

Fig. 475. *Mesosignum usheri* (Menzies)
(2 mm)

Range: Caribbean Sea off Cartagena, Columbia (2875 to 2941 m)

The species was found near to *M. kohleri*, but it differs from that species in that it has long posterolateral spines on the pleotelson. The lateral margins of the pleotelson are convex.

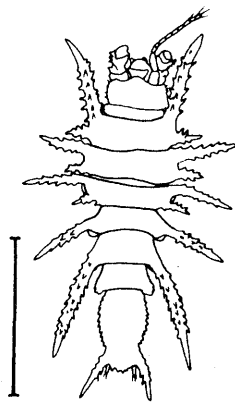


Figure 475. *Mesosignum usheri*.

DENDROTIONIDAE

The species in the family are similar to those in the family Munnidae. They, however, have spines on their bodies and many species have in addition long lateral lappets. Both species with eyes and blind ones are included in the family. The apical 2 articles on the maxillipedal palp of 5 articles are much narrower than the endite of the maxilliped itself (Fig. 370p). The pereopods, except for the first one which is gnathal, are ambulatory and with a single dactyl claw. Only two species, each in a different genus, are found in North American waters.

KEY TO THE GENERA OF DENDROTIONIDAE

- 1a. Lateral bulges (perhaps vestigial eyes) present on cephalon; cephalon longer than broad; uropods biramus, with rami extremely long (Fig. 42b); single produced lappet on all pereopods; lateral margins of the pleotelson either simple or serrated, but never multi-branched *Acanthomunna*

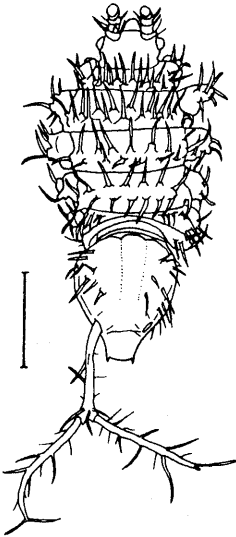


Figure 476. *Acanthomunna tannerensis*.

Fig. 476. *Acanthomunna tannerensis*
(Schultz) (3.5 mm)

Range: Tanner Canyon on shelf off southern California (813 m)

The uropods on this specimen are the only ones to have ever survived the rough process of sorting to which isopods and other benthic animals taken from the deep sea are usually subjected. Whether they are representative of the uropods found on other species is not known.

1b. Eyes or lateral bulges absent; cephalon quadrangular or longer than broad; lateral spines on all peraeonal segments simple or serrated, but never multibranched *Dendrotion*

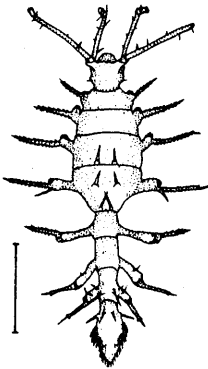


Figure 477. *Dendrotion hanseni*.

Fig. 477. *Dendrotion hanseni* (Menzies)
(3.5 mm)

Range: Caribbean Sea, south of Jamaica (1244 m)

This species is easily distinguished from other asellotes by the very long pointed lateral lappets on the edges of the peraeonal segments. It is interesting to note that those coming from peraeonal segments I to IV come from the edge of the peraeonal segment itself, but those arising from segments V to VII are really from the coxal segments of the pereopods, not from the segment edges.

ILYARACHNIDAE

There are about 36 species in the widely distributed genus *Ilyarachna*, but there are only 3 recorded from North American

waters. The species are characterized by long peraeopods, a wide cephalon and narrow pleotelson. Peraeopod I is gnathal, peraeopods II to IV are ambulatory and the last three are natatory. Occasionally the species are taken in plankton tows.

Fig. 478. *Ilyarachna acarina* (Menzies and Barnard) (4 mm)

Range: Southern California coastal slopes (73 to 507 m)

The species is common and abundant in the moderately deep water off southern California and northern Mexico.

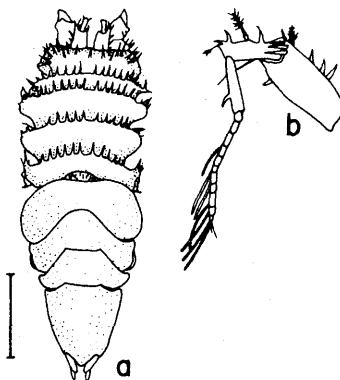


Figure 478. a. *Ilyarachna acarina*. b. Antenna one.

Fig. 479. *Ilyarachna profunda* (Schultz) (3 mm)

Range: La Jolla Canyon on shelf off southern California (461 to 1298 m)

The species lacks the conspicuous spines on the anterior borders of the pereopods that are found in *I. acarina*. It also was taken in much deeper water than that species.

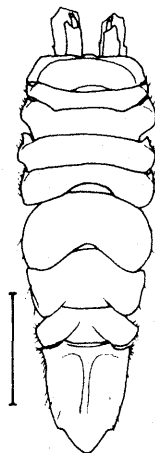


Figure 479. *Ilyarachna profunda*.

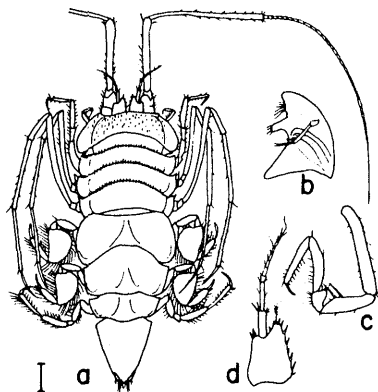


Fig. 480. *Ilyarachna hirticeps* (Sars) (7.5 mm)

Range: Greenland (20 to 435 m)

The species has very small spines on the anterior margins of the anterior peraeonal segments.

Figure 480. a. *Ilyarachna hirticeps*. b. Mandible. c. Peraeopod I. d. Antenna one.

EURycopidae

The many species of this family are divided into 12 genera which are placed in four subfamilies. Species of three genera, in three of the subfamilies, have been recorded from North American waters. The peraeopods of the specimens are long and of two types. Peraeopods I to IV are ambulatory (peraeopod I can be gnathal) and peraeopods V to VII are natatory. A dactylus is present on the natatory peraeopods (it is absent on natatory peraeopods in members of Munnopsidae, a closely related family). The small body and very large peraeopods of the isopods enable the species to swim well and they are caught, sometimes in very large numbers, in plankton tows. Species of the family are blind and frequently have peraeonal segments fused with each other or with the pleon. The cephalon is usually separated from the peraeon. Both uniramus and biramus uropods are present among the species. The maxillipedal palp of five articles has the two distal narrower than the other three. The wider of the three basal articles has a particular pattern of lobes and/or setae on the medial border.

KEY TO THE GENERA AND SPECIES OF EURycopidae

- 1a. Uropods uniramus; pleotelson suboval with two pairs of lateral and one terminal spine; peraeopods I to IV of subequal length; peraeopods V to VII with narrow carpus and propodus (natatory setae present) *Acanthocope*

Fig. 481. *AcanthoCOPE spinosissima* (Menzies)
(8 mm)

Range: Caribbean Sea, south of Jamaica
(1224 m)

The food of this species, as stomach content analysis has revealed, consists of what are probably bacteria, protozoa and forminifera (a particular kind of abundant calcareous protozoan). Also polychaeta (a sea bottom worm related to the earthworm) and sponge spicules (the calcareous or silicate frame work of sponges) have been found. The isopod then apparently eats either live or dead animal and bacterial material that is present in its habitat in the deep sea.

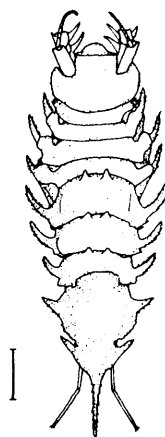


Figure 481. *AcanthoCOPE spinosissima*.

- 1b. Uropods biramus; pleotelson rarely with two pairs of lateral spines; pereopod I much shorter than III and IV; pereopods V and VII generally with carpus and propodus moderately or greatly expanded 2
- 2a. Maxilliped with articles four and five or palp abruptly narrower than article three and with medial margins never produced; articles three with fringe of setae or crenulations or both on medial border (Fig. 370e) *SyneuryCOPE*

Fig. 482. *SyneuryCOPE parallela* (Hansen)
(3.7 mm)

Range: North Atlantic to past Cape Farewell
(3474 m)

This species has coupling hooks on the medial edge of the maxilliped; *S. hanseni*, mentioned below, has none.

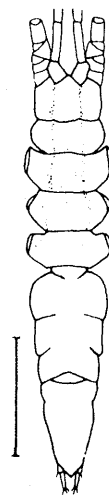


Figure 482. *SyneuryCOPE parallela*.

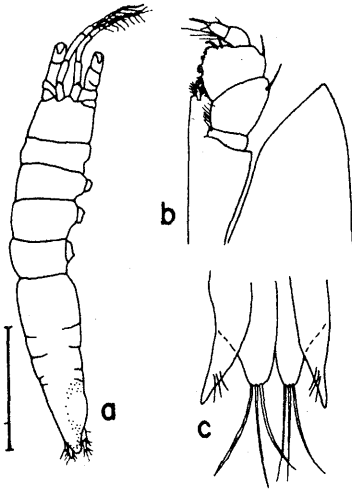


Figure 483. a. *Syneurycope hanseni*. b. Maxilliped. c. Apex pleopod 1, male.

Fig. 483. *Syneurycope hanseni* (Menzies) (3.8 mm)

Range: North of Puerto Rico (5104 to 5122 m)

The lateral margins of the body in this species are convex when compared to the parallel body margin in *S. parallela*.

- 2b. Maxilliped never as described above (in 2a) 3
 3a. Pleon not fused to peraeon; no dorsal spines present; long lappets on peraeons never present; basal segment of antenna one flattened and much wider than other segments *Eurycope*

GENUS EURYCOPE

This large genus of about 36 species contains most non-spined members of the family. The body is generally oval and there are long pereopods. Only the four following species have been recorded from North American waters until now.

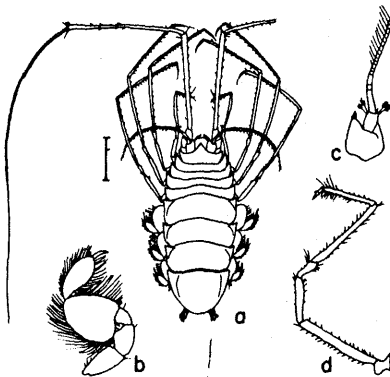


Figure 484. a. *Eurycope cornuta*. b. Pereopod V. c. Antenna one. d. Pereopod I.

Fig. 484. *Eurycope cornuta* (Sars) (4 mm)

Range: Greenland, Gulf of St. Lawrence and Atlantic coast of North America (91 to 732 m)

This species has a pointed rostrum or medial cephalic projection.

Fig. 485. *Eurycope complanata*
(Bonnier) (5 mm)

Range: Davis Strait and south-
east of Bermuda (2258 to
5779 m)

This species has a bifid me-
dial cephalic projection.

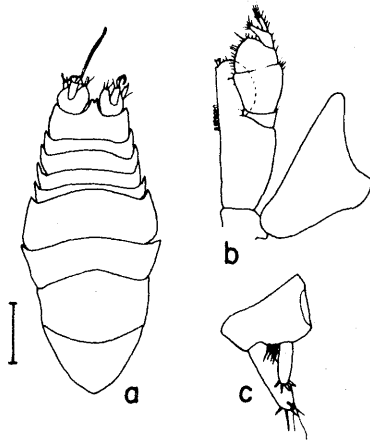


Figure 485. a. *Eurycope complanata*.
b. Maxilliped. c. Uropod.

Fig. 486. *Eurycope mutica* (Sars) (1.5
mm)

Range: Bay of Fundy to Norway (9
to 27m)

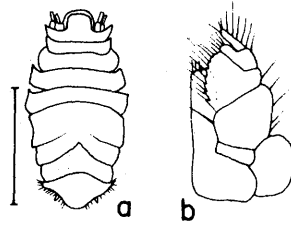


Figure 486. a. *Eurycope mutica*.
b. Maxilliped.

Fig. 487. *Eurycope californiensis* (Schultz)
(3.5 mm)

Range: Newport Canyon on shelf off southern
California (478 m)

The species has a produced, rounded medial
cephalic projection.

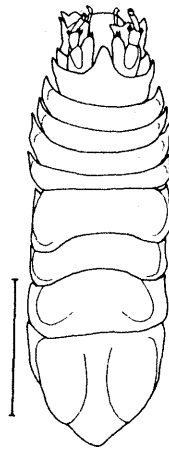


Figure 487. *Eury-*
cope californiensis.

- 3b. Peraeonal segments V to VII immovably fused together and sometimes pleon fused to peraeon; dorsal spines almost always present; pleotelson with at least two pairs of lateral spines, apex never rounded *Storthyngura*

GENUS STORTHYNGURA

The members of this genus were considered to be members of the genus *Eurycope* by the people who first describe them. Now there are about 32 species in the genus. Several species listed here are probably the same species only one is the adult and the other the juvenile.

KEY TO SPECIES OF STORTHYNGURA

- 4a. Medial dorsal spines present on peraeons 5
- 4b. Medial dorsal spines absent on peraeons *S. truncata*

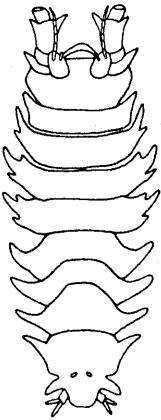


Fig. 488. *Storthyngura truncata* (Richardson)
(3.8 mm)

Range: Georges Bank and near Martha's Vineyard (2788 to 3225 m)

This species based on female specimens might prove to be the young or female of *S. magnispinis* mentioned below (p. 308), but more specimens must be collected before it can be definitely established.

Figure 488. *Storthyngura truncata*.

- 5a. Posterior margin of pleotelson pointed, truncate or concave; dorsal spines on peraeonal segments V, VI and VII 6
- 5b. Posterior margin of pleotelson broadly rounded; no dorsal spines on peraeonal segments V, VI and VII *S. snanoi*

Fig. 489. *Storthyngura snanoi* (Menzies)
(3.2 mm)

Range: Caribbean Sea, north of Columbia
(4071 m)

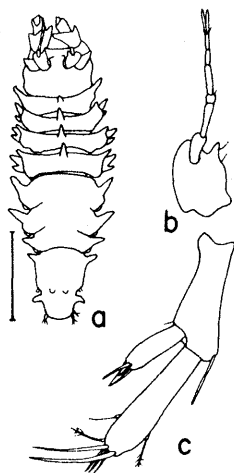


Figure 489. a. *Storthyngura snanoi*. b. Antenna one. c. Uropod.

- 6a. Posterior margin of pleotelson truncate or concave7
- 6b. Posterior margin of pleotelson pointed*S. caribbea*

Fig. 490. *Storthyngura caribbea*
(Benedict) (12 mm)

Range: Windward Islands, West Indies (1256 m)

The species has been considered as a subspecies; i.e., *S. pulchra caribbea*.

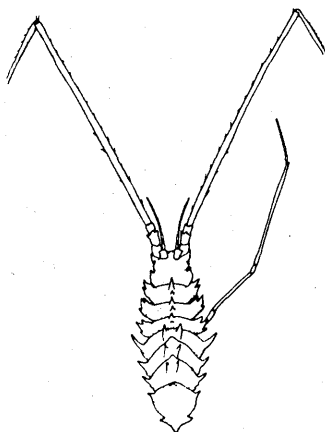


Figure 490. *Storthyngura caribbea*.

- 7a. Lateral lappets on pereaeonal segments I, II and III at least as long as segment is long; coxal plates not apparent
.....*S. magnispinis*

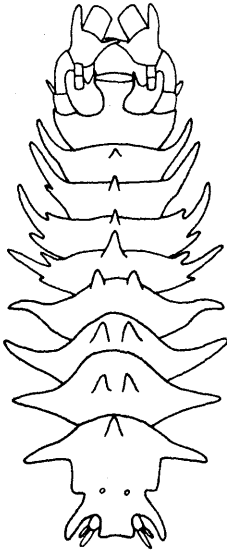


Figure 491. *Storthyngura magnispinis*.

Fig. 491. *Storthyngura magnispinis* (Richardson) (4 mm)

Range: Off Nantucket Shoals (2258 to 2704 m)

The species description is based on a single male specimen. It should be compared with specimens of *S. truncata* mentioned above (p. 306).

- 7b. Lateral lappets on pereaeonal segments I, II and III shorter than pereaeonal segment is long; coxal plates apparent in dorsal view *S. vemae*

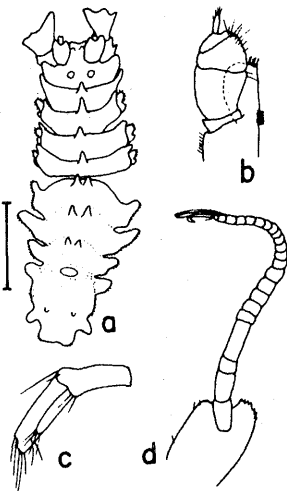


Figure 492. a. *Storthyngura vemae*. b. Maxilliped. c. Uropod. d. Antenna one.

Fig. 492. *Storthyngura vemae* (Menzies) (3.2 mm)

Range: Caribbean Sea, north of Columbia (4071 m)

SUBORDER EPICARIDEA

In the past the suborder Epicaridea has been called Bopyroidea. The species of the suborder range from very primitive isopods that are much like the archetype in body segmentation to very highly modified species that only superficially resemble other isopods. Epicaridean isopods undergo greater changes during development than do species of other groups. The egg develops into a larva with six peraeonal segments, the "epicaridean" stage. Animals of this stage free themselves from the marsupium and attach to a planktonic host (mostly copepods). There they molt to a stage with

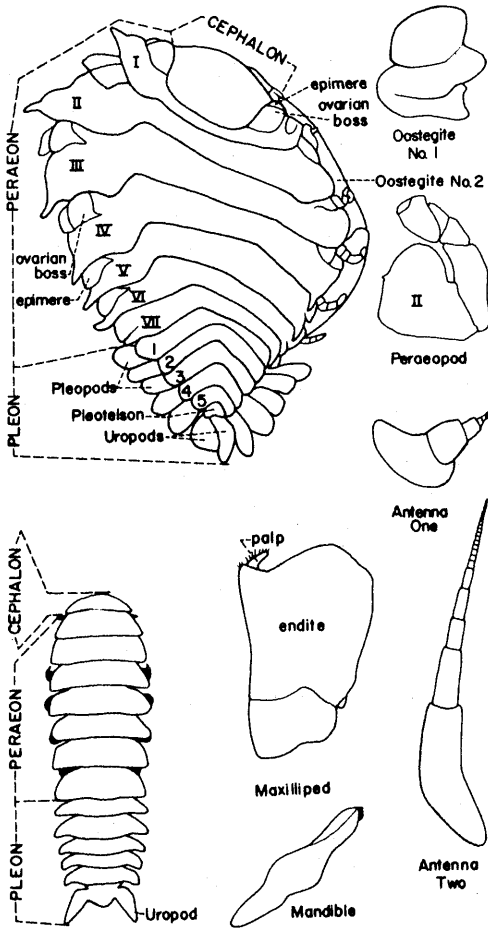


Figure. 493. Epicaridea (General nomenclature).

seven segments, the "microniscus" stage. The animals then molt again to a "cryptoniscus" stage and begin sexual differentiation (both males and females). The maturing juveniles detach from the first host and become planktonic again, then attach to a second host (almost any crustacean including other isopods) and grow. Through metamorphosis and maturity the female becomes somewhat of a peculiar egg case sometimes becoming quite indistinguishable as an isopod (Fig. 7h, i).

The male attaches to the pleopods or gets into the egg case of a female which is attached to a host and which is much larger than the male isopod. There it changes in form slightly, matures sexually, but does not usually grow. It is then able to fertilize the eggs of the female and the life cycle is repeated. The relations between the hosts and the life stages of the parasitic isopods are only beginning to become known, and the above stages have never been clearly recorded for any one species. Four families are recognized here as being present in North American waters although some workers recognize more.

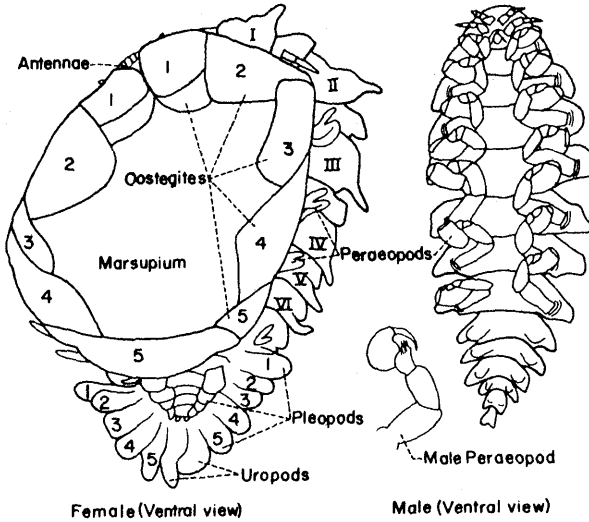


Figure 494. Epicaridea (Ventral view, general nomenclature).

KEY TO FAMILIES OF EPICARIDEA

- 1a. Sac of eggs around very small body; signs of segmentation feebly indicated if at all; true peraeopods and other appendages rudimentary if presentCryptoniscidae (p. 337)

- 1b. Not as above 2
- 2a. Body without indications of rigid exoskeleton; body segmentation present; peraeons laterally expanded into thin, pleural lamellae *Entoniscidae* (p. 344)
- 2b. Not as above 3
- 3a. Body of female symmetrical or irregularly symmetrical in outline; segmentation apparent, but reduced; peraeopods from two to five; mouth in form of sucker *Dajidae* (p. 341)
- 3b. Body of female distinctly segmented and more or less asymmetrical; seven pairs of peraeopods, six of which can be absent on one side (exception, peraeopods I which are always paired) *Bopyridae* (p. 312)

BOPYRIDAE

There are more described species of Bopyridae than in the other epicaridean families in North American waters. The species are parasitic on decapods (crabs and shrimp). The body of both the male and female is segmented, and peraeopods are present and differ little in size and shape. Females have large asymmetrical bodies and males are small and symmetrical, frequently being found attached to or among the pleopods, or in the brood pouch of the female. The cephalon is generally distinct and eyes, if present, are tiny. The antenna and mouth parts are rudimentary. All seven segments of the peraeon are always laterally distinct, but in some instances some of the anterior segments are fused with the cephalon. Five pairs of oostegites are present, and knowledge of their form is useful since the most commonly encountered bopyrid is the gravid female. Coxal separations are present on the edges of the peraeonal segments, and large bosses or swellings are frequently present just medially to the coxal sutures. Seven pairs of prehensile peraeopods are almost always present, but in one group peraeopods are absent on one side on peraeons II to VII.

The pleon is always distinct and generally segmented or with indications of segmentation on the lateral margins. The lateral margins are frequently elongate. The pleopods are sometimes absent and when present they can be uniramus, biramus or triramus. They can be mistaken for extensions of the peraeonal segments if one is not careful. The uropods, if present, are generally simple and composed of lobes which look like the ends of the pleonal segments. A distinct telson is sometimes present, but many times it is fused to a pleonal segment to form a pleotelson.

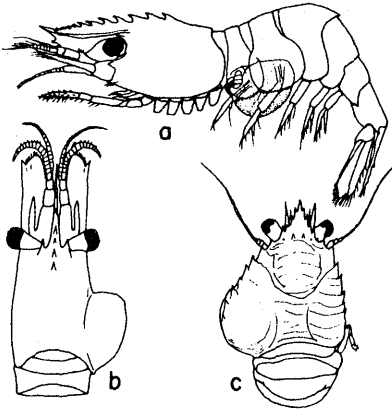


Figure 495. Bopyrid parasites on shrimp. a. On abdomen. b-c. Within branchial cavity of host (dorsal views). (After Sars).

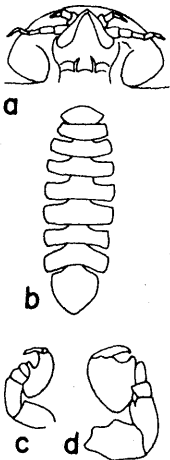


Figure 496. a. *Bathogyge grandis*, ventral view cephalon. b. Dorsal view. c. Peraeopod I. d. Peraeopod V.

A small male is frequently found clinging to the pleopods of the female in some species or living within the brood pouch with the eggs in other species. The male is small, symmetrical and distinctly segmented. It has very small antennae, mouth parts and short prehensile peraeopods that mostly have pointed dactyls. Sometimes the peraeopods are vestigial; i. e., consist only of stubs. The pleon is always distinct, but the segmentation of the pleon is not always distinct. The pleon usually lacks appendages, but a well defined

pleotelson with long uropods are present in some species. The uropods are generally no longer than the ends of the pleonal segments in most species. The bopyrids are generally found in the branchial cavity of their decapod hosts. The males that are pictured here with the females are many times drawn at a scale much greater than that of the female. Most of the males are under 1.5 mm long.

Only a large male specimen is known for one species, *Bathogyge grandis* Hansen (7 mm), from Acapulco, Mexico. It was taken from the branchial cavity of the shrimp *Glyphocragon spinulosa*, and is sufficiently different from other males to be described as a new species. It is illustrated in figure 496.

KEY TO GENERA AND SPECIES OF BOPYRIDAE

- 1a. Body asymmetrical with one side greatly enlarged and longer than other side; only peraeopod I present on enlarged side; pleon composed of 4 segments and usually with pleotelson ... 2

1b. Body slightly to greatly asymmetrical, but with both sides more or less developed; i. e., with all pereaeopods present although they might be small and difficult to find; pleon usually of 5 segments plus pleotelson (some segments are at least laterally indicated)

3

2a. Pleonal extensions large, ovate and single (uniramus) or double (biramus), but if biramus then pleonal extension on 4 much longer than on 1 to 3 *Hemiarthrus*

Fig. 497. *Hemiarthrus subcaudalis* (Hay) (6 mm)

Range: Onslow Bay, North Carolina (about 20 miles off Beaufort Inlet) (18 m)

The species is from the gill chamber of the shrimp *Synalpheus longicarpus* which is found within the cavity of a sponge. The species of a different genus *Synsynella deformans* (p. 333) is found as a parasite on the same shrimp in the same locality. This is an example of two species of isopods exploiting the same host animal.

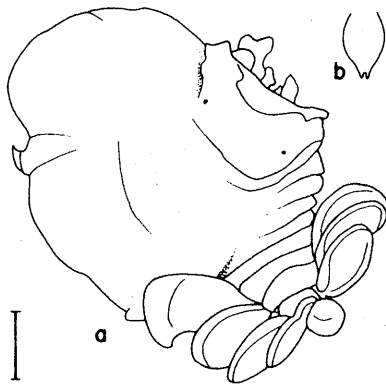


Figure 497. a. *Hemiarthrus subcaudalis*. b. Pleon male.

Fig. 498. *Hemiarthrus abdominalis* (Kroyer) (9 mm)

Range: Circumpolar south to Massachusetts and Washington State (9 to 642 m)

The species is found as a parasite on the decapods of the genera *Spirontocaris* and *Pandalus* inhabitants of northern waters.

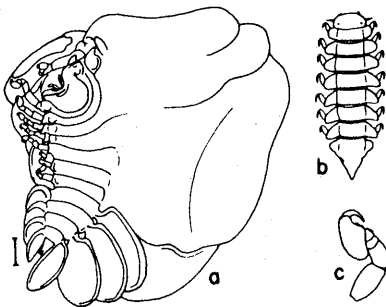


Figure 498. a. *Hemiarthrus abdominalis*. b. Male. c. Pereopod of male.

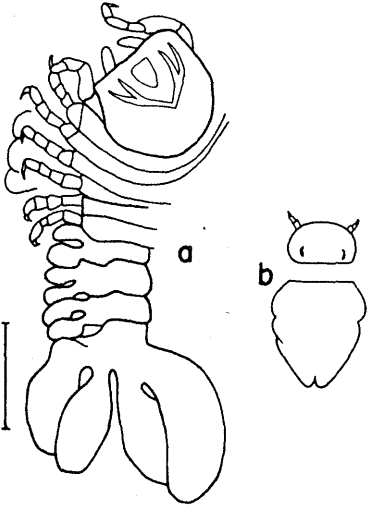


Figure 499. a. *Hemiarthrus schmitti*. b. Anterior and posterior parts of male.

Fig. 499. *Hemiarthrus schmitti* (Pearse) (4.6 mm)

Range: East coast and Bimini, Bahamas

The species is parasitic on the shrimp *Synalpheus brooksi*. The lateral extensions of the pleonal segments are bifid with those of segment 4 the longest in this species.

- 2b. All (bifid number, eight) pleonal extensions about same size on each side *Diplophryxus*

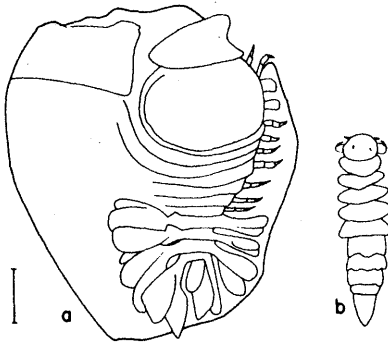


Figure 500(a). a. *Diplophryxus synalpheii*. b. Male.

Fig. 500(a). *Diplophryxus synalpheii* (Pearse) (6.2 mm)

Range: South Carolina near mouth of New River

The species is found on the snapping shrimp *Synalpheus fritsmulleri elongatus*.

- 3a. Cephalon more or less symmetrical with lateral lobes on anterior third and set slightly in front of body margin; pleon with five segments indicated; pleotelson (no telson indicated) with elongate, lobate uropods *Aporobopyrus*

Fig. 500(b). *Aporobopyrus muguensis* Shiino^V(4 mm)
1964

Range: Off Pt. Mugu, California (11 m)

The species is from the branchial cavity of *Pachycheles rudis*. A second species *A. oviformis* Shiino (3.5 mm) is also found in the same locality.

A. oviformis Shiino 1934

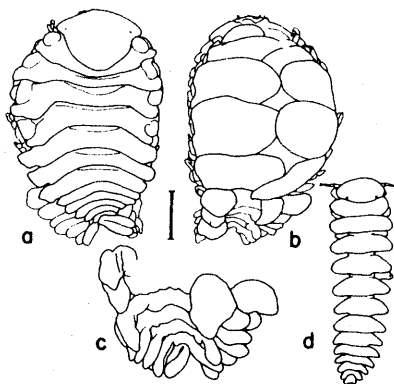


Figure 500(b). a. *Aporobopyrus muguensis*. b. Ventral view. c. Ventral view, pleon. d. Male.

- 3b. Cephalon various; pleon and pleotelson various 4
- 4a. Pleon with lateral extensions of segments elongate and digitate, or with simple crenulated margins (Figs. 501 and 502) 5
- 4b. Pleon with lateral extensions long at times, but never digitate or crenulate; pleotelson or telson various 9
- 5a. All pleonal extensions elongate and digitate 6
- 5b. All pleonal extensions with simple crenulate margins ... *Erygne*

Fig. 501. *Erygne rissoi* (Nierstrasz and Brender (2 mm)

Range: Curacao, Dutch West Indies

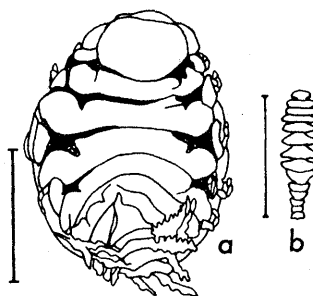


Figure 501. a. *Erygne rissoi*. b. Male.

- 6a. Pleon with 6 segments visible; telson elongate, but never with digitate borders *Ione*

Fig. 502. *Ione thompsoni* (Richardson) (16 mm)

Range: Massachusetts

The species is found on the mud shrimp *Callianassa stimpsoni*.

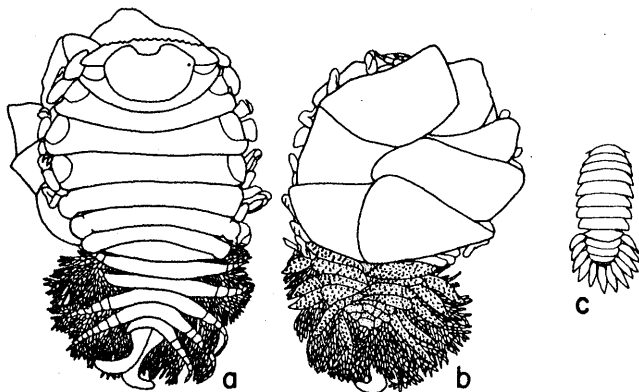


Figure 502. a. *Ione thompsoni*. b. Ventral view. c. Male.

Fig. 503. *Ione brevicauda*
(Bonnier) (6.7 mm)

Range: San Francisco Bay,
California

A third species has been found at Puget Sound, Washington, and is called *Ione cornuta* Spence-Bate (15.5 mm). It was found in the branchial cavity of *Callianassa longimana*, but it was never illustrated.

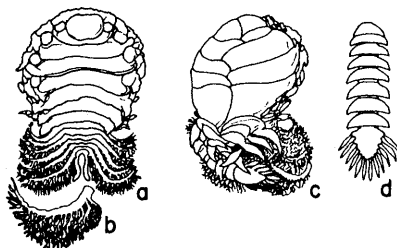


Figure 503. a. *Ione brevicauda*. b. Detail, pleural lamella. c. Ventral view. d. Male.

- 6b. Pleon with 6 or less segments; telson or pleotelson always with digitate borders 7
- 7a. Cephalon without lateral extensions or with lateral extensions much wider than cephalon 8
- 7b. Cephalon with very little, if any, extension beyond lateral margin of oval cephalon (frontal extension present, however) *Dactylokepon*

↗ = *I. cornuta*

Fig. 504. *Dactylokepon hunterae*
(Wells and Wells) (6 mm)

Range: Off Core Bank, North Carolina (22 m)

The species is a branchial cavity parasite of the crab *Pinnotheres maculatus* which is associated with the calico scallop. Two specimens were found on the host.

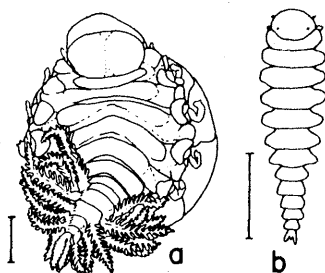


Figure 504. a. *Dactylokepon hunterae*. b. Male.

8a. Cephalon narrow, without frontal or lateral extensions *Leidyia*

Fig. 505. *Leidyia distorta* (Leidy) (8 mm)

Range: New Jersey, North Carolina and Bermuda

The species is found in the branchial cavity of the common fiddler crab, *Uca pugilator*, an abundant species in the salt marshes of the east coast of the United States. In Bermuda the species is parasitic on a different species of crab from a different family, *Pachygrospus transversus*. It thus is an example of a parasitic isopod which has several host species.

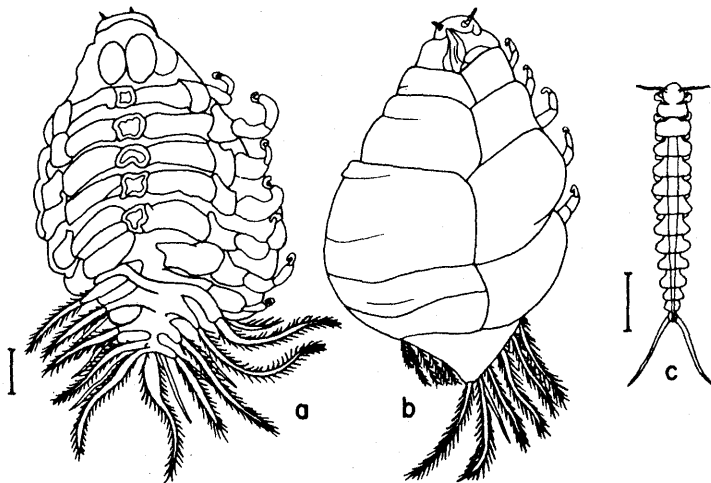


Figure 505. a. *Leidyia distorta*. b. Ventral view. c. Male.

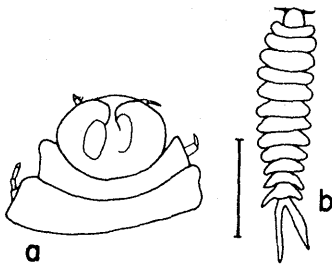


Figure 506. a. *Leidyia bimini*, anterior part. b. Male.

Fig. 506. *Leidyia bimini* (Pearse) (6.7 mm)

Range: Bimini Island, Bahamas

The species is found in the branchial chamber of *Pachygrapsus transversus*. It perhaps is really only a different form of *L. distorta*.

8b. Cephalon with large lateral and frontal extensions on ovate cephalon *Grapsicepon*

Fig. 507. *Grapsicepon edwardii* (Giard and Bonnier) (19 mm)

Range: Gulf Stream and Sargasso Sea

The species is a branchial parasite of crabs. Several males sometimes are found attached to one female. Large medio-dorsal projections are found on pereopodal segments VI and VII.

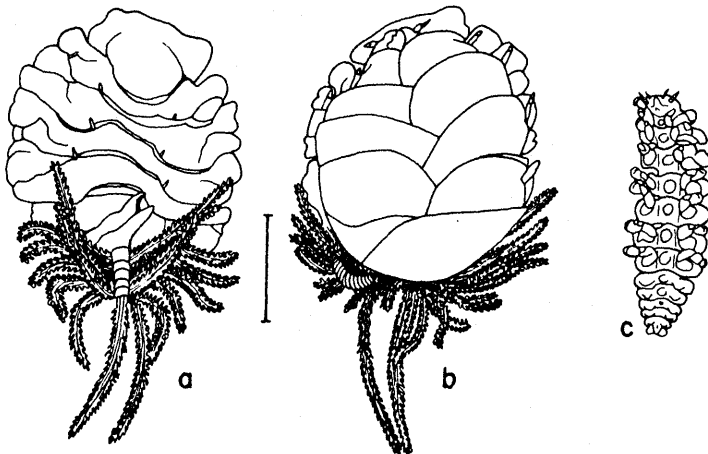


Figure 507. d. *Grapsicepon edwardii*. b. Ventral view. c. Male.

- (6) *M. irritans* Boone. Florida & Belize (host: *M. irrasa*)
- (7) *M. laterale* Richardson. Philippines & Java Sea.
(host: ?)

Fig. 508. *Grapsicepon choprae*
(Nierstrasz and Brender) (4mm)

Range: Curacao, Dutch West
Indies

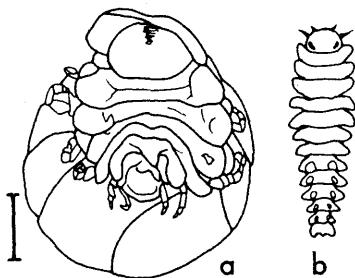


Figure 508. a. *Grapsicepon choprae*.
b. Male.

9a. Pleonal terga produced into long pleural lamellae (Fig. 509a)
..... 10

9b. Pleonal targa short, not produced into pleural lamellae (Fig.
509b) 14

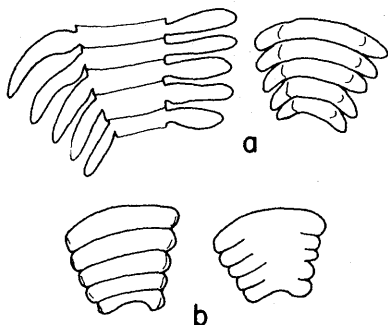


Figure 509. Pleural lamellae. a. long. b. Short.

note: There are 7
Species of N. American
Munidion (see Markham,
1975)

10a. Dorsal processes present near lateral borders of all pereopodal
segments; uropods bifurcate *Munidion*

(1) Fig. 510. *Munidion parvum* (Richardson) (9 mm)

Range: Puget Sound, Washington and Departure Bay, British
Columbia

The species is a parasite on the galatheid crab *Munida*
quadrispina.

- (2) *M. princeps* Hansen. Pacific coast of Colombia (host: *Munida refulgens* Faxon).
- (3) *M. pleurancodis* Markham. British Columbia to Baja (host: *Pl. roncades planipes*).
- (4) *M. cubense* Bourdon (formerly *M. parvum cubensis*) Caribbean (hosts: *Munida*
stimpsoni & *M. flinti*)

- 22b. Pleotelson with rounded appendages *P. panopei*

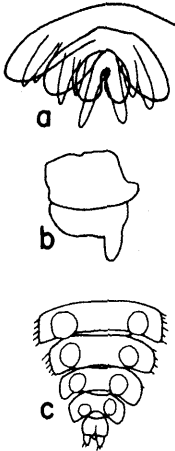


Fig. 525. *Pseudione panopei* (Pearse) (13.5 mm)
Range: Beaufort, North Carolina

The species is parasitic on the crab *Panopeus herbstei*.

Figure 525. a. *Pseudione panopei*, posterior part. b. Oostegite 1. c. Posterior part, ventral view male.

- 23a. Pleon with five complete, free segments showing; mostly blind species 24
- 23b. Pleon never with five complete, free segments showing; mostly species with eyes 26
- 24a. Pleon much narrower than peraeon, at least on short body side; posterior margin of pleotelson slit medially ... *Palaegyge*

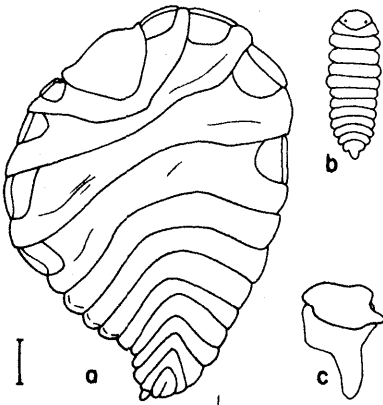


Fig. 526. *Palaegyge meeki* (Richardson) (9 mm)

Range: Freshwater streams on Atlantic coast of Panama

The species is a branchial parasite on the young of shrimps. The uropods of this species are in the form of two oval sac-like structures.

Figure 526. a. *Palaegyge meeki*. b. Male. c. Oostegite 1.

- 24b. Body margins of pereaeon gradually tapering into that of pleon (no abrupt change on either side); pleotelson with posterior margin various, but never slit 25
- 25a. Peraeon smooth without distinct dorsal differentiation of any kind; posterior margin of pleon and pleotelson truncate *Bopyroides*

Fig. 527. *Bopyroides hippolytes* (Kroyer) (8 mm)

Range: Circumpolar, south to Cape Cod and to Puget Sound, Washington

There have been many different forms described for this widespread species that is parasitic on species of the genera *Pandalus*, *Pandalopsis* and *Spirontocaris*.

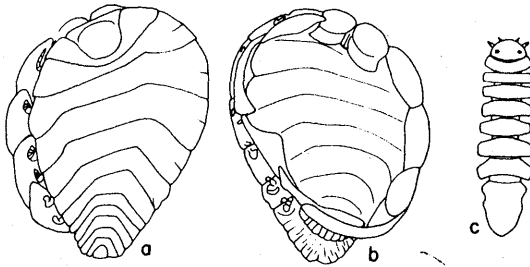


Figure 527. a. *Bopyroides hippolytes*. b. Ventral view. c. Male.

- 25b. Peraeonal segments with distinct lateral segmentation indicated in dorsal view; posterior margin of pleon rounded and pleotelson with posterior margin various *Probopyrus*

GENUS PROBOPYRUS

It is very difficult to tell the six species of the genus apart without knowledge of the host and of the structure of the male. The species are parasites of shrimp.

Fig. 528. *Probopyrus alpei* (Richardson)

Range: North Carolina to Brazil

The host species is the snapping shrimp *Alpheus heterochaelis*

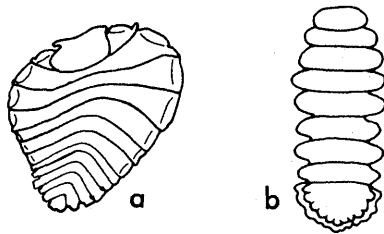


Figure 528. a. *Probopyrus alpei*. b. Male.

Figs. 529 and 530. *Probopyrus pandalicola* (Packard) (10 mm)

Range: New Hampshire to Florida and Mississippi

The species is parasitic on the shrimp of the genus *Palaemonetes* on the east and gulf coasts of the United States.

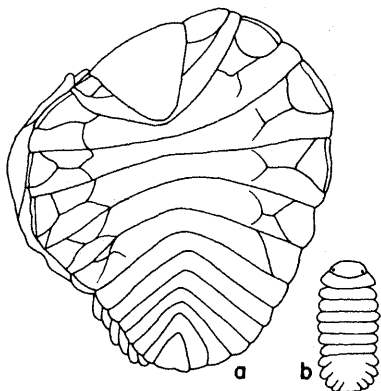


Figure 529. a. *Probopyrus pandalicola*.
b. Male.

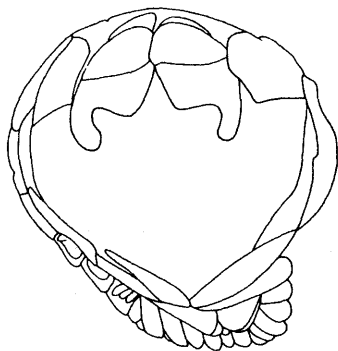


Figure 530. *Probopyrus pandicola* (ventral view).

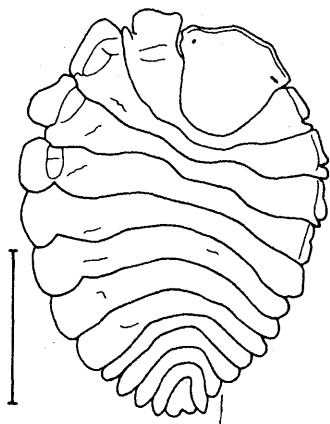


Figure 531. *Probopyrus oviformis*.

Fig. 531. *Probopyrus oviformis*
(Nierstrasz and Brender) (2.5 mm)

Range: Jolly Hill, St. Croix, West
Indies

The species is parasitic on the
shrimp of small brooks of the genus
Macrobrachium.

Fig. 532. *Probopyrus panamensis* (Richardson) (12 mm)

Range: Canal Zone, Panama

The species is a branchial parasite of the shrimp *Macrobrachium acanthurus*.

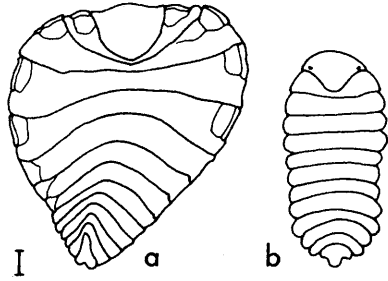


Figure 532. a. *Probopyrus panamensis*. b. Male.

Fig. 533. *Probopyrus floridensis* (Richardson) (4 mm)

Range: Northern Florida

The shrimp *Palaemonetes exilipes* is the host of the species.

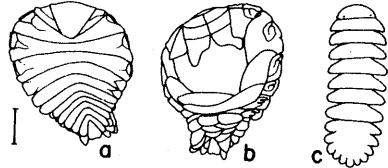


Figure 533. a. *Probopyrus floridensis*. b. Ventral view. c. Male.

Fig. 534(a). *Probopyrus bithynis* (Richardson) (3 mm)

Range: Mississippi River to Nicaragua

Shrimp of the genus *Macrobrachium* are the hosts.

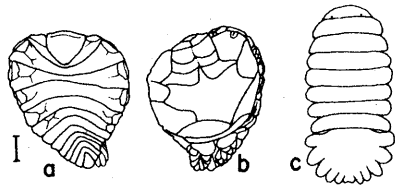


Figure 534(a). a. *Probopyrus bithynis*. b. Ventral view. c. Male.

26a. Cephalon and pereaeonal segment I fused or cephalon and pereaeonal segments I and II fused 27

26b. Cephalon never fused with pereaeonal segment I and II ... 29

27a. Cephalon and pereaeonal segment I fused *Bopyrella*

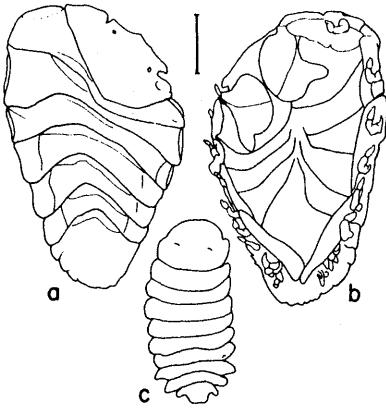


Figure 534(b). a. *Bopyrella harmopleon*. b. Ventral view. c. Male.

Fig. 534(b). *Bopyrella harmopleon* (Bowman) (4.8 mm)

Range: Los Roques Islands, Venezuela

The species is a parasite of a shrimp of the genus *Synalpheus*.

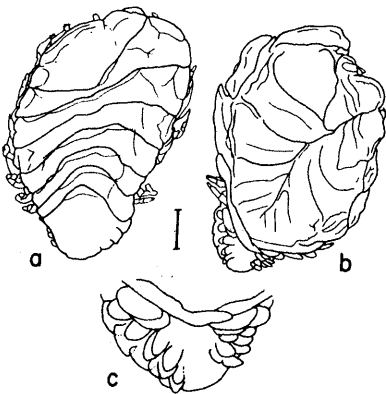


Figure 534(c). a. *Bopyrella maginitiei*. b. Ventral view. c. ventral view, pleon.

Fig. 534(c). *Bopyrella maginitiei* Shiino ¹⁹⁶⁴ (5.7 mm)

Range: Santa Cruz Island, California (13 m)

The species is a branchial cavity parasite of the shrimp *Crangon equidactylus*. & *Synalpheus*

lockingtoni

this is the jr. syn. of B. colmani. (See Sassaman et al. 1984)

27b. Cephalon and pereopodal segments I and II fused 28

28a. Eyes present; pleonal segments I and II at least, free; lateral margins of pleonal segments pointed *Synsynella*

Fig. 535. *Synsynnella deformans*
(Hay) (3.1 mm)

Range: Onslow Bay, North
Carolina, (20 miles off Beau-
fort Inlet) (18 m)

The species is found in the
gill chambers of *Synalpheus*
longicarpus, a shrimp. *Hemiar-*
thrus subcaudalis (p. 313) is
also a parasite on the shrimp.

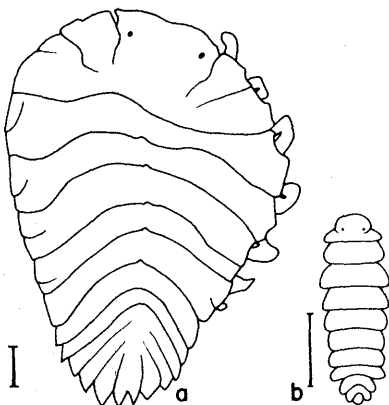


Figure 535. a. *Synsynnella deformans*. b. Male.

28b. Blind; no free pleonal segments; lateral margins of pleonal segments not pointed *Bopyrinella*

Fig. 536. *Bopyrinella antillensis*
(Nierstrasz and Brender)
(3 mm)

Range: Curacao, Dutch West
Indies

The host shrimp is *Thor*
floridanus which is also the
host of *Bopyrina thorii* in
Florida (p. 335).

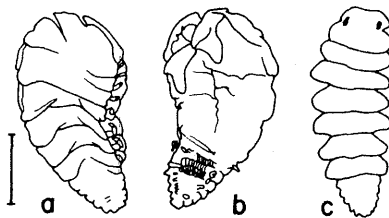


Figure 536. a. *Bopyrinella antillensis*. b. Ventral view. c. Male.

29a. Three or four free pleonal segments; pleotelson various ... 33

29b. All peraeonal segments fused, but generally indicated laterally (on one side or ventral view if not indicated on both sides in dorsal view); pleotelson never dorsally indicated (i. e., pleotelson equals pleon) *Bopyrina*

GENUS BOPYRINA

The six species of the genus are found on five different shrimp genera. Two species are found on the same host from different geographic regions.

KEY TO SPECIES OF BOPYRINA

- 30a. Pleon with indications of segmentation on one lateral margin only 31
- 30b. Pleon with indications of segmentation of both lateral margins 32
- 31a. Body asymmetrical, but medial axis almost straight
..... *B. crangona*

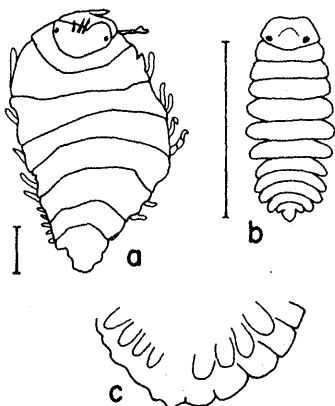


Fig. 537. *Bopyrina crangona* (Pearse)
(5.5 mm)

Range: Coast of Carolinas (Shallow water)

The host shrimp is *Crangon formosa*.

Figure 537. a. *Bopyrina crangona*. b. Male. c. Pleon, ventral view.

- 31b. Body asymmetrical with curved medial axis *B. abbreviata*

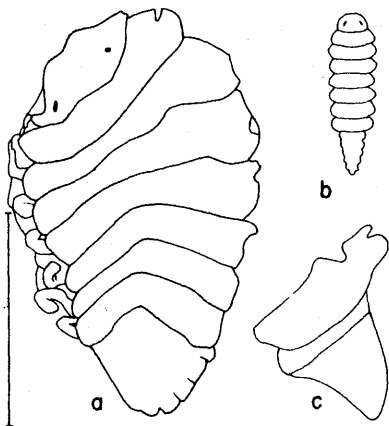


Fig. 538. *Bopyrina abbreviata*
(Richardson) (2 mm)

Range: Puntarasa, Florida
The host shrimp is *Hippolyte zostericola*.

Figure 538. a. *Bopyrina abbreviata*. b. Male. c. Oostegite 1.

- 32a. First incubatory oostegite with hook on posterior margin
(Fig. 542b) 33
- 32b. First incubatory oostegite with rounded posterior margin
(Fig. 538c) 35
- 33a. Peraeonal segment I deeply set into peraeonal segment II
..... *B. thorii*

Fig. 539. *Bopyrina thorii* (Richardson) (3.2 mm)

Range: Key West, Florida

The host is *Thor floridanus* the same as for the species *Bopyrinella antillensis* (p. 333)

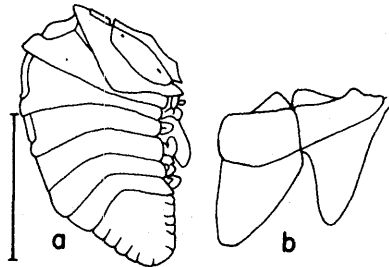


Figure 539. a. *Bopyrina thorii*. b. Oostegites 1.

- 33b. Peraeonal segment I not deeply set into peraeonal segment II
..... *B. latreuticola*

Fig. 540. *Bopyrina latreuticola* (Gissler) (1.7 mm)

Range: Carolinas, Bermuda and Bahamas

Host animal for the species is *Latreutes ensiferus*. The species formerly was considered to be a member of *Probopyrus*, but because of the presence of eyes, the size, the fused pleon and the general body of configuration, it is included here in *Bopyrina*.

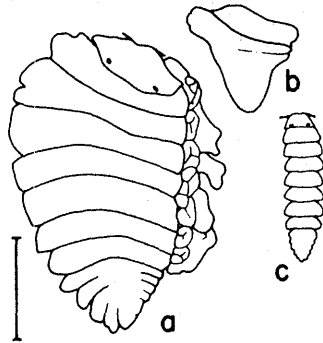


Figure 540. a. *Bopyrina latreuticola*. b. Oostegite 1. c. Male.

- 34a. Borders of pleonal segments angulate; frontal margin of cephalon not greatly curved *B. pontoniae*

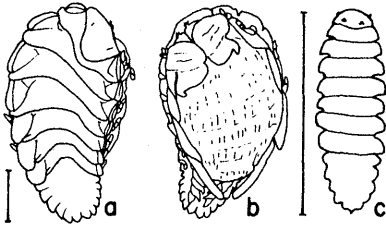


Figure 541. a. *Bopyrina pontoniae*. b. Ventral view. c. Male.

Fig. 541. *Bopyrina pontoniae* (Wells and Wells) (6 mm)

Range: Off Core Bank, North Carolina (22 m)

The host is the shrimp *Pontonia margarita* and it was associated with callico scallop. *B. urocardis* was found on the same host in Florida.

34b. Borders of pleonal segmnts sinuate; frontal margin of cephalon greatly curved *B. urocardis*

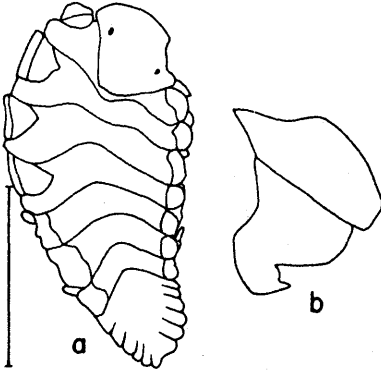


Figure 542. a. *Bopyrina urocardis*. b. Oostegite 1.

Fig. 542. *Bopyrina urocardis* (Richardson) (2.1 mm)

Range: Puntarasa, Florida

The host shrimp is *Pontonia margarita* the same as for *B. pontoniae* from North Carolina.

35a. Four free pleonal segments; fifth indicated in lateral margins of pleotelson by indentations *Bopyriscus*

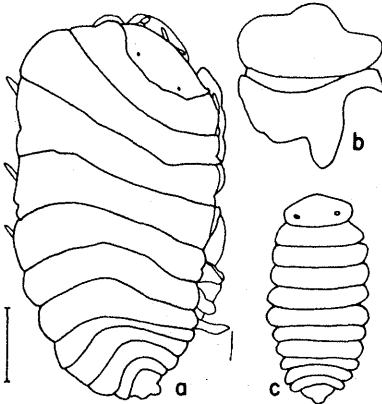


Fig. 543. *Bopyriscus calmani* (Richardson) (5 mm)

Range: Southern California

Host unknown.

Figure 543. a. ~~Bopyrina~~ ^{*Bopyriscus*} *calmani*. b. Oostegite 1. c. Male.

- 35b. Three free pleonal segments; fourth laterally indicated by slits in pleotelson margin *Bopyro*

Fig. 544. *Bopyro choprae*
(Pearse) (6.2 mm)

Range: North Carolina to Bahamas

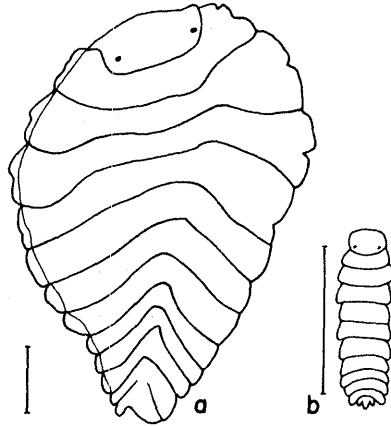


Figure 544. a. *Bopyro choprae*. b. Male.

CRYPTONISCIDAE

The species of the family are among the least known members of the isopod fauna of North American waters, because the female is composed of little more than just an egg sac and the males have rarely been found. It is known, however, that the species are isopods (for some species there is even a legitimate doubt of that!) because the juvenile stage looks like that of the juvenile of other species of bopyrids. Apparently the juveniles are at first planktonic and fend for themselves soon after being released from the brood sac. They soon must attach to a host, and most of the early attachment stages have never been seen by scientists because they are small and easily overlooked. The life history of no species has ever been completely explored and explained.

Most appendages including the mouth parts are absent, and the appendages which remain are greatly modified as sucktorial or clinging structures. The females are composed mainly of ovarian tissue, and of eggs formed from ovarian tissue. Sometimes some sign of segmentation is found, but most frequently the form of the adult female is simply rotund or lobular, and there is only a general pattern to the body form of the various species. The details of the form depend upon the place and conditions of attachment

to the host. The males are like the males of other families of the suborder, but unfortunately they have never been extensively illustrated even when found. The isopods are probably frequently overlooked, even as adults, because they are small and look like many of the other encrusting plants and animals found on the host.

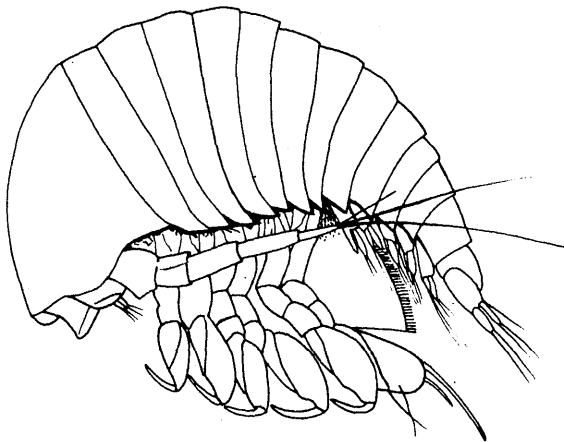


Figure 545. *Clyptoniscus meinerti*, lateral view larva.

There is some evidence that species of the family are host specific, but there are not enough observations to form any solid conclusions. The approximately 25 genera of the family have been divided into seven separate families, but since little other than the juvenile stage is known in most species, they are included here as one family. Members of the family are parasites on many other groups of crustaceans including other isopods. Occasionally they are parasites of crustaceans which are in turn parasites of other crustaceans or other animals. Probably they have some influence on the life history of their hosts, but not as much as that of the entoniscids. Six species in six genera have been recorded in North American waters. The key to genera which follows is only an aid, not the final word since the form of the animals is so changeable.

KEY TO GENERA AND SPECIES OF CRYPTONISCIDAE

1a. Specimen rolled into ball; much longer than wide*Dandalia*

Fig. 546. *Danalia fraisei* (Nierstrasz and Brender) (4.4 mm)

Range: Curacao, Dutch West Indies.
The host of the parasite is the

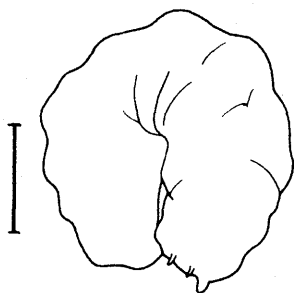


Figure 546. *Danalia fraisei*, lateral view.

- 1b. Not as above 2
- 2a. Species of two large lobes; peraeonal segments showing between two lobular egg masses *Clypeoniscus*

Fig. 547. *Clypeoniscus meinerti* (Giard and Bonnier) (2 mm)

Range: Greenland (11 to 18 m)

The species illustrated here is a parasite in the marsupium of another isopod, *Synidotea nodulosa* (p. 70), which is a relatively small isopod about 7.5 mm long. The host is found in the intertidal zone on the coast of Greenland. The species looks like a large egg in the marsupium of the female. Upon close examination it is found to be a sac of tiny eggs itself. A male is sometimes found attached to the egg mass and it looks much like other bopyrid isopod males.

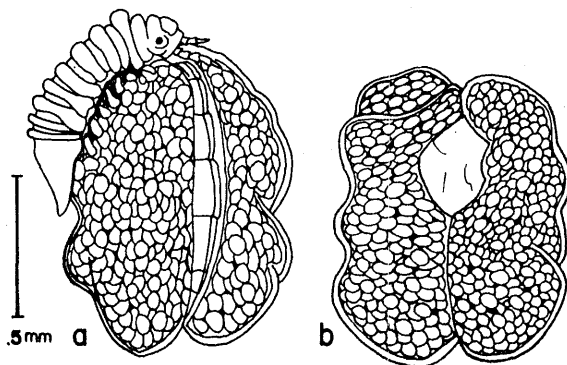


Figure 547. a. *Clypeoniscus meinerti*, female with male. b. Opposite view of a.

- 2b. Specimen not of only two lobes of egg masses; peraeonal segmentation not apparent 3
- 3a. Seven lobes apparent; five lobes somewhat radially arranged *Heptalobus*

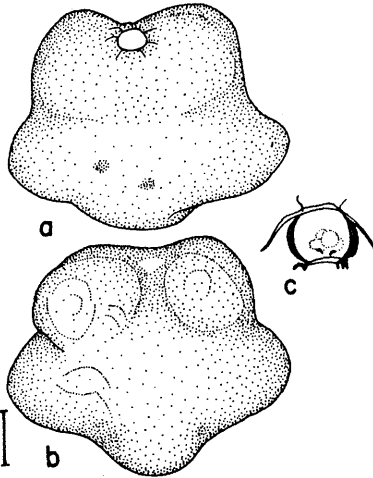


Fig. 548. *Heptalobus paradoxus* (Nierstrasz and Brender) (4 mm)

Range: Bering Sea (730 m)

The host ~~crab~~^{shrimp} was *Spirontocaris buinguis*. The ring structure apparently represents the oral region. No males were found.

Figure 548. a. *Heptalobus paradoxus*, oral view. b. Aboral view. c. Detail, oral region.

- 3b. Bean-shaped, ocarina-shaped or composed of two subspherical parts 4
- 4a. Bean-shaped *Faba*

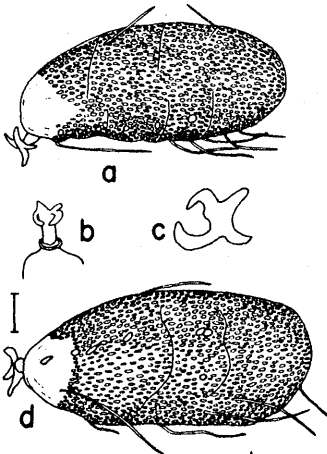


Fig. 549. *Faba setosa* (Nierstrasz and Brender) (8 mm)

Range: Off central California (305 m)

The species was found on the ~~crab~~^{shrimp} *Spirontocaris bispinosa*. A second species of the genus is found in Hawaii. The male has never been seen. Apparently the species attaches to the host by means of the four pointed anterior (?) processes.

Figure 549. a. *Faba setosa*, lateral view. b. Attachment stalk. c. Detail, attachment stalk. d. Opposite view of a.

Faba glabra - Hawaii
 ? *cryptothir balani* (Bate 1860)
 (= *Hemianisus balani*)

- 4b. Ocarina-shaped or composed of two subspherical parts5
 5a. Ocarina-shaped *Duplorbis*

Fig. 550(a). *Duplorbis ocarina* (Nierstrasz and Brender) (4 mm)

Range: Aleutian Islands (132 m)

The parasite shaped like the musical instrument, the ocarina, is from the branchial cavity of a crab. A cross section [A to B, Fig. 505(a)] of the animal is shown with the small intestine indicated. The large cavity of the ovary is surrounded by ovarian tissue.

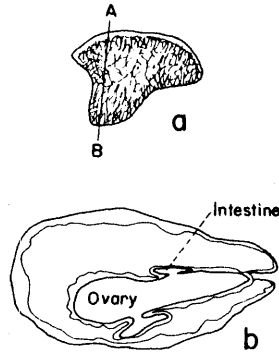


Figure 550(a). a. *Duplorbis ocarina*. b. Section cut at A-B.

- 5b. Body composed of two subspherical parts *Liriopsis*

Fig. 550(b). *Liriopsis pygmaea* (Rathkei) (5 mm)

Range Puget Sound, Washington (Shallow water)

The species is parasitic on the rhizocephalans *Peltogaster paguri* and *P. gaserella gracilis* which in turn are parasitic on hermit crabs.

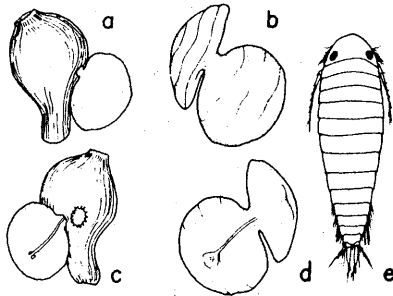


Figure 550(b). a. *Liriopsis pygmaea* on host, dorsal view. b. Isolated from host, dorsal view. c. Isopod and host, ventral view. d. Isolated from host, ventral view. e. Male (After Sars).

DAJIDAE

The body of the female is composed mostly of a mass of eggs that is sometimes symmetrically arranged around a segmented body. The mouth, even in the young female stages, is composed of an attachment sucker. The sucker is not found in mature males, but whether or not it is present in larval males has not been determined. The antennae are severely reduced in size or absent, and only two to five pair of anterior peraeopods are present. The pleo-

pods, if present, are rudimentary, and the uropods are absent or very small if present. The males are much like those of other families, but in some species the cephalon and peraeonal segment I are fused. The pleonal segments are also fused. The species are parasites on species of Mysidacea and Euphausiacea. Four species in four genera are known from North American waters.

KEY TO GENERA AND SPECIES OF DAJIDAE

- 1a. Peraeonal segmentation visible in dorsal view; body flanked laterally by large egg masses2
- 1b. Peraeonal segmentation not at once apparent if at all; egg cases laterally placed on each side of body3
- 2a. Uropods distinct; body bilaterally symmetrical with anterior parts greatly wider than posterior part; two large egg masses laterally placed in gravid females *Dajus*

Fig. 551. *Dajus mysidis* (Kroyer) (4 mm)

Range: Laborador and Greenland (5 to 37 mm)

The species is a parasite which attaches to the abdomen of mysid shrimps.

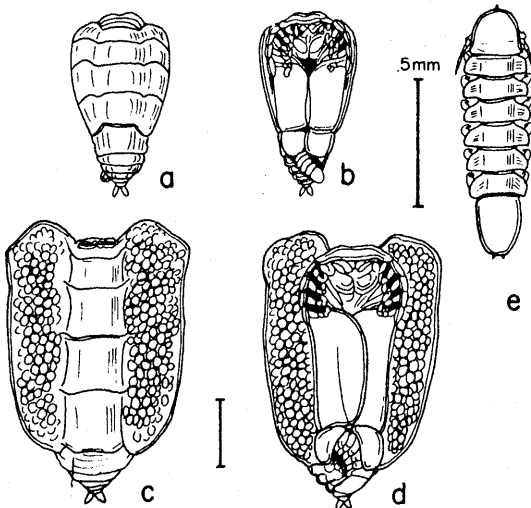


Figure 551. a. *Dajus mysidis*, dorsal view young female. b. Ventral view. c. Dorsal view, mature female. d. Ventral view. e. Male.

- 2b. Uropods not distinct; body with somewhat of a symmetry
 *Colophryxus*

Fig. 552. *Colophryxus novangliae* (Richardson)

Range: South of Long Island, New York (1293 m)

This species is the type and only species in the genus. It was found unattached in a fishing trawl net, therefore, the host is not known.

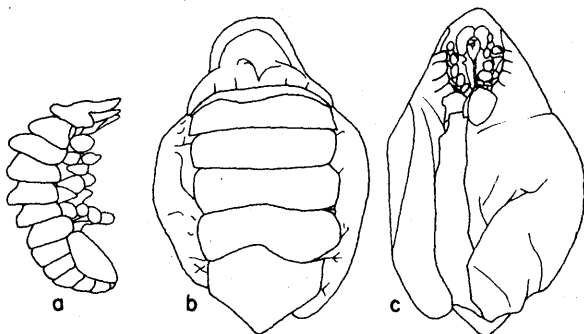


Figure 552. a. *Colophryxus novangliae*, male. b. Dorsal view, female. c. Ventral view.

- 3a. Pleon with segmentation apparent; anterior pereopodal segments distinct
 *Prophryxus*

Figs. 553 and 554. *Prophryxus alascensis* Richardson 1909

Range: Off Alaskan panhandle (3658 m)

This species is perhaps parasitic on a schizopod since one was caught with it. The name of the schizopod was not given.

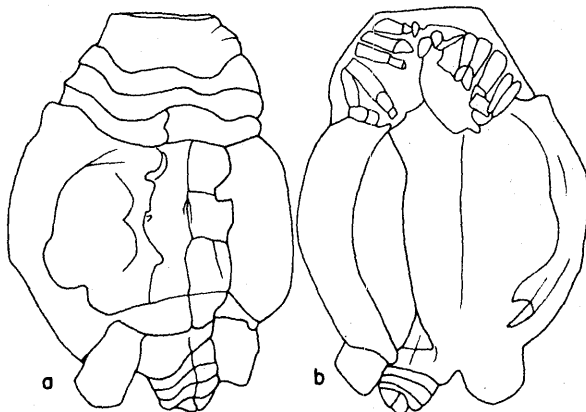
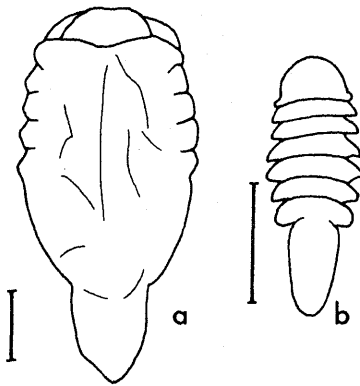


Figure 553. a. *Prophryxus alascensis*. b. Ventral view.



Holophryxus giardi Rich. 1908
Bering Islands, Alaska

Holophryxus californianus Rich. 1908
Central California

Figure 554. a. *Prophryxus alascensis* (from another host). b. Male.

3b. No major body segmentation apparent *Holophryxus*

Fig. 535. *Holophryxus alascensis* (Richardson)

Range: Alaska, near Juneau (269 to 640 m)

The host for this species is an unnamed stomatopod.

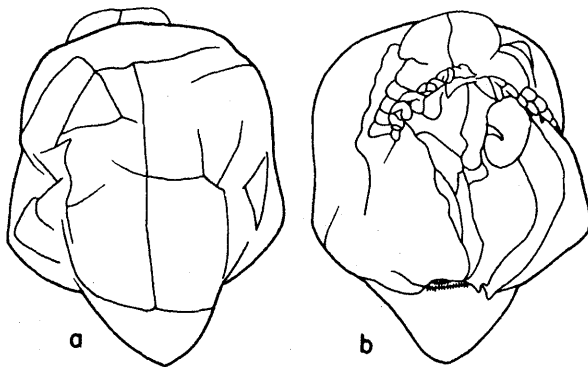


Figure 555. a. *Holophryxus alascensis*. b. Ventral view.

ENTONISCIDAE

Species of entoniscids are true endoparasites and are found within the body cavity of their decapod hosts. Although at first the specimens appear to be a mass of undifferentiated host tissue, it is interesting to note that all the body tagmata are present and almost all of the segments of each tagmata are represented. It is only after careful study, however, that they can be properly identified. The cephalon is generally composed of two large cephalic lobes and the pleon is long and slender. Large lamellae are present on the peraeonal segments of many species. All appendages are

rudimentary or absent, and only the mandibles are recognizable of the mouth parts. The peraeopods are present as buds or completely absent, and there are five segments plus a pleotelson present and distinct and the segments are sometimes equipped with pleopods that are long and pointed. Gravid females appear to be simply an undifferentiated mass of eggs, and only after careful examination is the body of an isopod recognized. The males are found on the body of the non-gravid female or in the egg mass of the gravid female. Their body is generally wide at the anterior end and tapers to a thin pleon, but it is in almost every other respect like that of other bopyrid males.

There is a small hole in the body wall of the host leading from the branchial cavity to the body cavity (haemocoel) where the parasite is found. In at least one species, the hole regularly penetrates from the eye cavity to the body cavity. The parasite is bathed in the body fluid of its host, and this is one of the criteria for calling the isopod a true endoparasite. There are about 34 species known and four are from the Atlantic coast and one from the Pacific coast of North America.

It is not easy to make a useful key to the genera or species of entoniscids so one is not attempted here. When decapods that are parasitized by the isopods are collected, they should be preserved and identified as well as the parasite. The structure of the male also is a useful identifying character. The species of entoniscids are economically important. Five species in four genera are found in North American waters.

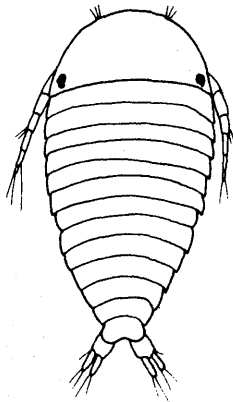


Figure 556. Larva of entoniscid.

GENERA OF THE FAMILY ENTONISCIDÆ

Fig. 557. *Cancrion carolinus*
(Pearse and Walker)
(24 mm)

Range: Coast of Carolinas

At Beaufort, North Carolina, the species was found in the crab *Panopeus herbstii*.

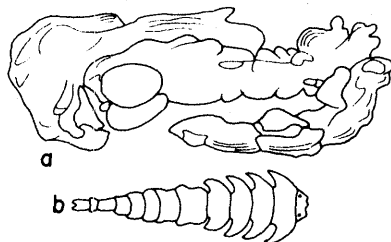


Figure 557. a. *Cancrion carolinus*. b. Male.

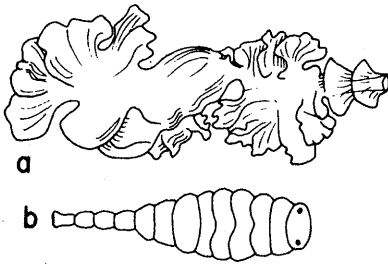


Figure 558. a. *Cancrion needleri*. b. Male.

Fig. 558. *Cancrion needleri*
(Pearse and Walker)
(18 mm)

Range: Prince Edward Island,
Canada

The host crab is *Neopanope texana*.

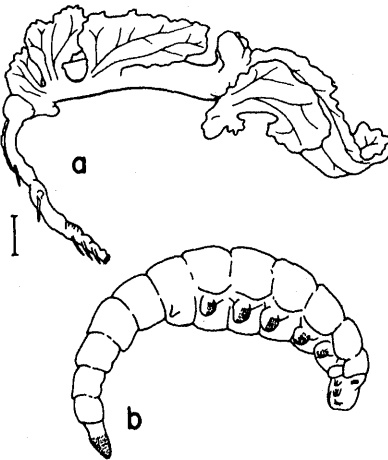


Figure 559. a. *Paguritherium altum*. b. Male.

Fig. 559. *Paguritherium altum*
(Reinhard) (15 mm)

Range: Woods Hole, Massa-
chusetts

The species is parasitic on
the hermit crab *Pagurus longi-
carpus*, and it enters the body
cavity through the region of
the eyestalk, not the branchial
cavity as in other entoniscids.
In the male the pereopods are
stumps, not jointed pereao-
pods. The crab host is also host
of another bopyrid isopod, *Ste-
gophryxus hyptius*, a branchial
cavity parasite (p. 321)

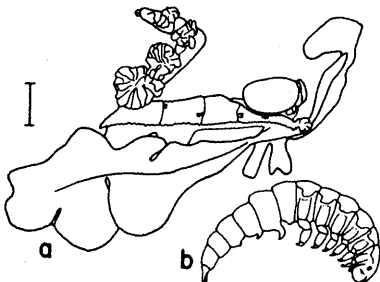


Figure 560. a. *Achelion occidentalis*. b. Male.

Fig. 560. *Achelion occidentalis*
(Hartnoll) (4.8 mm)

Range: Jamaica

The parasite is found in the
spider crabs *Microphryus bi-
cornutus* and *Stenorhynchus*
seticornis.

Fig. 561. *Portunium conformis*
(Muscatine) (14 mm)

Range: Puget Sound, Washington to San Francisco Bay, California

The host is *Hemigrapsus oregonensis*, a decapod. More than one parasite is frequently found on each host.

Also *H. nudus* (see Pfltz, 1969)

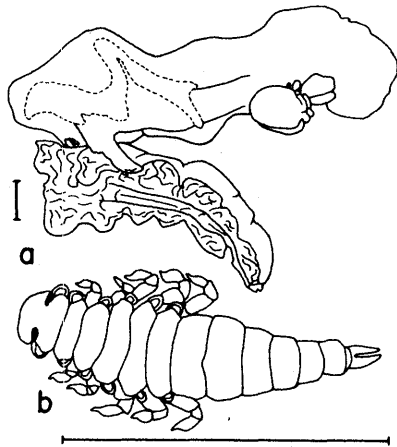


Figure 561. a. *Portunium conformis*. b. Male.

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Burbanck, W. D. 1962. An ecological study of the isopod *Cyathura polita* (Stimpson) from brackish waters of Cape Cod, Massachusetts. Amer. Midl. Nat., 67(2):449-476.

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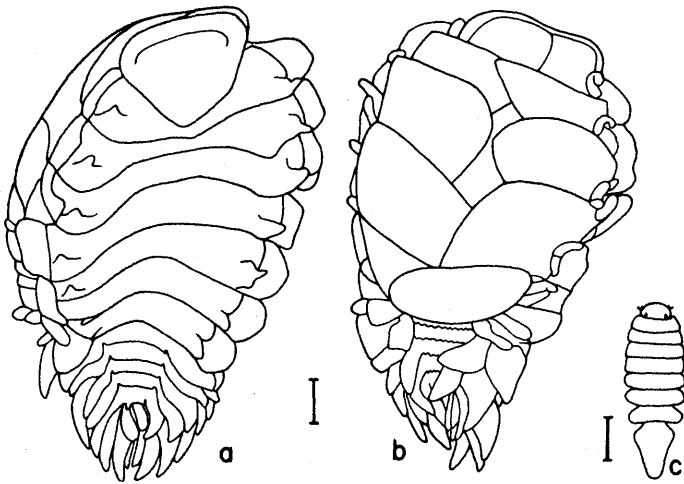


Figure 510. a. *Munidion parvum*. b. Ventral view. c. Male.

- 10b. Dorsal processes absent near lateral borders of pereaeonal segments; uropods uniramus 11
 11a. Cephalon rounded and protruding far out of surrounding pereaeonal segment I *Cryptione*

Fig. 511. *Cryptione elongata* (Hansen) (19 mm)

Range: Galapagos Islands and perhaps west coast of Mexico

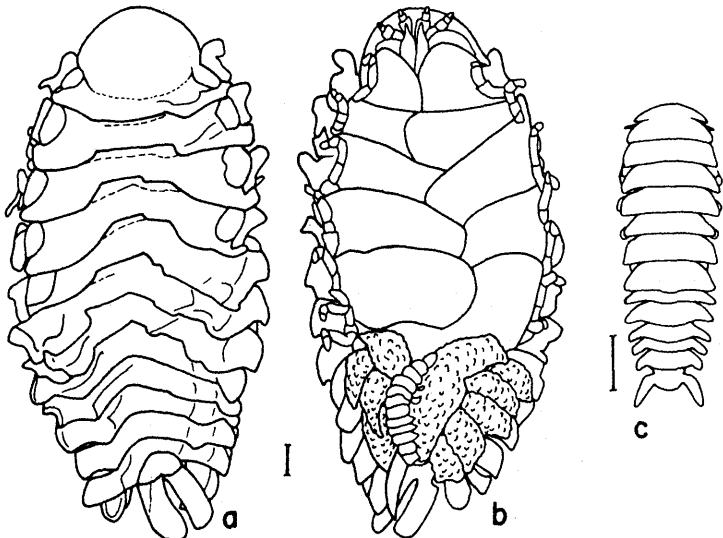


Figure 511. a. *Cryptione elongata*. b. Ventral view (with male on pleopods). c. Male.

Neither the male nor the female have eyes. The species is found in the branchial cavity of the crabs of the genus *Nematocarcinus*.

- 11b. Cephalon broadly rounded or with frontal margin nearly straight and contained almost or completely within pereopodal segment I 12
- 12a. Some or all pleopods triramus; no papillae dorsolaterally placed on pleopodal segment I 13
- 12b. No pleopods triramus; papillae dorsolaterally placed on pleopodal segment I *Phyllodurus*

Fig. 512. *Phyllodurus abdominalis* (Stimpson) (14 mm)

Range: Puget Sound, Washington to San Francisco Bay, California

The species is parasitic on the ~~crab~~ *Upogebia pugettensis*.
mud shrimp

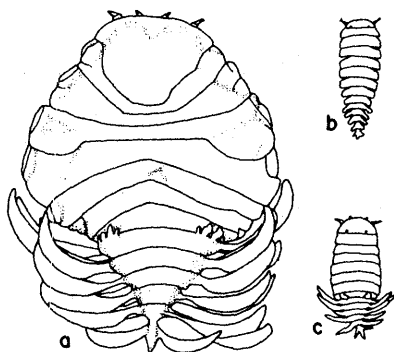


Figure 512. a. *Phyllodurus abdominalis*. b. Male. c. Juvenile female.

Phyllodurus robustus = *Pseudione upogebiae*

- 13a. All pleopods triramus *Stegophryxus*
- Fig. 513. *Stegophryxus hyptius* (Thompson) (9.1 mm)

Range: Massachusetts and Rhode Island & Georgia.

The species is a parasite on the abdomen of the hermit crab, *Pegurus longicarpus* which is found on the shore and in shallow water. The crab is also host of another isopod of the family Entoniscidae, *Paguruitherium altum* (p. 346), an endoparasite. Also infests *P. annulipes* in N. Carolina & Georgia; and *P. bonairensis* & *P. miamensis* in Florida.

Stegophryxus hyphalus: So. Calif. to Baja

see Markham, 1974 for review of genus

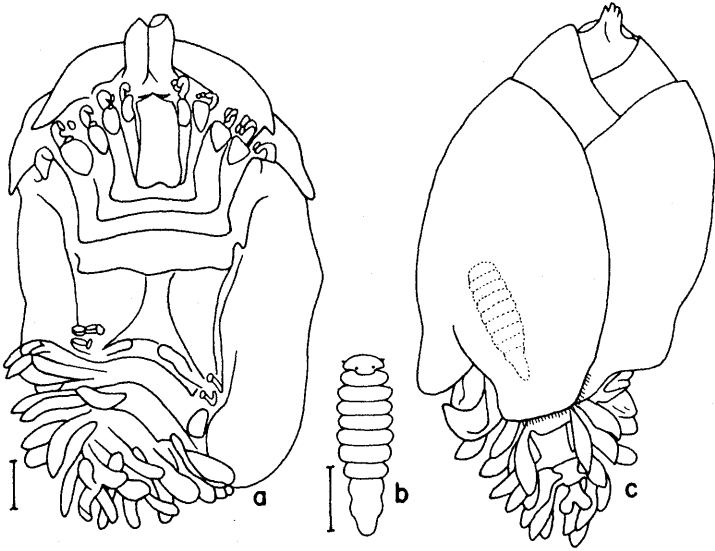


Figure 513. a. *Stegophryxus hyptius*. b. Male. c. Ventral view.

13b. Only anterior three pleopods tiramus *Stegias*

Figs. 514 and 515. *Stegias clibanarii* (Richardson) (16 mm)

Range: Bermuda

The host species is *Clibanarius tricolor*.

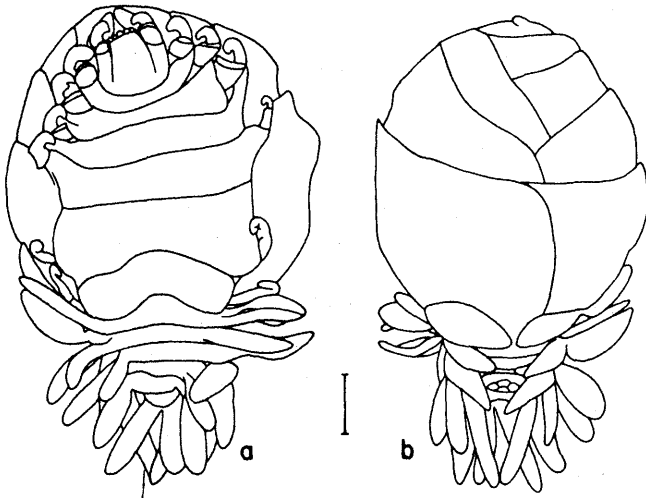


Figure 514. *Stegias clibanarii*. a. Dorsal view. b. Ventral View.

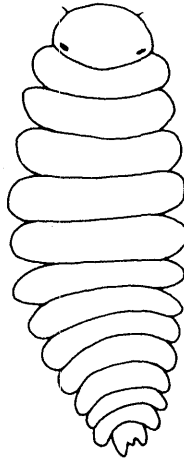


Figure 515. *Stegias clibanarii* (male).

- 14a. Pleopods very long; pleonal lateral edges usually moderately long; telson or pleotelson with long rami 15
- 14b. Pleopods short, rudimentary or absent; pleonal lateral edges short; telson or pleotelson never with distinct rami 23
- 15a. Peraeonal segments I to III with secondarily produced posterolateral edges at least on long body side, and secondarily produced posterolateral edges on both edges of segments IV to VII; pleonal segments with lateral margins rounded
..... *Argeia*

Figs. 516 and 517. *Argeia pugettensis* (Dana) (14 mm)

Range: Bering Sea to southern California

At times half a population of shrimp have been recorded to have the parasite in their branchial chamber. Shrimp of the family Cragonidae are the hosts. *Argeia pauperata* Stimpson (14 mm) from San Francisco Bay and parasitic on *Crago franciscorum* has been considered to be a separate species although it is very similar to *A. pugettensis*.

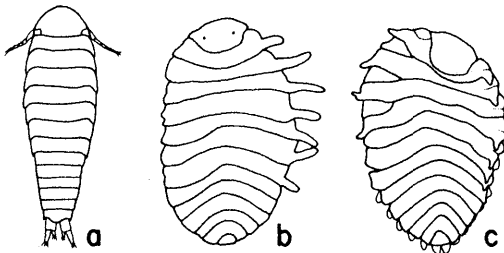


Figure 516. a. *Argeia pugettensis*, larva. b. Juvenile female d. Young female.

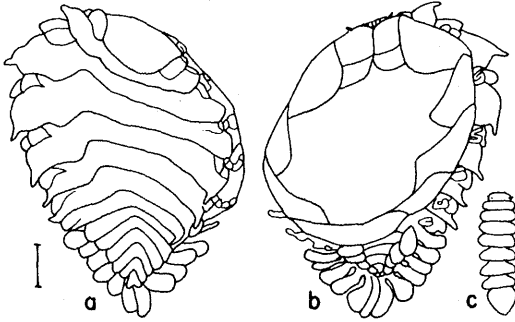


Figure 517. a. *Argeia pugettensis* (gravid female). b. Ventral view. b. Male.

15b. Not as above 16

16a. Pleonal segments with lateral edges short and lateral margins square *Parageia*

Fig. 518. *Parageia ornata* (Hansen) (7 mm)

Range: Acapulco, Mexico

The species is parasitic on the shrimp *Sclerocrangon procax*.

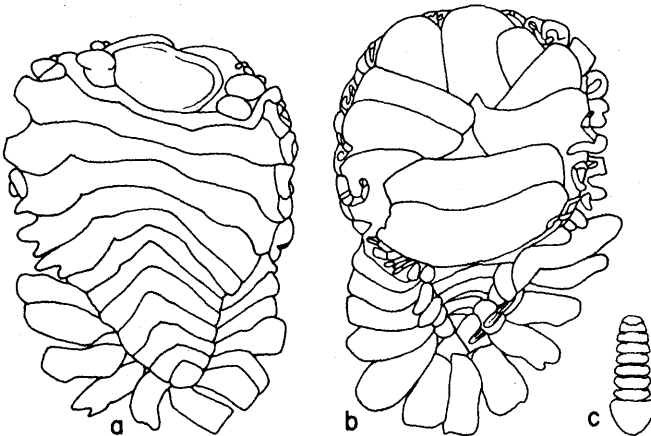


Figure 518. a. *Parageia ornata*. b. Ventral view. c. Male.

16b. Pleonal segments with lateral edges moderately long and lateral margins various (for example, square, lobular, secondarily produced, etc.) *Pseudione*

GENUS PSEUDIONE

The genus contains species that are parasitic on crabs and shrimp. The species constitute one of the most widespread groups of parasitic isopods, and when they are more closely examined they will probably be separated into several genera. They are most commonly encountered in the branchial cavity of hermit crabs, but they are occasionally found in shrimps.

KEY TO SPECIES OF PSEUDIONE

17a. With eyes; cephalon ovate *P. trilobata*

Fig. 519. *Pseudione trilobata*
(Nierstrasz and Brender)
(3 mm)

Range: Curacao, Dutch West Indies

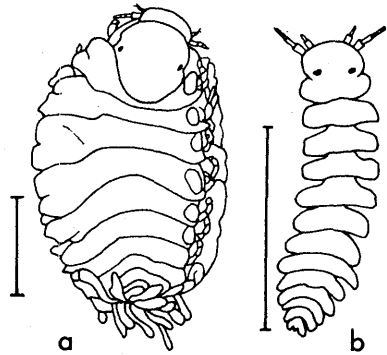


Figure 519 a. *Pseudione trilobata*. b. Male.

17b. Blind; cephalon not ovate 18

18a. Pleopods digitate *P. upogebiae*

Fig. 520. *Pseudione upogebiae*
(Hay) (1.1 mm)

Range: Beaufort, North Carolina

The species is a parasite of the gill chambers of the shrimp *Upogebia affinis*. The distinct digitate pleopods distinguish the species from other species in the genus. When more observations are made, the peculiar pleopods might serve as criteria for establishing a new genus.

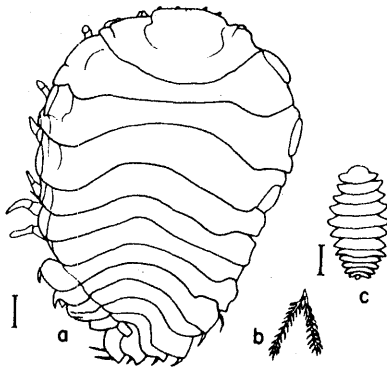


Figure 520. a. *Pseudione upogebiae*. b. Detail, pleopod. c. Male.

Markeham (1974) placed *Phyllodurus robustus*
Pearse (1953) into jr. synonymy with *Pseudione*
upogebiae.

- 18b. Pleopods not digitate 19
 19a. Posterior part of body abruptly narrower than anterior part;
 pleonal secondary lamellae not distinct *P. giardi*

Fig. 521. *Pseudione giardi* (Calman) (12 mm)

Range: Puget Sound, Washington

The species is parasitic on the hermit crab *Pagurus ochotensis*.

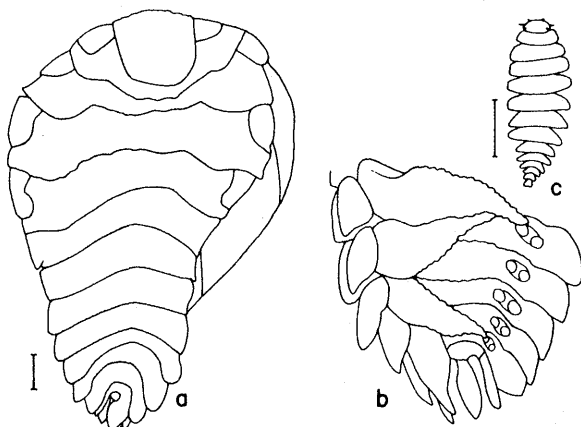


Figure 521. a. *Pseudione giardi*. b. Ventral view, posterior part. c. Male.

- 19b. Posterior part of body narrower, but not abruptly narrower,
 than anterior half; pleonal secondary lamellae various 20
 20a. Pleonal terga produced to narrow secondary lappets
 *P. curtata*

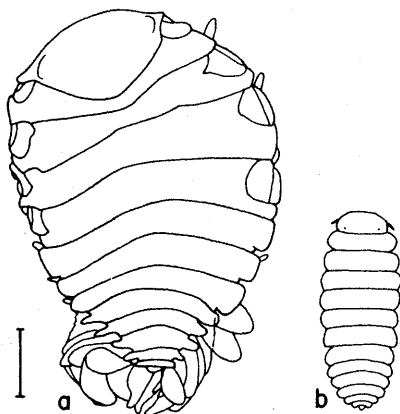


Fig. 522. *Pseudione curtata*

(Richardson) (5.5 mm)

Range: Key West, Florida

Only one specimen of the species was taken from the branchial cavity of the crab *Petrolisthes sexspinous*.

Figure 522. a. *Pseudione curtata*. b. Male.

- 20b. Pleonal terga not produced or produced into large secondary lamellae 21
- 21a. Pleonal terga not produced into large lamellae 22
- 21b. Pleonal terga produced into large secondary lamellae
P. galacanthae

Fig. 523. *Pseudione galacanthae* (Hansen)
(11 mm)

Range: Gulf of California to Washington State

The species was found in the branchial cavity of the galatheid crab *Munnida quadrispina*.

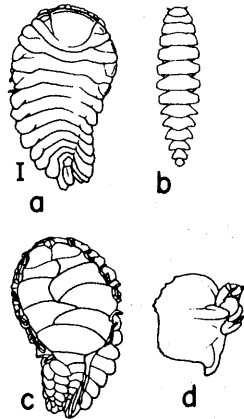


Figure 523. a. *Pseudione galacanthae*. b. Male. c. Ventral view. d. Oostegite 1.

- 22a. Pleotelson with elongate appendages *P. furcata*

Fig. 524. *Pseudione furcata* (Richardson) (11 mm)

Range: Virginia

Host unknown.

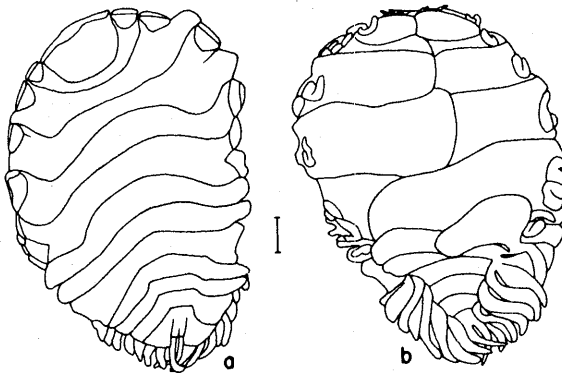


Figure 524. a. *Pseudione furcata*. b. Ventral view.

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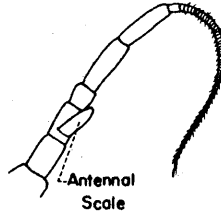


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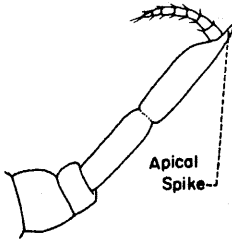


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 Antennal one types, 231
 Maxillipeds, 233, 250
 Peraeopods, 232
Asellus sp., 242
 Astacilla
 caeca, 51
 grandulata, 51
 lauffi, 51
 Austrosignum
 tillerae, 292

B

- Baiting for isopods, 22
 Basipod: see basis, 40

Basis (pl. bases): segment closet to
 body except where coxal seg-
 ment is present

- Bathura
 luna, 98
 Bathygnathia
 curvirostris, 221
 Bathygyge
 grandis, 312
 Bathynomus
 giganteus, 169
 Benthic: bottom dwelling animal
 Bopyrella
 maginitiei, 332
 harmopleon, 332
 Bopyridae, 312
 Bopyrina
 abbreviata, 334
 cragona, 334
 latreuticola, 335
 pontoniae, 336
 thorii, 335
 urocaridis, 336
 Bopyrinella
 antillensis, 333
 Bopyriscus
 calmani, 336
 Bopyro
 choprae, 337
 Bopyroides
 hippolytes, 329
 Boss: an enlargement; a large tubercle
 Braga
 cichlae, 154
 occidentalis, 155
 Branchial chamber: gill cavity in
 decapods (where parasitic iso-
 pods are sometimes found);
 pleopodal cavity in *Asellota*
 (230) and *Valvifera* (48)

C

- Caecianiropsis
 psammophila, 257
 Caecijaera
 horvathi, 257
 Calathura
 branchiata, 102
 Cancrion
 carolinus, 345
 needleri, 346
 Carcinology: study of crustaceans
 Carpias
 bermudensis, 260
 Carpus: peraeopodal segment (5), 32
 Cassidinidea
 lunifrons, 115
 ovalis, 115
 Cephalization: process of formation
 through evolution of anterior
 appendages to sensory and gna-

- thal from locomotoral ones, Fig. 3
- Cephalon: head— anterior most tagma where gnathal and sensory appendages are located
- Cerathothoa
 - impressa*, 155
- Chelate: clawed
- Chelifera: see Tanaidacea, 4
- Chiridotea
 - almyra*, 61
 - arenicola*, 62
 - coeca*, 62
 - nigrescens*, 62
 - stenops*, 61
 - tufsi*, 61
- Cirolana
 - albida*, 180
 - borealis*, 182
 - californiensis*, 178
 - concharum*, 181
 - diminuta*, 184
 - gracilis*, 185
 - harfordi*, 183
 - impressa*, 184
 - joanneae*, 179
 - minuta*, 180
 - obtruncata*, 181
 - parva*, 185
 - polita*, 183
 - sphaeromiformis*, 178
- Cirolanidae, 168
- Cirolanides
 - texensis*, 186
- Cleantis
 - heathii*, 82
 - occidentalis*, 83
 - planicaudata*, 82
- Clypeoniscus
 - meinerti*, 338, 339
- Clypeus: front of cephalon above labrum, 37, 75
- Colanthura
 - squamossima*, 90
 - tenuis*, 89
- Colidotea
 - rostrata*, 74
- Collecting methods, 21, places, 20
- Colophryxus
 - novangliae*, 343
- Colopisthus
 - parvus*, 168
- Conilera
 - cylindracea*, 174
 - stygia*, 174
- Corallanidae, 212
- COUPLING HOOKS: structures found on medial edge of maxilliped (p. 38) and pleopods (Fig. 564) which apparently fastens them together

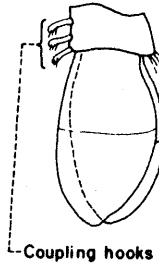


Figure 564. Pleopod with coupling hooks on basis.

- Coxa: pereopodal segment, (1), 32
 - Coxal plate: see epimere
 - Creaseriella
 - anops*, 187
 - Cryptione
 - elongata*, 320
 - Cryptoniscan larvae or stage, 309
 - Cryptoniscidae, 337
 - Culture (or rearing), 23
 - Cumacea, 4
 - Cyathura
 - burbanki*, 107
 - carinata*, 107
 - cruis*, 105
 - Curassavica*, 104
 - munda*, 105
 - polita*, 106
 - specus*, 104
 - Cymodoce
 - faxoni*, 127
 - japonica*, 127
 - Cymothoa
 - caraibica*, 160
 - excisa*, 346, 160
 - exigua*, 161
 - oestrum*, 161
 - Cymothoidea, 145
 - Mouth parts, 146
- D**
- Dactylus: pereopodal segment, (7) with claw, 32
 - Dactylokepon
 - hunterae*, 317
 - Danalia
 - fraissei*, 339
 - Dajidae, 341
 - Dajus
 - mysidis*, 342
 - Decapods: crabs and shrimps
 - Dendrotion
 - hanseni*, 300
 - Dendrotionidae, 299
 - Desmosoma
 - armatum*, 281

- birsteini, 279
 lobiceps, 280
 plebjum, 280
 symmetrica, 279
 tenuimanum, 281
 Desmosomatidae, 278
 Development, 24
 Digitate: finger-like; branched
 Diplophryxus
 synalpei, 314
 Discerceis
 granulosa, 126
 linguicauda, 126
 Distribution, 14 (Map, Fig. 13)
 Dorsal pit, 86
 Dorsolateral keel, groove, 86
 Dorsum: upper surface of body or
 of tagmata of body
 Duplorbis
 ocarina, 341
 Dynamene
 dilatata, 122
 Dynamenella
 angulata, 125
 benedicti, 125
 glabra, 122
 moorei, 124
 perforata, 124
 sheareri, 123
 Dynamenicus
 carinatus, 118
 Dynamenopsis
 dianae, 123

E

- Echinothambema
 ophiuroides, 248
 Echinothambematidae, 247
 Ecology, general, 9
 Economic importance of isopods, 9
 Limnoria, 138
 Sphaeroma destructor, 128
 Sphaeroma pentadon, 128
 Edanthura linearis: this species from
 California was not described in
 sufficient detail to be recognized
 again, hence, it is a nomen nun-
 dem
 Edotea
 acuta, 81
 montosa, 80
 sublittoralis, 81
 triloba, 81
 Eisothisτος
 atlanticus, 97
 Endopod: inner branch of appendage
 Entoniscidae, 344
 Epicaridea (suborder), 309
 General nomenclature, 309
 Epicaridian larva, 309

EPIMERE: modified coxal segment
 of pleopod sometimes forming
 extension of peraeon, Fig. 565

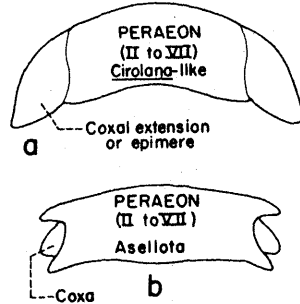


Figure 565. Coxa and coxal extensions (epimeres) on peraeonal segments. a. General Flabellifera. b. Some Asellota.

- Erichsonella
 attenuata, 84
 crenulata, 85
 filiformis, 84
 floridana, 84
 pseudoculata, 85
 Erygne
 rissoi, 315
 Eucarida, 5
 Eurycope
 californiensis, 305
 complanata, 305
 cornuta, 304
 mutica, 304
 Eurycopidae, 302
 Eurydice
 branchuropus, 173
 caudata, 173
 convexa, 172
 littoralis, 171
 piperata, 172
 spinigera, 171
 Eusymmerus
 antennatus, 83
 Excirolana
 chiltoni, 175
 kincaidi, 175
 linguifrons, 174
 mayana, 174
 vancouverensis, 175
 Excorollana
 antilliensis, 211
 berbicensis, 206
 fissicauda, 208
 kathae, 209
 mexicana, 209

- oculata, 207
- quadricornis, 210
- rapax, 211
- sexticornis, 210
- subtilis, 206
- tricornis, 210
- truncata, 208
- warmingii, 207
- Excorallanidae, 205
- Exopod: outer branch of appendage
- Exosphaeroma
 - amplicauda, 131
 - antillense, 134
 - crenulatum, 132
 - diminutum, 136
 - dugesi, 134
 - inornata, 133
 - media, 133
 - oconcum, 135
 - papillae, 132
 - rhomburum, 135
 - thermophilum, 135

F

- Faba
 - setosa, 340
- Flabellifera (suborder), 109
 - General nomenclature, 110
 - Maxillipeds, 111, 177
- Flagellum (pl. flagella): distal small segments of antennae, 35
- Fossorial: modified for digging or burrowing
- Frontal lamina: protuberance ventral on cephalon usually between antennae, Fig. 566

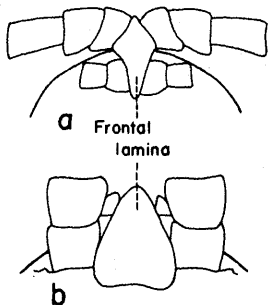


Figure 566. Frontal lamina between antennae (ventral view). a. *Eurydice*-like. b. *Antennuloniscus*.

Frontal plate: see frontal lamina

G

- General Nomenclature, 7
- Geniculate: bent like a knee

- Gnathal: having to do with jaw or mouth
- Gnathia
 - cerina, 226
 - clementensis, 223
 - coronadoensis, 222
 - crenulatifrons, 224
 - cristata, 225
 - elongata, 228
 - hirsuta, 225
 - multispinis, 224
 - productatridens, 228
 - serrata, 222
 - steveni, 227
 - triospathiona, 223
 - tridens, 229
 - trilobata, 227
- Gnathiidae, 217
- Gnathiidea (suborder), 217
 - General nomenclature, 218
 - Female, 25, 226
 - Juvenile, 220
- Gnathopod: peraeopod modified for eating or food gathering (usually peraeopod 1)
- Gnorimosphaeroma
 - insularis, 130
 - lutea, 130
 - nobeli, 131
 - oregonensis, 129
- Grapsicepon
 - choprae, 319
 - edwardii, 318
- Gravid: with eggs or offspring in marsupium

H

- Habitats, 16, 20 (Figs 14, 15, 16)
- Haliophasma
 - geminata, 103
- Haplomesus
 - quadrispinosus, 247
 - tropicalis, 247
- Haplomunna
 - caeca, 242
- Haplomiscidae, 270
- Haplomiscus
 - excisus, 272
 - retrospinis, 273
 - tropicalis, 273
 - unicornis, 272
- Haptolana
 - trichostoma, 186
- Head: see cephalon
- Hemirathus
 - abdominalis, 313
 - schmitti, 314
 - subcaudalis, 313
- Heptalobus
 - paradoxus, 340

- Heteromesus
 bifurcatus, 246
 granulatus, 246
 spinescens, 245
 Holophryxus
 alascensis, 344
 Horolanthura
 irpex, 93
 Hydroniscus
 abyssi, 274
 quadrifrons, 274
 Hypopharynx: sensory structure just
 behind mandibles, 38
 Hyssura
 producta, 93
 profunda, 93
- I**
- Iais
 californica, 269
 Ianirella
 caribbica, 256
 lobata, 255
 vemae, 255
 Ianiropsis
 analoga, 261
 epilittoralis, 262
 kincaidi, 264
 magnocola, 263
 minuta, 264
 montereyensis, 263
 tridens, 262
 Idarcturus
 allelomorphus, 53
 hedgpethi, 54
 Identification and observation pro-
 cedures, 26
 Idotea (Idothea, old spelling)
 baltica, 77
 fewkesi, 76
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 metallica, 78
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 urotoma, 79
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 acarina, 301
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 Ilyarachnidae, 300
 Ioella
 glabra, 253
 libbeyi, 252
 speciosa, 251
 spinosa, 252
- Ione
 brevicauda, 316
 cornuta, 316
 thompsoni, 316
 Incisor process: cutting structure of
 mandible, 37
 Incubatory lamellae: see oostegites
 Incubatory pouch: see marsupium
 Indurate: hard, stiff or thick
 Indusa
 carinata, 159
 Inner antenna: antenna one
 Irona: see Mothocya, 162
 Ischium: peraeonal segment (3), 32
 Ischnomesidae, 243
 Ischnomesus
 armatus, 383
 caribbicus, 244
 profundus, 243
 multispinis, 245
- J**
- Jaera
 marina, 269
 wakishiana, 269
 Jaeropsidae, 284
 Jaeropsis
 concava, 286
 coralicola, 285
 dubia, 287
 lobata, 285
 rathbunae, 286
 setosa, 287
 Janira
 alta, 260
 maculosa, 259
 minuta, 258
 tricornis, 259
 Janiralata
 alascensis, 268
 erostrata, 268
 holmsei, 268
 occidentalis, 266
 rajata, 265
 sarsi, 266
 solasteri, 267
 triangulata, 267
 Janiridea, 250
- K**
- Key to—
 Isopod suborders, 47
 Anthuridea, 89
 Asellota, 233
 Epicaridea, 310
 Flagellifera, 111
 Gnathiidea, 221
 Microcerberidea, 214
 Valvifera, 49

L

- Labeling of specimens, 30
- Labium: posterior lip—see hypopharynx
- Labrum: anterior lip below clypeus, 37, 75
- Lacinia mobilis: articulate structure near incisor process of mandible, 37
- Lappet, lateral: produced extensions of peraeonal segment (or cephalon, or pleon)—e.g., *Asellota*
- Largest isopod, 169
- Leidyia
 - bimini*, 318
 - distorta*, 317
- Leptanthura
 - tenuis*, 96
 - thori*, 96
- Limnoria
 - algarum*, 140
 - lingnorum*, 145
 - pfefferi*, 144
 - platycaudata*, 143
 - quadripunctata*, 143
 - saseboensis*, 144
 - simulata*, 142
 - tripunctata*, 142
- Limnoridae, 138
- Liriopsis
 - pygmaea*, 341
- Lironeca (*Livoneca*, old spelling)
 - californica*, 166
 - convexa*, 167
 - ovalis*, 164
 - panamaensis*, 167
 - redmannii*, 163
 - reniformis*, 167
 - symmetrica*, 165
 - tenuistylis*, 164
 - texana*, 166
 - vulgaris*, 165

M

- Macrostylidae, 275
- Macrostylis
 - abyssicola*, 277
 - caribbicus*, 278
 - galathea*, 275
 - minutus*, 276
 - setifer*, 276
 - truncatex*, 275
 - vemae*, 277
- Malacostraca, 3
- Male pleopod 2 Fig. 567
- MALE STYLET: modified endopod of pleopod 2 male Fig. 567

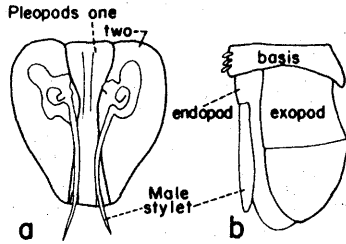


Figure 567. Male sexual pleopods 2. a. *Asellota* (*Paraselloidea*). b. General.

- Mandibular palp: small appendage of one, two or three articles coming from mandible—absent oniscoids and most valviferans
- MANUS: hand, usually referring to propodus and dactylus of peraeopod I, Fig. 568

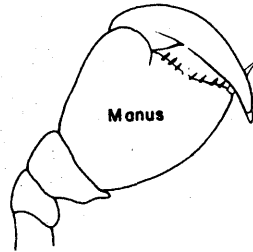


Figure 568. Peraeopod I, *Stenetrium*-like.

- Marsupium: brood pouch of female where offspring develop, 24
- Maxilla one: see mouth parts
- Maxilla two: see mouth parts
- Maxilliped: General nomenclature, 38
 - Anthuridea, 115
 - Asellota*, 250, 333
 - Epicaridea, 309
 - Flabellifera, 111
 - Valvifera, 49
- Maxillula: maxilla one—see mouth parts
- Meinertia
 - deplanata*, 157
 - gaudichaudii*, 157
 - gilberti*, 158
 - transversa*, 156
- Membraneous pleopods: fleshy or thin pleopods found in some

- sphaeromatids, (4 and 5) Fig. 571
- Merus: pleopodal segment (4), 32
- Mesanthura
occidentalis, 109
pulchra, 109
- Mesidotea: see Saduria, 59
- Mesosignidae, 298
- Mesosignum
kohleri, 298
usher, 299
- Microarcturus
tannerensis, 56
- Microcerberidae, 214
- Microcerberidea (suborder), 214
- Microcerberus
abbotti, 216
littoralis, 217
mexicanus, 215
mirabilis, 216
renaudi, 217
- Microniscus larva, 309
- Microproctus
caecus, 254
- Molar process: process variously modified arising from mandible, 37
- Morphology, general, 31
- Mothocya
nana, 147
- MOUTH PARTS**
General, 35 and Fig. 569
- Asellota, 231
- Epicaridea, 309
- Flabellifera, 32, 146
- Gnathiidea, 348
- Valvifera, 49

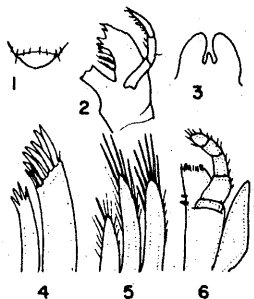


Figure 569. Mouth parts, 1-6 anterior to posterior. 1. Labrum. 2. Mandible. 3. Hypopharynx. 4. Maxilla one (Maxillula). 5. Maxilla two. 6. Maxilliped.

- Munidion
parvum, 319
- Munna
chromatocephala, 297
fabricii, 296

- fernaldi, 294
halei, 294
kroyeri, 295
magnifica, 296
reynoldsi, 295
spinifrons, 293
stephensi, 297
truncata, 293
ubiquita, 298
- Munnidae, 289
- Munnogonium
erratum, 289
waldronensis, 290
- Munnopsidae, 288
- Munnopsis
longiremis, 288
typica, 288

N

- Nannoniscidae, 281
- Nannoniscus
latipleonus, 282
- Nannoniscus
arcticus, 283
camayae, 283
oblongus, 282
primitivus, 283
- Natatory: swimming structures—
especially peraeopods, Fig. 31
- Neastacilla
californica, 53
- Neoanthura
coeca, 90
- Neomunna: see Munna
- Nerocila
acuminata, 152
californica, 151
munda, 151
lanceolata, 150
- Non-obligate parasite: parasite which does not depend upon its host for completion of its life cycle

O

- Ocellus (pl. ocelli): a unit of compound eye; one to many found if present
- Olencira
praegustator, 152
- Omnivores, 9
- Oniscoidea (suborder): isopods which live on land (only mentioned here—p. 2 and Fig. 9)
- Oostegite: incubatory lamella—structure arising from peraeopod which covers marsupium, 24
- Operculate: door-like—covering structure of pleopods or valves
- Outer antenna: antenna two
- Ovigerous: see gravid

P

- Paguritherium altum, 346
- Palaegyge meeki, 328
- Pananthura formosa, 97
- Pancarida, 5
- Paracerceis caudata, 119
- cordata, 120
- gilliana, 121
- sculpta, 119
- tomentosa, 119
- Paradynamene benjamensis, 121
- Paralimnoria andrewsi, 139
- Paranthura antillensis, 95
- elegans, 94
- infundibulata, 95
- Parargeia ornata, 324
- Paraselloidea (superfamily), 230
- Pleopods, Fig. 366
- Parasitic species, Fig. 12 of fish, 160, 190 of other crustaceans, 309
- Peduncle: segment or segments which are closest to body; first 5 (or 6) segments of antenna two; first 3 of antenna one
- Pelagic: see planktonic
- PENIS: sexual structure located on peraeonal segment VII; sometimes of taxonomic value, Fig. 570 (not to be confused with male stylet—Fig. 567)

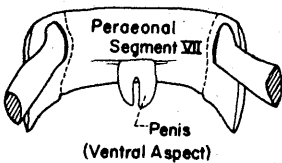


Figure 570. Penis on peraeonal segment VII (ventral view). type 1-5.

- Pentidotea aculeata, 73
- montereyensis, 72
- resecta, 71
- schmittii, 72
- stenops, 74
- wosnesenskii, 73
- Percarida, 4

- Peraeon: thorax—body or middle tagma where locomotoral appendages are located, 7
- Peraeopods: legs or locomotoral structures, 32
- Phreatoicidea (suborder): isopods found mostly in Southern Hemisphere (only mentioned here—p. 43 and Fig. 9)
- Phryxus: see Hemiarthus
- Phycolimnoria algarum, 140
- Phylloporus abdominalis, 321
- Planktonic: living in open water
- Pleon: abdomen—posterior most tagma where sexual, respiratory and sometimes natatory appendages are located, 7
- PLEOPODS: appendages of pleonal segments except uropods, Fig. 571

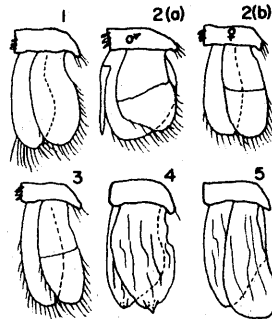


Figure 571. Pleopods — Sphaeromatid

- Pleotelson: fused telson and one or more posterior pleonal segments, Fig. 572

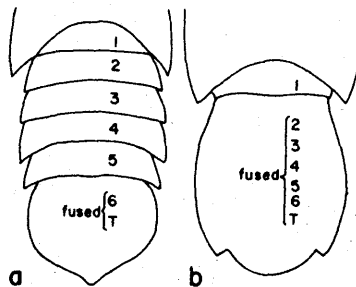


Figure 572. Fusion of pleonal segments. "T" equals telson. a. Gene.al. b. Asell.ta.

- Pleurogonium
 californiense, 291
 inermis, 291
 rubicundum, 290
 spinosissimum, 291
 Pleuroprion
 intermedium, 52
 murdochi, 52
 Portunion
 conformis, 347
 Prehensile: modified for grasping—
 e.g., peraeopods
 Preservation of isopods, 21, 29
 Probopyrus
 alpei, 329
 bithynis, 331
 floridensis, 331
 oviformis, 330
 panamensis, 331
 pandalicola, 330
 Process: projection from another
 structure
 Propodus: peraeopodal segment (6),
 32
 Produced: drawn out or extended
 Propyrius
 alascensis, 343
 Protogynous: animal which is first
 female then becomes male—e.g.,
 anthurids
 Psammophil: animal which lives be-
 tween grains of sand on beach
 or in cave—e.g., *Microcerberus*,
 214, *Caecianiropsis*, 257
 Pseudione
 curtata, 326
 furcata, 327
 galacanthae, 327
 giardi, 326
 panopei, 328
 trilobata, 325
 urogebiae, 325
 Pterisopodus: see *Nerocila*, 152
 Ptilanthura
 tenuis, 108
 tricarina, 108
 Pylopod, 39, 348
- R**
- Ramus: branch—usually endopod or
 exopod
 Rhacura
 pulchra, 253
 Rocinela
 americana, 200
 angustata, 205
 aries, 201
 belliceptis, 203
 cornuta, 199
 cubensis, 198
 dumerilii, 204
 insularis, 202
 laticauda, 199
 maculata, 202
 oculata, 200
 propodialis, 204
 signata, 201
 tridens, 198
 tuberculosa, 203
 Rock-boring isopod, 129
 Ronalea: see *Erichsonella*, 85
 Rostrum: medial cephalic anterior
 pointing projection or process
- S**
- Saduria
 entomon, 59
 sabini, 59
 sibirica, 58
 Scale of drawings, 45
 Schizopoda: taxon which included
 Mysidacea and Euphausiacea
 Serolidae, 136
 Serolis
 carginata, 137
 mgrayi, 137
 vemae, 136
 Seta (pl. setae): hair or spine on
 isopod (no true setae are ever
 found on arthropods, but the
 term is in general use)
 Skuphonura
 laticeps, 91
 Speocirolana
 bolivari, 176
 pelaezi, 176
 Sphaeroma
 barrerae, 129
 destructor, 128
 pentodon, 129
 quadridentatum, 128
 Sphaeromatidae, 114
 Spiniform: type of molar process in
 Jaeropsis, Fig. 37e, and p. 286
 Squama: antennal scale, 35
 Statocyst, 91
 Stegias
 clibanarii, 322
 Stegophryxus
 hyptius, 321
 Stenetriidae, 238
 Stenetriodea (superfamily), 230,
 Pleopods, 238
 Stenetrium
 antillense, 240
 occidentale, 239
 serratum, 239
 stebbingi, 377
 Storage of specimens, 29
 Storthyngura
 caribbea, 307

- magnispinis, 308
 snanoi, 307
 truncata, 306
 vemaе, 308
 Subchelate: modified claw, 5, 32
 Subrostral process: see frontal lamina
 Sympod: basis of uropod, 40
 Syncarida, 5
 Syneurycope
 hanseni, 304
 parallela, 303
 Synidotea
 angulata, 68
 bicuspidata, 63
 calcarea, 68
 consolidata, 66
 erosa, 66
 harfordi, 67
 laevis, 70
 laticauda, 67
 magnifica, 69
 marmorata, 64
 muricata, 69
 nebulosa, 67
 nodulosa, 70
 pallida, 65
 pettiboneae, 65
 picta, 70
 ritteri, 64
 Synsynella
 deformans, 333
 Syscenus
 infelix, 97
- T**
- Tagma (pl. tagmata): functional
 group of body segments—cephalon,
 peraeon and pleon, 7
 Tanaidacea, 4, 5
 Taxon (pl. taxa): any category of
 classification—e.g., species, genus,
 suborder, class, etc.
 Tecticeps
 alascensis, 116
- convexus, 116
 pugettensis, 117
 Telotha
 henselii, 162
 Telson: posterior or last body segment—
 see also pleotelson
 Tergum (pl. terga): upper part of
 peraeon
 Thorax: see peraeon
 Tridentella
 virginiana, 213
 Trilobite, 2
 Troglolcirolana
 cubensis, 188
 Tubercles: small bumps
 Tubiferous: isopod from tubular
 burrow—e.g., anthurid
 Type-species: species, usually first
 described, on which genus is defined
- U**
- Unguis: claw
 Uromunna: see Munna
 Uropod, 40
 Exopod—outer branch
 Endopod—inner branch
- V**
- Valve: uropod covering branchial
 cavity of valviferans, 48
 Valvifera (suborder), 48
 General nomenclature, 48
 Maxillipeds, 49
- W**
- Wood-boring isopod, 128, 138
- X**
- Xananthura
 brevitelson, 92

lingular

penis

masculinum

mobilia

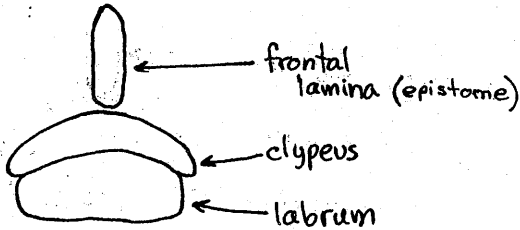
penum

penes

masculina

mobiles

of pereon, pereonite & pereopod corresponds with tanaid workers (Torbin Wolff, L. Gardiner, J. Szig, R. Winn)



Isopods with first coxal plate free (not fused to somite)

Bathynomus

Anuropus

Plakarthurium

some asellotes & some epiceids

Some phreatoicids

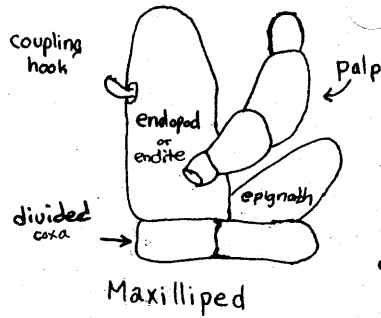
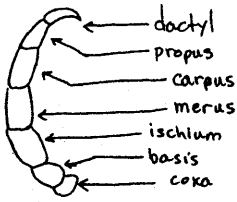
Isopods with appendix masculinum attached distally on endopod

Plakarthurium (mediodistally on endopod)

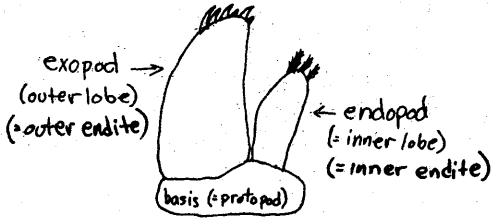
serotidae

Cerceis, Paracerceis, Geocerceis

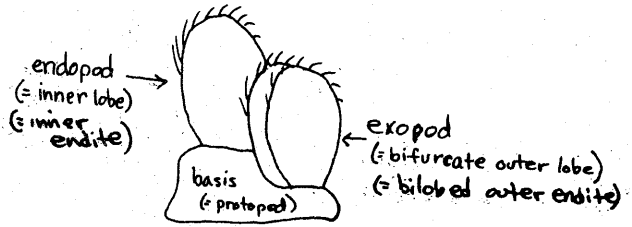
cleantioides (medially on endopod)



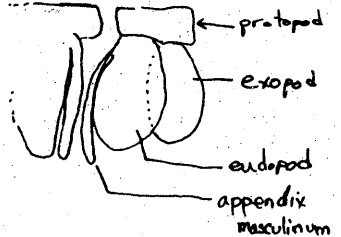
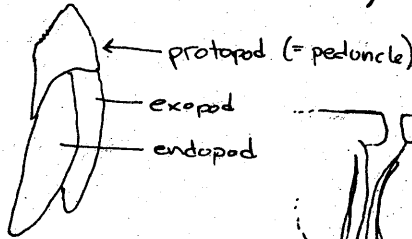
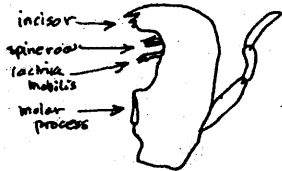
endopod = blades;
endite; endo-
gnath; basis
epignath = epipod;
exite



Maxilla 1
(= maxillule)
(= maxillula)
(pl. = maxillulae)



Maxilla 2
(pl. = Maxillae)



[of Colman & Kaestner]

Pleopods: Trille (1972) claims anterior plp. is exopodite;
posterior plp. is endopodite (w/appendix masculinum). Hale (1979) agrees.

Antenna 1: generally of 3 peduncular articles.

Antenna 2: generally of 4-5 peduncular articles (actually 5-6 but basalmost article not visible, except in some asellotes)

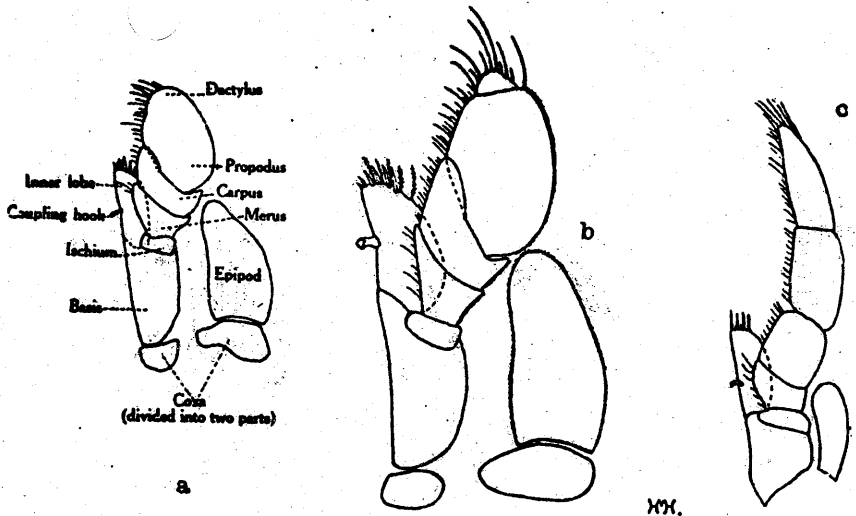


FIG. 316.—Maxilliped of (a) *Euidotea peronii*, (b) *Synischia levidensis* and (c) *Crabyzos longicaudatus* (x 16-40).
From Hale (1929)

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