

in which the male tends to differ from the female in the dilatation of the meral and carpal joints of the fifth pereopod, but in it, as to a less extent in *O. chiliensis* also; the same tendency is seen in the fourth pereopod as well. *O. miranda* differs from *O. chiliensis* in the much greater expansion of the joints of the last two pereopoda, and also in the second gnathopod, which has the palm less oblique and without the large obtuse tooth near the finger-hinge characteristic of *O. chiliensis*. It must be remembered, however, that all the examples of *O. miranda* at present known come from a single restricted locality; if it is found to be more widespread an examination of specimens from other localities will probably show that the distinctions drawn above between it and *O. chiliensis* will not invariably hold.

ART. XXXIV.—*Some Australian and New Zealand Gammaridae.*

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[Read before the Philosophical Institute of Canterbury, 3rd November, 1915.]

THE following paper deals with a few species of *Gammaridae* found in Australian and New Zealand seas. Nearly all of them are widely distributed, and show considerable local variation. Hence the delimitation of the species and of their varieties is difficult, and will call for much more investigation than can be devoted to the subject at the present time.

Three of the species are now recorded from New Zealand for the first time.

Melita festiva (Chilton). Figs. 1 and 2.

Moera festiva Chilton, 1884, p. 1037, pl. 46, fig. 2; Stebbing, 1910a, p. 642. *Moera rubromaculata* Haswell (part), 1885, p. 105. *Ceradocus rubromaculatus* Della Valle (part), 1893, p. 720; Stebbing (part), 1906, pp. 430 and 732.

Specific Diagnosis.

Male.—Peraeon smooth. Pleon with fourth segment produced dorsally into a single tooth, fifth segment into 2 small teeth with 1 or 2 setae. Third pleon segment with postero-lateral angle produced, acute, lower margin bearing 2 setae anteriorly and being indistinctly serrate posteriorly.

First gnathopod small, merus bearing posteriorly short furry setae as well as some long hairs; carpus slightly longer than propod, bearing a distinct row of long setae and some furry setae near antero-distal angle and many long setae arranged in short transverse rows on the posterior margin and on the inner surface; propod somewhat narrowed at the base; palm short, nearly transverse, hardly defined, tufts of long setae on posterior margin and along the palm, smaller tufts on the anterior margin and at base of finger; finger curved, acute, fitting closely on to palm

when closed. Second gnathopod having merus produced distally into a sharp tooth with a small tuft of setae near the apex; carpus short, triangular, cup-like, its posterior margin bearing many transverse rows of long setae; propod very large, longer than the whole of rest of limb, oblong, margins parallel, posterior margin with about 10 small tufts of long setae, similar tufts or short transverse rows sometimes present on anterior margin and inner surface; palm nearly transverse, well defined, and usually with 2 irregular teeth, the larger flat-topped; finger arising from near the centre of distal end of propod, very short and stout, not longer than palm, its end roundly truncate.

In other respects showing the characters usual in *Melita*

Female.—First gnathopod similar to that of male. Second gnathopod much smaller than in the male, the carpus longer than in male and fully half as long as the propod, propod oblong but with palm oblique and not very clearly defined, irregularly toothed; finger of normal shape, long and acute.

Colour.—Pale brown, with tints of green.

Locality.—Sydney Harbour, New South Wales; and Auckland Harbour, New Zealand.

Remarks.—In 1884 I (1884, p. 1037) described under the name *Moera festiva* an Amphipod of which I had collected a few specimens in Sydney

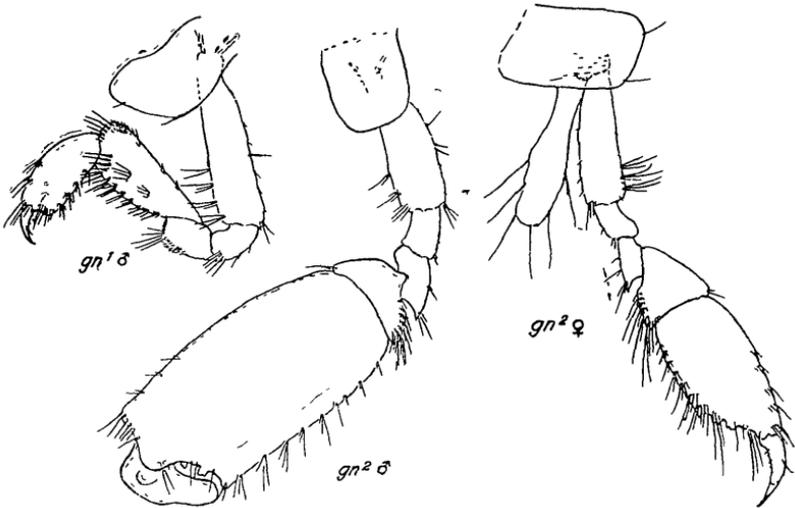


FIG. 1.—*Melita festiva*. $gn^1 \sigma$, first gnathopod of male; $gn^2 \sigma$, second gnathopod of male; $gn^2 \varphi$, second gnathopod of female

Harbour The species was distinguished especially by the very short and peculiar truncate finger of the second gnathopods of the male. The antenna and gnathopoda of both male and female were described in some detail, and I stated that in all my specimens the "terminal pleopoda"—i.e., the third uropods—had been lost, and they were therefore probably of large size, but that in their absence it was impossible to decide whether the species should be placed under *Maera* or *Melita*. In the next year Professor Haswell (1885, p. 105), in revising the Australian *Amphipoda*, united *Moera spinosa* Haswell and *M. ramsayi* Haswell with *Moera rubromaculata*

Stimpson, which he described as a species with varying forms of the second gnathopods. He added, "*Moera festiva* Chilton also belongs to this very variable species." In *M. rubromaculata* the third uropoda are large, with both rami equally developed, so that in this character the species agrees with the generic characters of *Maera* and differs from *Melita*. The dactyl of the second gnathopod of the male of *Moera festiva* differed so much from those of the other forms referred by Haswell to *M. rubromaculata* that I felt very doubtful of the correctness of referring *M. festiva* also to this species, but at that time I had no further specimens or other means of definitely settling the question.

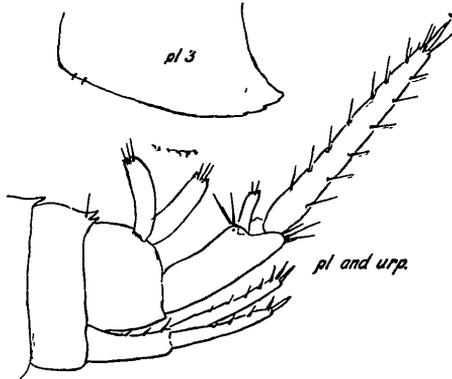


FIG. 2.—*Melita festiva*. pl. 3, lower portion of third segment of pleon; pl. and urp, terminal portion of pleon, with uropoda.

In 1893 Della Valle (1893, p. 720) placed *Moera rubromaculata* Stimpson under the genus *Ceradocus* A. Costa, and so did Stebbing in 1899. Accordingly in "Das Tierreich Amphipoda," Stebbing (1906, p. 430) gave the species as *Ceradocus rubromaculatus* (Stimpson), and followed Haswell in considering *Moera ramsayi* Haswell, *M. spinosa* Haswell, and *M. festiva* Chilton as synonyms. More recently, however (1910A, p. 643), he says, "The position of all three should rather be regarded as still doubtful. *M. festiva* shows agreement with Haswell's *M. hamigera*."

Meanwhile Mr. Walker (1904, p. 276) had described from Ceylon an Amphipod which he named *Elasmopus dubius*, and had drawn attention to the resemblance between the second gnathopod of his species and that of *M. festiva*, saying, "This species is certainly very near *Moera festiva* Chilton." As, however, the description of that species differed somewhat from his specimens, he thought it better to consider them as distinct, adding, "It is unfortunate that in both cases the third uropods, so important in this family, should be wanting." The loss of these appendages in *Elasmopus dubius* raises some doubt as to the correctness of the genus to which the species was assigned by Walker, as in my experience the third uropods in *Elasmopus* are usually not much longer than the first and second, and are not so readily lost as in species of *Maera* and *Melita*.

Recently I have been going over and naming an extensive collection of Crustacea gathered by Mr. W. R. B. Oliver, and in one small tube of specimens collected under stones on Rangitoto Reef, Auckland Harbour, I found three species of Gammarids—viz., *Ceradocus rubromaculatus* (Stimpson), *Maera viridis* Haswell, and another that is without doubt the same

as *M. festiva* Chilton. Of this species there were only two specimens, a male and a female, but fortunately the male still bears one of the third uropods, and this has the inner branch quite short and the outer one long, thus showing the form typical of the genus *Melita*; in other points also the species agrees well with the characters of *Melita*, and must be placed in that genus. It is therefore quite different from *Ceradocus rubromaculatus* (Stimpson). The peculiar structure of the second gnathopod is quite consistent with *Melita*, for in that genus the second gnathopod in the male is usually large, and differs greatly from that of the female, assuming in several species, very peculiar and even bizarre forms, as, for example, in *Melita fresnelvi* Aud.

My Auckland specimens of *M. festiva* differ slightly from the Sydney specimens which have the appendages, and especially the second gnathopod, more setose; the resemblance in other respects, however, is so great that I have no hesitation in considering them as the same species. In another Amphipod, *Elasmopus subcarinatus* (Haswell), I have noted that some of the Australian specimens are more setose than the New Zealand ones.

Maera hamigera Haswell, with which, as Stebbing has pointed out, *M. festiva* shows some agreement, has the rami of the third uropods long and equal, and is a true *Maera*, and therefore quite distinct. Moreover, although the second gnathopods show considerable resemblance to those of *M. festiva*, they differ in being unequal, and in the larger one the finger, though short, has not the peculiar truncate end that it has in *M. festiva*. *Maera hamigera* has been recorded by Walker (1909, p. 335) from Suez and from Khor Dongola; and both he and Stebbing, who examined specimens from the "Thetis" Expedition (1910A, p. 600), have added to and amended the original description given by Haswell.

In the absence of any knowledge of its third uropods it is impossible to come to any conclusion as to the position of *Elasmopus dubius* Walker. The second gnathopods appear to show as much resemblance to the larger one of *M. hamigera* as to those of *M. festiva*, but in the absence of any note to the contrary it is to be presumed that those of the right and left sides are equal.

Maera viridis Haswell. Figs. 3 and 4.

Maera viridis Haswell, 1879, p. 333, pl. 21, fig. 1. *Maera incerta* Chilton, 1883, p. 83, pl. 3, fig. 3. *Elasmopus viridis* Stebbing, 1906, p. 445, and 1910A, p. 643; Chevreux, 1908, p. 482; Chilton, 1912, p. 131.

The species *Maera viridis* was described in 1879 by Professor W. A. Haswell from specimens collected at Clark Island, Port Jackson. He added to his description by pointing out the differences between this species and *M. truncatipes* (Spinola), *M. quadrmanus* Dana, and *M. ramsayi* Haswell.

In 1883 I described from specimens obtained at Lyttelton Harbour a species *Maera incerta*, pointing out that it closely resembled *M. viridis* Haswell and the other species mentioned by Haswell, but differed from all in the form of the second pair of gnathopods, in this respect closely resembling *M. blanchardi* Spence Bate.

Both the species *M. viridis* and *M. incerta* were included with others under *M. truncatipes* by Della Valle in 1893.

In 1899 Mr. Stebbing transferred *M. viridis* to the genus *Elasmopus*, and this view was also taken in his "Das Tierreich Amphipoda," published in 1906, where *M. incerta* is ranked as a synonym of *Elasmopus viridis*.

In 1908 Chevreux recorded the species under the name *Elasmopus viridis* from several localities in the Gambier and Tuamotu Archipelagoes, and in 1912 I accepted Mr. Stebbing's identification of *M. incerta* with *M. viridis* and retained the species under the genus *Elasmopus*, pointing out that in it the second gnathopod was almost the same in the female as in the male.

I have recently been examining the New Zealand species of *Elasmopus*, and have come to the conclusion that *M. viridis* Haswell is too closely related to *M. inaequipes* (A. Costa) to be placed in a different genus, and that it is best left under *Maera*.

M. inaequipes, the name now used for *M. truncatipes* (Spinola), is recorded in "Das Tierreich Amphipoda" from the Mediterranean and from the North Atlantic (Azores); but in 1904 Mr. Walker had already recorded it under the name *M. scissimana* (Costa) from the west of Ceylon, and in subsequent papers he recorded it from the Maldive Archipelago and other localities in the Indian Ocean. It also occurs in Australia and New Zealand (see below). In describing the Ceylon specimens Mr. Walker says that the species (*M. inaequipes*) "forms a connecting-link between the genera *Maera* and *Elasmopus*. The fore part, including the third peraeopods, is typical *Maera*, while the massive and very spinous fourth and fifth peraeopods (a character that is much more marked in Ceylon than in Mediterranean specimens), and the comparatively short rami of the third uropods, resemble *Elasmopus*. Another peculiarity of the species is that the size and shape of the hand of the second gnathopods is much the same in males and females." In describing the Maldive specimens he mentions that in them the third to fifth peraeopods are less robust and more like the Mediterranean than the Ceylon forms.

It will be seen from what has been already said that the close relationship of *M. viridis* to *M. inaequipes* has been pointed out more than once. In describing *M. incerta* I stated that it seemed to come nearest to *M. blanchardi* Spence Bate; but *M. incerta* is now considered the same as *M. viridis* Haswell, and *M. blanchardi* is ranked in "Das Tierreich Amphipoda" as a synonym of *M. inaequipes*, being presumably the female.

The resemblance between the two species *M. inaequipes* (Costa) and *M. viridis* Haswell is emphasized by one or two special points. Thus in 1904 Walker pointed out that in *M. scissimana* (Costa)—i.e., *M. inaequipes*—the second gnathopods in the female are of much the same size and shape as in the male. In my MS. notes I had previously recorded the same peculiarity in *M. viridis*, though this was not published till 1912. In the genus *Elasmopus*, to which *M. viridis* is assigned by Stebbing, there is usually a marked difference between the sexes in the second gnathopods, and there is considerable difference in some of the other species of *Maera*. Both species, again, have a slight depression or emargination towards the distal end of the anterior border of the carpus in the first gnathopod.

There is similarity also as regards colour. Thus in "Das Tierreich Amphipoda" Stebbing gives the colour of *M. inaequipes* as "dorsally green bronzed with a little red, gnathopods 1 and 2 tinged with green, other appendages pellucid pinkish." Haswell gives the colour of *M. viridis* as "light green"; the New Zealand specimens are also a light green, occasionally tinged with pink on the appendages.

From the discussion given above it will be evident that *M. inaequipes* and *M. viridis* present many points of resemblance, and that they cannot be placed in different genera. I prefer to keep them both in *Maera*, though

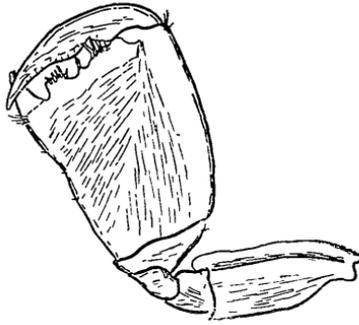


FIG. 3.—*Maera viridis*. Second gnathopod of male, from a Lord Howe Island specimen.

in the short third uropoda and in the widened joints of the last pair of peraeopoda *M. viridis* certainly approaches to *Elasmopus*, and naturally in the present state of our knowledge the distinctions between the genera are somewhat artificial.

In the New Zealand specimens of *M. viridis* that I have examined the palm of the second gnathopod is transverse or a little projecting, and it is usually straight or even, though sometimes showing slight indications

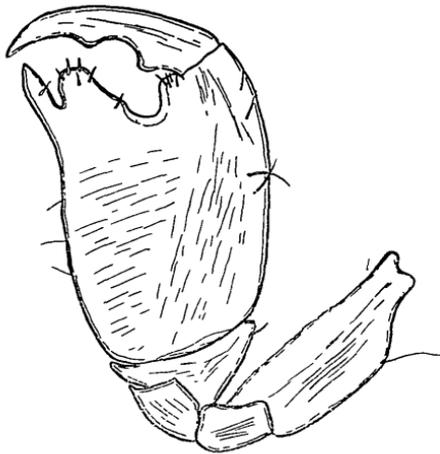


FIG. 4 —*Maera viridis*. Second gnathopod of male, from a Port Jackson specimen.

of a central notch and of a narrower depression next to the defining tooth. In a specimen from Lord Howe Island that I think must belong to the same species the defining tooth (fig 3) is much longer and better marked and the palm more uneven, the median notch, however, being shallow and

divided by a small projection. Again, in a specimen from Port Jackson sent to me many years ago as *M. viridis* by Professor Haswell, the palm (fig. 4) is much more projecting, and has the central notch much deeper and wider, extending almost to the base of the finger. In the Lord Howe Island and Port Jackson specimens the propod is nearly free from setae, while in the New Zealand specimens there are short tufts along both anterior and posterior margins; there are also equally marked differences in the structure of the finger.

Maera quadrimana Dana, described from specimens collected at the Fiji Islands, is evidently very closely allied to *M. viridis*, and may prove to be identical with it. Both species were united with *M. inaequipes* by Della Valle in 1893.

Maera rathbunae Pearse (1908, p. 29) as further described by Kunkel (1910, p. 46) is also very near to *M. viridis*, and may prove identical with it.

Maera inaequipes (A. Costa). Figs. 5 and 6.

Amphithoe inaequipes A. Costa in Hope's Catal. Crost. Ital., 1851, p. 45, *Maera quadrimana* G. M. Thomson, 1882, p. 235, pl. 17, fig. 4a (part). *Maera truncatipes* Della Valle, 1893, p. 725, pl. 1, fig. 2, and pl. 22, figs. 26-40 (part); Miers, 1884, p. 569. *Maera hiron-deller* Chevreux, 1900, p. 84, pl. 11, fig. 1. *Maera scissimana* Walker, 1904, p. 273, pl. 5, fig. 32. *Maera inaequipes* Stebbing, 1906, p. 435, and 1910A, p. 599; Kunkel, 1910, p. 44.

Specific Diagnosis.

Dorsal surface of body smooth. First side plate with front corner produced, acute. Third pleon segment with posterior margin smooth, inferior margin smooth or obscurely serrate posteriorly, angle acute, slightly produced. Eyes round. First antennae with flagellum about the same length as peduncle, accessory flagellum about half as long. Second antennae with flagellum subequal to ultimate joint of peduncle. First gnathopod with depression in anterior border of carpus, inner surface of carpus with numerous oblique rows of setae arranged as in fig. 5, *gn*¹.

Second gnathopod large in both sexes, palm somewhat oblique, defined by an acute tooth, convex and serrulate or irregularly toothed in the female, more toothed and usually with a deep central notch in the male. Third uropod with rami subequal, considerably longer than the first and second. Telson deeply cleft, each lobe bidentate, the inner tooth being longer than the outer.

Of this species I have specimens from the following New Zealand localities: Paterson Inlet, Stewart Island (these are some of the specimens referred to *M. quadrimana* by G. M. Thomson in 1882); Chatham Islands, Miss S. D. Shand.

Distribution.—The species has long been known under various names from the North Atlantic and the Mediterranean, and has been recorded from the Indian Ocean by Walker, and more recently from Australia by Stebbing.

I feel fairly confident that the New Zealand specimens rightly belong to this widespread species. It appears to be very closely allied to *M. viridis* Haswell, and, as in that species, it has the characteristic depression

on the anterior margin of the carpus of the first gnathopod. The two species were united by Della Valle, and in each there appear to be so many varieties that it may be difficult to draw a distinction between them in all cases. The more typical examples of *M. inaequipes*, however, appear

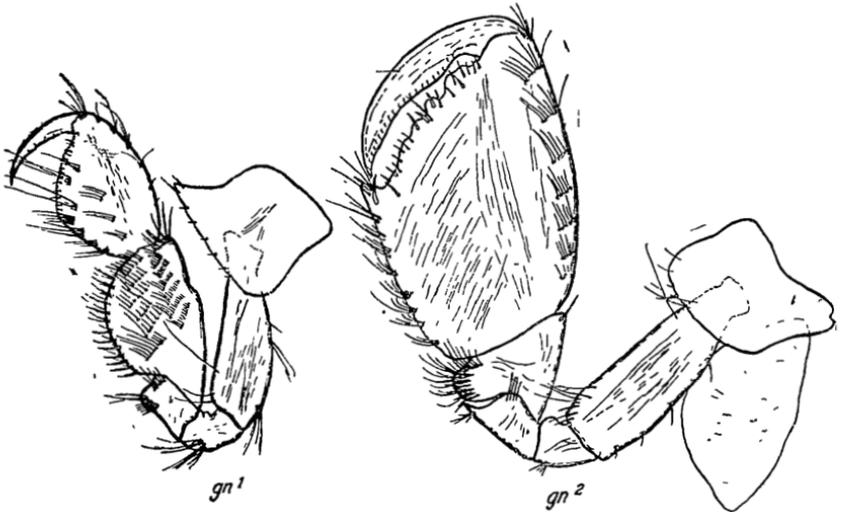


FIG. 5.—*Maera inaequipes*, female—a specimen from Chatham Islands *gn*¹, first gnathopod (inner surface); *gn*², second gnathopod (inner surface).

to be distinguished by the more oblique palm of the second gnathopod, and by having the third uropods considerably longer than the preceding pairs. Stebbing (1906, p. 436, and 1910A, p. 599) describes the palm of the second gnathopod as “almost transverse,” and this usually appears to

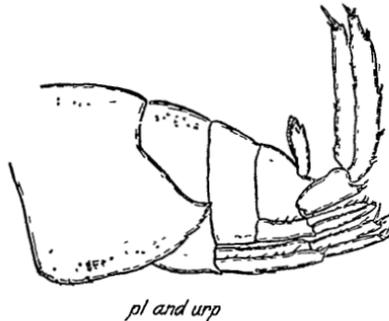


FIG. 6.—*Maera inaequipes*, female—a specimen from Chatham Islands. *pl. and urp*, terminal portion of body.

be so in the males, but in the female it is distinctly oblique, though not greatly so, and apparently this is also the case with some forms of the male, as, e.g., in *M. hirondelei* Chevreux. The third uropods, again, appear fairly long. Stebbing describes the rami as “not very long,” but they

seem always to reach well beyond those of the preceding pairs, and they are considerably elongated in some of the New Zealand specimens; in one of the specimens from the Chatham Islands they are much shorter on both sides, hardly reaching beyond the second and third, but I think this condition is abnormal, and due to the regeneration of appendages that had previously been lost. Walker has pointed out that the fourth and fifth peraeopoda are more massive and spinous in the Ceylon than in the Mediterranean specimens, and has also drawn attention to the fact that the species forms a connecting-link between the genera *Maera* and *Elasmopus*, mentioning among the characters that resemble the latter genus the comparatively short rami of the third uropods. In the New Zealand specimens, however, they are quite long enough to justify the inclusion of the species in *Maera*, and the species appears to differ also from *Elasmopus* in having the second gnathopods of approximately the same size in both sexes, and in having the setae on the inner surface of the carpus of the first gnathopod arranged on a different pattern.

Maera hirondeller Chevreux differs from the more typical forms in having the accessory appendage shorter, and in the oblique palm of the second gnathopod of the male; but these differences are perhaps only of varietal importance. The general resemblance in other characters is very close.

Miers mentions (1884, p. 569) that in the British Museum there is a specimen from the Korean Seas which cannot, he thinks, be distinguished from *M. truncatipes* (Spinola)—*v. e.*, from *M. inaequipes* (A. Costa). *M. diversimana* Miers appears also to be closely allied to the present species and to *M. viridis* Haswell, but apparently differs in having the segments of the pleon dorsally toothed, and in having the right and left second gnathopods unequal in size, while in *M. inaequipes* they are, according to Stebbing, as a rule, "quite alike in size and sculpture." The name of the species, however, indicates that this is not always so, and probably in this as in other species with large gnathopods the appendage on one side may differ from that on the other in some individuals, while in others they are alike.

Maera mastersii (Haswell).

Megamoera mastersii Haswell, 1879, p. 265, pl. 11, fig. 1. *Moera quadrimana* G. M. Thomson (part), 1882, p. 235, pl. 17, fig. 4b (not *M. quadrimana* Dana). *Megamoera thomsoni* Miers, 1884, p. 318, pl. 34, fig. B. *Maera mastersii* Stebbing, 1906, p. 439; 1910A, p. 642; 1910B, p. 457; Chilton, 1911, p. 564.

Specific Diagnosis.

Body smooth, none of the segments being dorsally produced into teeth. First side plate produced anteriorly into a rounded lobe. Third pleon segment with lower portion of posterior margin serrate, inferior margin with 2 setae but not serrate. Eyes narrowly reniform. First antenna with accessory flagellum short, usually of not more than 4 joints, primary flagellum as long as peduncle, fairly stout, setose. First gnathopod with carpus as long as propod, its inner surface with tufts and comb-like rows of setae, propod slightly narrower than carpus, palm smooth, somewhat oblique, not defined. Second gnathopod considerably larger, merus produced into sharp tooth, carpus about half the length of propod, which is oblong with margins parallel and provided with many tufts or transverse

rows of setae on both margins, palm oblique, defined by a small tooth, irregularly denticulate, the teeth varying in number and being acute or rounded at end; right and left second gnathopods often slightly unequal in size, those of the male apparently larger and with more distinctly toothed palm than in the female. Third uropods much longer than the first and second, rami equal, broadly lanceolate. Telson cleft to base, lobes bluntly conical, produced into an acute tooth on each side the terminal notch, which bears 2 or 3 spinules.

Colour.— Usually light yellowish-brown; "dirty green" (G. M. Thomson).

Localities.— Moeraki (Dunedin Museum collection); Stewart Island (H. B. Kirk); Paterson Inlet, Stewart Island (G. M. Thomson—recorded as *Maera quadrimana* Dana); Chatham Islands (H. B. Kirk); off Cape Maria van Diemen, dredged in 50 fathoms (C. Chilton).

Distribution.— Australia, Kermadec Islands, New Zealand, Chatham Islands.

The species was originally described from Port Jackson by Haswell, and afterwards recorded under the name *Megamoera thomsoni* by Miers from various localities in the north of Australia. These two species were united by Haswell (1885, p. 105). I have a specimen from St. Vincent Gulf, South Australia, sent to me by Mr. S. W. Fulton, and in 1911 I recorded it from Kermadec Islands, the specimens having been collected by Mr. W. R. B. Oliver.

In 1912 I examined a few specimens from Cape Colony collected by the "Scotia" Expedition, and with some hesitation referred them to *Maera mastersii*, mentioning the points in which they differed from the description given by Stebbing in "Das Tierreich Amphipoda." Mr. Barnard has since kindly sent me further specimens of the same species from Cape Town, and has pointed out that they differ in some specific characters from *M. mastersii*. I find that this is so, and that they belong to *Maera bruzelii* Stebbing, a species which I had overlooked, as it was accidentally omitted from "Das Tierreich Amphipoda." Mr. Barnard considers the Cape Town specimens slightly different from the description of *Maera bruzelii*, and looks upon them as a separate variety or a closely allied species, and places them in the genus *Elasmopus*, to which, as I pointed out in 1912, they show considerable resemblance.

Stebbing (1910b, p. 457) gives four points of difference between *M. bruzelii* and *M. mastersii*. Two of these hold for my specimens—viz., the accessory appendage is only 4-jointed in *M. mastersii* but about 8-jointed in *M. bruzelii*, and the third uropoda reach considerably beyond the others in *M. mastersii* but only a little beyond them in *M. bruzelii*. The other two distinctions do not hold, thus the first side plate is produced forward in *M. mastersii* about as much as in *M. bruzelii*, and the palm of the first gnathopod is not quadridentate but smooth. The teeth on the palm of the second gnathopod are sometimes 4 in number.

Maera mastersii was first recorded from New Zealand by Mr. G. M. Thomson, under the name *M. quadrimana* Dana, in 1882. Mr. Thomson obtained several specimens with the dredge in Paterson Inlet, Stewart Island, and another from between tide-marks in the same locality. He pointed out that the specimens differed in certain respects from Dana's species, and that they differed among themselves in the structure of the second gnathopods. I find that Mr. Thomson's specimens belong to two

species, the shore specimen and some of the dredged specimens being *M. mastersii*, the second gnathopod of the shore specimen being figured by Mr. Thomson in pl. 17, fig. 46; the other dredged specimens belong to *M. inaequipes* (A. Costa).

The second gnathopoda of the female in *M. mastersii* are of moderate size, and probably not markedly different from those of the male, but the specimens at my disposal are not sufficient for the satisfactory working-out of the sexual differences.

Ceradocus rubromaculatus (Stimpson)

Ceradocus rubromaculatus Stebbing, 1910A, p. 598 (with synonymy);
Chevreux, 1908, p. 479. *Moera spinosa* Chilton, 1883, p. 81,
pl. 2, fig. 3a.

This appears to be a common species on the coasts of Australia, and it is occasionally found in New Zealand.

I have specimens from Auckland (H. Suter and W. R. B. Oliver); Rangitoto Reef, Auckland (W. R. B. Oliver); Dunedin (G. M. Thomson); Chatham Islands (H. B. Kirk); and Akaroa (C. Chilton).

The species can be distinguished from others likely to be confused with it by the serrations on the segments of the pleon. The first gnathopod has the inner surface of the carpus covered with short tufts and comb-like rows of setae arranged on the same general plan as in *Maera inaequipes*, but there is no excavation on the anterior margin. The second gnathopoda have the propod large in both sexes, but larger in the male, in which the palm bears 2 or more flat-topped teeth; but there appears to be considerable variation in the armature of the palm. In the specimens I have examined the palm is quite oblique, but M. Chevreux has described a form from the Gambier Archipelago in which the gnathopoda of the two sides are unequal, the larger having the palm transverse with 2 narrow excavations, the smaller being not unlike that of the female. I had pointed out the same inequality in the gnathopoda of the male in the specimens from Auckland recorded in 1883 under the name *Moera spinosa*. In M. Chevreux's specimens the basal joint of the last pair of pereopoda is rather narrow, and is produced downwards into an acute narrow tooth. The same tendency is noticeable in Australian and New Zealand forms, but in them the joint is wider and the downward prolongation not so narrow.

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ART. XXXV.—Notes on the Occurrence of the Genus *Trachipterus* in New Zealand.

By H. HAMILTON.

[Read before the Wellington Philosophical Society, 22nd September, 1915.]

THE object of this paper is to record the occurrence of five specimens of *Trachipterus* from the New Zealand coast, to bring together what is already known about their distribution in the Australasian region, and to offer comparisons with Trachipterids found in the Northern Hemisphere.

Early in 1914 a large specimen of *Trachipterus*, or deal-fish, was found on the beach at Waikanae, near Wellington, and forwarded to the Dominion Museum by Mr Watt, a local fisherman. In March, 1915, a smaller specimen was donated to the Museum by Mr. Foster, of the Wellington Meat Export Company, who obtained it from the Chatham Islands. Both specimens were considerably damaged, as is usually the case, but, being of such rare occurrence, were carefully preserved for future reference. Professor Benham, Curator of the Otago University Museum, and Mr. R. Speight, Curator of the Canterbury Museum, have kindly placed at my disposal three specimens not previously recorded, thereby allowing a survey of all known New Zealand occurrences. I am much indebted to these gentlemen for their co-operation, and also extend my thanks to Mr. E. R. Waite, of the Adelaide Museum, for his sound advice on the arrangement of the subject-matter

Previous writers on the Trachipterids have laid stress on the fact that all original observations relating to their appearance and distribution should be recorded to help to solve the problem of their life-history and economy, for only by recording apparently simple facts and examining in detail long series of variable species can a definite conclusion be arrived at

The Trachipterids of the Mediterranean, once regarded as four species, have been proved by Emery(2), after examination of twenty-three specimens in all stages of growth, to belong to one species only. He showed that the nominal species—viz, *T. taenia* Bloch & Schn., *T. filicauda* Costa,