

ART. XXXIII.—*A New Species of Orchestia*

By CHARLES CHILTON, M.A., D.Sc., LL.D., M.B., C.M., F.L.S., C.M.Z.S.,
Professor of Biology, Canterbury College, New Zealand

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OF the numerous species of *Orchestia* that are found on the coasts of New Zealand one of the commonest is *Orchestia chiliensis* Milne-Edwards, usually found under stones, seaweed, &c., on rocky shores, but not on sandy beaches. In general characters it resembles *O. mediterranea* A. Costa, of Europe, and it agrees well with the short description given by Stebbing in "Das Tierreich Amphipoda," p. 537. The species can usually be recognized in the fully developed male by the stout peduncle of the lower antenna and by the somewhat widened meral and carpal joints of the fourth and fifth peraeopoda; the females and immature males are, however, much more difficult to distinguish from those of allied species.

In August, 1915, I received from Mr. T. B. Smith, of the Stephen Island Lighthouse, to whom I am indebted for many interesting *Crustacea*, a large number of specimens of an *Orchestia* which I at first thought to be *O. chiliensis* M.-E., one undoubted male of which was, indeed, present. Among them, however, a few of the largest males had the meral and carpal joints of the last two peraeopoda widened into large flat plates, thus differing markedly from the form usually met with in *O. chiliensis*. It is, of course, possible that this is only an extreme development of the tendency shown to a less extent in the ordinary specimens of *O. chiliensis*, for it is well known that in several *Amphipoda* the structures specially modified in the male may in certain individuals be developed to an extent that makes them look quite different from the ordinary form. I have described an example of this in the case of *Cerapus flandersi* Stebbing,* and other examples could be quoted. In the present case, however, until the relationship between the Stephen Island form and *O. chiliensis* is better known it will be safer to consider the former to be a distinct species, and I am therefore describing it under the name *Orchestia miranda* sp. nov.

Orchestia miranda sp. nov. Figs. 1 to 6.

Specific Diagnosis—In general resembling *O. chiliensis* M.-E., the male differing from the female in the stouter lower antenna, in the gnathopoda, and especially in the enlarged joints of the last two pairs of peraeopoda. In the fourth peraeopod the merus is of normal width proximally but widens distally to fully twice this width, thus forming a triangular plate, the carpus is greatly dilated into a large oblong plate with rounded corners, rather wider than the greatest width of the merus: the propod is not dilated, but of normal width. The fifth peraeopod is modified in a similar

* Rec. Australian Museum, vol. 2, p. 1, 1892.

way, but the carpus is much more dilated, especially toward the posterior margin, its greatest width being half as great again as that of the merus.

Length of body of largest specimens, about 20 mm.

Hab.—Stephen Island, Cook Strait, New Zealand, on rocky shores.

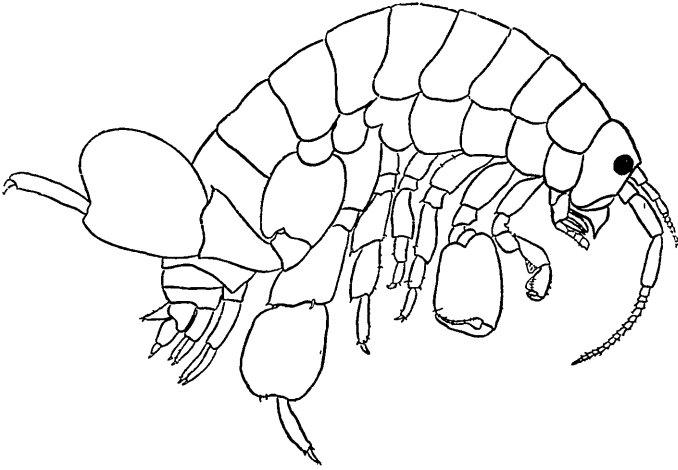


FIG. 1.—*Orchestia miranda*, male; side view.

This brief diagnosis may be supplemented by the following more detailed description of a fully developed *male* :—

Body rather compressed. First side plate smaller than the second, by which it is overlapped, fifth as deep as the fourth. Third pleon segment

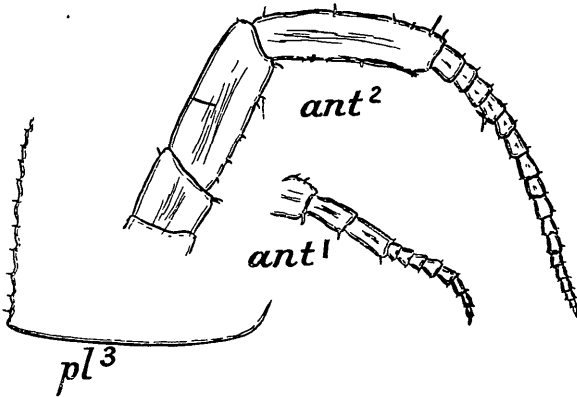


FIG. 2.—*Orchestia miranda*, male. *ant*¹, first antenna; *ant*², second antenna; *pl*³, inferior and posterior margins of third pleon segment.

(fig. 2, *pl*³) with postero-inferior angle quadrate, its posterior margin with small low serrations each with a minute seta. Eyes black, round or slightly oval, the distance between them about equal to their greatest width.

First antenna (fig. 2, *ant*¹) reaching to the end of penultimate joint of the lower; second and third joints subequal and a little longer than the

first; flagellum as long as peduncle, and containing about 8 joints. Second antenna (fig. 2, *ant*²) fully one-third the length of the body; penultimate joint of peduncle rather shorter than the ultimate, both rather broad; flagellum stout, subequal in length to the peduncle, of about 20 joints.

Mouth parts apparently not presenting any distinctive features.

First gnathopod (fig. 3, *gn*¹) with side plate subtriangular, somewhat produced downwards anteriorly, its lower margin with a few stout setae, its inner surface with an irregular row of more slender setae extending from the insertion of the basal joint to the infero-anterior angle; merus with a small rounded pellucid process, carpus much longer than the propod, the pellucid area on each marked off from the rest of the joint by a row of stout setae, palm transverse, finger not extending beyond the true palm.

Second gnathopod (fig. 3, *gn*²) with side plate produced at about the middle of the posterior margin into a subacute point, basal joint not much expanded, merus and carpus very short, propod very large, widening distally, anterior and posterior margins without setae, palm only slightly

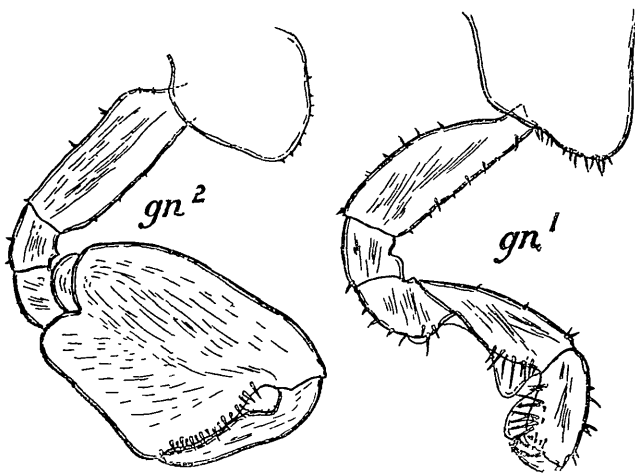


FIG. 3.—*Orchestia miranda*, male. *gn*¹, first gnathopod, *gn*², second gnathopod

oblique, straight or a little convex, provided with a double row of short stout setae, finger strong with an enlargement at about its proximal third, end curved and fitting into a short groove at the end of the palm.

First and second peraeopoda alike and presenting no special features, the side plates subrectangular with rounded corners, posterior margin in each produced into a subacute process, setae on the various joints few and short, two or three stout ones on anterior border of propod at base of finger. Third peraeopod (fig. 4, *prp*³) subequal in length to the two preceding, side plate with anterior lobe as deep as the fourth, basis broadly expanded, its posterior margin convex and serrate, merus and carpus somewhat widened, about twice as wide as the propod. Fourth peraeopod (fig. 4, *prp*⁴) with basis similar to that of the third, ischium normal, merus widening greatly toward distal end, which is rather oblique and nearly as wide as the joint is long, carpus forming a large rectangular plate with rounded corners, nearly as broad as long, propod and finger normal, not expanded.

Fifth peraeopod (fig. 4, *prp*⁵) longer than the fourth, and similarly expanded but with carpus fully as wide as long, its posterior margin being greatly produced and very convex.

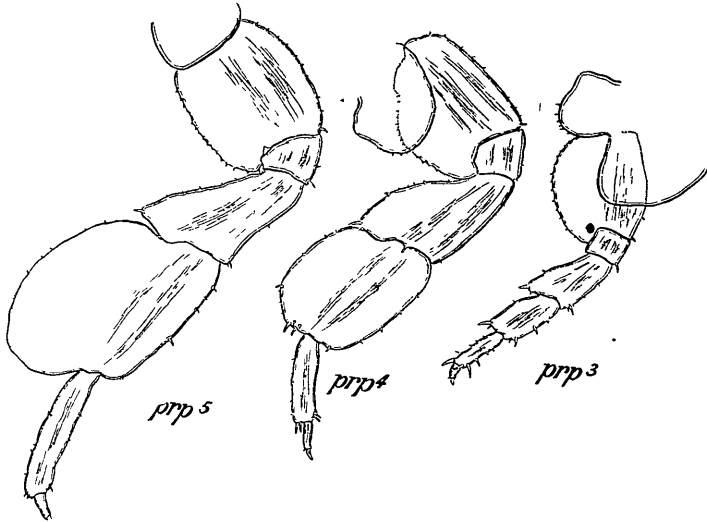


FIG. 4.—*Orchestia miranda*, male. *prp*³, third peraeopod; *prp*⁴, fourth peraeopod; *prp*⁵, fifth peraeopod.

First and second uropoda (fig. 5, *urp*¹ and *urp*²) normal, the peduncle and both rami in each bearing short stout spines. Third uropod (fig. 5, *urp*³) with peduncle laterally compressed, its depth near the base nearly equal to the length, a few stout setae at distal end of upper margin, ramus

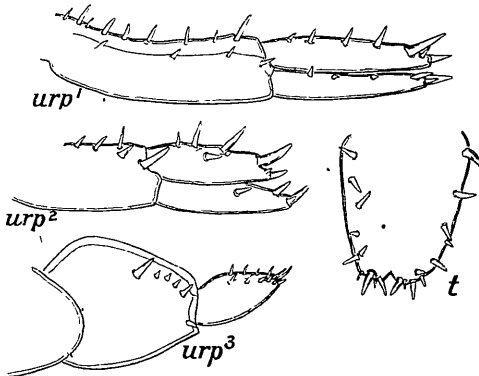


FIG. 5.—*Orchestia miranda*, male. *urp*¹, first uropod; *urp*², second uropod; *urp*³, third uropod; *t*, telson.

much shorter than peduncle, with a double row of small stout setae along upper margin. Telson (fig. 5, *t*) longer than broad, narrowing slightly distally, posterior margin with small triangular notch, lateral and posterior margins supplied with short stout setae.

The *ovigerous female** differs from the male in having the second antenna more slender, in the absence of dilatation of the joints of the pereopoda, and in the gnathopoda. In the first gnathopod (fig. 6, gn^1) the basal joint is longer than any of the others, and is of equal width throughout, being about three times as long as broad, the carpus is considerably longer than the propod and widens slightly towards the distal end, the propod is oblong, rather narrower than the carpus, the palm is transverse, finger slender, not reaching beyond the palm; all the joints provided with a few stout spinules arranged in the usual manner. In the second gnathopod (fig. 6, gn^2) the basis is much widened, its hind margin straight, anterior sinuous and fringed with fine spinules, the greatest width at the proximal third being about one-half the length; in the remaining joints, in the branchia, and in the large incubatory plate the appendage presents the characters common to the genus. None of the pereopoda have any joints

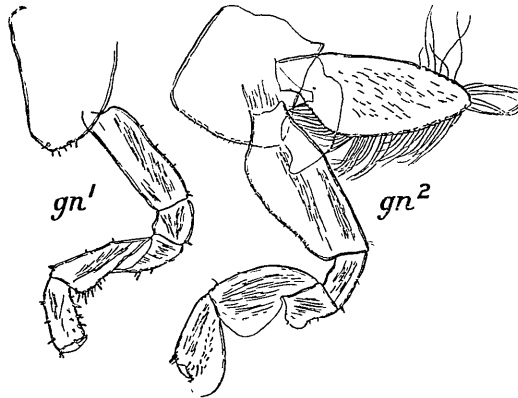


FIG. 6.—*Orchestia miranda*, female gn^1 , first gnathopod;
 gn^2 , second gnathopod

expanded; in the fifth the basis has the posterior margin convex and serrate and not produced downwards beyond the extremity of the joint; the following joints are slender and of the usual form.

The *immature males* resemble the females except in the gnathopoda, which appear to acquire the special character of the male early, though they are for a time much smaller than in older individuals. In quite young males, though the gnathopoda have already acquired the characteristic form, the antenna and the pereopoda show no sign of dilatation, but are quite like those of the females. Among my specimens are numerous transitional stages from this up to the widely dilated pereopoda of the adult males as already described; some of these would be difficult to distinguish from *O. chilensis*.

The species now described, *O. miranda*, appears to belong to that section of the genus containing *O. mediterranea*, *O. gammarellus*, *O. chilensis*, &c.,

* I am assuming that the numerous females sent with the equally numerous males belong to *O. miranda*, for, with one exception, all the recognizable males belong to that species, and I am unable to divide the females into two groups. The one exception is, however, a fully developed male of *O. chilensis* M.-E., so that possibly some or all of the females may belong to that species. In the meantime I am unable to give any characters that would differentiate between the females of these two species.

in which the male tends to differ from the female in the dilatation of the meral and carpal joints of the fifth peraeopod, but in it, as to a less extent in *O. chiliensis* also; the same tendency is seen in the fourth peraeopod as well. *O. miranda* differs from *O. chiliensis* in the much greater expansion of the joints of the last two peraeopoda, 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.*

By CHARLES CHILTON, M.A., D.Sc., LL.D., M.B., C.M., F.L.S., C.M.Z.S.,
Professor of Biology, Canterbury College, New Zealand.

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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