long relatively to the length of the body as given in the description, the upper one has the flagellum nearly as long as the peduncle and the lower one is slightly longer than the peduncle of upper ; the specimen, however, appears to be a young one and the relative lengths of the antennæ and of the different joints appears to vary considerably at the different stages of growth in these animals.

PHILOUGRIA MARINA. ~~S.~~ Chilton.

I have already described this species, which was taken at Coogee Bay, in a paper communicated to the Linnean Society, N. S. W., on June 25th, 1884.

PARATANAIS IGNOTUS. N. sp.

[Plate XLVII., fig. 2 ; XLVI., fig. 3.]

Cephalon narrowing anteriorly, slightly pointed between the bases of the upper antennæ which are closely approximated. Antennæ short, inner pair stout, the basal segment about three times as long as the second, third smaller and more slender than the second, succeeded at the end by a minute joint which bears a small tuft of long setæ. Outer antennæ nearly as long as the inner, but moreslender, first three joints of the peduncle short ; the second bearing at distal end two stout spines one above and one below, the third bearing a stout spine on upper surface at distal end, last joint smaller than the penultimate, which is as long as the two preceding taken together, and having at the end a small tuft of long setæ. First gnathopoda stout, propodos curved, dactylos with

inner margin smooth, fixed finger with a slightly convex inner margin furnished with a few strong hairs and two or three rounded projections. Second thoracic leg long and slender, ischios very short, dactylos very slender, slightly longer than the propodos. Third and fourth thoracic legs similar, stouter than the second, basos long and stout, ischios very short, meros and carpus equal in length and stouter but shorter than the propodos, the last three joints bearing stout spines at their distal ends, inner margin of dactylos smooth. Fifth, sixth and seventh thoracic legs similar to one another and differing slightly from the third and fourth, basos very stout, greatest width half its length, meros and carpus subequal shorter and stouter than the propodos, all three bearing at distal ends stout slightly curved spines, those on propodos at base of dactylos are serrated and are more numerous in the seventh thoracic leg than in preceding, dactylos curved, slender, inner margin *smooth*. Extremity of abdomen truncate but having in centre a small triangular, apparently membranaceous projection which bears two short setæ. Caudal appendages short, inner branch with 5-7 joints, outer very short, one-jointed.

This species appears to resemble *Paratanias tenuis*, G. M. Thomson somewhat closely, but I have only one very small specimen of this latter species and I do not feel inclined to base any very positive assertion on the resemblance of the descriptions alone. It is very closely related to *P. tenuicornis*, Haswell, but differs in the presence of the spines on the under surface of the peduncle of the lower antennæ and other minor points.

The following five species I have also taken in New Zealand :—

PROBOLIUM (1) MIERSII.

MONTAGUA MIERSII. Haswell.

Cat. Aust. Crust., p. 226.

Specimens doubtfully referred to this species have been taken at Timaru and at Lyttelton. See Transactions New Zealand Institute, Vol. XV., p. 72.

(1). The Rev. T. R. R. Stebbing informs me that the genus *Montagua* has given place to *Probolium*, Costa. See also Bate's and Westwood's British Sessile-eyed Crustacea. (Appendix), Vol. II., p. 527.

HARMONIA CRASSIPES. Haswell.

Cat. Aust. Crust., p. 251.

Found at Timaru and Lyttelton. Female described. See Trans. N.Z. Institute, Vol. XV., p. 82.

MÆRA SPINOSA. Haswell.

Cat. Aust. Crust., p. 257.

Taken at Auckland. Female described. See Trans. N.Z. Inst., Vol. XV., p. 81.

PARANÆNIA DENTIFERA.

MÆRA DENTIFERA. Haswell.

Cat. Aust. Crust., p. 256.

Taken at Lyttelton and placed in new genus. See Trans. N.Z. Inst., Vol. XVI., p. 360.

PODOCERUS LONGIMANUS.

WYVILLEA LONGIMANUS. Haswell.

Cat. Aust. Crust., p. 261.

Taken at Lyttelton and identified with *Podocerus cylindricus*. Kirk (not Say.), and replaced in *Podocerus*. See Trans. N.Z. Inst., Vol. XVI., p. 253.

DESCRIPTION OF PLATE XLVI.

- Fig. 1.—*Allorchestes crassicornis*. Var. *Coogeensis* ♀.
 b. First gnathopod, x45; a second gnathopod, x45 of female.
- Fig. 2.—*Mæra festiva*. N. sp.
 a. First gnathopod of male, x83.
 b. Second gnathopod of male, x22½.
 c. Second gnathopod of female, x45.
- Fig. 3.—*Paratanais ignotus*. N. sp.
 a. Antennæ, side view, x104.
 b. Second thoracites, x58.

DESCRIPTION OF PLATE XLVII.

- Fig. 1.—*Glycerina affinis* sp. nov. (details)
 a. Anterior gnathopod, x 58
 b. Posterior gnathopod, x 58.
- Fig. 2.—~~*Paratanais tenuicornis* Haswell. (? or *P. ignotus*, sp. nov.)~~
 (details)
 a. Third thoracic leg, x 90
 b. Sixth thoracic leg, x 90
 c. Terminal pleopodo (uropoda), x 90.



