

more greyish or a more golden-yellow general effect. The dorsal lines tend to disappear in some individuals.

*Skull* much as in *P. h. sumbanus* but much larger. Zygomatic arches very wide and intertemporal constriction well-marked, but short as in that form. Nasals U-shaped, very broad. Bullæ small, much smaller than in *sumbanus*, inflated between carotic canal and *foramen lacerum posterius*. Sagittal crest in males very high.

*Teeth* similar to those of *P. h. sumbanus* but a little larger.  $P_4$  with a well-developed anterior tubercle (parastyle) and narrow postero-internal ledge.

*Type*. Zoological Museum, Munich; original no. 90; skin and skeleton of old male. Collected by C. B. Haniel on August 5th, 1911.

*Type locality*. Baung, Amarassie, Timor.

*Specimens examined*. Ten from various localities: Ofu, Baung, Noimina; all in Timor.

*Dimensions of the type* (taken on the flat skin):—

Head and body 590 mm.; tail (without hairs) 450.

*Skull*: basilar length 96; condylo-basilar length 100; greatest breadth 65·3; mastoid breadth 37; nasals  $24 \times 11\cdot2$ ; intertemporal constriction 12·1; width of brain-case 37·5; palatilar length 44; palate, greatest breadth (including teeth) 37; least breadth (between canines and incisors) 11; breadth of rostrum across roots of canines 20·5; foramina incisiva 5; front of  $p_1$  to back of  $m_2$  33;  $p_4$ , length on outer edge 8·4, breadth 7, greatest diameter 9·7.

The Timor Palm-Civet is readily distinguished by the greyish hue on the neck and the black head. From *P. h. sumbanus* it differs in the characters indicated above; *P. h. setosus* of Ceram is larger, more yellowish in coloration, and has much larger bullæ and more complex teeth.

#### XIV.—On a *Terrestrial Amphipod* from Kew Gardens.

By W. T. CALMAN, D.Sc.

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SPECIMENS of the Amphipod described below have been sent to the Natural History Museum by Mr. A. W. Hill, Assistant Director of the Royal Botanic Gardens, Kew. They were found in the "Tropical Pits," and about a dozen specimens, including adults of both sexes, have been collected at various times.

Terrestrial species of Amphipoda belonging to the family Talitridæ are known from various parts of the world, and have been found in hothouses in Europe, but not hitherto, so far as I know, in this country.

Since the reference of the species to the genus *Talitrus* depends upon the characters of the males, it may be worth while to note that the sex of these was definitely ascertained by observation of the genital papillæ on the last thoracic somite.

*Talitrus hortulanus*, sp. n.

*Adult male*.—Total length 8 mm.

Length of *head* along dorsal edge less than that of first two free somites together. First *coxal plate* rather broadly rounded below; fifth more than half as long again as fourth, its anterior lobe truncated below. First three abdominal *pleural plates* with posterior corners pointed and slightly produced. *Eyes* round, of moderate size.

*Antennules* extending well beyond middle of last segment of antennal peduncle; first three segments increasing successively in length; flagellum of seven or eight segments besides a minute terminal one.

*Antennæ*: peduncle equal or nearly so to the length of head and first two free somites together; flagellum half as long again.

*Maxillipeds*: outer plates with distal edge directed obliquely inwards and broadly rounded (not bluntly pointed as in *T. sylvaticus*); palp with a minute fourth segment, obscurely defined.

*First gnathopods*: carpus about  $2\frac{1}{2}$  times as long as wide and  $\frac{1}{3}$  longer than propodus; propodus more than three times as long as wide, hardly narrowed distally,  $2\frac{1}{2}$  times as long as dactylus.

*Second gnathopods* very long and slender; basis distinctly shorter than three following segments together; merus with lower margin evenly rounded, without projecting lobe or area of shagreened cuticle; carpus nearly twice as long as merus, five times as long as its width in the middle, with a small shagreened lobe close to distal end of lower edge; propodus a little longer than carpus, about five times as long as wide, with articulation of dactylus at about one-fifth of its length from distal end.

*Percæopods* of first and second pairs subequal in length; third pair a little longer than second, basis ovate, with hind margin gently convex; fifth pair longer than fourth, basis

nearly as broad as long, hind margin with low and widely spaced serrations.

*Pleopods*: all three pairs biramous, with the rami not distinctly segmented. Peduncle of the first pair about six times as long as broad, with a pair of coupling-spines on inner edge; exopod half as long as the peduncle, endopod a little more, each bearing a few feathered setæ. Peduncle of second pair as long as that of the first, but much stouter, its width about one-fourth of its length, bearing a pair of coupling-spines; rami slightly shorter and stouter than those of first pair. Peduncle of third pair two-thirds as long as that of second and about three times as long as wide, with a single coupling-spine and setæ on outer and inner edges; rami short and broad, the endopod half as long as the peduncle, the exopod a little less.

*Uropods*: last pair more than half as long as telson, with a spine on each segment.

*Telson* curved dorsally, with an apical pair of long spines on either side of a short median fissure.

*Adult female*.—Total length 9.5 mm.

Hardly differing in general characters from the male; peduncle of antennæ slightly but distinctly more slender; second gnathopod with propodus slightly stouter, a little more than four times as long as wide.

One specimen carried six eggs in the brood-cavity.

*Remarks*.—Among the accepted species of the genus *Talitrus* (Stebbing, 'Tierreich,' Gammaridea, 1906, p. 524) the form here described will find its place, on account of the relative length of the antennules, near *T. sylvaticus*, Haswell (New South Wales, Victoria, and Tasmania), and *T. alluvandi*, Chevreux (Seychelles, Madagascar, and hothouses in France). From *T. sylvaticus*, as recently redescribed by Sayce (Proc. R. Soc. Victoria, xxii. 1909, p. 30), and as represented by two specimens in the British Museum, it is separated by the form of the basis of the third peræopod, which, in the species named, is characteristically narrowed below, with the hind margin straight or slightly concave. *T. alluvandi*, as described by Chevreux (Mém. Soc. zool. France, 1901, p. 389), has the telson remarkably large and spinous. The most important distinctive characters of the new form, however, are those of the second gnathopod, which in both the species named is much shorter and stouter, with the propodus not more than three times as long as wide, and with a projecting shagreened lobe on the under side of both merus and carpus. There are other characters, such as the relative length of the

antennæ and the form of the outer plates of the maxillipeds, which help to confirm the distinctness of the Kew species from both the others.

At the same time it should be noted that comparison of the earlier accounts of *Talitrus sylvaticus* gives the impression that this species is more than usually variable, or else that more than one species has been included under that name. Haswell's earlier figures (Proc. Linn. Soc. N.S.W. iv. 1879, pl. vii. fig. 1) show the second gnathopods as very slender, with the propodus four times as long as wide in the male. In the later figure by Haswell (*op. cit.* x. 1885, pl. x. fig. 1), as in those given by Thomson (Proc. R. Soc. Tasmania, 1892 (1893), pl. iv.) and by Sayce, the proportions are very different.

A still more puzzling discrepancy exists between published accounts of the pleopods. Thomson (*l. c.* p. 61) states that he failed to find any trace of the third pair. Sayce (*l. c.* p. 32) confirms this: "no vestige of a third pair is to be found." Chevreux (*l. c.* p. 392), on the other hand, describing specimens of *T. sylvaticus* sent to him by Prof. Chilton, states that the pleopods of the third pair\* resemble those of the first two pairs in being biramous, although they are of smaller size. In two specimens from Port Jackson, received from the Australian Museum many years ago as *T. sylvaticus*, I find the third pleopods to be represented by small vestiges much like those figured by Chevreux in the case of *T. alluaudi*. These vestiges are so small and, from their position, so hard to see, that they may possibly have been overlooked both by Thomson and by Sayce. It is hardly possible, however, that Chevreux can have been deceived on this point, to which he gave special attention in comparing the species with *T. alluaudi*.

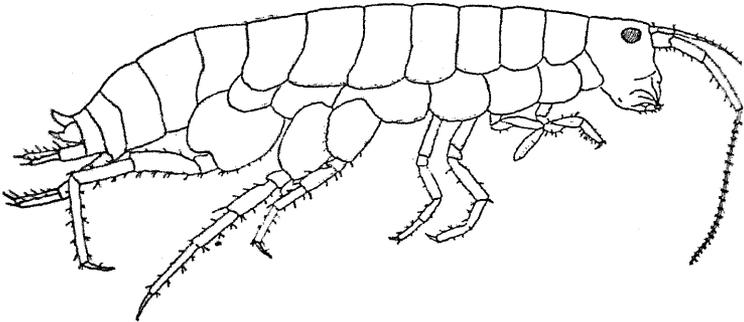
Mr. A. O. Walker, who has been good enough to examine specimens of the Kew *Talitrus* for me, has called my attention to the resemblance of its elongated second gnathopods to those figured by Spence Bate in *Talorchestia* (?) *africana* (Cat. Amphip. Brit. Mus. 1862, p. 15, pl. ii. fig. 6). The resemblance is considerable, and since the holotype is a female, it is quite possible that Bates's species really belongs to the genus *Talitrus*. Even in its present mutilated and fragile condition, however, the specimen shows some characters which forbid its association with the Kew species. The

\* M. Chevreux writes "uropodes de la troisième paire," but from the context it is quite clear that he is referring to the pleopods.

dorsal outline of the head is shorter than that of the first free somite; the anterior lobe of the fifth coxal plate is more rounded below; the basis of the last pair of legs has a different outline, with the hinder margin less convex and more strongly serrated; the outer plate of the maxillipeds is bluntly pointed and the terminal segment of the palp is larger and sharply defined; the merus of the second gnathopods has a prominent lobe on the under side, and the carpus is, at all events, much less slender than in the species here described.

The genus *Talitroides* was proposed by Bonnier (in Willem, Ann. Soc. ent. Belgique, xlii. 1898, p. 208) for an unnamed species found in a conservatory at Ghent. To this species Stebbing afterwards gave the name *T. bonnieri*

Fig. 1.

*Talitrus hortulanus*, sp. n. Adult male,  $\times 10$ .

('Tierreich,' Gammaridea, 1906, p. 527). It has not, I think, been pointed out that Bonnier's description contains nothing inconsistent with the supposition that he had before him specimens of *Talitrus alluaudi*.

So far as I know, the only other species of terrestrial Amphipod recorded as found living under artificial conditions in Europe is *Orchestia senni*, recently described by Menzel (Rev. suisse Zool. xix. 1911, p. 438, figs. 4-9) from the botanic garden at Basel. As only the female is described, the species may possibly be referable to *Talitrus*, and may even not differ very greatly from *T. alluaudi*; it is certainly distinct from the species described here.

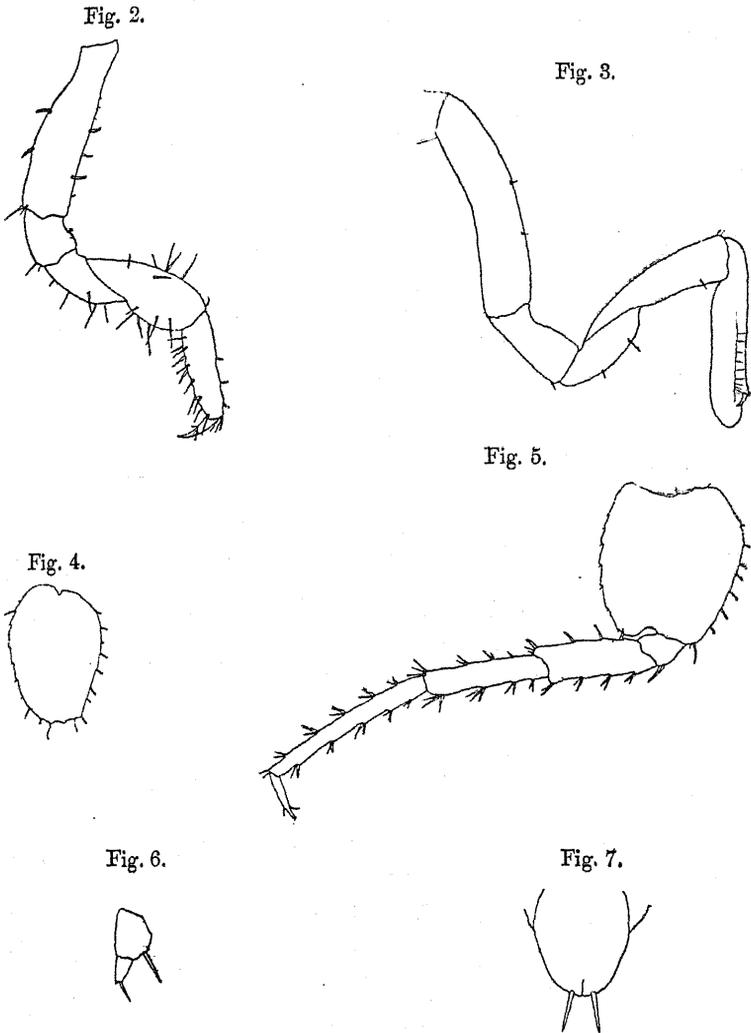


Fig. 2.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 6.

Fig. 7.

Fig. 2.—*Talitrus hortulanus* ♂. First gnathopod.  
Fig. 3.—Ditto. Second gnathopod.  
Fig. 4.—Ditto. Basis of third peræpod.  
Fig. 5.—Ditto. Fifth peræpod.  
Fig. 6.—Ditto. Third uropod.  
Fig. 7.—Ditto. Telson.