

The genus *Jaeropsis* KOEHLER (ISOPODA: JANIRIDAE) in the Bay of Naples

by

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23 Figures

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Summary. Three species of *Jaeropsis* have been found in the Bay of Naples: *J. brevicornis littoralis* (new for the Italian coasts), *J. dollfusi* (of which a new and complete description is given) and *J. montalentii* n. sp.. A revised key for the identification of mediterranean *Jaeropsis* is given, too.

Riassunto. Tre specie di *Jaeropsis* sono state rinvenute nel Golfo di Napoli: *J. brevicornis littoralis* (nuova per le coste italiane) *J. dollfusi* (di cui è data una nuova e completa descrizione) e *J. montalentii* n. sp.. Si fornisce altresì una chiave aggiornata per l'identificazione delle *Jaeropsis* nel Mediterraneo.

INTRODUCTION

Jaeropsis KOEHLER, type-genus of the *Jaeropsini* group, (NORDENSTAM, 1933) is well characterised and rather homogeneous. In fact the species belonging to it are often very similar to one another and differ only in some anatomical features.

At present, only four species of *Jaeropsis* have been found in the Mediterranean and it should be noted that in almost all cases the collected samples contained only a few specimens, sometimes only one.

The first species, *Jaeropsis dollfusi*, has been found in the Bay of Naples by NORMAN (1899) and not at Messina as MONOD (1925) said. This species has been successively observed by WALKER (1901) at Cannes and afterwards by MONOD, who considered as *J. dollfusi* a specimen found by DOLLFUS at the Fedhala beach in Morocco. There is not any later reference to this species.

It should be pointed out that the description of this species is rather brief and that some of NORMAN's observations and diagrams are undoubtedly incorrect (e.g. the II joint of the palp of the maxilliped, the male pre-operculum etc.). However, in the opinion of many authors (BOCQUET & LEMERCIER, 1958; AMAR, 1961; JUCHAULT, 1962) the structure of some anatomical characters seems to be distinctive enough to guarantee the validity of this species. In the light of this fact, as AMAR states, some doubts on the correctness of WALKER's and MONOD's reports must be expressed. On the other hand, we must remember that at the times of the above reports, *J. dollfusi* was the only known species representing the genus in the Mediterranean, so it is quite obvious that WALKER and MONOD related their specimens to it.

In chronological order, the second species recorded along the mediterranean coasts is *Jaeropsis littoralis* AMAR, (1949) from the Calanque d'En-Vau, South-East of Marseilles. Again AMAR (1952) and then BOCQUET (1953) found it along the coasts of Corsica. Successively BOCQUET & LEMERCIER described this species as a sub-species of *J. brevicornis* (atlantic French coast) naming it as *J. brevicornis littoralis*.

AMAR himself (1961), having only one male specimen, described *Jaeropsis mediterranea* from the Bay of Marseilles.

Finally JUCHAULT (1962) gave a description of *Jaeropsis legrandi* from Banyuls-sur-Mer. This is the most similar of the Mediterranean *Jaeropsis* to *J. dollfusi*, from which it differs in only a few characteristics.

In fact JUCHAULT himself states that: « Une redescription plus précise de *J. dollfusi* amènera, peut-être, à considerer *J. legrandi* comme une sous-espèce ».

This short summary shows that for the Italian coasts, except the old record of NORMAN, we do not have any indications about the occurrence of the genus *Jaeropsis*. Therefore I carried out some research in the Bay of Naples (at the Stazione Zoologica) extended over the whole of the bay, mainly by SCUBA diving, at depths between 0 and 70 m.

In this way I have been able to find numerous specimens of *Jaeropsis* belonging to three species: *J. brevicornis littoralis*, *J. dollfusi* and *J. montalentii* n. sp.

1. *Jaeropsis brevicornis littoralis* AMAR (Fig. 1, 2).

Jaeropsis littoralis AMAR, 1949. Bull. Hist. Nat., Marseille, **IX**, 1, pag. 1-11.

Jaeropsis brevicornis littoralis, BOCQUET et LEMERCIER, 1958, Arch. Zool. Exp. Gen., France, **96**, pag. 35-53.

Localities: St. Lucia, Gand Hôtel, Donn'Anna, Trentaremi, Nisida, Punta Tiberio (Capri).
Length: 2-3 mm.

Numerous adult specimens ♂♂ and ♀♀.

For the description, see AMAR (1949).

It is with some hesitation that I have decided to attribute the Neapolitan specimens to this species because of some differences which are difficult to assess without a comparative analysis of sufficiently quantitative samples.

The most apparent difference is that in the Neapolitan specimens the transverse-lateral angles of the thoracic segments are more acute than in the French ones, and the segments themselves seem to be narrower. Further, the pleotelson has only five teeth instead of 6-8; the fifth joint of the antennal peduncle bears a more crenulated membrane and has very few bristles on the outer margin. There is a particular structure on the ventral side of this joint which, as far as I know, has never been described by the authors who have previously worked on *Jaeropsis*. It consists of a rather deep cavity starting from the outer margin

near the hyaline membrane and finishing not very far from the inner margin where there is a convex region, approximately cylindrical in shape, carrying a narrow and slightly crenulated membrane.

As for the other anatomical features, it is not possible to observe any other essential differences, except that in general, the Neapolitan specimens seem to have a lesser number of bristles and to be more pigmented.

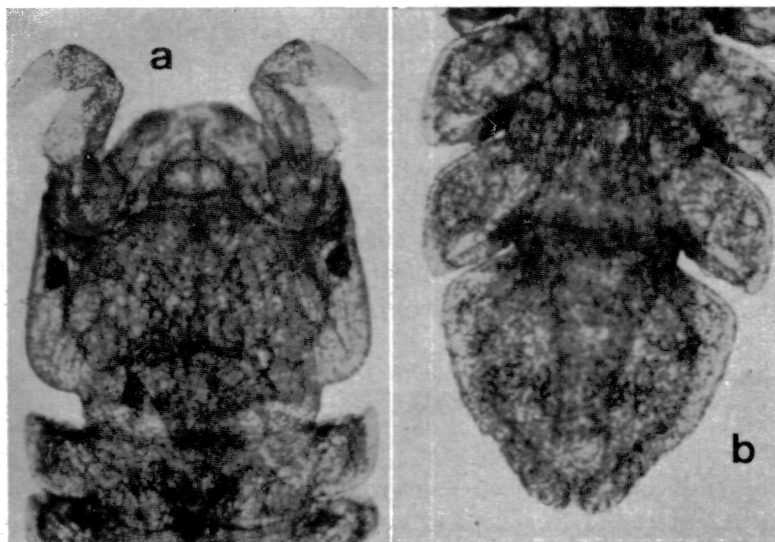


FIG. 1. - *Jaeropsis brevicornis littoralis*: adult ♂. a. cephalic region. b. pleotelson region.

It is difficult to say how much importance can be attributed to these differences, considered either singularly or collectively. In any case I would like to stress that it is convenient when dealing with these Isopods to give only relative importance to quantitative factors, such as the greater or lesser number of « phanerae » on homologous anatomical parts.

As I pointed out above, only a comparative analysis of sufficiently numerous samples either by mathematical calculations, caryological studies or hybridisation experiments could lead to an objective evaluation of the above differences.

DISTRIBUTION OF *Jaeropsis brevicornis littoralis* IN THE BAY OF NAPLES

This species seems to have a rather superficial distribution, in fact I have found it at depths between 0 and 5 m. A similar distribution has also been observed by AMAR who collected these *Jaeropsis* at a corresponding depth, under the « trottoir » of *Tenarea* (syn: *Lithophyllum*) *tortuosa*. On the other hand, I have found *J. brevicornis litto-*

ralis at a lower depth (— 20 m) at St. Lucia, probably because this locality is not sheltered from the waves. This would imply that the exposure to the action of waves is a controlling factor in the vertical distribution of *Jaeropsis*, but it does not exclude that this species has a greater distribution in relation to depth than can be determined from the above data.

The substrates on which I have found this species are various, for instance: *Mytilus*, *Balanus*, *Dictyopterus*, *Halimeda*, *Bangia*, etc. so that at the moment I am unable to say which one *J. brevicornis littoralis* favours. In general the presence of Hydrozoa seems to be necessary because it represents the basic food for these animals (BOCQUET & LEMERCIER, 1958).

Finally it is interesting to note that this species occurs mostly in the inner part of the Bay of Naples, where the water is certainly more polluted and the inflow of fresh water is greater.

2. *Jaeropsis dollfusi* NORMAN (Fig. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13).

Jaeropsis dollfusi NORMAN, 1899, Ann. & Mag. of Nat. Hist. Ser. 7, vol. IX, pag. 290-292, pl. v.

Localities: Punta Pizzago (Procida), Banco di Capo Miseno, Banco di S. Croce (Vico Equense), Vervecce di Massa Lubrense, Bocca Piccola di Capri, Punta Tiberio (Capri).

Length: 2.35 mm.

Numerous adult specimens ♂ ♂ and ♀ ♀.

As was noted in the introduction, the description of the species made by NORMAN is rather incomplete and not quite correct. Because of this incompleteness and the fact that the description was made on a single specimen, it was indispensable to make a new and correct diagnosis of *Jaeropsis dollfusi*.

Now, having found in the bay of Naples and in particular in Bocca Piccola di Capri, where NORMAN's specimen was probably collected¹, numerous *Jaeropsis* which the analysis revealed to be very close to *J. dollfusi*, I believe them to belong to this species.

Therefore, keeping the original name *Jaeropsis dollfusi*, this new description has been made in order to remedy the defects and to correct the errors of the initial diagnosis in the light of the abundant material which has been examined.

General features. Body elongated which, because of the subequal breadth of the cephalon and of the free thoracic segments, shows the typical shape of the genus *Jaeropsis* practically inscribable in a rectangle. The cephalon, being longer than broad, has lateral margins carrying a narrow hyaline membrane with a very fine denticulation directed forwards. In the ocular region, such margins show

¹ NORMAN says: « Found in material dredged near Capri »

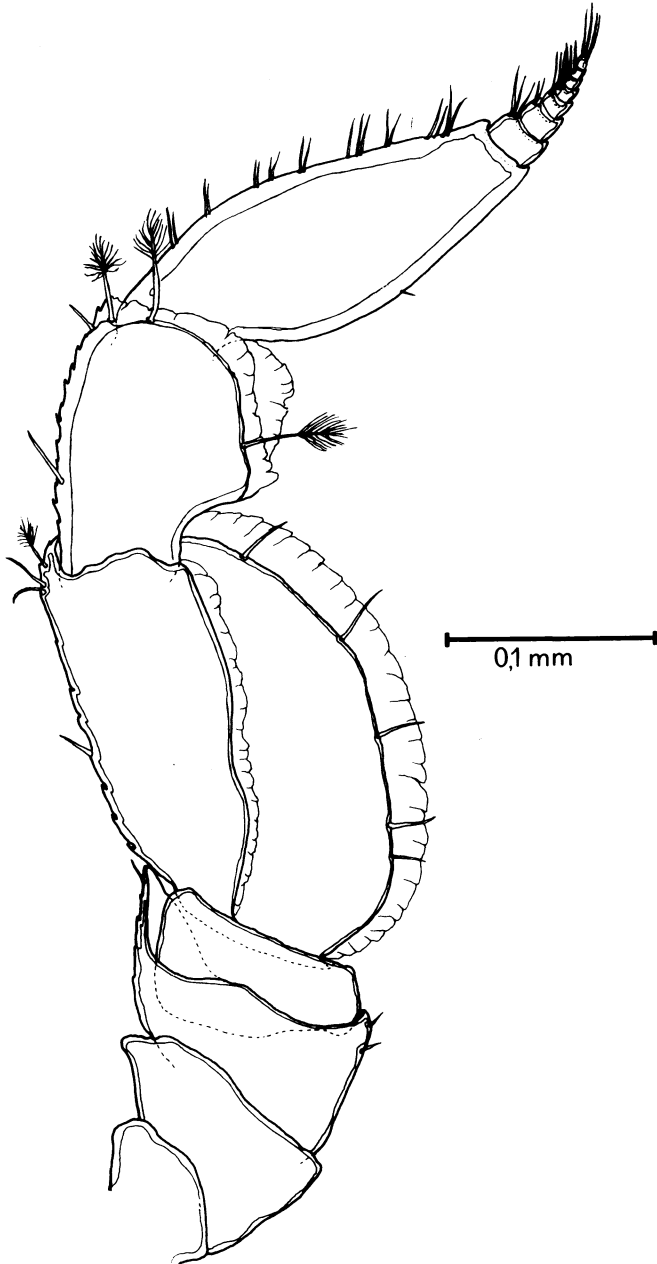


FIG. 2. - *J. brevicornis littoralis*: adult ♂. Antenna.

an evident sinuosity so that the whole anterior portion of the cephalon is narrower than the posterior one, this being as broad as the first peraeon.

Remarkably sinuous, the anterior margin is prolonged into a circular clipeus, the edge of which has a transparent membrane with an irregular denticulation.

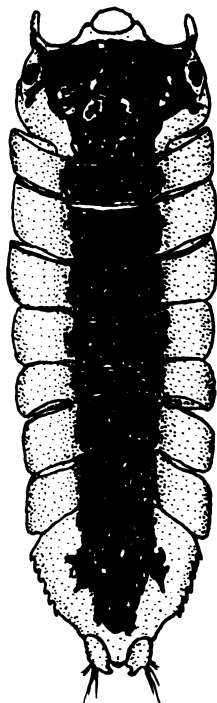
The posterior region of the cephalon is rather narrow at the back forming a short « neck » articulated with the first thoracic segment.

Eyes relatively small, black, situated rather dorsally. Peraeons with lateral denticulated edges. The anterior lateral angles of the peraeons I and II are acute, right in the III. The lateral posterior angles of the segments IV, V, VI, VII are acute.

Pleotelson subtriangular, longer than broad. Its lateral margins constantly carry 8 serrations and numerous bristles. At the sharpening distal extremity, there are two dorsal cavities containing a pair of rather small uropods. The pigmentation is variable. The most characteristic one being a stripe of shiny brown colour, extended over the whole central part of the body, from the cephalon to the pleotelson. The cephalon itself shows a quite constant design in which can be seen at least four large areas, irregularly circular in outline, from which the chromatophores are practically missing. In other cases, the pigment is limited to the cephalon while the rest of the body is yellowish in color. Lastly, particularly in specimens collected at depths of 50-70 m, the pigmentation is uniform and extends over the whole body.

The general features do not differ in the two sexes.

Antennulae. Formed, as in all the representatives of the genus *Jaeropsis*, by a four jointed peduncle and a two jointed flagellum. The first joint is slightly longer than broad, compressed in the dorso-ventral plane. Its distal exterior angle



0,5 mm

FIG. 3. - *Jaeropsis dollfusi*: adult ♀. *Habitus*.

has a hyaline membrane partially extended over the anterior border, cut into a variable number of tooth-like processes (4-8). The distal interior angle is projected in two evident points. The proximal articulation of this joint has a remarkable central sinuosity.

The second joint is slightly shorter than the first, but much narrower. It noticeably widens in its distal region. It has 1-5 plume-like bristles.

The third joint is shorter and narrower than the preceding one and bears a plume-like bristle, likewise the fourth and last joint of the peduncle.

The flagellum is composed of two segments, the last of which is rudimentary, while the first is rather thin and elongated. It has some bristles at its extremity and two special ones (called « en asque » by french authors) flattened and lengthened being broader in their distal region. The second joint of the flagellum, which is not easily seen, also has one of these special bristles.

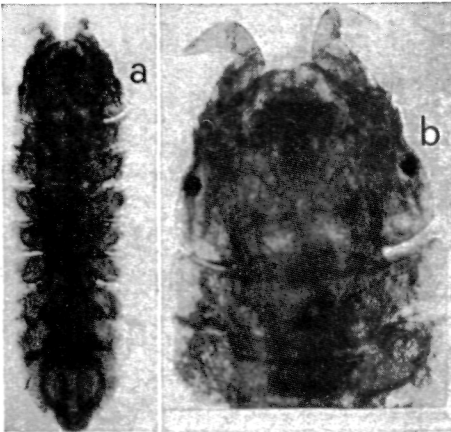


FIG. 4. - *J. dollfusi*: adult ♀. a. Habitus. b. cephalic region.

Antennae. Formed by a six-jointed peduncle and by a nine-jointed flagellum. The first four joints of the peduncle are short and situated one within the other so that it is difficult to observe their exact shape. However, the most characteristic one is the third which has, in its distal and inner region, a hook-like process bearing a sturdy bristle, which is projected alongside the base of the fifth joint. All these segments are vaguely cylindrical in shape and appear to be slightly compressed dorsoventrally. The fifth joint of the peduncle is the most developed one. Roughly elliptic in shape, narrowing proximally, it has on the outer margin the typical hyaline membrane which is remarkably crenulated (but often it is rather smooth) generally with 3-4 simple bristles (which can be missing). On the inner side, this joint has, in a rather proximal region, two or three tooth-like and very characteristic processes. The whole inner margin shows several serrations and some bristles one of which, in the distal region, appears to be plume-like.

The sixth joint is vaguely trapezoidal with the major base distally situated. In this region there is a cavity for the basal part of the first flagellar joint when it is folded backwards. Such a cavity is surrounded by a slightly crenulated

hyaline membrane. This distal region has either on the inner or the outer margin a long plume-like bristle. Numerous simple bristles are also present on the inner margin.

The first joint of the flagellum is of an elongated and distally narrowing elliptic form. Its outer margin has some denticulations, meanwhile on the inner one (which in the living animal is directed forwards) there are numerous bunches of relatively long simple bristles. This joint is projected anteriorly into two short points. The remaining seven joints (in not a few cases there are 8,9) become

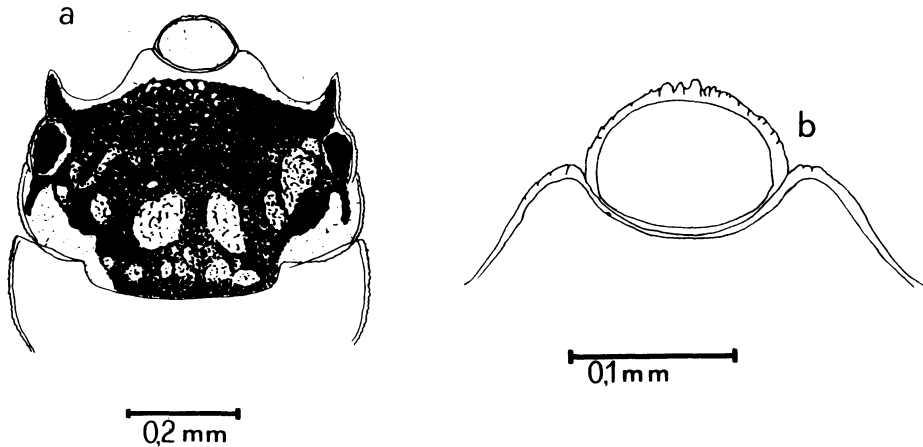


FIG. 5. - *J. dollfusi*: adult ♀. a. design of the cephalic region. b. clipeus.

thinner and thinner as they proceed distally. Every one has, on the inner margin, a bunch of 34 hairs and on the outer one, some single bristles. The last joint has a tuft of hairs on the apical region.

Upper lip. Semicircular lamella with some short bristles in the centro-distal region which appears to be reasonably thick.

Mandibles. The « pars incisiva » generally has four large teeth and two smaller ones. In some cases however, there are only five teeth, a number which seems to be very widespread within the genus *Jaeropsis*. The « pars incisiva » is twisted 90° in the horizontal plane in respect to the mandibular body with which it is connected in a complicated way.

As in all the representatives of the genus, there is not the « lacinia mobilis ». The « spines row » in the majority of the individuals examined is composed of 9 spines, rather uniform in shape, a little shorter and sturdy distally, all finely pectinated, except the last two or three. In the left mandible, between the second

and the third spine, there is a characteristic process in the shape of a rounded tooth which has been described by AMAR in *J. brevicornis littoralis*.

The «pars molaris» has the typical form of the genus, like a subtle cone sinuously edged with fine denticulations especially in the distal portion. The palp is triarticulated. The first joint widens in the distal region. The second has 3 plume-like bristles, likewise the third which is also edged by a beard of fine short hairs.

The ornamentation of the palp varies remarkably with age: in a large male specimen (3,8 mm long) I have found 5 plume-like bristles on the second joint and even 7 on the third one which also bears some simple bristles.

Maxillulae. These appendages are not very different from those which have been described in other species. The inner endite, slightly curved, has 3 long bristles with a puffed cylindrical base and a number of simple bristles. The outer endite has 12 large spiny curved processes which bear flattened teeth on their inner face. These teeth have a comblike disposition.

Maxillae. These appendages also are typical and similar to those of the other species. Endite of the coxopodite short and carrying three main comb-like spines with puffed cylindrical base and a number of short bristles on the inner margin.

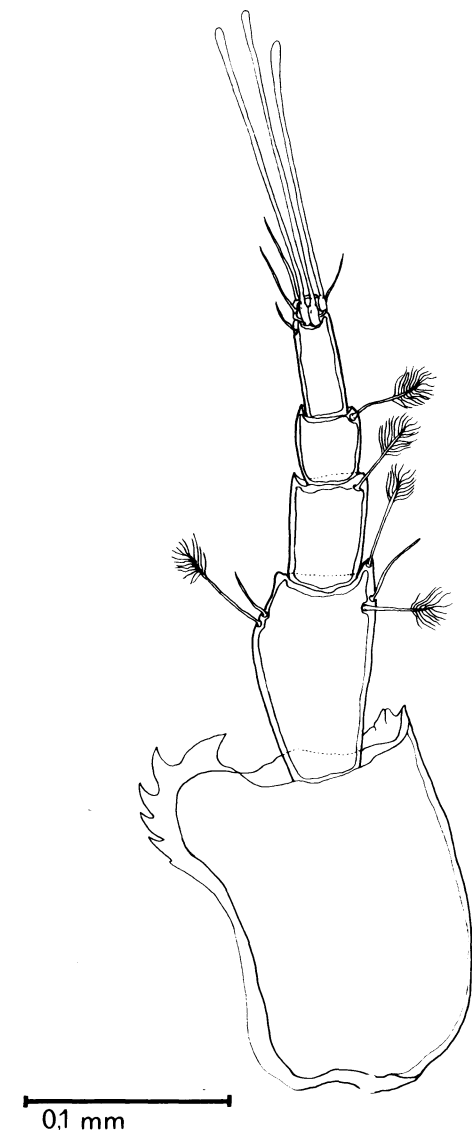


FIG. 6. - *J. dollfusi*: adult ♀. antennula (left).

The two endites of the basipodite are roughly equal in size. The outer has 3 curved comb-like spines (this appearance is given by a double row of very fine setae) and a subtle and straight bristle with a cylindrical base, likewise in the inner endite.

Maxillipeds. These appendages are, as usual, well developed. The epipodite is triangular in shape, with the inner side concave and the outer convex, and it is elongated externally so that it reaches the median region of the basipodite.

Coxopodite well developed, in the form of a rectangle with an evident semi-circular incision in the postero-internal angle. Basipodite rectangular with a

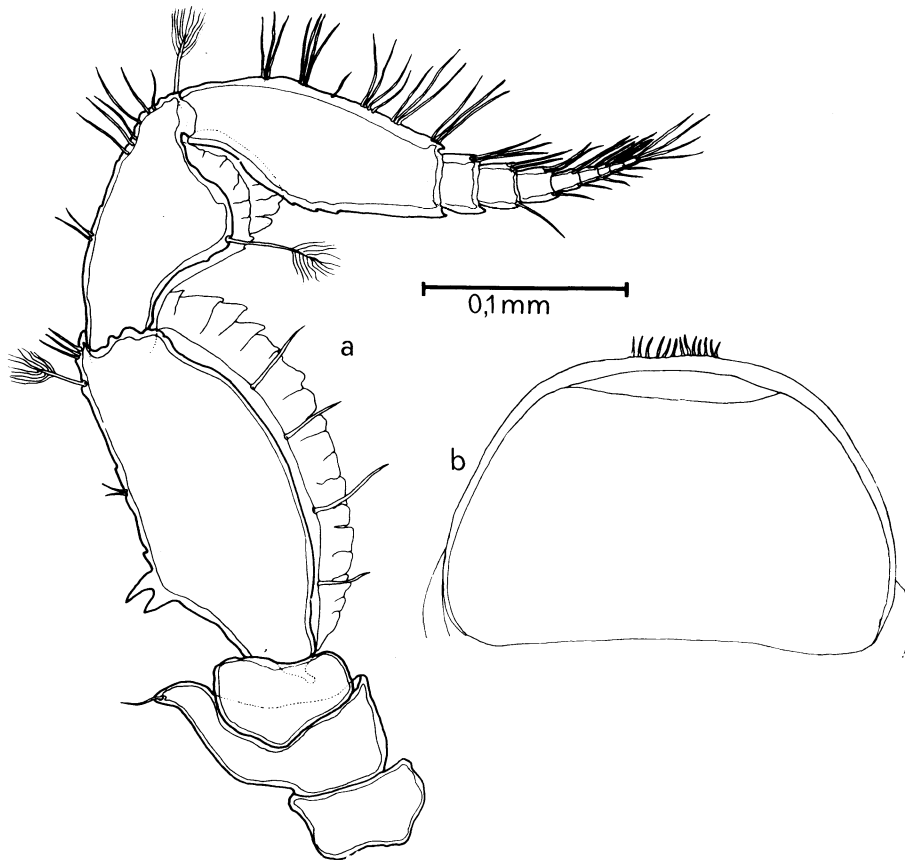


FIG. 7. - *J. dollfusi*: adult ♂. a. antenna (left). b. upper lip.

sinuous outer margin, especially in the pre-palpar region. Its endite has a subtle transparent membrane with 4-5 teeth curved towards the inner side and 2 or 3 short bristles of a sensorial nature (BOCQUET & LAMERCIER).

On the inner side of the endite appears an evident sinuosity in the form of an arc of a circle, in which can be noted a short bristle nearby a sturdy tooth-like process which is curved inwards. In the inferior portion of this region, which is horizontal, the margin appears to be thick because of a series of small plates.

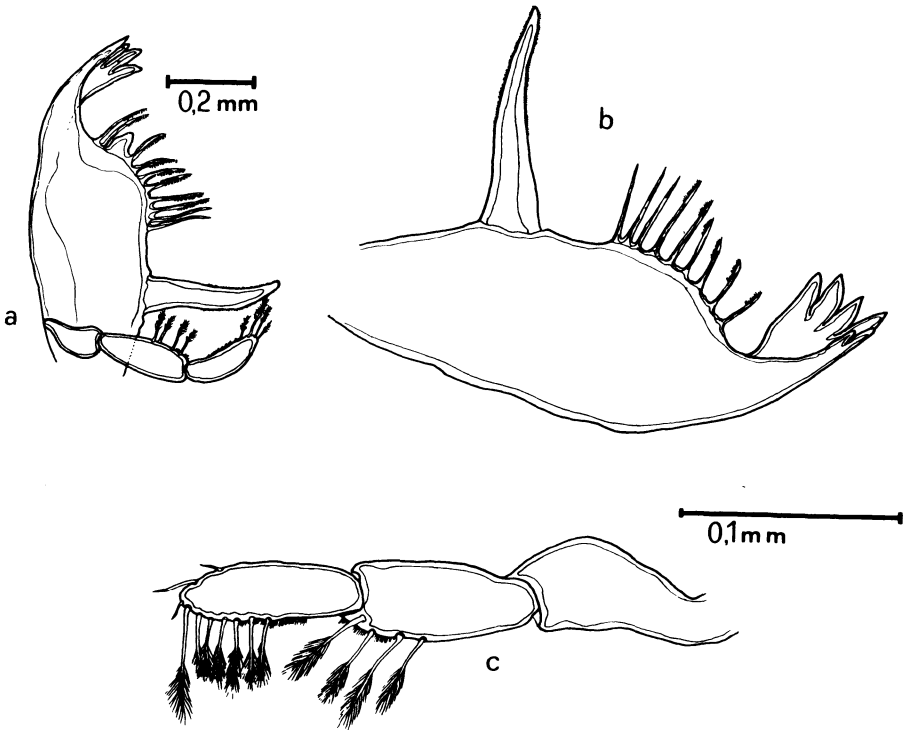


FIG. 8. - *J. dollfusi*: adult ♀. a. left mandible. b. right mandible. c. mandibular palp.

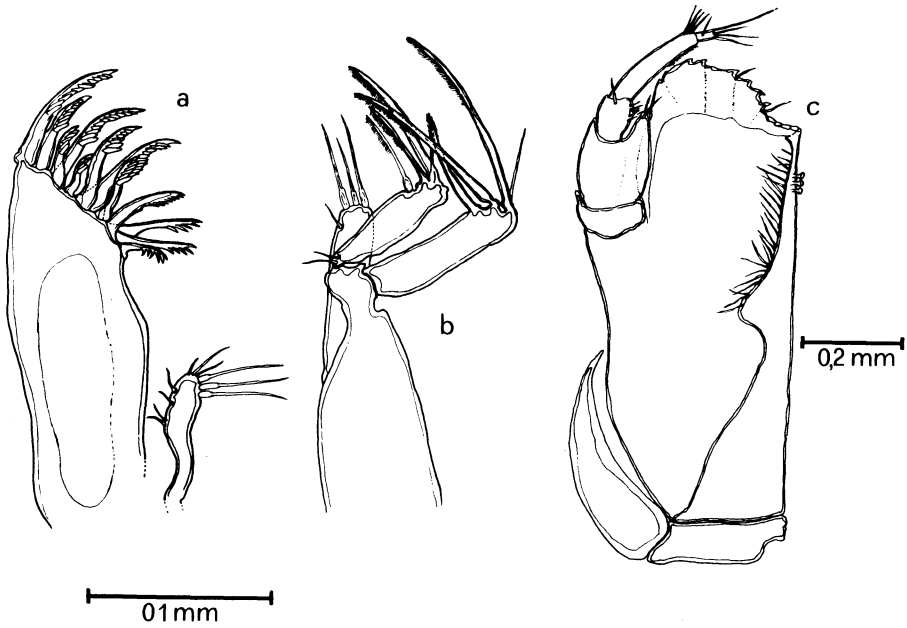


FIG. 9. - *J. dollfusi*: adult ♀. a. maxillula. b. maxilla. c. maxilliped.

The inner edge of the basipodite is straight. In its distal third it is furnished with a coaptation apparatus composed of three, sometimes four, nail-like buttons.

From this region the edge appears folded inwards and, in the medial portion, it forms a triangular process which is rounded apically.

Between this process and the most distal region, there are numerous and relatively long bristles.

The palp is composed of five joints. The first one is rather flattened and

elongated into a point on the outer side. The second joint shows the typical foliate expansion on the inner edge, furnished with a narrow hyaline membrane which bears, in its distal portion, two or three long rigid bristles. The third joint shows a row of rigid bristles in the distal portion of the inner margin. Fourth joint slightly curved, conspicuously longer than the preceding ones. The medio-distal portion of the inner edge appears to be bearded. The fifth joint is very short and generally carries 5-6 apical bristles.

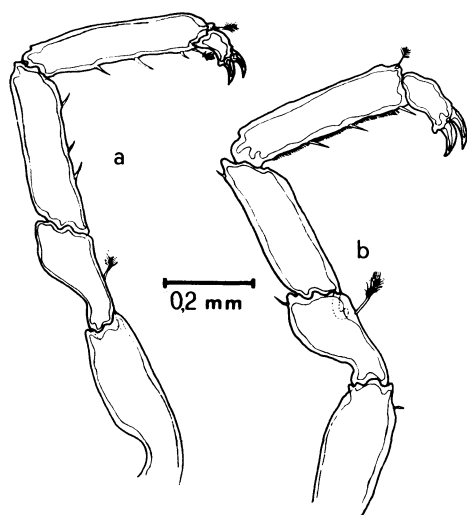


FIG. 10. - *J. dollfusi*: adult ♂. a. Peraeopod I. b. Peraeopod V.

Peraeopods. Peraeopods all of same type: dactylopodite with two strongly curved nails of equal length.

Pleopods. As in all the Asellota, the pleopods I of the female are missing. The second ones, fused medially form a sort of « operculum » circular in its proximal and triangular in its distal part. At the distal extremity of this operculum there are two sturdy long bristles which are remarkably different from the rare short setae present on the edge of the operculum, starting from the medio-distal region.

The first pleopods of the male lie strictly close to one another along the line of symmetry of the body. In their distal region, they show two accentuated and sharpened lateral processes. Between them there is a triangular region furnished distally with about 10 relatively short bristles, from the base of which starts a little channel that leads into the standing cellular mass above. In a region above that one of the subdistal-lateral processes, there are constantly two short bristles.

The second pleopods in the male are of a typical form. Large lamellar sympodite, triangular in shape, with a rounded outer margin carrying numerous

bristles which appear to be longer in the apical region. The exopodite is not well developed and is of a vaguely cylindrical form.

The whole inner edge of the sympodite is folded inwards: on this fold there seem to be inserted the articulations of the exopodite and of the endopodite.

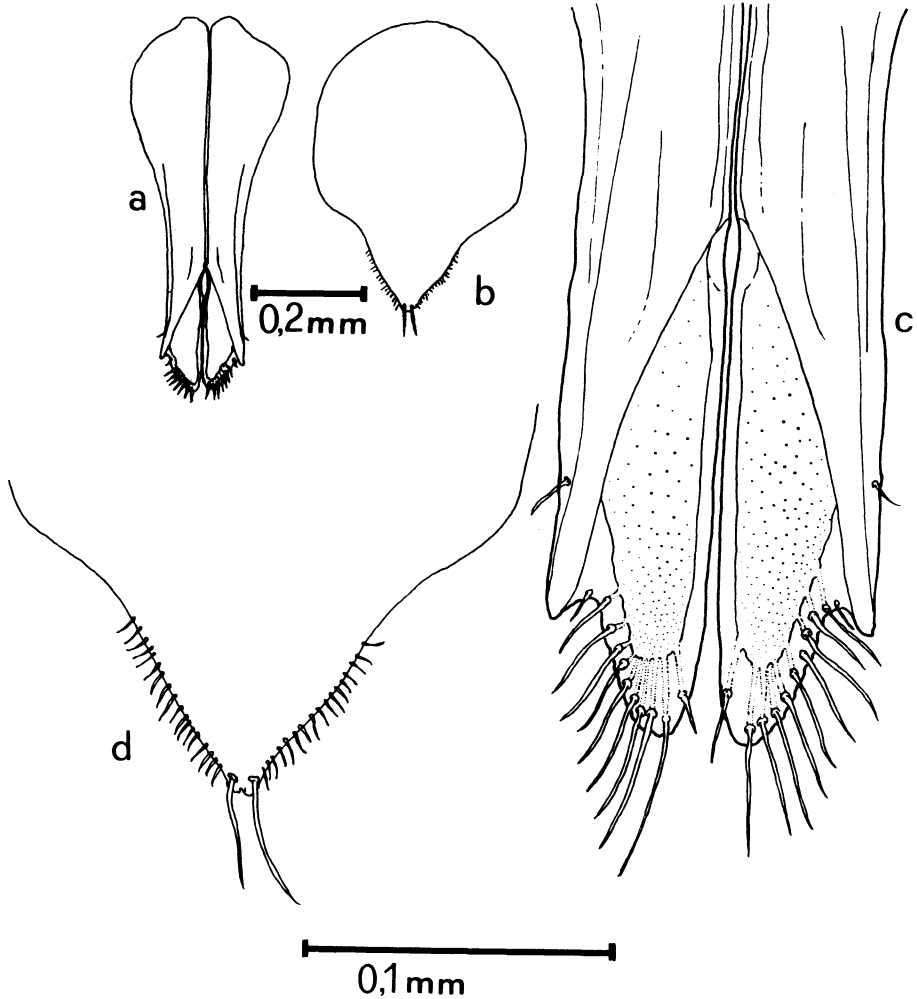


FIG. 11. - *J. dollfusi*: a. *I pleopod* ♂. b. *I pleopod* ♀. c. *I pleopod* ♂ (detail). d. *I pleopod* ♀ (detail).

This endopodite is geniculated in its proximal portion and terminated in a very thin lancet which reaches and overlaps the extremity of the sympodite. In the internal part of this joint is visible the channel through which the spermatidic liquid passes.

The respiratory pleopods (III, IV, V) do not show any special characteristics

different from those which have been described for other species. The diagram of the III pleopod is given as an example.

Uropods. Biramous. The protopodite has on the inner margin the usual characteristic nail and the hyaline membrane cut into a number (5-6) of ser-

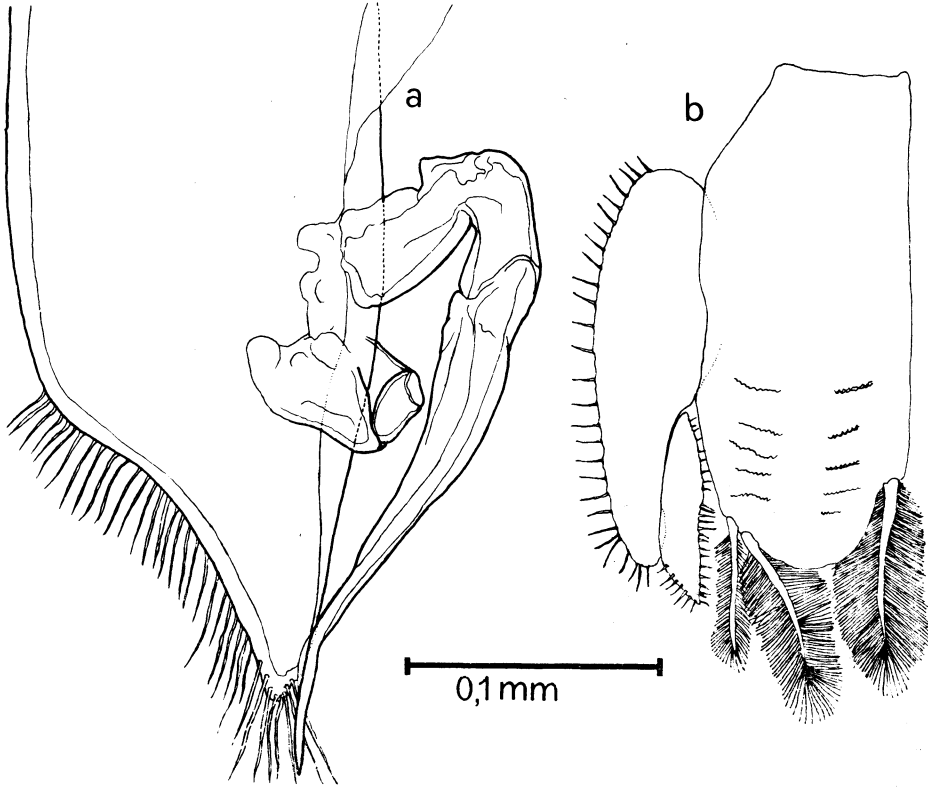


FIG. 12. - *J. dollfusi*: a. II pleopod ♂. b. III pleopod ♀.

rations. The eso- and endopodite are very short and furnished with numerous bristles, two or three of which are very long. Some bristles on the endopodite are plume-like.

REMARKS ON *Jaeropsis dollfusi*

Comparing the present description with NORMAN's one, one can undoubtedly remark that there are differences in some anatomical features. The general features of the two forms being practically identical, the differences chiefly concern the antennula and the antenna. The antennula seems to be more slender in NORMAN's specimen and bears a « crista dentata » rather different from that

of the *J. dollfusi* I have examined. However, if we put aside the diagram of this appendage, the written description of NORMAN (who did not see the second joint of the flagellum) is not a contradiction of the present one.

As for the antenna, the only difference consists in the appearance of the hyaline membrane on the fifth peduncular joint, which, in NORMAN's specimen is curiously crenulated. The rest of the antenna is very similar to those of my specimens. I do not know why the aspect of this membrane has been considered so important by some authors because, as far as I could see, it is subject to change being fragile and easily broken.

I would not consider the number of joints in the flagellum of the antenna as indicated by NORMAN (4-5) (if we can say something about them having only one specimen) because it is not difficult to find them broken. On the other hand it is incorrect of this author to consider the first long joint of the flagellum as a peduncular segment.

The general features of the maxilliped are very similar in NORMAN's specimen and in mine, except for the palp. In fact, the second joint of this appendage is missing the inner foliate expansion which, as far as I know, has been described in all the species of *Jaeropsis*.

(These facts can be observed only from the diagrams because NORMAN did not write anything about the maxillipeds).

As for the male pre-operculum (the written description of which is missing) BOCQUET & LEMERCIER (1958) stated that the diagram in the work of NORMAN « cannot be used » for a specific diagnosis. However, interpreting the diagram as far as possible, I would say it shows some similarities to the pre-operculum I have described in the preceding pages.

Finally, the general appearance of the uropods seems to resemble the uropods of my specimens. But it is impossible to make an exact comparison between these appendages because the Rev. COLE who made the diagram, did not draw the exopodite and NORMAN considered the protopodite and the endopodite as



FIG. 13. - *J. dollfusi*: adult ♂. uropod.

«lobes» of the appendage. In my opinion the differences which have been discussed are mainly due to the brevity and the incorrectness of the work of NORMAN, especially in regard to the diagrams, so my conclusion is that the specimens I have found, being in many aspects so similar to NORMAN's *Jaeropsis dollfusi*, belong to this species.

A strong resemblance can be noted between *J. dollfusi* and *J. legrandi* JUCHAULT, particularly in the single anatomical characteristic which I have seen in the original slides, supplied thanks to the courtesy of JUCHAULT himself. They are in fact practically identical to those of *J. dollfusi* notwithstanding that, in *J. dollfusi*, one gets the impression of a greater elegance.

The most important differences can be remarked in the *habitus*: the cephalon of *J. legrandi* has margins much less sinuous than *J. dollfusi* and they are apparently missing denticulations.

The shape of the pleotelson is positively different because it is furnished, in *J. legrandi*, with 5 instead of 8 serrations and it appears rather longer than broad, while in *J. dollfusi* length and breadth are subequal.

After all, it does not seem that JUCHAULT attributes great importance to those differences and I myself think that an analysis carried out on a larger number of specimens of *J. legrandi* will show this species to be closer to *J. dollfusi*. From the material actually at our disposition, it could be said that *J. legrandi* should probably be considered as a subspecies of *J. dollfusi*.

DISTRIBUTION OF *Jaeropsis dollfusi* IN THE BAY OF NAPLES

Of the three species living in the Bay of Naples, that one which reaches the deepest waters seems to be *J. dollfusi*. In fact it is not difficult to be found on Coralligene of *Lithothamnium* of Bocca Piccola di Capri between depths of 50-70 m. In other localities, it can be found between — 30 — 40 m especially on *Vidalia volubilis* (at Banco di Capo Miseno) and on *Dyctiopteris* (Punta Pizzago, Procida).

It is particularly abundant at the rock of Vervece di Massa Lubrense, between — 15 and — 25 m, on *Halimeda tuna*, the substrate on which it can be found also at the Banco di Santa Croce (in front of Vico Equense) at about a depth of 20 m. There are indications that the occurrence of this *Jaeropsis* could be in relation to that of the Hydrozoa which, as already noted, may be the basic food for this Isopod. In fact on *Halimeda* which appears to be the favourite substrate, there is growth of numerous epiphytic Hydrozoa.

Further studies on this topic are still in progress.

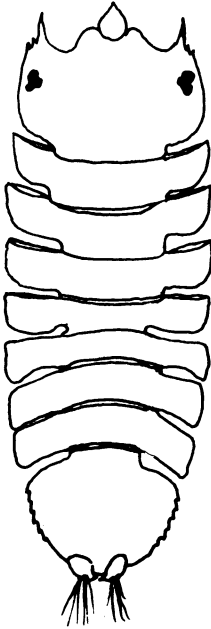
3. *Jaeropsis montalentii* nova species, FRESTI, 1968 (Fig. 14, 15, 16, 17, 18, 19, 20, 21, 22).

Localities: Vervece di Massa Lubrense, Punta di Tiberio (Capri).

Length: 2,4-3,5 mm.

12 adult specimens: 7 ♀♀, 5 ♂♂.

General features. Body inscribable in an almost regular elongated ellipse. The cephalon, more broad than long, narrows towards the front and it is elongated into two points envelopping the base of the antennae. Its outer margins have a serration directed forwards, the elements of which increase in size proceeding distally. In the antero-median region there are at least four clearly



0,5 mm

FIG. 14. - *J. montalentii*: adult ♂. habitus.

visible teeth. Some short bristles can be seen extending along the lateral margin of the cephalon. The posterior region of the cephalon, a little less broad than the first pereopod, narrows medially to form the usual characteristic «neck». The anterior region is very sinuous showing two remarkable cavities where the antennulae are situated, edged by a subtile hyaline membrane. The frontal region, between these cavities, is projecting into a clipeus triangular in shape, with rounded and slightly sinuous margin, especially in the terminal part.

Eyes black and small, in a rather dorsal position. The pereopods, from the first to the fifth, slightly but progressively increase in breadth and then, from the fifth to the seventh, decrease being as broad as the pleotelson.

The transverso-lateral anterior angles in the segments I, II and III, are quite acute, practically right in the IV.

The transverso-lateral posterior angles of the pereopods V, VI, VII are acute.

The lateral margins of the thoracic segments have tiny denticulations directed forwards and rare short bristles. The first abdominal segment is remarkably narrower than the seventh pereopod. The pleotelson has a semi-elliptic shape being subequal in breadth and in length. The lateral margins are serrated with 8 main serrations and 2 smaller ones in the most proximal region. In the spaces between one serration and another, there are some marginal bristles.

Uropods small, situated in lateral cavities in the dorso-distal part of the pleotelson.

The pigmentation is accentuated on the cephalon where it forms the characteristic «brown plate» remarkably darker than the rest of the body. In this species the plate does not show any particular design; the rest of the body is

slightly pigmented especially in its central part. The general features do not differ in the two sexes.

Antennulae. Formed, as usual, by a peduncle of four joints and by a flagellum of two joints. The first joint has subequal length and breadth. Dorso-ven-

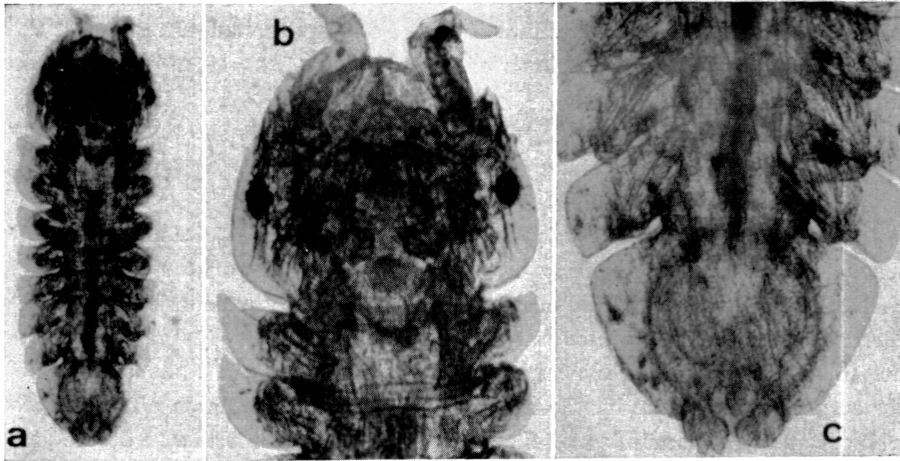


FIG. 15. - *J. montalentii*: adult ♂. a. habitus. b. cephalic region. c. pleotelson region.

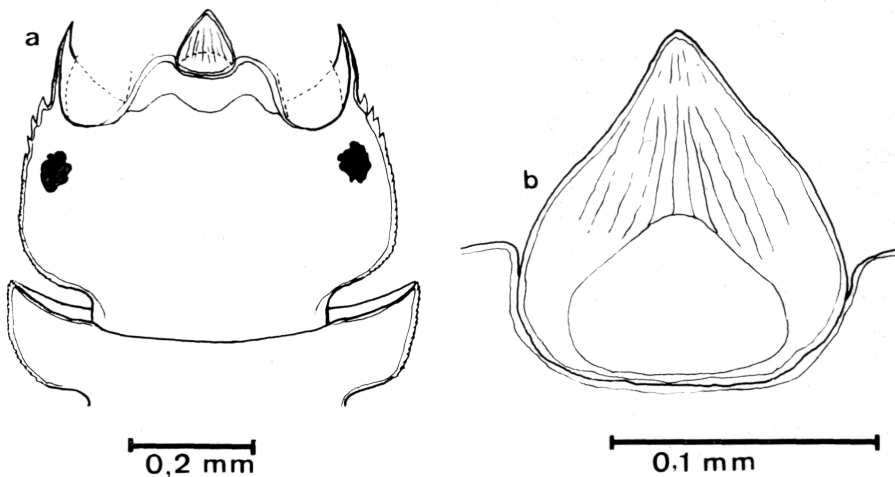


FIG. 16. - *J. montalentii*: adult ♂. a. cephalon. b. clipeus.

trally compressed, it carries on the distal outer margin the typical hyaline « crista dentata » with four or five teeth directed forwards. The distal inner margin has a remarkable projecting point. The second joint, a little shorter than the first, widens perceptibly in the distal region where, on the inner margin, there is a

sharpened process. On the opposite margin 3 or 4 teeth in the subdistal region can be noted. In this terminal region 2-4 plume-like bristles can be found. The last two peduncular joints, a little longer than broad, subequal in length, are rather thinner than the preceding ones. The first is without bristles while the second has a plume-like one; in both these joints the distal angles have projecting points.

The first joint of the flagellum is about one and a half times longer than the preceding one. It has two long and flattened bristles « en asque » and some simple ones.

The second joint of the flagellum is rudimentary; it shows a bristle « en asque » equal in length to those of the first.

Antennae. Formed by a peduncle and a flagellum of six joints each. The presence of a six-jointed flagellum is one of the most important differentiating characteristics of this species because in the others so far described, except for *Jaeropsis mediterranea* which has a five-jointed flagellum, (as can be said for the sole specimen found by AMAR) an eight-jointed and, in some cases a nine-eleven pointed flagellum has been observed. So that, the opinion of NORDENSTAM, who set at eight the number of the flagellar joints in the antennae of the genus *Jaeropsis*, should necessarily be reviewed. Because of this, I have begun a study, still in progress, on the development of the antennal flagellum in *Jaeropsis*. The first four joints of the peduncle are short and fit one into the other. The most characteristic of them is the third one which has, on the inner margin, a hook-like process with a short bristle.

The fifth joint is, as in all the other species of *Jaeropsis*, the most characteristic and, in this particular species, it is one of the best diagnostic characters because of its unusual width. Subcircular in shape, it is of subequal length and breadth. On the outer margin there is the usual hyaline membrane which in this case is much crenulated and, in its subcentral part, shows a certain number of rounded teeth. Some relatively long bristles (3-6) grow at the level of this membrane. The outer ventral region of the segment is somewhat concave. Starting from the inner margin which is serrated, especially in its central portion, there is a zone remarkably convex, cylindrical in shape and constricted in its proximal portion. Its outer margin is furnished with a hyaline membrane irregularly crenulated, which bears 3-5 bristles. We are dealing then with a structure very similar to that I have described in *J. brevicornis littoralis*, but which is missing in *J. dollfusi*.

The sixth joint of the peduncle, less than half as long as the preceding one, has the usual triangular shape with distal base. Its inner margin shows 4-5 teeth and 1-2 simple bristles. The outer edge is smooth. In the distal region of this joint there is a thin transparent and rather crenulated membrane and, generally, two plume-like marginal bristles.

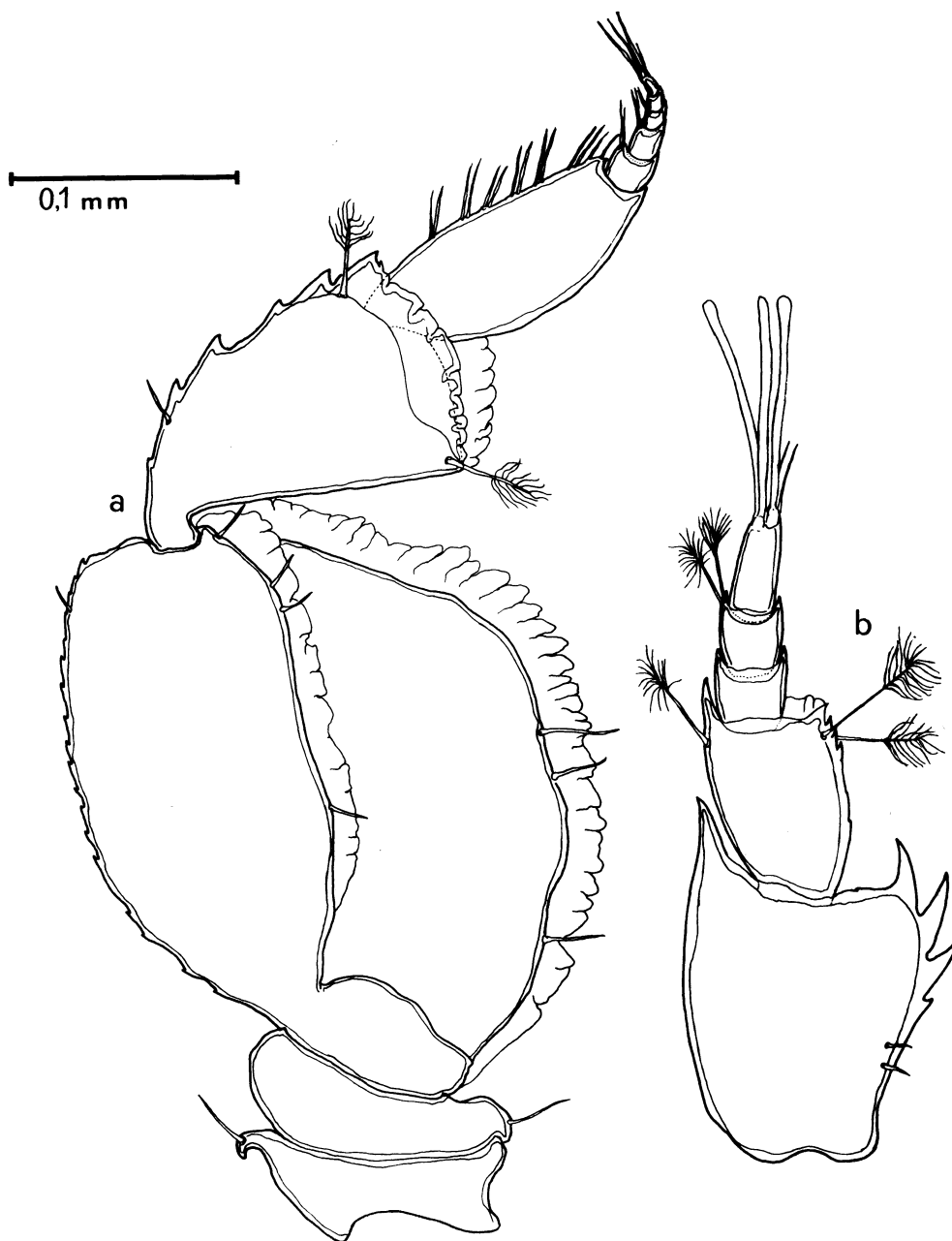


FIG. 17. - *J. montalentii*: adult ♂. a. antenna. b. antennula.

As has been noted, the flagellum has six joints. The first has the usual large development so that it is almost as long as the last peduncular joint. Its margins are smooth, but, on the inner one, there are several regularly spaced bunches of setae. This joint terminates distally in two points. There are not any features of particular note in the last five joints of the flagellum. Every one has, on the inner margin, a bunch of 2-3 setae. The terminal segment has a notable apical bunch.

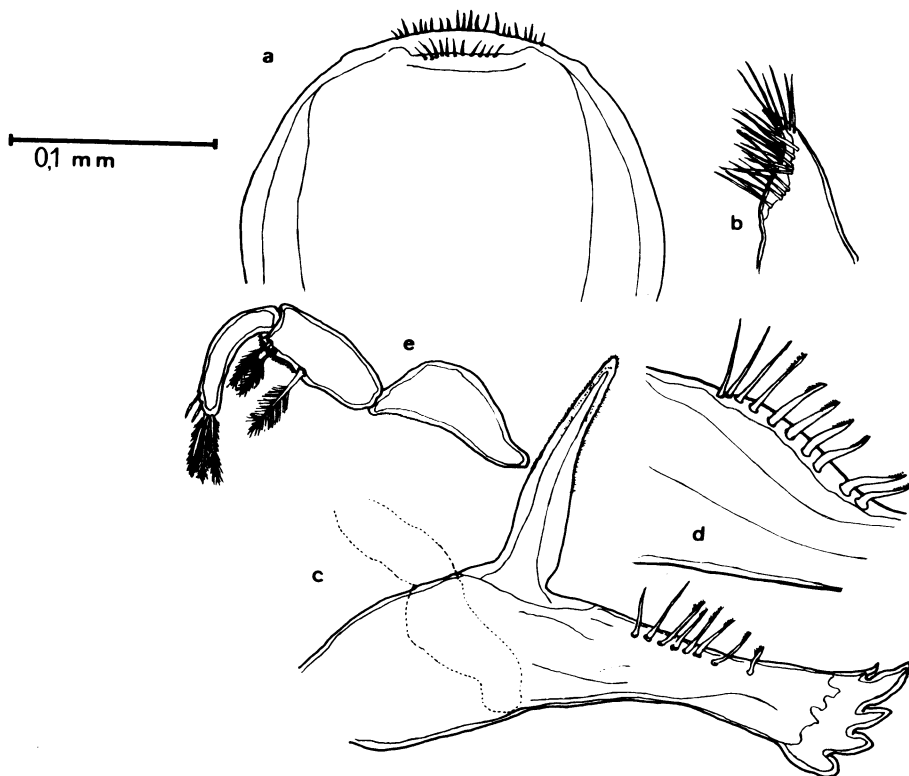


FIG. 18. - *J. montalentii*: adult ♂. a. upper lip. b. lower lip. c. right mandible. d. right mandible: the « spine row ». e. mandibular palp.

Upper lip. Lamella circular in shape, thicker in its central part; it has, distally, two successive rows of short bristles.

Lower lip. The pointed and curved extremities are very characteristic. They appear to be furnished with two rows of long setae.

Mandibles. The « pars incisiva », as in several other species, has 4 main teeth and a smaller superior one. Also in this case the « lacinia mobilis » is

missing. The «spines row» on the proximal portion of the «pars incisiva», consists of 8-10 strong spines, the most distal of which are more sturdy. 6-8 of them are furnished with fine setae. The «pars molaris» assumes the usual shape, a thin and elongated cone with sinuous outlines and fine marginal denticulations. The palp is triarticulate. The first joint shows its inner margin to be strongly convex. The second bears three plume-like bristles and a beard of fine setae on its outer margin. The third joint is long and curved and furnished with 3-5 plume-like bristles on its distal portion. The quantitative value of these

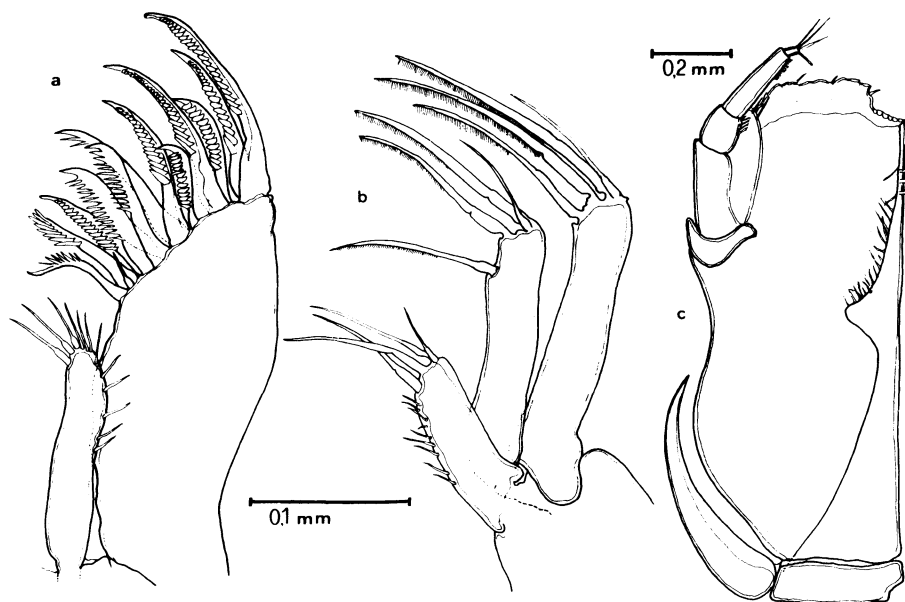


FIG. 19. - *J. montalentii*: adult ♂. a. maxillula. b. maxilla. c. maxilliped.

factors must be considered in a relative manner because it can change with the age of the animal.

Maxillulae. These appendages are not very different from those which have been described for other species.

The inner endite, a little sinuous in outline, bears several simple bristles especially on the outer margin and three long bristles with a puffed base in its distal portion.

The outer endite shows 12 strong curved spines with flattened teeth disposed as in a comb. There is also a simple bristle with puffed base.

Maxillae. Also these appendages are similar to those of the other species. Endite of the coxopodite with four strong puff-based spines and numerous

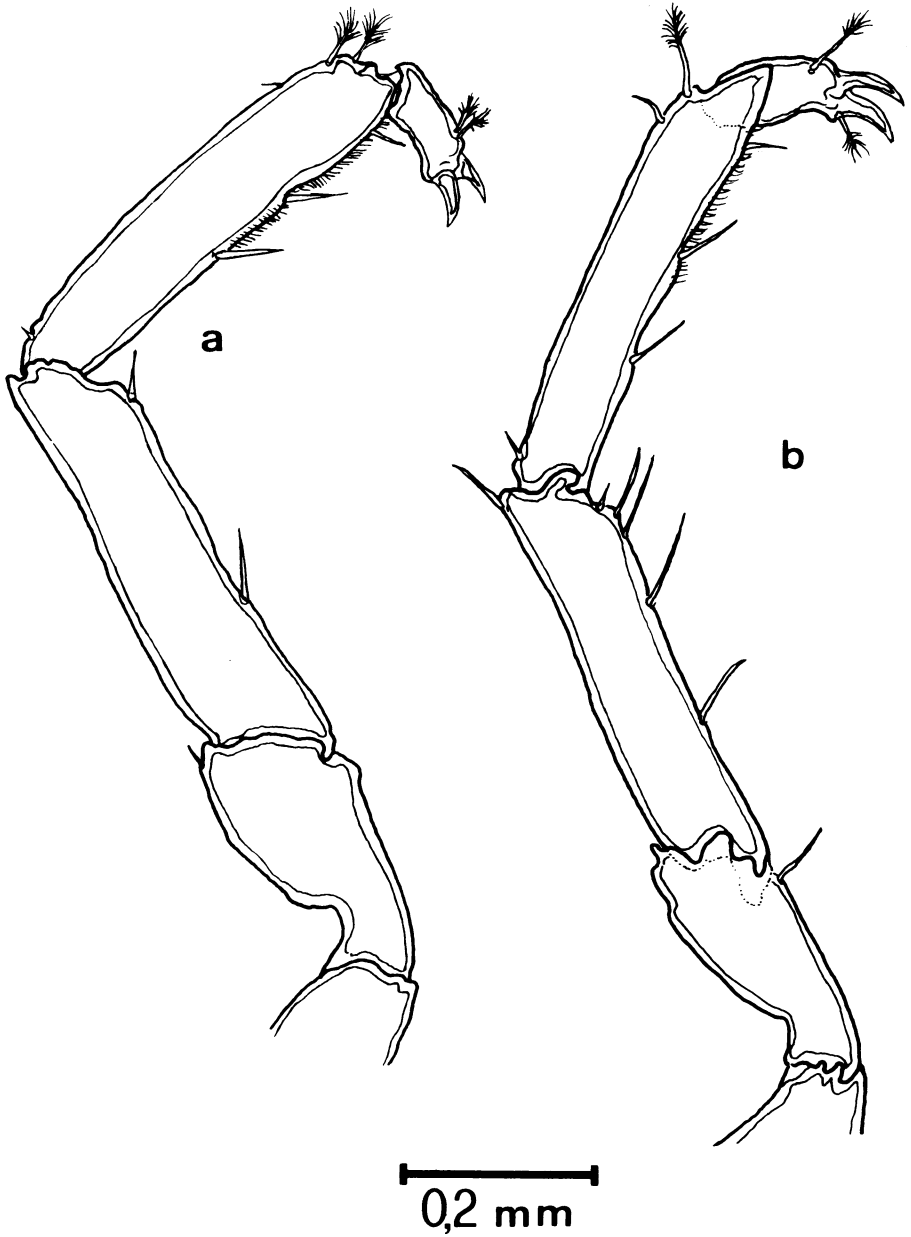


FIG. 20. - *J. montalentii*: adult ♂. a. I pereopod. b. V pereopod.

bristles on the outer margin. It appears shorter than the endites of the basipodite. These last are subequal in length and each one bears three long sword-like spines, furnished with fine setae, and a simple puff-based bristle.

Maxillipeds. Coxopodite rectangular with incised postero-internal angle. Epi-podite triangular, curved, attaining almost the medial region of the basipodite. Basipodite rectangular, with the endite bearing a thin membrane forming some small teeth. Three or four short bristles can be noted at this level. On the inner side this membrane forms an arc which shows several thicker plates on the inferior part of the curve. The coaptation apparatus consists of three buttons in the form of a nail head. The whole inner margin is folded towards the inner part of the appendage, especially in its central portion where it forms a triangular process. Between this latter and the distal region, numerous and irregularly disposed long bristles can be noted.

The palp is, as usual, five jointed. The first joint is projected outwards into a point; the second one has a complex shape in which there is the characteristic foliate expansion with 3-4 rigid bristles at its distal extremity which overlaps the proximal third of the fourth joint. The third joint is much more subtle and shorter than the preceding one and bears a series of bristles on the inner margin. The fourth joint is the longest (about two and a half times the length of the third) and appears to be furnished with a beard in the distal half of the inner margin. The last joint is very short and has 4-5 bristles (not very long) on the apical extremity.

Peraeopods. All of the same type. The dactylopodite, furnished with 1-2 plume-like bristles, ends in two strong nails of equal length.

Pleopods. First pleopods missing in the female. The second ones are fused in the medial portion forming a circular operculum narrowing in the distal region. The whole inferior third of the operculum is richly provided with long bristles of which the three at the extremity are much stronger than the others. The first pleopods of the male are strictly close to one another along the line of symmetry of the body.

Rounded in the proximal part, the pre-operculum continues distally with parallel edges. In this species the subdistal lateral processes are not directed backwards and they are not as evident as in *J. brevicornis littoralis* or in *J. dollfusi*, but they appear to be rather bevelled, directed outwards. They mark the border of the terminal region of the pre-operculum which is triangular and exteriorly rounded. There are here 10-12 marginal bristles. A short bristle is found also on the outer margin in a more proximal region than that of the subdistal lateral processes.

The second pleopods of the male show a lamellar sympodite, sharpened in

the distal region, with a rounded outer border furnished, in its terminal portion, with a close series of fine and relatively short setae. Endopodite geniculated proximally, with the distal portion subtile, lancet-shaped, which reaches the point of the sympodite. The exopodite is less developed and is vaguely cylindrical in

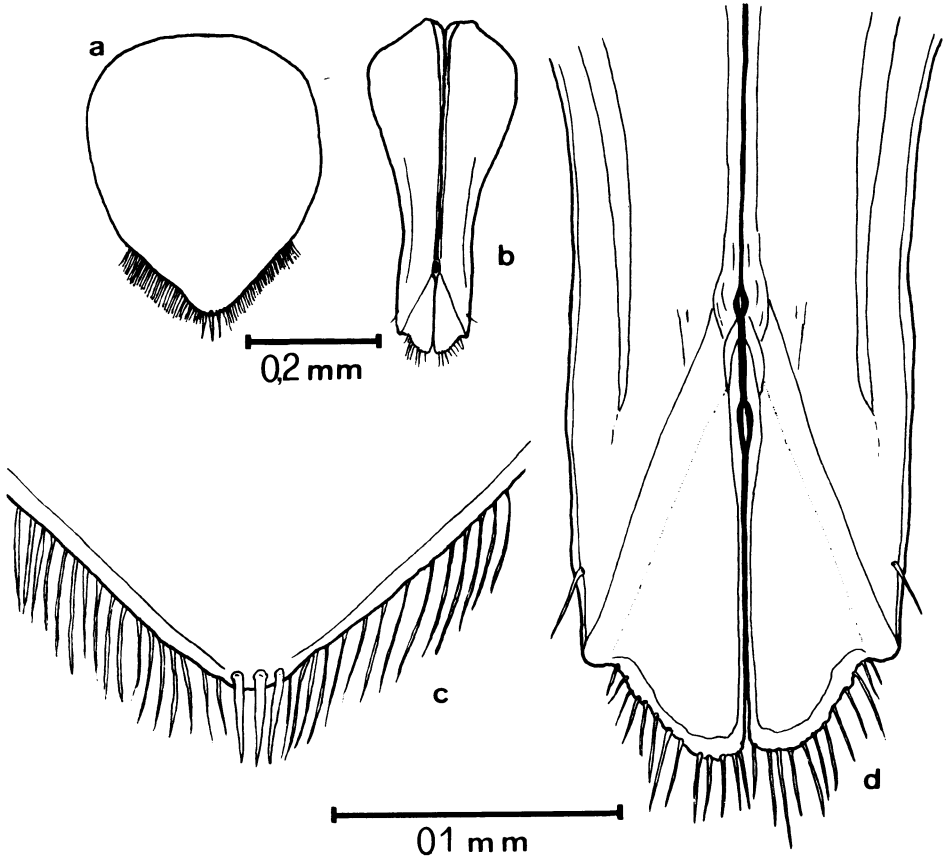


FIG. 21. - *J. montalentii*: a. I pleopod ♀. b. I pleopod ♂. c. I pleopods ♀ (detail). d. I pleopod ♂ (detail).

shape, widening in the distal portion. The respiratory pleopods do not show any particular characteristics different from those of other species.

Uropods. Biramous. The protopodite bears on the inner margin a transparent membrane forming 4-5 teeth and the characteristic terminal strong nail. Numerous bristles ornament this portion. Exo- and endopodite richly furnished with long bristles. On the endopodite they originate at different levels and some of them are plume-like.

REMARKS ON *Jaeropsis montalentii* n. sp.

Because of many of the above characteristics this species differs remarkably from the others living in the Mediterranean. The only species with some affinities to this one is *J. mediterranea*, in the general form and especially because of the

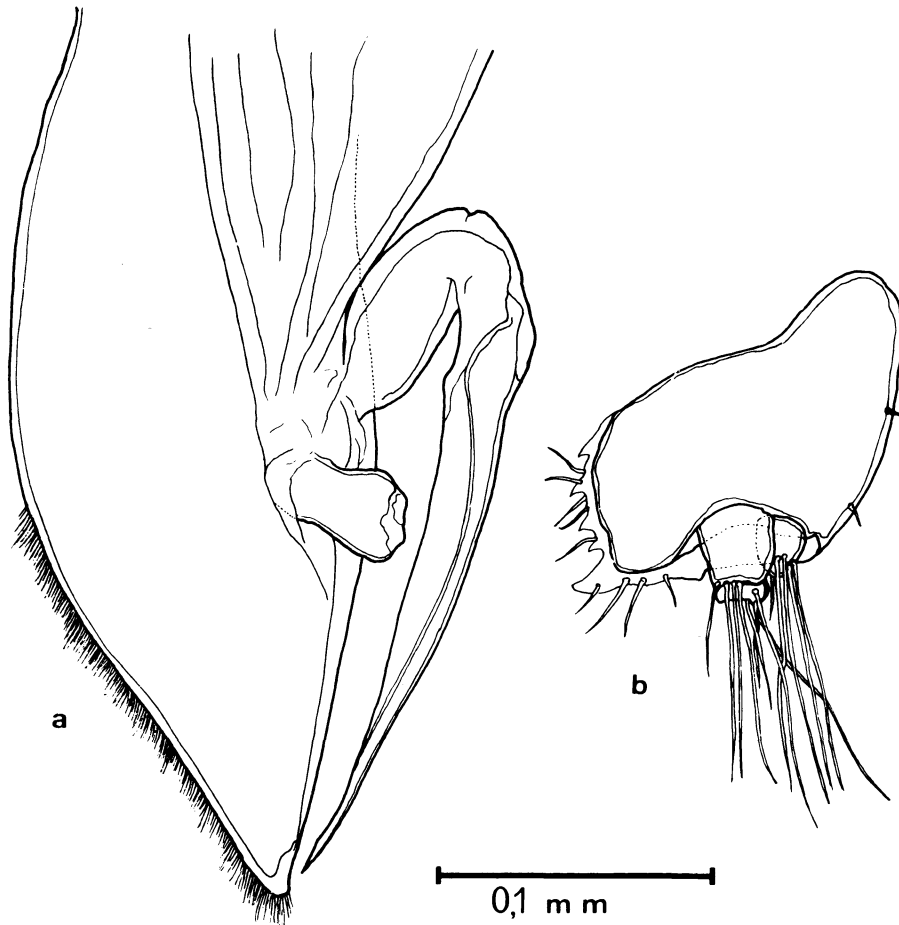


FIG. 22. - *J. montalentii*: a. II pleopod ♂. b. uropod (adult ♂).

triangular clipeus. *J. montalentii* differs from *J. mediterranea* with respect to V joint of the antennal peduncle (which is much wider in *J. montalentii* and with a remarkably crenulated hyaline membrane) and further in regard to the sixth joint of the peduncle of the antennae, evidently serrated on the inner border in *J. montalentii* and smooth in *J. mediterranea*.

Also on the antennae AMAR describes on the first joint of the flagellum a

series of plume-like bristles replaced, in *J. montalentii*, by bunches of simple bristles. Further the pleopods I of the male are remarkably different and this is a character which I believe is essential when dealing with Asellota. In fact in *J. mediterranea* the subdistal lateral processes are missing while they are present in *J. montalentii*. Finally in *J. montalentii* the typical spines, which AMAR describes on the posterior transverso-lateral angles of the seventh pereopod of *J. mediterranea*, are missing.

Leaving aside other less important differences such as the different number of elements on homologous appendages, I believe that the above characteristics are sufficient for the creation of a new species which I dedicate to my teacher, Professor Giuseppe Montalenti.

DISTRIBUTION OF *Jaeropsis montalentii* n. sp. IN THE BAY OF NAPLES

Of the three species living in the Bay of Naples, *J. montalentii* is that one which, at the moment, appears to be the least widespread. In fact I have found it only at the rock of Vervece di Massa Lubrense and at Punta Tiberio (Capri) localities which are relatively near one another.

J. montalentii can be found especially on substrates of *Halimeda tuna* at depths of 3-15 m. Investigations at greater depths did not give, at the moment, any results. Therefore it seems that there are also ecological differences between this species and the allied *J. mediterranea* because this last one has been found at a depth of more than 40 m (if that can be considered with only one specimen).

In relation to the others occurring in the Bay of Naples, the species *J. montalentii* does not seem to show a preference for any particular substrate. In fact at Vervece it can be found in association with *J. dollfusi* and at Punta Tiberio either with *J. dollfusi* or with *J. brevicornis littoralis*.

On the contrary also this species seems to favour the facies of *Halimeda tuna* rich in epiphytic Hydrozoa.

REMARKS ON THE GENUS *Jaeropsis* IN THE MEDITERRANEAN

In the light of the present work, we can try to form a more complete picture of the *Jaeropsis* living in the Mediterranean.

Reading the previous works on the problem, it can be said that the sole uncertainty, as I noted above, concerned *J. dollfusi*. I think that the new description of this species clarifies the situation somewhat, leaving as the sole problem, the position of *J. legrandi* which, in my opinion, should be considered as a subspecies of *J. dollfusi*.

However, further research and more abundant records of *J. legrandi* are needed² in order to provide a definite solution to the problem.

² In fact it must be pointed out that the description of this species has been made having only two specimens, one of them being partially damaged.

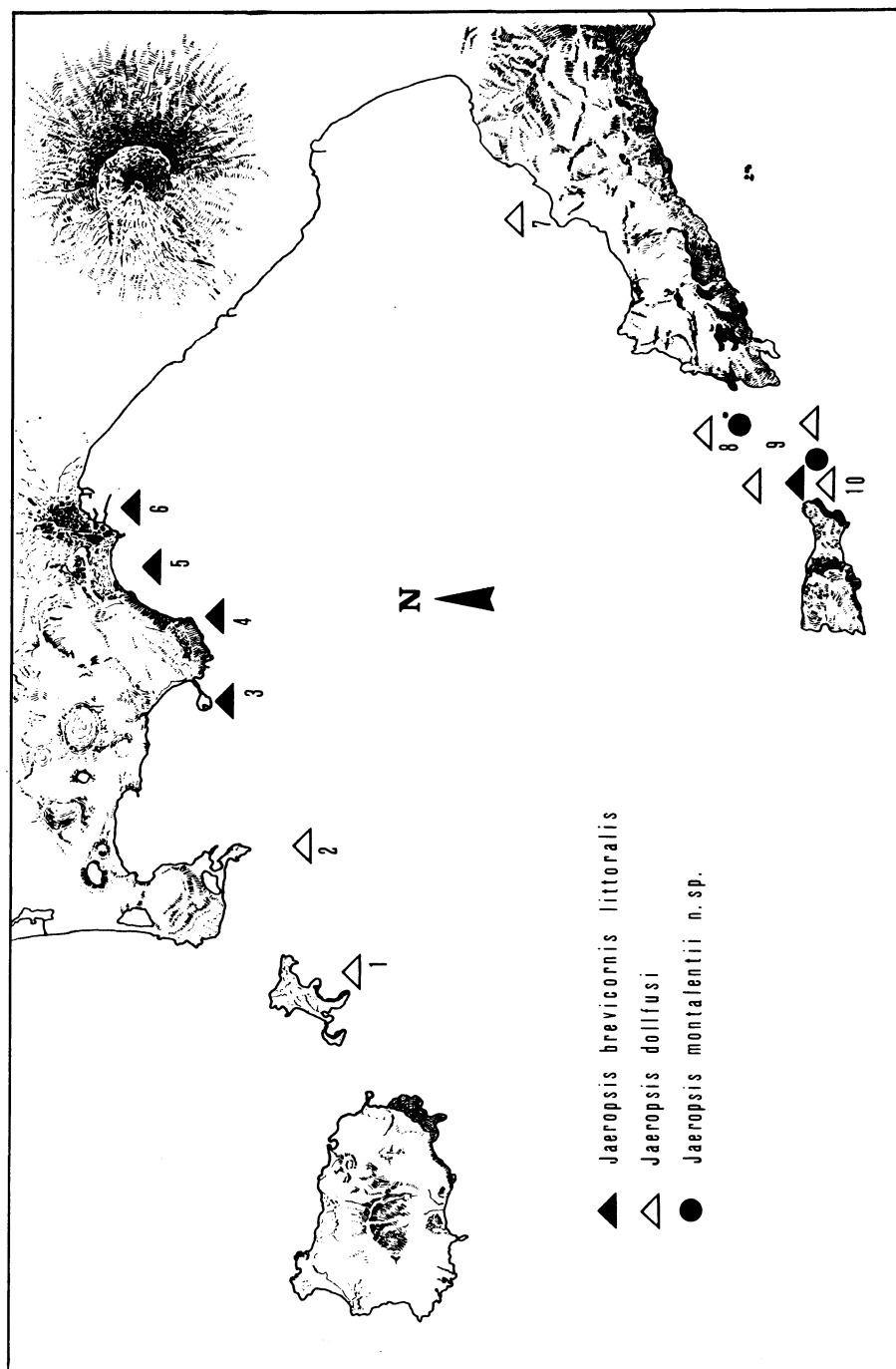


FIG. 23. - Distribution of *Jaeropsis* in the Bay of Naples. 1. Punta Fizzago. 2. Banco di Capo Miseno. 3. Nisida. 4. Trentaremi. 5. Domit'Anna - Grand Hôtel. 6. St. Lucia. 7. Banco di S. Croce. 8. Vervece. 9. Bocca Piccola di Capri. 10. Punta Tiberio.

As for *J. brevicornis littoralis* I agree with BOCQUET in considering it as a subspecies of the atlantic *J. brevicornis brevicornis*, but I believe that an evaluation of the problem at a caryological level is necessary. This analysis, which I have already begun on the three species so far found in the Bay of Naples, should necessarily be extended to all the other species when the localities and a means of collection are found. One can then usefully compare the caryotypes and eventually study the evolution of the caryotypes themselves within the compass of the genus. In fact these studies have given very interesting results in the members of the *Janiridae* family already examined (STAIGER & BOCQUET, 1956).

Finally, on the basis of that already proposed by AMAR (1961), I would like to revise the key for the identification of the *Jaeropsis* occurring in the Mediterranean.

1. Clipeus triangular. Flagellum of the antennae with 6 (or fewer ?) joints.
 - a. V joint of the peduncle of the antennae wide, circular, with a strongly crenulate hyaline membrane. VI joint of the peduncle of the antennae with the inner margin serrated. I joint of the antennal flagellum with bunches of simple bristles. Pleopods I in male with lateral subdistal processes
Jaeropsis montalentii n. sp.
 - b. V joint of the peduncle of the antennae wide, oval, with smooth hyaline membrane. VI joint of the peduncle of the antennae with the inner margin non-serrated. I joint of the antennal flagellum with single plume-like bristle. Pleopods I in male without lateral subdistal process.
Jaeropsis mediterranea AMAR

2. Clipeus circular, Flagellum of the antennae with 8 or more than 8 joints.
 - a. Peraeopods I with 3 nails on the dactylopodite. Antennae and antennulae squat and short.
Jaeropsis brevicornis littoralis AMAR
 - b. Peraeopods I with 2 nails on the dactylon. Antennae and antennulae lean and long
 - α. Cephalon with sinuous margins. Pleotelson with 8 serrations
Jaeropsis dollfusi NORMAN
 - β. Cephalon with rectilinear margins, Pleotelson with 5 serrations.
Jaeropsis legrandi JUCHAULT

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