PACIFIC NATURALIST

CONTRIBUTIONS FROM THE
Beaudette Foundation for Biological Research

VOL. 3, NO. 11 DECEMBER 20, 1962

THE MARINE ISOPOD FAUNA OF BAHIA DE SAN QUINTIN, BAJA CALIFORNIA, MEXICO

By ROBERT J. MENZIES

DUKE UNIVERSITY MARINE LABORATORY, BEAUFORT, NORTH CAROLINA

This report is based upon collections made by Dr. J. Laurens Barnard with aid from National Science Foundation grant nos. 11413 and 10750. The collections were obtained from grab samples and from "formalin sea water" washings of rocks and algae around the bay. A total of 87 lots of specimens resulted. There was a noticeable lack of parasitic Bopyridae, but apart from this exception, the collections showed a reasonably diversified isopod fauna representing fifteen species from fifteen genera and eleven families. Over 26% of the species appeared to be new to science and four of these are described herein. A map of stations is shown in Fig. 1. The Hubbs trawl station overlies benthic station 27 on the map.

Types are deposited in the U. S. National Museum.

A Systematic List of The San Quintin Bay Isopod Fauna

I. Jaeropsidae	1. *Jaeropsis dubia* Menzies
II. Munnidae	2. *Munna (Uromunna) ubiquita* Menzies
III. Anthuridae	3. *Anthurid* n. sp. & n. gen.
	4. *Haliophasma geminata* Menzies and Barnard
	5. *Paranthura elegans* Menzies
IV. Idotheidae	6. *Ericsonella crenulata* Menzies
V. Sphaeromidae	7. *Sphaeroma pentodon* Richardson
	8. *Paracerceis sculpta* (Holmes) ?
	9. *Dynamenopsis dianae* n. sp.*
VI. Serolidae	10. *Serolis carinata* Lockington
VII. Cirolanidae	11. *Cirolana diminuta* n. sp.*
VIII. Excorollanidae	12. *Excorollana kathyae* n. sp.*
IX. Aegidae	13. *Rocinella aries* S. & M.
X. Cymothoidae	14. *Lironeca* sp. nov. ?
XI. Gnathiidae	15. *Gnathia steveni* n. sp.*

* New species described in this paper

1597 CALZADA ROAD SANTA YNEZ, CALIFORNIA

Fig.1. Chart of benthic biological samples in Bahía de San Quintín.

Jaeropsis dubia Menzies

Menzies, 1951: 147-155, figs. 29-33.

MATERIAL: SQ 178 (1), SQ 179 (4), SQ 181 (50+).

DISTRIBUTION: This record extends a little southward the previously known range of this Californian species.

REMARKS: The specimens showed typical *J. dubia* morphology as described by Menzies (1951).

Munna ubiquita Menzies

Menzies, 1952: 120-124, figs. 46-48.

MATERIAL: SQ 61 (1 gravid female), SQ 181 (20).

DISTRIBUTION: Previously known in California as far south as San Diego. This Mexican record extends the range slightly southward.

Anthurid n. sp. & n. gen.

K. H. Barnard, 1925: 146.

MATERIAL: The three specimens of this species from SQ 181 appear to be new to science and are certainly new to the Pacific West Coast.

REMARKS: Chewing (not piercing or sucking) mouthparts occur. All somites of the pleon are clearly indicated and separated dorsally and laterally. The maxilliped has between 5 and 6 articles. The flagellum of the first antenna has four articles while that of the second antenna has seven articles. The telson is indurated and bears a pronounced ventral keel; the uropodal exopod is as long as the telson and as long as the endopod. Statocysts do not appear to be present, but the indurated nature of the telson might cause them to be obscured; decalcification was not done. The body is pink in color and the uropods and telson chalky white. The fifth joint of the sixth peraeopod underrides the sixth. Certain of the above characteristics ally this species closely with *Kupellonura* K. H. Barnard but because the telson is indurated and statocysts were not seen, a precise generic assignment could not be made.

?Haliophasma geminata Menzies & Barnard

Menzies and Barnard, 1959: 17-19, figs. 11-12.

MATERIAL: SQ 43 (1), SQ 51 (1 female), SQ 60 (1), SQ 62 (1), SQ 66 (1), SQ 67 (10), SQ 76 (5), SQ 77 (1).

REMARKS: Due to an error in transcription the generic diagnosis given by Menzies and Barnard is incorrect. This genus belongs to group A in K. H. Barnard's (1925) classification and has chewing and not piercing mouth parts. This fact is clearly shown in the illustrations given by Menzies and Barnard.

None of the specimens appeared to be sexually mature and examples of the dimorphic males were not obtained. Accordingly, the determination given here is only tentative.

Paranthura elegans Menzies

Menzies, 1951: 106-111, figs. 9-11.

MATERIAL: SQ 10 (1), SQ 12 (9), SQ 13 (11), SQ 15 (35), SQ 18 (12), SQ 20 (1 juv.), SQ 24 (1), SQ 28 (6), SQ 33 (1), SQ 52 (1), SQ 65 (1), SQ 67 (3), SQ 69 (50), SQ 73 (1). The specimens were typical of those described originally by Menzies.

DISTRIBUTION: These records extend the distribution southward from San Diego County, California.

Ericsonella crenulata Menzies.

Menzies, 1950: 29-35, pls. 8-10.

MATERIAL: SQ 61(1), SQ 66 (1 gravid female), SQ 70 (1 juv.), SQ 74 (4), SQ 90 (1), SQ 161 (5), SQ Hubbs trawl (16).

DISTRIBUTION: This species was previously known from Newport Bay, California, and the records here in San Quintin extend the distribution southward. It appears to be associated with *Zostera*, an intertidal inhabitant. It was not recorded from the southern Californian shelf by Menzies and Barnard (op. cit).

REMARKS: The specimens were quite typical of those described by Menzies but occasionally the cephalic tubercles were obscure.

Sphaeroma pentodon Richardson

Richardson, 1905: 286-287, figs. 299-300.

MATERIAL: SQ 176 (112+).

DISTRIBUTION: This record extends the recorded range into Mexico from San Francisco Bay, California, although the species previously has been recognized by the writer from Newport Bay, California. Typically the species burrows into compact mud along the sea shore in the upper intertidal reaches of quiet bays, but occasionally it is found in well-decayed wood or in old *Teredo* borings. The usual commensal of this species, *Iais pubescens* Dana, was not observed in these collections and possibly does not extend so far south.

Paracerceis sculpta (Holmes)

Fig. 2

Richardson, 1905: 318-319, fig. 349, and page IX postscript.

MATERIAL: SQ 66 (5), SQ 74 (2 young), SQ 161 (25+), SQ 166 (25+), SQ 167 (11), SQ 174 (7), SQ 175 (2), SQ 178 (26), SQ 180 (2), SQ 181 (152+), SQ Hubbs trawl (31).

DISTRIBUTION: Previously known from southern California at San Diego and San Clemente Island (Richardson, op. cit.). These records extend the range into Mexico.

REMARKS: This species, while doubtless identical to *P. sculpta* (Holmes) may also be closely related to *P. caudata* (Say) (ref. Moore 1902, in Richardson 1905, fig. 344 from Puerto Rico, Florida, New Jersey, etc.). The sculpturing of the pleotelsonal apex with the clearly notched postero-lateral projection is highly suggestive of this relationship. The acute, strong median tooth at the notch of the pleon of the male of

sculpta is, however, unique. The notch of *P. caudata* bears two or more teeth in the median part.

Dynamenopsis dianae, new species

Fig. 3

DESCRIPTION: Exopod and endopod of the mature male large, with heavy, decidedly crenulate margins. Body bearing dorsally a unique sculpturing as follows: the seventh peraeonal somite broadening medially with a central depression along its upturned thin and expanded outer upper margin; the pleotelson cephalad of the cordate foramen with a pair of stout tubercles which converge toward the midline as the sides of a triangle; the carinate seventh peraeonal somite with a pair of conspicuous "eye-like" yellowish "bodies" on either side of the mid-line; a median tubercle occurring in front of the foramen. Uropoda in the female smaller; median perforation of the pleotelson reduced to a small depression and the sculpturing on the dorsum consisting only of a single swelling medially. Holotype male 4.0 mm, width 2.0 mm at widest point. Allotype female 3.2 mm long and 1.5 mm wide (at widest point).

TYPE LOCALITY: Bahía de San Quintín, Sta. 164 (see map), Aug. 2, 1960, formalin wash of intertidal rocks.

MATERIAL: SQ 164 (138+), SQ 181 (157+). Although not widely dispersed in the bay, it was found to occur in considerable numbers when it was encountered.

REMARKS: This species has a close superficial resemblance to *Dynamenella perforata* (Moore) (auct. Richardson, 1905: 299-301, figs. 319-320) which is the genotype of *Dynamenella*, but because Hansen, the author of *Dynamenella*, clearly states that this latter genus lacks a two-jointed exopod to pleopod-3 in the male, while Baker (1908: 152-153) indicates that *Dynamenopsis* does have a two-jointed pleopod-3 exopod in the male, it seems most likely that these specimens belong to *Dynamenopsis* and not *Dynamenella*. This particular problem should, however, be examined by someone having access to Moore's species.

In this new species the exopod of pleopod-4 is also two jointed. The mouthparts of the female are not metamorphosed. The four dorsal pleotelsonal tubercles of *D. perforata* each occupy one corner of a square and do not converge anteriorally as they do in *D. dianae*.

Serolis carinata Lockington

Menzies and Barnard, 1959: 33-34, fig. 28.

MATERIAL: SQ 8 (1), SQ 9 (1), SQ 12 (1), SQ 77 (1), SQ Hubbs trawl (4).

DISTRIBUTION: Previously known only between Santa Monica Bay and San Diego, California, these records extending the range a little southward. This species appears to have a rather restricted geographic distribution.

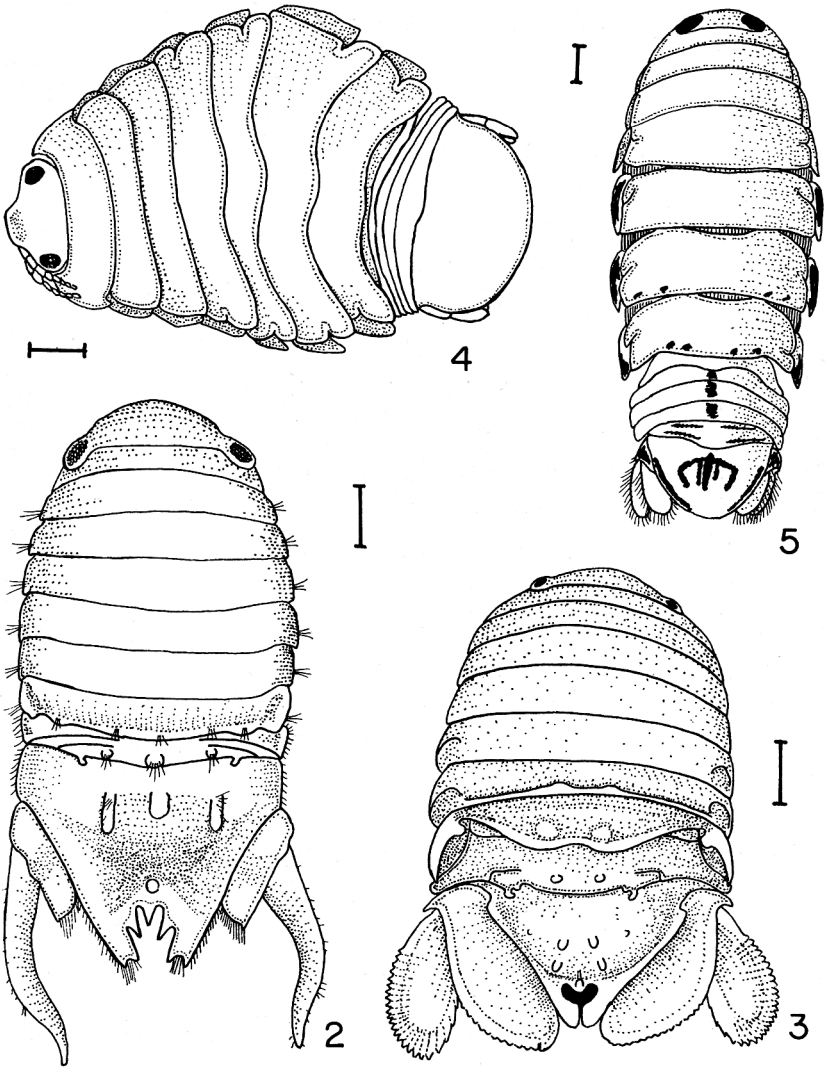

Fig. 2. *Paracerceis sculpta* (Holmes), typical male specimen, scale 1.0 mm. Fig. 3. *Dynamenopsis dianae* n. sp., male paratype, scale 1.0 mm. Fig. 4. *Lironeca* sp., dorsal view, scale 1.0 mm. Fig. 5. *Rocinela aries* S. & M., dorsal view, scale 1.0 mm.

Cirolana diminuta, new species

Fig. 6

DESCRIPTION: Typical *Cirolana* species with pentarticulate maxillipedal palp and normal maxillae and mandibulae (fig. 6D) and maxilliped with single coupling hook. First antennae reaching slightly beyond posterior margin of cephalon and to end of last peduncular article of second antennae. Second antennae extending to middle of fourth peraeonal somite. Cephalon with minute anteriorally reduced rostral process, not visible in dorsal view but extending to apex of frontal lamina ventrally (fig. 6B) and separating the first antennae at their points of insertion. Eyes large and obvious, widely separated in dorsal view and occupying the posterior one third of the lateral border of cephalon, the distance between eyes equal to 3 times the width of eyes. Peraeonal somites speckled with chromatophores (fig. 6 A) which are less apparent on the young than the adult. Coxal plates (fig. 6C) of second and third peraeonal somites with posterior margins rounded, those of others with acute postero-lateral angles. Uropoda extending to and slightly beyond the pleonal apex, the exopod with bifid apex and nearly as long as endopod; endopod also with bifid apex, both endo-and exopod with characteristic arrangement of stout two-pointed setae and plumose setae (fig. 6F). Pleotelson with apex slightly bilobed, with characteristic arrangement of stout two-pointed setae. Lateral borders of pleotelson unarmed, devoid of stout two-pointed setae. Holotype, young, length 3.2 mm, width 1.1 mm at widest point. Illustrated young paratype length 3.0 mm, width (at widest point) 1.0 mm.

TYPE LOCALITY: Bahía de San Quintín, Sta. 13 (see map), benthic grab, April 22, 1960.

MATERIAL: SQ 13 (50 incl. 5 types), SQ 28 (2 juv.), SQ 175 (41), SQ 177 (1), SQ 178 (11), SQ 179 (3), SQ 180 (3), SQ 181 (142+), SQ Hubbs trawl (2). This was the most abundant and most widely distributed isopod species in San Quintin Bay.

REMARKS: Only one species*, *Cirolana harfordi* (Lock.) is presently known from California (Stafford, 1913: 165-169, figs. 1-3), and this species is easily distinguished from *C. diminuta* by the blunt uropoda and lack of an apical bifurcated tooth. Also the apex of the pleotelson in *C. harfordi* does not show a bilobed median apex, but instead is provided uniformly with stout two-pointed setae. Furthermore, *C. harfordi* occupies the wave swept open rocky coast and is not typically an inhabitant of estuaries. The body of *C. harfordi* is more elongated, with the lateral border subparallel and bluish-grey in color, while that of *C. diminuta* is yellowish with brown chromatophores and has arcuate lateral borders of the body. The variety *C. harfordi* var. *spongicola* Stafford (1913: 129-133, fig. 73) is even more distinctive and perhaps represents another Californian species.

* Richardson's (1905) *chiltoni* and *linguifrons* belong to *Excirolana.*

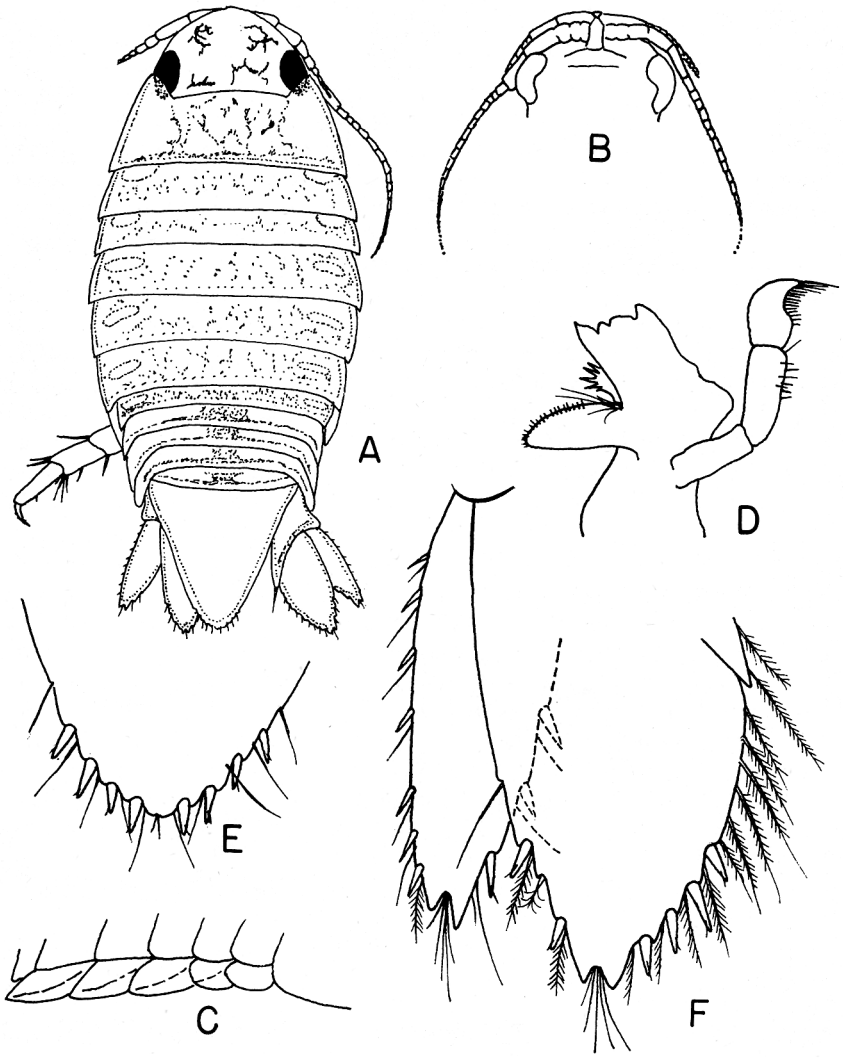

Fig. 6. *Cirolana diminuta* n. sp., young paratype, 3 mm, width 1 mm, SQ 13. A, dorsal view; B, ventral view cephalon; C, lateral view of body; D, mandible; E, apex of pleotelson; F, uropodal rami.

The species *C. diminuta* resembles *C. parva* Hansen (auct. Richardson, 1905: 111-114) from the Gulf of Mexico, West Indies, and Florida, but is distinguished by its more triangulate pleotelson and by its having a uropodal endopod which is not broader at the apex than at the base as it is in *C. parva* (vide Hansen, in Richardson, 1905: 112).

Excorallana kathyae, new species
Fig. 7

DESCRIPTION: Species typical of *Excorallana.* Cephalon devoid of bumps or spines dorsally. Pleotelson without median emargination or dorsal bumps, but pleonal somites provided with characteristic bumps in symmetrical arrangement (the most noticeable being twin rows of three stout bumps [fig. 7] between which, in a transverse row along the distal margin of each pleonal somite, smaller but similar bumps occur. Entire body densely hirsute with a characteristic apically bifid golden seta (fig. 7E). Margins of the uropoda and the apex of the pleon provided with plumose setae, these so dense as almost to obscure the ornamentation of the pleonal somites. Female holotype length 11 mm, width (at widest point) 3.5 mm. Male allotype length 11 mm, width 3.0 mm (at widest point).

TYPE LOCALITY: Bahía de San Quintín, Sta. 181, formalin wash of oyster head collected at Benthic Station 12 (see map), Aug. 14, 1961.

MATERIAL: SQ 13 (10), SQ 164 (2), SQ 175 (2), SQ 178 (1), SQ 180 (1), SQ 181 (328 types). This species, like *Cirolana diminuta* Menzies, was widely distributed in San Quintin Bay.

REMARKS: To a limited degree this species resembles *Nalicora rapax* Moore from Puerto Rico and the Gulf of Mexico, but because Moore did not describe any bumps on the pleon of his species and because of the different maxillae the two species remain distinctive. Nevertheless, they should be compared carefully at some future date.

The young of this species lack any bumps on the pleon, and the hirsute character of the body is also reduced, but the depressed central part of the pleon, which is so characteristic of species of *Excorollana,* shows much better on the young than on the hirsute adults.

Rocinella aries Schiodte and Meinert
Fig. 5

Richardson 1905: 210-211, figs. 213-215.

MATERIAL: SQ 171 (3 young).

DISTRIBUTION: This species has been recorded from Panama Bay and Mazatlán on the Gulf of California, Mexico.

REMARKS: The color pattern on the pleotelson of this species is quite distinctive. I have seen specimens from the Californian shelf, and this occurrence of the species in San Quintin Bay is quite expected.

Lironeca, new species
Fig. 4

MATERIAL: This species was found only at two stations and was detached from its host-fish: SQ 175 (11), SQ 179 (1 juvenile).

REMARKS: This probable new species is somewhat intermediate between *Lironeca californica* S. & M., and *Lironeca panamensis* S. & M., but because so few specimens were found and the host unknown, it is not described here.

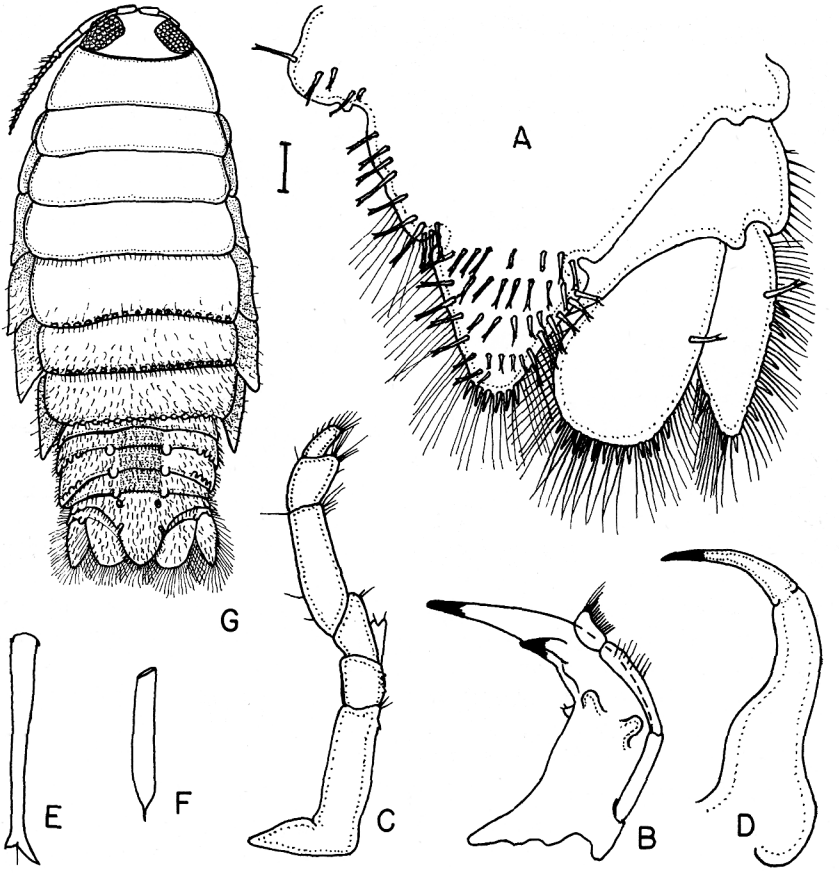

Fig. 7. *Excorallana kathyae* n. sp. A, apex and dorsum of pleotelson and uropoda with only a few 2-pointed setae indicated; B, mandible; C, maxilliped; D, maxilla; E, two-pointed seta of pleon; F, apex of male stylus to 2nd pleopod; G, paratype, in dorsal view, scale 1.0 mm.

Gnathia steveni, new species

Fig. 8

DESCRIPTION: Having all of the characteristics enumerated by Monod (1926) as typical for a species of *Gnathia* sens. str. Large eyes and large preocular lobes present. Pylopod with 3 articles of which the last is quite small. Mandibles each with an unusually well developed multi-toothed redan as well as 7-8 subequal teeth on the medial face. Frons produced into a small acute triangular process bearing stout long setae

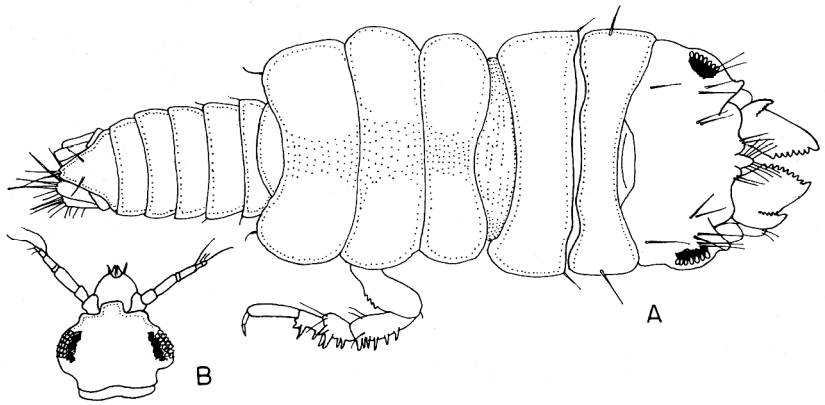

Fig. 8. *Gnathia steveni* n. sp. A, dorsal view of male holotype (2. 25 mm length); B, cephalon of praniza.

marginally and minute marginal denticles. The body itself scarcely tuberculate and sparsely setose. Third to fifth peraeonal somites with broad medial depression. Peraeopods bearing strong spines. Frontal border truncated in the female juvenile (praniza). First antenna with seven articles and the second with twelve articles in the male, the first antenna of the praniza has seven articles. Holotype, male, length 2.25 mm, width 0.7 mm; allotype praniza length 2.75 mm, width (at widest point) 0.7 mm.

TYPE LOCALITY: Bahía de San Quintín, Sta. 169, (see map), formalin wash of rock, intertidal, Aug. 2, 1960.

MATERIAL: SQ 169 (7), SQ 175 (5), SQ 178 (1), SQ 179 (4).

REMARKS: This species is unique among the species of *Gnathia* in its wide and multi-toothed redan to the mandibles and its pointed frons. It has no close affinities with the three recorded species from California (Menzies and Barnard, 1959: 27-30).

DISTRIBUTION OF ISOPODS

Two aspects of distribution warrant comment in this paper: first, the geographic relationship of the fauna of San Quintin to other estuarine faunas, and second, the internal distribution of the dominant species at San Quintin Bay.

Geographic Relationships: The isopod fauna of San Quintin shows a striking similarity to the isopod fauna off the southern California shelf (and possibly also to the slope as well.) Although many elements of the shelf fauna are not represented in San Quintin Bay a significant proportion (33%+) of the bay fauna has been found on the shelf. Once the shelf fauna has been more completely reported it is probable that the affinities will exceed 50%. The isopod fauna of a comparable estuary adjacent to San Quintin Bay has not yet been studied and therefore no adequate

comparisons can yet be made between San Quintin Bay and San Diego or Newport Bay, for example. These affinities might be expected to be very high. It is likely that Day's theoretical considerations regarding the origin of estuarine faunas (via a calm bay element from the shelf offshore) apply to the isopods as well as to the amphipods as shown by J. L. Barnard (1960). It is not yet known whether the new species recorded herein from San Quintin Bay are endemic or not. The isopodan fauna of San Quintin Bay appears to contain a mixture of Mexican (to Panamic) and central to southern Californian species with some possibly endemic element.

Internal distributional patterns: Most species of isopods occurred with such a low frequency of distribution as to be relatively useless in indicating any ecologic zonation within San Quintin. Nevertheless, the three species *Ericsonella crenulata* Menzies, *Paracerceis sculpta* (Holmes) and *Haliophasma geminata* Menzies and Barnard seem restricted to the near-ocean part of the bay, whereas *Cirolana diminuta* Menzies, and *Excorallana kathyae* Menzies occupy the upper reaches of the bay. Other species are either found throughout the bay or were collected at single localities.

REFERENCES

Baker, W. H.
1908. Notes on some species of the isopod family Sphaeromidae from the South Australian coast. Trans. Roy Soc. South Australia 32: 138-162, pls. III-X.

Barnard, J. Laurens
1960. Relationship of California amphipod faunas in Newport Bay and the open sea. Pac. Nat. 2 (4): 166-186.

Barnard, K. H.
1925. A revision of the family Anthuridae, etc. Linn. Jour. Zool. 34: 109-160.

Menzies, Robert James
1950. A remarkable new species of marine isopod, *Ericsonella crenulata* n. sp., from Newport Bay, California. Bull. So. Calif. Acad. Sci. 49 (1): 29-35.
1951. New marine isopods, chiefly from northern California with notes on on related forms. Proc. U.S. Nat. Mus. 101 (3273): 105-156.
1952. Some marine asellote isopods from northern California with descriptions of nine new species. Proc. U.S. Nat. Mus. 102 (3293): 117-159.

Menzies, Robert J. and J. Laurens Barnard
1959. Marine Isopoda on coastal shelf bottoms of southern California: systematics and ecology. Pac. Nat 1 (11): 1-35.

Monod, Th.
1926. Les Gnathiidae. Mem. Soc. Sci. Nat. du Maroc (13): 667 pp.

Moore, H. F.
1902. Report on Porto Rican Isopoda. Bull. U.S. Comm. Fish and Fisheries for 1900, No. 2, pt. 2: 161-176.

Richardson, Harriet
1905. A monograph on the isopods of North America. Bull. U.S. Nat. Mus. 54: 1-727.

Stafford, Blanche E.
1913. Studies in Laguna Beach Isopoda, II and IIB. Pomona Coll. Jour. Entom. and Zool. 5 (3-4): 161-172, 181-188.