

PLEUROCOPE DASYURA WALKER, 1901 AND THE PLEUROCOPIDAE
NEW FAMILY (ISOPODA, ASELOTOTA)

BY

EUGENIO FRESI

Stazione Zoologica di Napoli, Marine Ecology Dept., Ischia Porto, Italy

&

ULRICH SCHIECKE

Zoologisches Institut der Universität, Kiel, Germany and Stazione Zoologica di Napoli,
Marine Ecology Dept., Ischia Porto, Italy

INTRODUCTION

In a paper which appeared in 1901, Walker described a minute Asellote Isopod from the vicinity of Marseilles, *Pleurocope dasyura*. He himself had not dissected and drawn the animal, but had these operations performed by his assistant Mr. Andrew Scott. As will be seen in the following pages, several errors were contained in Mr. Scott's drawings. Basing his views solely on these drawings and failing to examine fresh preparations on his own, Walker was thus lead to interpretations which are not correct in some fundamental aspects.

Later, Stebbing (1905) came across *Pleurocope* in a collection of marine Isopods from Ceylon, and had the impression that his specimen corresponded fairly well to that described by Walker. As a matter of fact, Stebbing had not studied the animal in toto, unable to undertake a more detailed examination, since "...at the very moment when I was arranging the specimen for the dissection, it disappeared like a dream...". Unfortunately, Walker's description came to us without further records and controls, and no other species belonging to the genus *Pleurocope* has been found. Walker thought that the form most closely allied to *Pleurocope* was *Pleurogonium* G. O. Sars, and placed his genus in the family of the Munnidae. Stebbing instead had the impression that this Isopod was nearer to *Dendrotion* G. O. Sars rather than to *Pleurogonium*. Wolff (1962), who discussed the systematic position of *Pleurocope*, was of the same opinion and attributed it, though with some doubt, to the family of the Dendrotionidae.

During the period 1968-70 we have collected several specimens of *Pleurocope dasyura* which allow us to correct and complete the original description and to clarify the systematic position of this genus. It will be seen that it shows characteristics which justify the erection of a new family.

Pleurocope dasyura Walker, 1910

Pleurocope dasyura Walker, 1901: 297-298, pl. 27 figs. 12-18.

Material. — Several specimens taken at various localities around the island of Ischia, Gulf of Naples, Italy; 3-30 m deep, among algae and *Posidonia* 1968-1970.

Supplementary description. — The body (fig. 1, a) is pyriform, more than twice as long as broad, similar in both sexes. Its surface is minutely granulate,

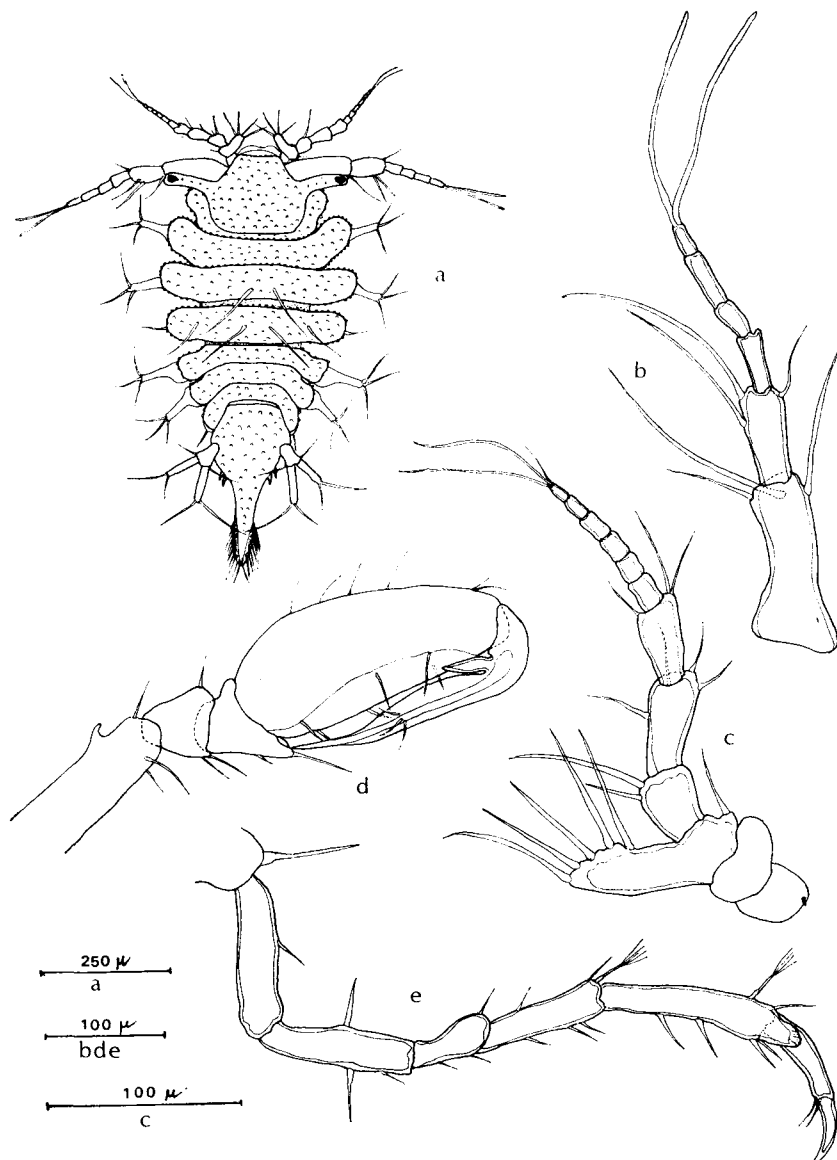


Fig. 1. *Pleurocope dasyura* Walker, 1901, ♀. a, entire animal; b, antennula; c, antenna; d, pereopod 1; e, pereopod 7.

with some long dorsal setae. The head is broader than long, deeply sunk in the first thoracic segment. The eyes are present on long and slender lateral processes. The frontal margin is straight or slightly concave. The antennulae and the antennae appear as in Munnidae, the former being much larger than the latter. The peraeonites increase in length and breadth from 1 to 3, the first attaining anteriorly the ocular peduncles. The fourth peraeonite is about as long as the third. Peraeonites 5 to 7 are subequal in length, decreasing gradually in breadth.

The pleon consists of two segments, the first of which is inconspicuous. The second segment is suboval in its proximal part, which bears two curved teeth on each margin, the distal portion tapering to a long trombiform process clothed with setae in its terminal part. The coxal plates are visible from above on peraeonites 2, 3, and 5 to 7. Those on peraeonites 2, 3, 5, 6 terminate in a long and slender process bearing apically three strong setae. The coxal plates on peraeonite 7 are rounded and tipped with only one seta.

The antennulae (fig. 1, b) are strongly developed and much longer than the antennae. The peduncle consists of two segments, the first of which is twice as long as and much broader than the second. Both bear, in the distal portion, three strong and long setae. The flagellum is composed of four segments, the last of which is tipped with two long and flattened sensory filaments.

The antennae (fig. 1, c) have a six-segmented peduncle. The first three segments are short and stout, the third has a large inner expansion on its anterior margin, and is provided with a row of five long and stout setae. The fourth segment is broader but considerably shorter than the fifth, the latter being longer than the sixth. All segments bear some setae. The flagellum is composed of six segments, the last of which bears two long setae.

The mandibles (fig. 2, a) are highly modified. The body is substyliform, showing a flattened distal portion provided with four strong teeth which might be interpreted as a "pars incisiva". A subdistal portion, which is seen in the inner part of the mandible, is conical in shape and is provided with rows of very fine setae. This structure might be considered as a "pars molaris". There is no trace of a "lacinia mobilis" or a palp. The upper lip is rounded, bilobed (see fig. 1, a).

In the maxillulae (fig. 2, b) the outer lobe is normal, provided with seven apical pectinate spines. The inner lobe is rounded, and extremely reduced.

The maxillae (fig. 2, c) are normal. The inner lobes are subequal in length, the rostral one bearing four stout setae, the other having two setae like the outer lobe.

The lower lip is normal.

The epipod of the maxillipeds (fig. 2, d) is rounded distally. The endite is broad, rounded in the outer distal part and slightly concave at the anterior margin which is provided with many fine and short setae. The inner margin shows two retinacula. The palp is slender, five-segmented. All the segments are much narrower than the endite.

The first peraeopods (fig. 1, d) are subcheliform. The propodus is suboval, with a smooth palmar margin, bearing only some fine setae. The dactylus

is long, reaching the end of the propodus and bearing a lanceolate inner process in its proximal part.

Peraeopods 2 to 7 (fig. 1, e) are simple walking legs, being similar in structure and in the rich spination. The dactyli have one claw.

The male preoperculum (fig. 2, e) is of normal shape, tipped on both the

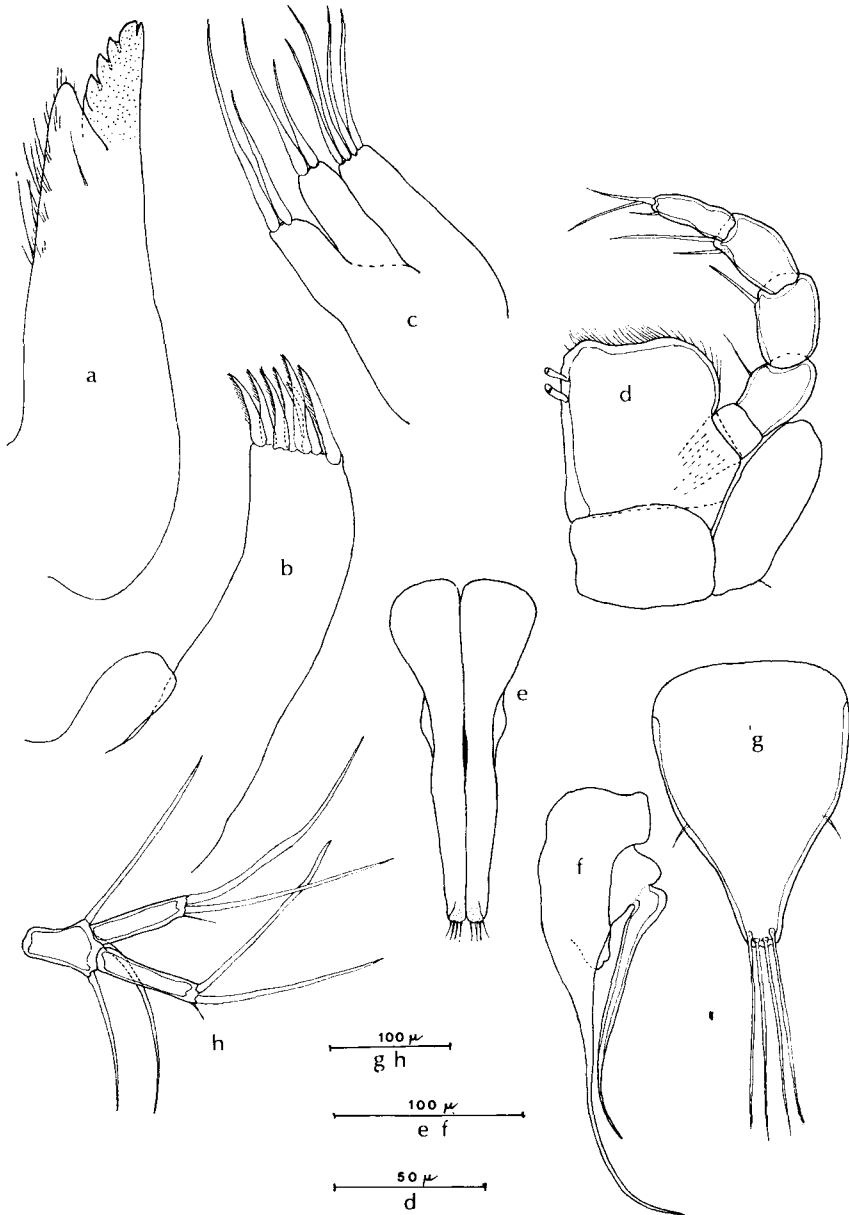


Fig. 2. *Pleurocope dasyura* Walker, 1901. a, right mandible; b, maxillula; c, maxilla; d, maxilliped; e, male pleopod 1; f, male pleopod 2; g, female operculum; h, uropod.

terminal lobes with four setae. The pleopods 2 (fig. 2, f) have a subtriangular sympod, tapering in a very long filiform process. The endopod is geniculate and slender. The female operculum (fig. 2, g) is pyriform, being provided distally with four long stiff setae.

The uropods (fig. 2, h) are biramous, inserted dorsally. The rami are subequal in length, being about one and a half times as long as the peduncle, each bearing two strong and curved setae. The peduncle has three setae of this type.

DISCUSSION

There are several differences between Walker's description of *Pleurocope* and ours. As has been stated above, these differences are mainly due to errors in Scott's drawings and to some incorrect interpretations given by Walker to these drawings. It must be stated, however, that some details appear so clearly wrong or different from our own that one could infer that Walker may have been dealing with another species. In any event, we have the impression that the general characteristics of our specimens show so many affinities with that described by Walker, that we do not find it necessary to consider them as belonging to a new species. The mentioned errors mainly concern the cephalic segment and its appendages. First of all the antennae have been described as the antennulae and *vice versa*. As a matter of fact, their relative positions are not so aberrant in respect to those that are normally seen in the forms nearest to *Pleurocope* and, in general, in the *Munna*-like asellotes. Furthermore, no doubt can exist when one takes into consideration the structure, namely of the peduncle, of these appendages. In the frontal part of the cephalon, Walker described "a lobe at the base of the upper antennae". In fact, there is no trace of this lobe and, as far as we can judge from the figure, we are dealing with the inner expansion of the third peduncular segment of the antenna which, when seen from above, could appear as a lobe of the frontal margin. On each lateral margin of the cephalon, Walker's figure shows two long and slender processes tipped with three setae. Those processes correspond, in our opinion, to the ocular lobes which have not been described by Walker. It is not easy to explain such a fact, assuming that our species and Walker's are identical. It might be due to the fact that when Walker's specimen was being drawn, the terminal part of the first peduncular segment of the antennulae covered the ocular lobe just at the level of the part bearing the three setae mentioned in our description.

Walker reported that he could not detect the mandibles of *Pleurocope*. However, these have been drawn in his paper as the inner lobes of the maxillulae. Moreover, in the same figure can be seen the actual inner lobe of the maxillula which corresponds perfectly to that which has been described above.

TAXONOMICAL REMARKS

As it has been stated above, Wolff (1962) was of the opinion that the monotypic genus *Pleurocope* should be included in the family of the Dendrotonidae

because of the following characteristics: (1) body with spines; (2) flagellum of the antennulae six-segmented (Wolff followed Walker's incorrect interpretation); (3) maxillipeds with segments 1-3 of the palp narrower than the endite; (4) pereopods 1 prehensile, all other pereopods simple, ambulatory legs with one claw; (5) uropods large and biramous; (6) all other characteristics as in the Munnidae.

In the following discussion, Wolff stated that *Pleurocope* differs from the other Dendrotionidae in the shape of the first segments of the antennula (very short segment 4 and very long segment 5 in the Dendrotionidae) and that of the epipod of the maxillipeds (acute in the Dendrotionidae). Since the mandible of *Pleurocope* was still unknown, Wolff regarded it as premature to make a special diagnosis for this genus.

In the light of the data mentioned in our description, *Pleurocope* does not belong to the Dendrotionidae for the following reasons: (1) antennae and antennulae have a different relative size; (2) the antennulae do not have six segments in the flagellum and do not show a very short segment 4 nor a long segment 5; (3) the mandible is substyliiform and has only a rudimentary structure referable to a molar process, whilst the Dendrotionidae have a normal mandible with a broad and truncate molar process; (4) in the Dendrotionidae the maxillulae are normal, whilst in *Pleurocope* they have a very reduced inner lobe.

These characteristics are, in our opinion, decisive for the erection of a new family to contain the genus *Pleurocope*: the Pleurocopidae new family. This, though allied in some respects to the Dendrotionidae, seems to occupy a very isolated position in the group of the *Munna*-like asellotes.

Pleurocopidae new family

Type genus: *Pleurocope* Walker, 1901.

Diagnosis: antennulae larger than the antennae; mandible substyliiform with rudimentary molar process; maxillulae with very reduced inner lobe; all the other characteristics as in the Dendrotionidae.

ACKNOWLEDGEMENTS

The second author wishes to express his thanks to the Deutsche Forschungsgemeinschaft and to the "Anton and Reinhard Dohrn-Foundation" (Naples, Italy) for supporting him in this research.

ZUSAMMENFASSUNG

Pleurocope dasyura Walker, 1901, hier neu und ergänzend beschrieben, wird Typus einer neuen Familie Pleurocopidae.

REFERENCES

- STEBBING, T. R. R., 1905. Report on the Isopoda collected by Professor Herdman, at Ceylon, in 1902. Rep. Ceylon Pearl Oyster Fish., suppl. Rep., **23**: 1-64.

- WALKER, A. O., 1901. Contributions to the malacostracan fauna of the Mediterranean. J. Linn. Soc. London, (Zool.) **28**: 290-307.
- WOLFF, T., 1962. The systematics and biology of bathyal and abyssal Isopoda Asellota. Galathea Rep., **6**: 1-320.