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Some Marine Isopod Crustaceans from off the Southern California Coast

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IN THE SUMMER OF 1962 the author identified isopods caught in the submarine canyons off the southern California coast by workers of the research vessel "Valero IV" of the Allan Hancock Foundation of the University of Southern California. The results of that work have been published (Schultz, 1964). There were additional isopods collected during the voyage which were not part of the canyon fauna and they are considered in this paper. The specimens were taken from the benthic environment by means of an Orange Peel Grab or a Campbell Grab bottom sampler. Ten species were taken, 3 of which were new to science.

After the description or mention of each species the station or collection number is given. The number in parentheses is the number of specimens of the species caught at that station. The station numbers referred to are listed in Table 1, together with publications where more precise information can be found.

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ASELLOTA

MUNNIDAE

Austrosignum Hodgson

Austrosignum erratum, new species

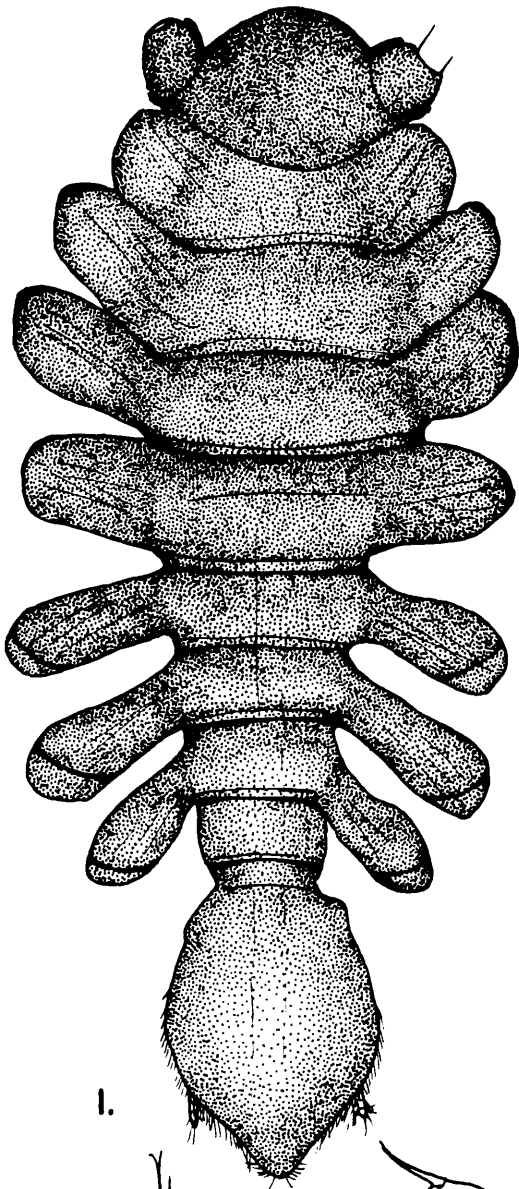
Fig. 1

DIAGNOSIS: Eyes of two or three ocelli ventrolaterally placed near antennal bases and not visible in dorsal view, but clearly visible in ventrolateral view. Front of cephalon evenly convex; first three peraeonal segments with lateral margins not widely separate. Lateral margins of last four peraeonal segments separated from first three and also from each other by wide gaps. Lateral margins of peraeonal segments four to seven narrower than those of first three. Coxal plates conspicuously visible from dorsal view on segments five to seven, very slightly so on segments one to four. Pleotelson narrow at base; one well-defined pleonal segment present. At widest point pleotelson about two-thirds as wide as segment seven. Six setae (12 bilaterally) along apical margin of telson. Longest peraeopod about as long as body, with knoblike merus and many spines on other segments. Dactylus on each leg elongate with several long, spinelike setae. First peraeopod about half length of other peraeopods; at least three large spines on carpus. First and second antennae about same length, both about half length of body. First antennal flagellum with at least four articles; second antennal flagellum with five articles; fifth article of second antennal flagellum ball-like. Maxillipedal palp of five articles, each with at least one large spine; two coupling hooks on blade. Mandible with

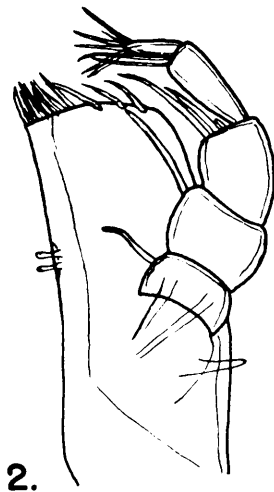
TABLE 1
ADDITIONAL DATA FOR THE STATIONS

STATION NO. AND DATE	LATITUDE AND LONGITUDE (and other coordinates)	DEPTH m	TYPE OF BOTTOM	REMARKS AND REFERENCE TO MORE INFORMATION
2842 Jan. 22, '54	33°-27'-57" 117°-57'-56" off Dana Point	144	gray-green mud	Orange Peel Grab took 3.15 ft ³ (89.6 liters) Hartman, 1955
2969 Oct. 31, '54	33°-35'-59" 119°-15'-11" 13.1 miles WNW of Santa Barbara Island	500	black mud nodules and flat shaley rocks	Campbell Grab took 1 gal shaley rubble (unpublished)
2994 Feb. 5, '55	33°-55'-00" 118°-30'-38"	14.5	green mud	Orange Peel Grab took 0.69 ft ³ (19.6 liters) Hartman, 1956
2998 Feb. 6, '55	33°-53'-22" 118°-34'-40" 9.9 miles SSW of Santa Monica Pier	approx. 80	black mud	Hartman, 1956
4767 Dec. 9, '56	33°-15'-45" 117°-33'-15"	102.1	green silt with broken shells	Orange Peel Grab vol. not measured Menzies & Barnard (1959); Barnard et al., 1959
5102 May 24, '57	33°-43'-15" 118°-20'-53"	20.1	coarse black sand temp. 13.2° C.	Orange Peel Grab took 0.25 ft ³ (7.1 liters) Barnard et al., 1959
5580 Jan. 29, '58	34°-22'-15" 119°-39'-10"	51.2	green clay temp. 14.3° C.	Orange Peel Grab took 2.76 ft ³ (78.4 liters) Barnard et al., 1959
5622 Feb. 21, '58	33°-10'-35" 117°-27'-45"	232	green silty sand	Orange Peel Grab took 2.68 ft ³ (76.4 liters) Barnard et al., 1959
6003 Dec. 16, '58	34°-24'-45" 120°-08'-40" 4.6 miles 137° from Gavita Pier	135	green silty sand	Orange Peel Grab took 1.38 ft ³ (39.1 liters) (to be published)
6089 Jan. 4, '59	32°-18'-00" 117°-48'-25" 29.5 miles 258° T from S. Coronado Is. (south light) San Clemente Basin	1866	green silt	Campbell Grab took 5.53 ft ³ (150 liters)

FIG. 1. *Austrosignum erratum*, new species. 1, Dorsal view of a male; 2, maxilliped; 3, mandible; 4, second maxilla; 5, first maxilla; 6, second antenna; 7, first male pleopod; 8, first antenna; 9, second male pleopod; 10, first peraeopod; 11, third peraeopod.



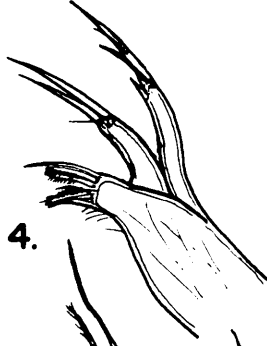
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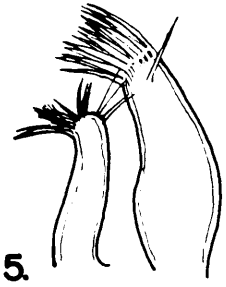
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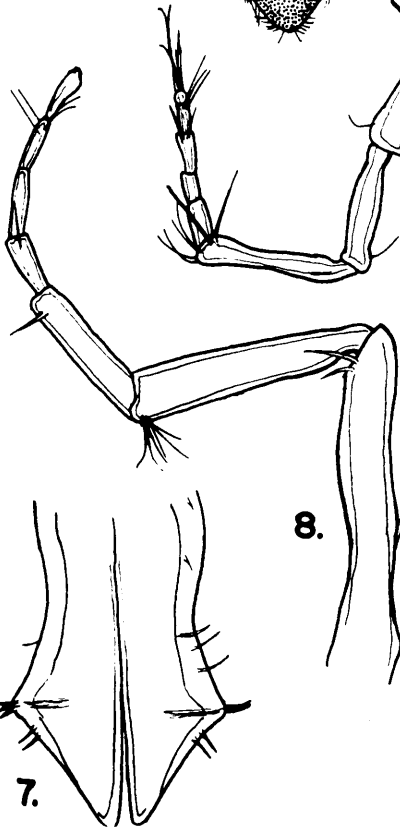


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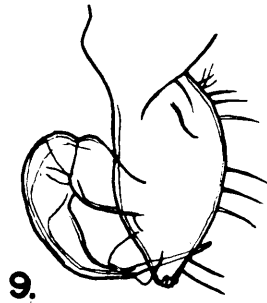
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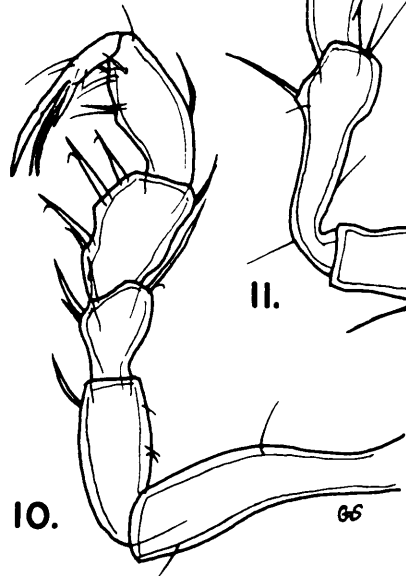


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five teeth on incisor, leaflike lacinia mobilis, large molar process, but with no palp. First male pleopod bifurcate at tip with spines along edges. Second male pleopod with curved copulatory process (recurved under tip of pleopod itself). Uropods biramous.

MEASUREMENTS: Holotype male, 1.8 mm long. = LACM 58-166.1

TYPE LOCALITY: 6003; Dec. 16, 1958; 135 m; 4.6 miles 137 degrees from Gavita Pier. Taken from green silty mud by an Orange Peel Grab. Lat. $34^{\circ}-24'-45''$, long. $120^{\circ}-08'-40''$.

MATERIALS EXAMINED: One male from type locality.

DISTRIBUTION: The other species of the genus, with the exception of *A. tillerae* Menzies and Barnard (1959), have a circumpolar distribution in the Antarctic Sea.

AFFINITIES: *A. erratum*, n. sp., differs from *A. tillerae* by the longer lateral extensions of the pleonal segments, especially the last four. The new species is much like *A. globifrons* Menzies (1961), from which it differs in the type and location of the eye stalks. There are 12 rather than 10 setae along the apical edge of the pleotelson in *A. erratum*, n. sp.

Munna Kroyer

Munna (Uromunna) magnifica, new species Fig. 2

This new species is placed in the subgenus *Uromunna* Menzies (1962) because the ventral uropodal ramus is leaflike and lacks a recurved apical spine.

DIAGNOSIS: Minute unpigmented species with apparently five, but in fact seven, peraeonal segments. No spines found on frons or anterior borders of peraeonal segments. Anterior borders of cephalon convex. Coxal plates of peraeonal segments two to seven visible in dorsal view. (Segment seven underneath pleotelson.) Eyes on short stalks and with few ocelli. Peraeopods very long, about $1\frac{1}{2}$ times length of body; well provided with spines; ending in clawlike dactyli. First peraeopod shorter than body, laterally compressed with many stout spines, especially on

ungus. Propodus with five large spines on anterior border. Second antenna about $2\frac{1}{2}$ times body length with about 45 flagellar articles. First antenna much shorter than body with about nine segments including three elongate flagellar articles of about same length plus two very short apical articles and tipped with sensory setae. Maxilliped with many large curved setae on palp. Mandible with well-developed molar process, toothed incisor and palp of three segments. Uropods biramous, ventral ramus leaflike with at least five plumose setae.

MEASUREMENTS: Holotype female (with larvae in marsupium), 2.0 mm long. = LACM 54-94.

TYPE LOCALITY: 2969; Oct. 31, 1954; 500 m; 13.1 miles WNW of Santa Barbara Island; taken from black mud, nodules and flat shaley rocks by Orange Peel Grab. Lat. $33^{\circ}-35'-59''$, long. $119^{\circ}-15'-11''$.

DISTRIBUTION: Known only from two specimens from type locality.

AFFINITIES: *M. magnifica*, n. sp., is much like *M. (U.) nanna* Nordenstam (1933) in the apparent lack of the dorsal outline of segments one and seven. The second antenna of the new species is very much like that of *M. (U.) lundae* Menzies (1961), except that in the new species there are three long flagellar articles, not two.

ILYARCHNIDAE

Ilyarchna G. O. Sars

Ilyarchna acarina Menzies and Barnard

Fig. 3

Ilyarchna acarina Menzies and Barnard (1959), pp. 9, 10, fig. 2.

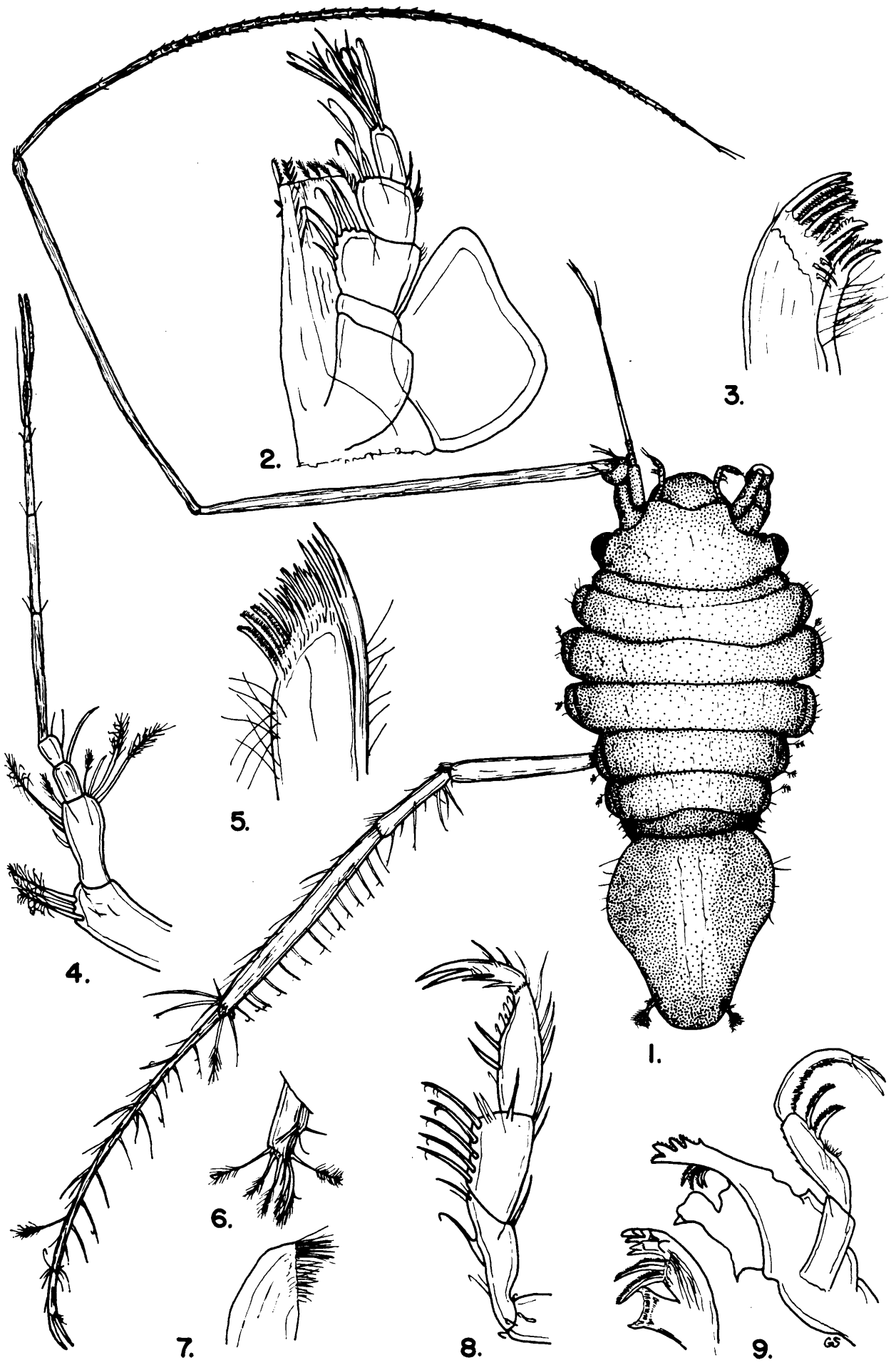
Ilyarchna acarina Menzies and Barnard, Schultz (1964).

MATERIALS EXAMINED: 2969(1); 4767(1).

DISTRIBUTION: 13.1 miles WNW of Santa Barbara Island; 500 m.

REMARKS: Specimen 4767 is from a coastal shelf bottom station the location of which has been recorded before by Menzies and Barnard (1959:10). The single specimen taken at the station was a large male and Figure 3, 1, 2, shows the male second pleopod and the first

FIG. 2. *Munna (Uromunna) magnifica*, new species. 1, Dorsal view of a female; 2, maxilliped; 3, first maxilla; 4, first antenna; 5, second maxilla; 6, uropod; 7, hypopharynx; 8, first peraeopod; 9, mandible (two views).



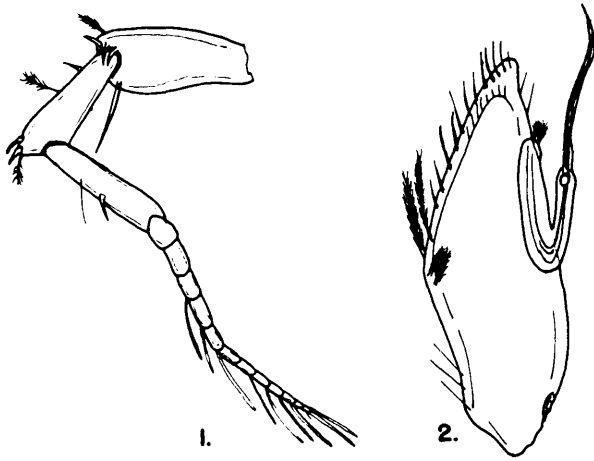


FIG. 3. *Ilyarchna acarina*. 1. Second antennae; 2, second male pleopod.

antenna. Menzies and Barnard did not include a picture of the male second pleopod with the description of the holotype and they pictured the first antenna incorrectly. The first antenna of the male specimen examined had 12, not 9, flagellar articles as stated in the holotype description; and the holotype description should be amended to read 12 flagellar articles in the first antenna, since other specimens were examined (male and female) and they had 12 flagellar articles.

FLABELLIFERA

ANTHURIDAE

Apanthura Stebbing

Apanthura californiensis, new species

Fig. 4

DIAGNOSIS: Body pigmentless. Eyes present, composed of five to seven ocelli which are pinkish in alcohol preserved specimens. Peraeon smooth, without pits or keels. Rostral projection of cephalon not as far forward as anterior extent of anterolateral margins. Seventh peraeonal segment about half length of sixth segment. Pleonal segments distinct. Telson with paired statocysts, rounded with small dent in tip bearing several large, stiff setae. Peraeopod one sub-

chelate; both peraeopods one and two with carpus attached under propodus. Peraeopods three to seven also with carpus under propodus, but not as apparently so. Seventh peraeopod with small unguis; dactylus covered with scalelike rows of setae; propodus with sensory setae near dactylus. Antennae one and two pauciarticulate each with five segments; large tufts of setae on apical segments of each antennae. Maxilliped with five (four free) segments. Third segment with ventrally projecting setae, apical segment smallest with large medially projecting setae. Uropodal endopod longer than telson. Telson and both uropodal rami with row of many setae along minutely serrated margins.

MEASUREMENTS: Holotype female, 11 mm long. = LACM 55-35.1

TYPE LOCALITY: 2998; Feb. 6, 1955; approx. 80 m; 9.9 miles SSW of Santa Monica Pier; taken from black mud. Lat. $33^{\circ}-53'-22''$, long. $118^{\circ}-34'-40''$.

MATERIALS EXAMINED: Twelve female specimens, from several to 11 mm long.

DISTRIBUTION: Known only from type locality.

AFFINITIES: *A. californiensis*, n. sp., is most like *A. senegalensis* Barnard (1925) except that it does not have large eyes. Both species have pauciarticulate flagella with several bushlike groups of setae.

Cyathura Norman and Stebbing

Cyathura munda Menzies (1951), pp. 111-114; figs. 12, 13.

Cyathura munda Menzies, Menzies and Barnard (1959), pp. 16, 17; fig. 10.

MATERIALS EXAMINED: 5102(3).

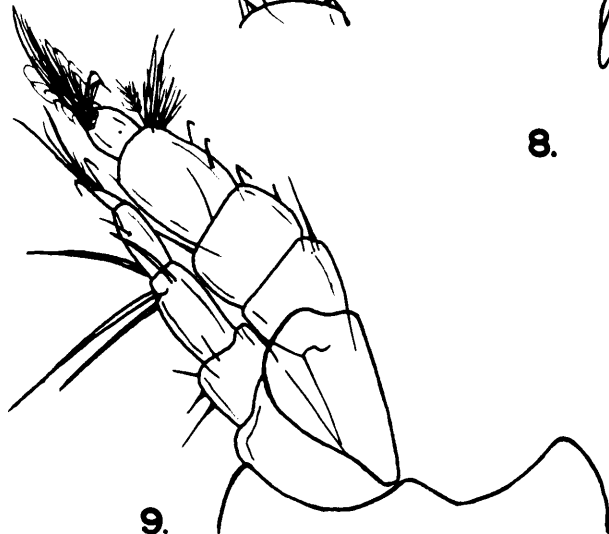
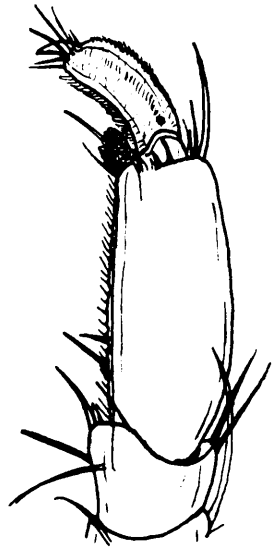
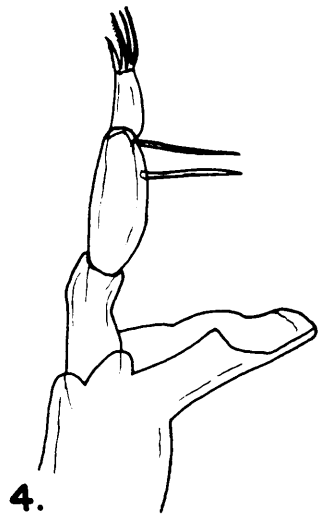
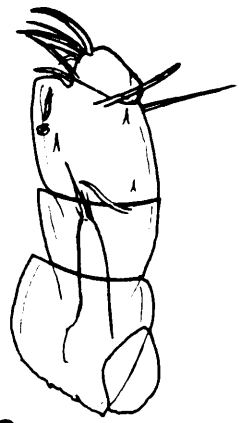
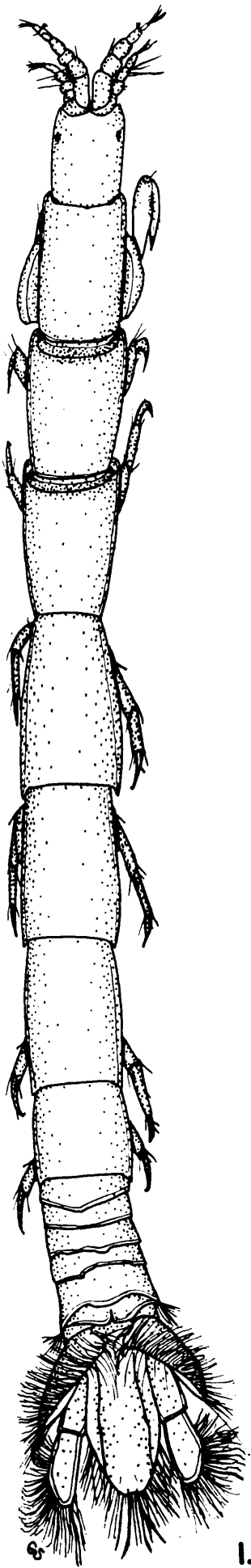
Haliophasma Haswell

Haliophasma geminata Menzies and Barnard (1959), pp. 17-19; figs. 11, 12.

Haliophasma geminata Menzies and Barnard, Schultz (1964).

MATERIALS EXAMINED: 2842(1); 2994(1); 5580(1); 5622(1).

FIG. 4. *Apanthura californiensis*, new species. 1, Dorsal view of a female; 2, maxilliped; 3, first maxilla; 4, mandible; 5, first peraeopod; 6, second peraeopod; 7, seventh peraeopod; 8, telson and uropod; 9, both antennae and frontal margin of cephalon.



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Mesanthura K. H. Barnard

Mesanthura occidentalis Menzies and Barnard (1959), pp. 20, 21; fig. 14.

MATERIALS EXAMINED: 5102(1).

Cirolana Leach

Cirolana joanneae Schultz (1964).

MATERIALS EXAMINED: 2969(7).

GNATHIOIDEA

Gnathia Leach

Gnathia crenulatifrons Monod (1926), pp. 390–393, figs. 154, 155.

Gnathia crenulatifrons Monod, Menzies and Barnard (1959), pp. 27–29, fig. 22.

Gnathia crenulatifrons Monod, Schultz (1964).

MATERIALS EXAMINED: 5580(10).

VALVIFERA

Synidotea Harger

Synidotea calcarea Schultz (1964).

MATERIALS EXAMINED: 6069(1).

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