

Caecostenetroides ischitanum (ISOPODA: PARASTENETRIIDAE)
A new genus and species from the Bay of Naples

by

EUGENIO FRESI* and ULRICH SCHIECKE**

(From the Stazione Zoologica di Napoli, and the Department of Zoology,
University of Kiel, West Germany)

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Summary. A new and interesting interstitial Asellote: *Caecostenetroides ischitanum* (family: PARASTENETRIIDAE) from Ischia is described.

Riassunto. Si descrive un nuovo interessante Asellote interstiziale: *Caecostenetroides ischitanum* (fam. PARASTENETRIIDAE) proveniente da Ischia.

INTRODUCTION

The family PARASTENETRIIDAE has been created by AMAR (1957) to contain a new and interesting Asellote: *Gnathostenetroides laodicense* from the Syrian coast of the Mediterranean. This family establishes an important link between STENETRIIDAE and PARASELLIDAE. In fact the male pleopods I and II are shaped as in the STENETRIIDAE, but the pleopods I totally cover all the following ones. The female shows a large « operculum » formed by the fusion of the pleopods I, exactly as in the PARASELLIDAE. The pleopods III-V in both sexes are, as in the PARASELLIDAE.

This makes the erection of the family PARASTENETRIIDAE fully justifiable, especially considering the very important role played by the pleopods in the classification of Asellota, as pointed out by HANSEN (1904) and RACOVITZA (1920, 1924).

During the course of our research on the interstitial Peracarids along the coast of Ischia, we have found a number of Asellotes which, because of the features of the pleopods, undoubtedly belong to PARASTENETRIIDAE. They evidently differ from the genus *Gnathostenetroides* and show characteristics which necessitates the erection of a new genus and species: *Caecostenetroides ischitanum* which is described in the present work.

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Caecostenetroides n. gen.

Diagnosis — Body elongated, about nine times as long as broad. First pair of peraeopods sub-cheliform. Three abdominal somites. First male pleopods

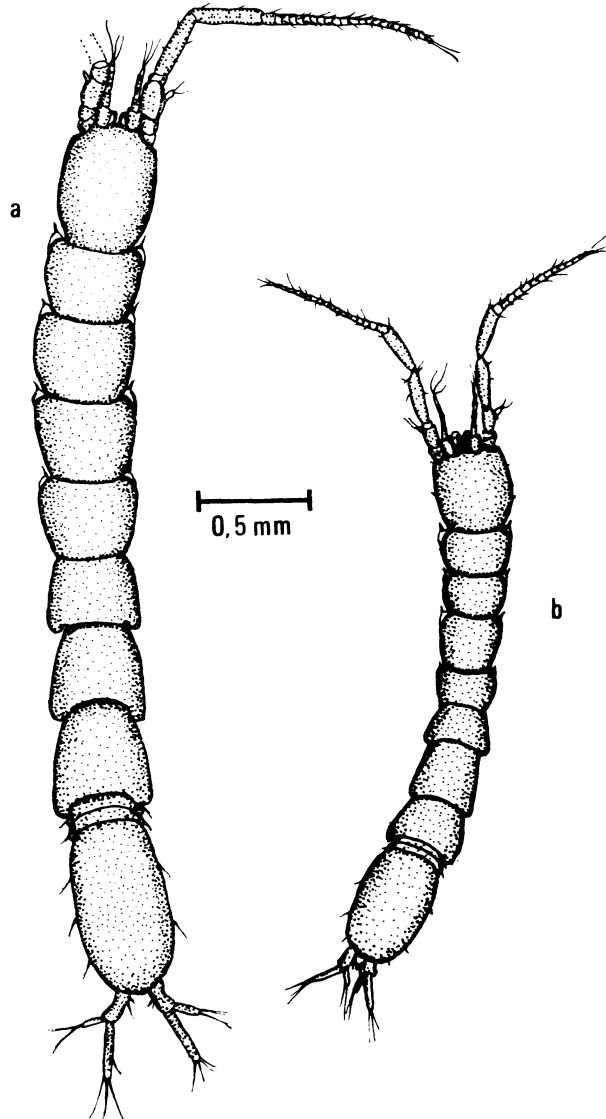


FIG. 1. a) *Holotype* (female); b) *Allotype* (male).

with fused sympods forming a biramous operculum totally covering the succeeding ones. First female pleopods completely fused, forming a large operculum covering the following pleopods. Mouth-pieces normal, without sexual differences.

Caecostenetroides ischitanum n. sp.

Holotype: non-ovigerous female (fig. 1, a).

Length: 3.0 mm.

Colour: whitish, translucent in the live animal.

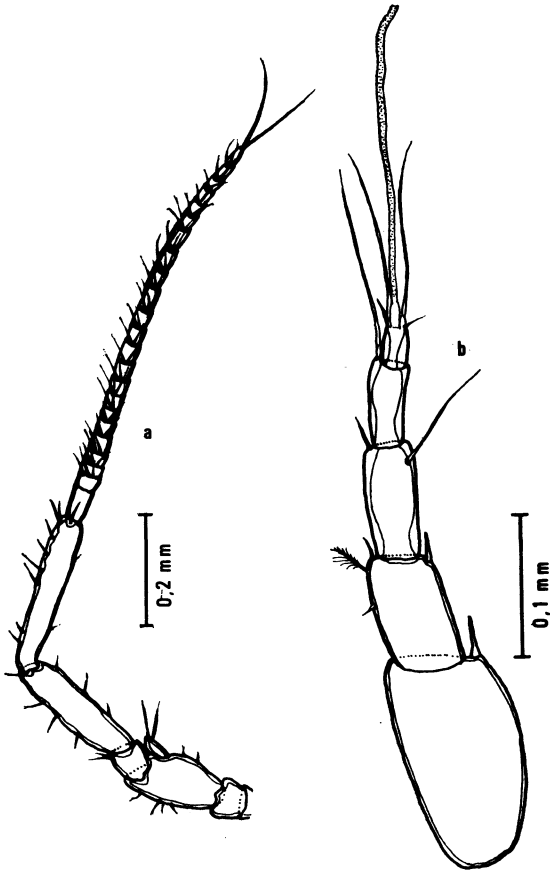


FIG. 2. a) right antenna; b) right antennula.

Cephalon: almost oval, a little longer than broad, with a very short rostral plate. Eyes lacking.

Thoracic segments: Segments I-IV sub-equal in length and breadth, with epimera bearing a short spine directed anteriorly. Fifth pereopod the shortest. VI-VII sub-equal in length.

Pleon: first two somites sub-equal in length and breadth, together one sixth as long as the third, with posterior lateral angles projected backwards, each

bearing a seta. Pleotelson oval, twice as long as broad, with some marginal setae.

Antennulae (fig. 2, b): short. Peduncle two-jointed, the first being one and a half times as long as the second. Both have, on their outer distal angle, a

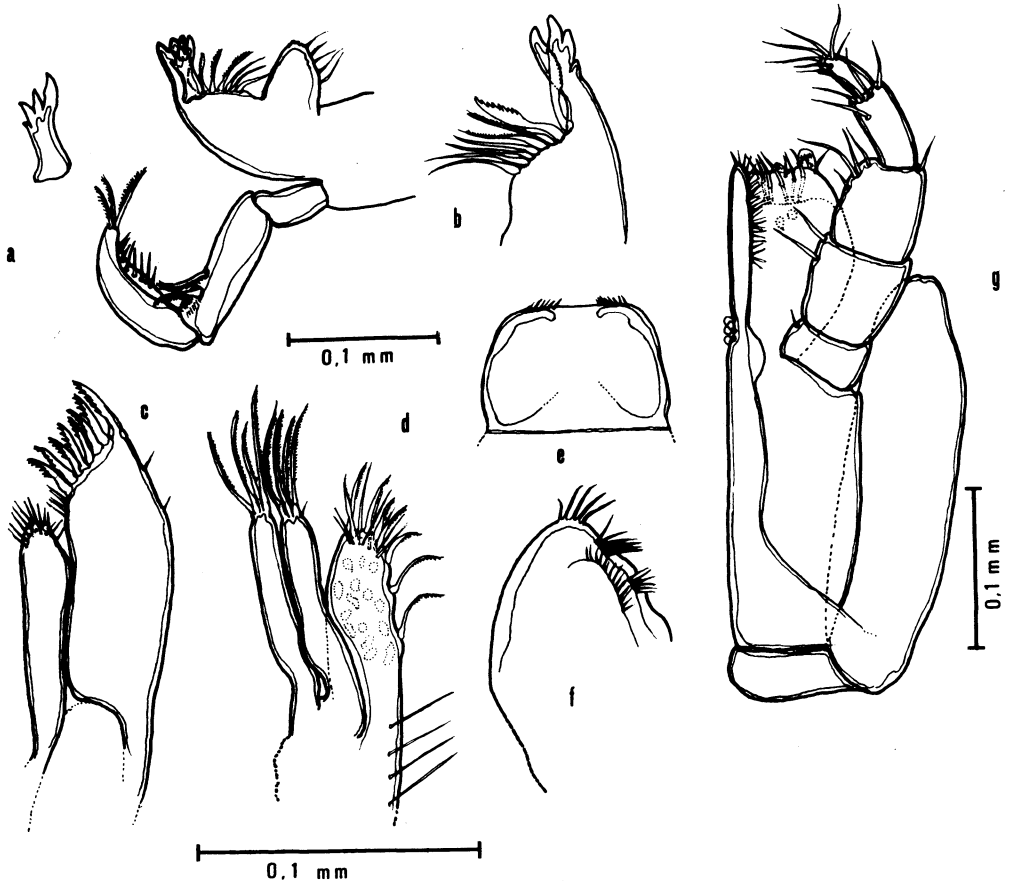


FIG. 3. a) left mandible with « lacinia mobilis »; b) right mandible; c) maxillula; d) maxilla; e) upper lip; f) lower lip; g) maxilliped.

strong short spine. The second has also a plumous seta on the distal portion of the outer margin. Flagellum three-jointed. The first joint is the longest, the second twice as long as the third. This bears a couple of long setae and a very long flattened one.

Antennae (fig. 2, a): Total length of the antennae half that of the body. Peduncle six-jointed. First and second joints short. The third is longer, being more than twice as long as the second and bears a scale-like exopod with two setae. Fourth joint half as long as the third. Fifth joint shorter than the sixth

which is the longest of the peduncle. Flagellum multi-articulate (23 joints) about as long as the peduncle. All joints bear three setae on their anterior margin.

Mandibles (fig. 3, a and b): *Pars incisiva* with four teeth, one of which is much smaller than the others. *Lacinia mobilis* present on the left mandible, being provided with four teeth. *Spine-row* with six spines on the left and with eight on the right mandible. The first couple of spines are larger and finely denticulated. *Pars molaris* large, cone-like. Palp three-jointed. First joint naked, half as long as the second. This bears two pectinate spines and a row of short and fine setae on the inferior margin. Third joint almost as long as the second, but broader. It bears a row of eight short spines and is tipped with three pectinate spines.

Maxillulae (fig. 3, c): normal. The outer lobe has eight strong pectinate spines. Inner lobe shorter and narrower with many apical short setae.

Maxillae (fig. 3, d): normal. Outer lobes sub-equal in length and breadth, both having four long pectinate spines. Inner lobe shorter and wider than the outer ones, having eight pectinate spines and many setae, especially in the apical and inner region.

Upper lip (fig. 3, e): normal. Trapezoidal lamella with two separate rows of short and fine setae in the apical region.

Lower lip (fig. 3, f): normal. Divided in two lobes bearing many short setae in the apical and inner region.

Maxillipeds (fig. 3, g): Endite elongate. The anterior margin has some short and robust setae and two rounded, flat processes similar to those described by AMAR in *G. laodicense*. Three coupling-hooks on the inner border. Palp five-jointed, the first three joints being moderately dilated. IV and V joints narrower. First joint half as long as the second, this having two setae on the inner margin. Third joint as long as the second with four setae on the inner margin. Fourth joint less than half as broad and almost as long as the third, having some setae at the distal extremity. Fifth joint half as long as the preceding ones with some apical setae. Epipodite ellipse-shaped, not reaching the articulation between the second and the third joint of the palp.

Peraeopods: first peraeopods (fig. 4 a) sub-cheliform, shaped as in STENETRIIDAE. More robust than the other legs, they are nearly as long as the second ones. Carpus triangular with distal base a little broader than the propodus. On the inferior margin it has three pectinate spines and some long setae. Propodus more than twice as long as broad, with straight lateral margins. On the palmar margin there are six pectinate spines, the strongest and longest of which is that inserted at the distal angle. This spine bears a fine sub-apical seta. The two following spines are much shorter. The propodus has also some long setae at the distal extremity. Dactylus less than half as long as the

propodus, with three short pectinate spines on the inferior margin. The terminal simple claw is about half as long as the dactylus.

Peraeopods II-VII (fig. 4, b and c) all of the same shape, with a short dactylus bearing two curved claws.

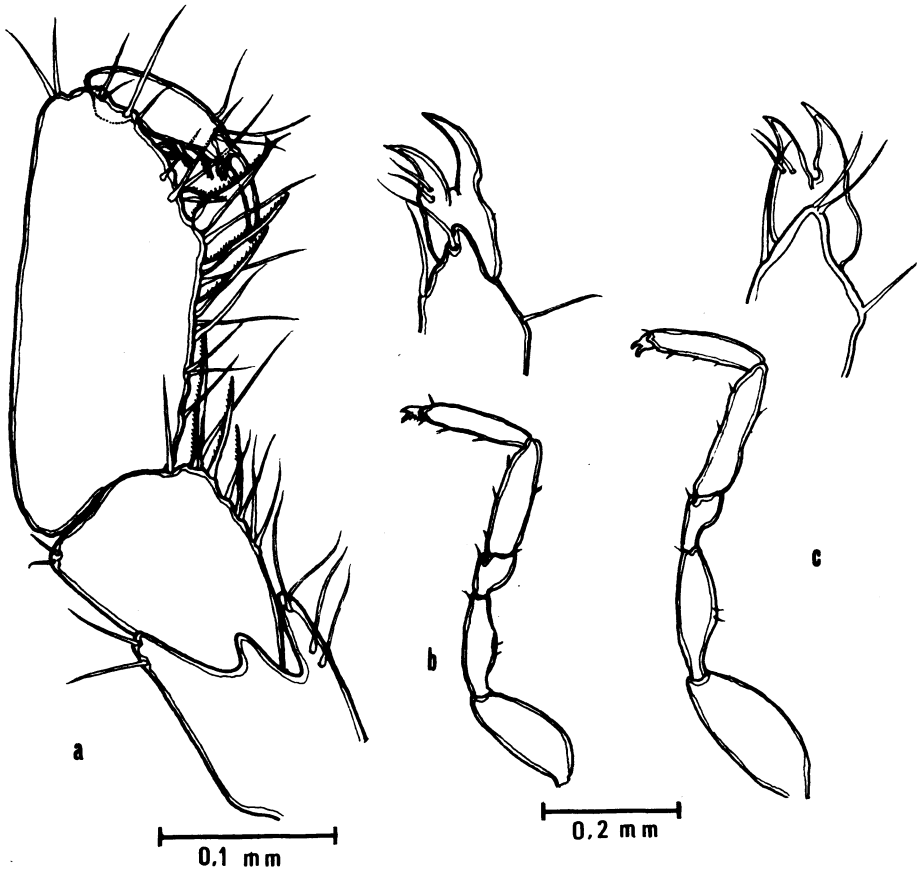


FIG. 4. a) peraeopod I; b) peraeopod II (above: detail of the dactylus); c) peraeopod VII (above: detail of the dactylus).

Pleopods: pleopods I (fig. 5, a) (operculum) medially fused, totally covering the succeeding ones, as in the PARASELLIDAE. At the distal extremity they have a remarkable indentation separating two rounded lobes provided with a few short setae. Pleopods III (fig. 6, a) with rectangular sympod. Exopod two-jointed, rounded at both extremities, with two setae on the outer margin and one on the distal one.

Endopod a little narrower than the exopod, bearing three plumous setae at the rounded distal extremity.

Pleopods IV (fig. 6,b) of the same shape. However the exopod bears two plumous setae at the apical end; the endopod has only a distal short spine. Pleopods V (fig. 6,c) non-jointed, almost rectangular in shape, with a short plumous spine at the rounded distal extremity.

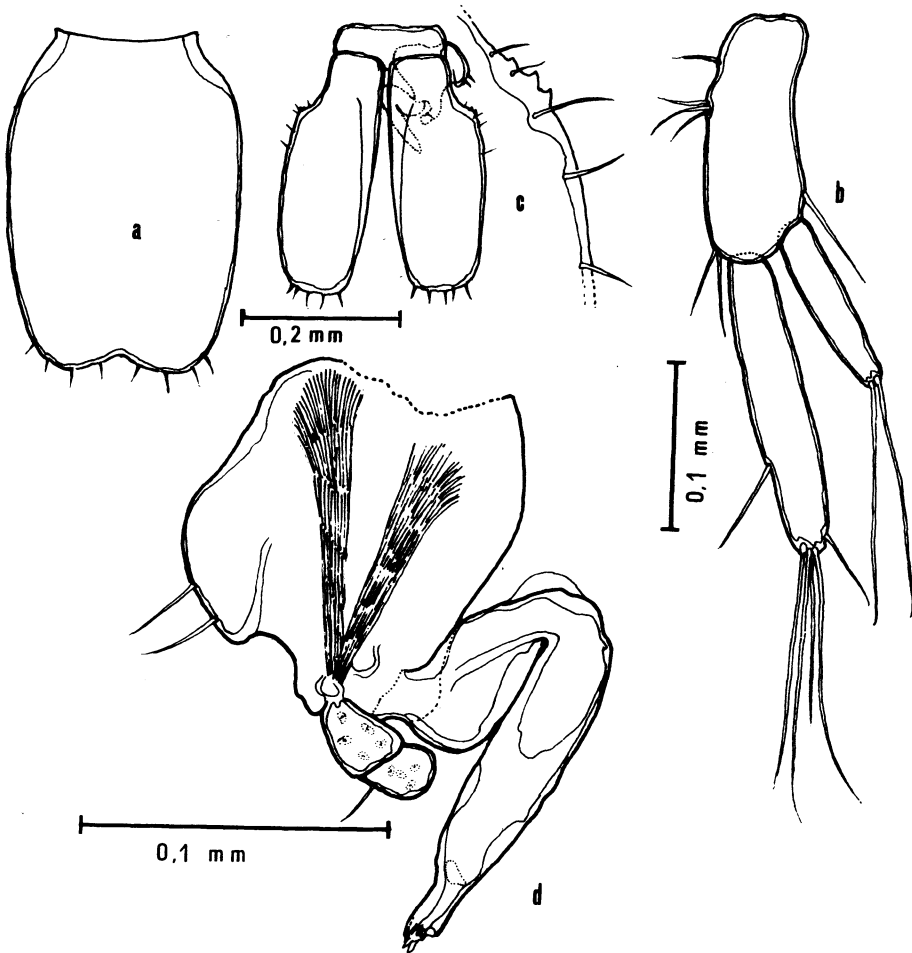


FIG. 5. a) female pleopods I; b) female uropod; c) male pleopods I; d) male pleopods II.

Uropods (fig. 5,b): biramous, half as long as the pleotelson. Sympod sub-rectangular, a little shorter than the endopod, bearing some setae especially on the inner margin. Endopod less than twice as long as the exopod, both being tipped with long setae.

Allotype: male (fig. 1, b).

Length: 2.1 mm.

General features: as in the female.

Antennulae: as in the female.

Antennae: as in the female.

Mouth pieces: as in the female.

Peraeopods: as in the female.

Pleopods: pleopods I (fig. 5, c) with sympods rather short, rectangular, fused medially. The two exopods cover the whole ventral part of the pleotelson.

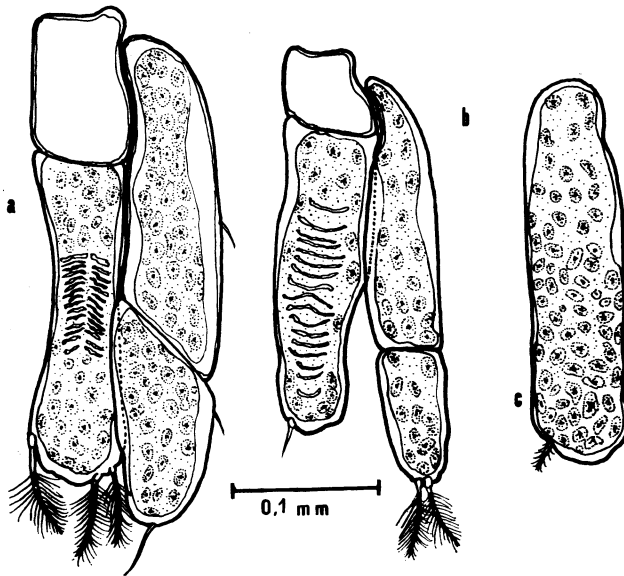


FIG. 6. a) pleopod III; b) pleopod IV; c) pleopod V.

Proximal third of the exopods narrower than the following, forming an angle on which are seen three small teeth and some short setae. Inner margin straight, distal ones rounded, bearing five setae. Pleopods II (fig. 5, d) with square sympod having the outer inferior margin strongly indented. Before this indentation there is a convex region bearing two somewhat long setae. The inner margin is evidently convex. Exopod short (two and a half times as short as the sympod), two-jointed, with a seta on the outer margin of the distal joint. Endopod much more developed than the exopod, geniculate, narrowing distally. The extremity of the endopod is provided with some denticulations. Total length of the pleopods II (measured from the top of the sympod to the extremity of the endopod) less than half that of the pleopods I. The topographic relations between the two pairs of pleopods are shown in fig. 5, b. Pleopods III-V as in the female.

Uropods: as in the female.

Types: Holotype and Allotype have been deposited with three Paratypes in the Museum of the Stazione Zoologica di Napoli.

Type-locality: Ischia, North. Spiaggia degli Inglesi, coarse sand. Depth 0.5 m, in the vicinity of a warm-water source.

REMARKS

The features of the pleopods I and II of the male evidently bring *Caecostenetroides* n. gen. into the family PARASTENETRIIDAE AMAR. Never the less there are many and important differences between this and the type-genus of the family, *Gnathostenetroides*. This latter is very close, in general features, to the genus *Stenetrium* while *Caecostenetroides* resembles representatives of PARASELLIDAE such as *Caecianiropsis* MENZIES & PETIT (1956) which shows the same moniliform aspect of the body.

One of the most striking differences is the strong sexual dimorphism which is seen in *Gnathostenetroides*. In this genus the male has a long tusk-like process on each mandible which is very reduced in the female. In *Caecostenetroides* no structure like that is found in the mandible. For this reason we would not consider this character as distinctive for the family (WOLFF, 1962), but only for the genus *Gnathostenetroides*.

The importance of the family PARASTENETRIIDAE as a link between STENETRIIDAE and PARASELLIDAE has been pointed out by WOLFF in his excellent work. In the opinion of this Author the presence in *Gnathostenetroides* of three abdominal somites might indicate that this genus is closer to STENETRIIDAE and ASELLIDAE rather than to PARASELLIDAE, which have normally only two pleonites. This character in the two first families should be regarded as a primitive one (MENZIES & AL., 1961).

However there are many indications of PARASELLIDAE having three abdominal somites. For instance CHAPPUIS, (1951) describing *Pseudoasellus nicholli*, reports: « Les deux segments libre du pléon, invisibles sur la partie dorsale ». MATSUMOTO (1956) in *Mackinia japonica* draws three pleonites, but does not indicate in the text the number of the pleonites themselves. In regard to *Mackinia*, BIRSTEIN (1961) claims that: «it must be surmised that an error has been committed in the figure given by MATSUMOTO and that in reality *Mackinia*, has but one free abdominal somite ». It is clear that the opinion of BIRSTEIN is that none of the PARASELLIDAE have three pleonites. On the contrary, WOLFF remarks that the number of pleonites is probably not very significant in the classification of Asellota since there are one or two in e.g. *Ilyarachna* and most EURYCOPIDAE, two or three in *Storothyngura* (Three, at least in *Storothyngura novaezelandiae* WOLFF) and two or three in *Stylomesus*, *Heteromesus* and *Haplomesus*. Further, the same

Author adds: « The number of pleonites varies within well defined families and even within the genera in the Asellota ».

We think that once again, the *pleopods* should be regarded as the most important character in the classification of Asellota as suggested by HANSEN. In this way, although the first and second pair of male pleopods in PARASTENETRIIDAE are similar to those of STENETRIIDAE, (the pleopods I however are, in PARASTENETRIIDAE, as much developed as in PARASELLIDAE) the pleopods III have never an opercular function, (such as in STENETRIIDAE) but the classic form of the pleopods III in PARASELLIDAE. Further, the female pleopods I form an operculum exactly as in PARASELLIDAE, so that, having only the female of *Gnathostenetroides* (and *Caecostenetroides*): « L'examen s'avère insuffisante pour établir leur position systématique réelle » as AMAR states.

Thus we would think that, though the systematic position of PARASTENETRIIDAE is intermediate between STENETRIIDAE and PARASELLIDAE, it seems probably better to consider this family closer to PARASELLIDAE rather than to STENETRIIDAE.

LITERATURE CITED

- AMAR, R., 1957: *Gnathostenetroides laodicense* nov. gen. nov. sp. Type nouveau d'Asellota et Classification des Isopodes Asellotes. Bull. Inst. Océanogr. Monaco, N. 1100, 1-10.
- BIRSTEIN, J. A., 1961: *Microthambema tenuis* n. gen., n. sp. (Isopoda Asellota) and relations of some Asellote Isopods. Crustaceana 2, 2, 132-141.
- CHAPPUIS, P. A., 1951: Un nouveau Parasellide de Tasmanie, *Pseudoasellus nichollsi* n. gen. n. sp. Arch. Zool. exp. gén. 88, 1, Notes et Revue, II, 7-19.
- HANSEN, H. J., 1904: On the morphology and classification of the Asellota-group of Crustaceans, with description of the genus *Stenetrium* Hasw. and its species, Proc. zool. Soc. London. 2, 302-331.
- MATSUMOTO, K., 1956: On the two new subterranean water Isopods, *Mackinia japonica* gen. et sp. nov. and *Asellus hubrichti* sp. nov. Bull. Jap. Soc. sci. Fish. 21. N. 12, 1219-1225.
- MENZIERS, R. J., J. IMBRIE and B. C. HEEZEN, 1961: Further considerations regarding the antiquity of the abyssal fauna with evidence for a changing abyssal environment. Deep-Sea Res. 8, 2, 79-94.
- MENZIERS, R. J., and J. PETIT, 1956: A new genus and species of marine asellote Isopod, *Caecianiropsis psammophila*, from California. Proc. U.S. nat. Mus. 106, 441-446.
- RACOVITZA, E. G., 1920: Notes sur les Isopodes. 7. Les pléopodes I et II des Asellides; morphologie et développement. Arch. Zool. exp. gén. 58, Notes et Revue 4, 95-115.
- , 1924: Notes sur les Isopodes. 12. Morphologie et morphogénie des pléopodes I et II des femelles des Asellides. Arch. Zool. exp. gén. 62, Notes et Revue 2, 35-48.
- WOLFF, T., 1962: The systematics and biology of bathyal and abyssal Isopoda Asellota. Galathea Rep. 6, 1-320.

Dr. E. FRESI and U. SCHIECKE, Reparto di Ecologia Marina, Stazione Zoologica di Napoli, Punta San Pietro, Porto d'Ischia, Napoli, Italy.