A REMARKABLE NEW GENUS OF COROPHIID AMPHIPOD FROM COASTAL MARINE BOTTOMS OF SOUTHERN CALIFORNIA*

By J. Laurens Barnard

A survey of marine muddy bottoms of southern California has revealed a host of new crustacean species, one of which is described below (see Hartman, 1955, for techniques and Hartman and Barnard, 1957, for station data).

This unusual amphipod is noted for its long eye lobes which give it a shrimp-like appearance. The animal belongs to a family of which many members build tubes into which they nestle. The tubes are usually attached to firm objects such as rocks or algae.

From its distribution, morphology and color, it is presumed that this species builds its tubes on small pebbles or red algae and that it emerges to feed on the algae or associated detritus. The projecting eye lobes and feeble antennae would seem to increase its ability to detect predators or varying light values without protruding much of its body from the tube.

The new genus and species is of interest because it is the only abundant member of the family Corophiidae in subtidal waters of southern California. The familiar genus *Corophium* (see Barnard, 1958) is abundant in harbors and estuaries of southern California, in seas such as the Baltic and intertidal regions of many other areas but is poorly represented on open ocean bottoms of southern California (based on analysis of more than 600 quantitative samples). However, this new corophiid apparently has its southern limit of distribution in southern California. It is found occasionally along the coast between Pt. Conception and Pt. Mugu (Plate 28) but has not been collected south and east of Pt. Mugu to the Mexican border (400 samples examined).

The species shows no depth or temperature submergence to the south (samples up to 200 fms have been examined), presumably because of its dependence on a shallower red algal association. It would be of interest to examine known areas of cold water upwelling along the shores of Lower California (Dawson, 1951) to check for a discontinuous distribution dependent on temperature.

SYSTEMATICS

Due to the number of new corophiid genera described since the treatise of Stebbing (1906) it has been necessary to construct a new key to the genera, which follows. References to the genera

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and their species may be obtained in my "Index to the . . . Gammaridea" (Barnard, 1958a).

KEY TO THE GENERA OF THE COROPHIIDAE

1. Uropod 3 lacks rami	CONCHOLESTES
1. Uropod 3 bears 1-2 rami	2
2. Mandibular palp 3-jointed	3
2. Mandibular palp less than 3-jointed	14
3. Uropod 3, inner ramus distinct	4
3. Uropod 3, inner ramus absent or indistinct	5
4. Coxae in continuity	PARACOROPHIUM
4. Coxae not in continuity	CAMACHO
5. Uropod 2 with one ramus	6
5. Uropod 2 with two rami	7
6. Gnathopod 2 in male, not gnathopod 1, complexly subchelate	CERAPUS
6. Gnathopod 1 in male, not gnathopod 2, complexly subchelate	CHEVREUXIUS
7. Antenna 1 lacks accessory flagellum	8
7. Antenna 1 bears accessory flagellum	11
8. Male gnathopod 2 complexly subchelate	ERICTHONIUS
8. Male gnathopod 2 not complexly subchelate	9
9. Pleon segments 5-6 fused	KAMAKA
9. Pleon segments 5-6 separate	10
10. Male gnathopod 2 chelate, coxae short	CERAPOPSIS
10. Male gnathopod 2 subchelate, coxae long	GAVIOTA n. gen.
11. Male gnathopod 1 complexly subchelate	GRANDIDIERELLA
11. Male gnathopod 1 simply subchelate	12
12. Male antenna 2, articles 3-5 stout, uropod 3 with prolonged peduncle	UNCIOLA
12. Male antenna 2, articles 3-5 slender, uropod 3 with symmetrical peduncle	13
13. Antenna 2 much shorter than 1, pleon segments 4-6 tall	UNCIOLELLA
13. Antenna 2 longer than 1, pleon segments 4-6 very depressed	NEOHELA
14. Mandibular palp 1-jointed	SIPHONOECETES
14. Mandibular palp 2-jointed	COROPHIUM

Notes:

Unciola crassipes Hansen is aberrant for its biramous third uropod (see Stephensen, 1944).

Pseudericthonius Schellenberg (1926): the male is unknown; the female is distinguished from other genera in the family by the short inner rami of uropods 1 and 2.

Parunciola Chevreux (1911): the male is unknown; the genus has a place in the key starting with couplet 11; it is distinct for its long peduncles and short flagella of antennae 1 and 2.

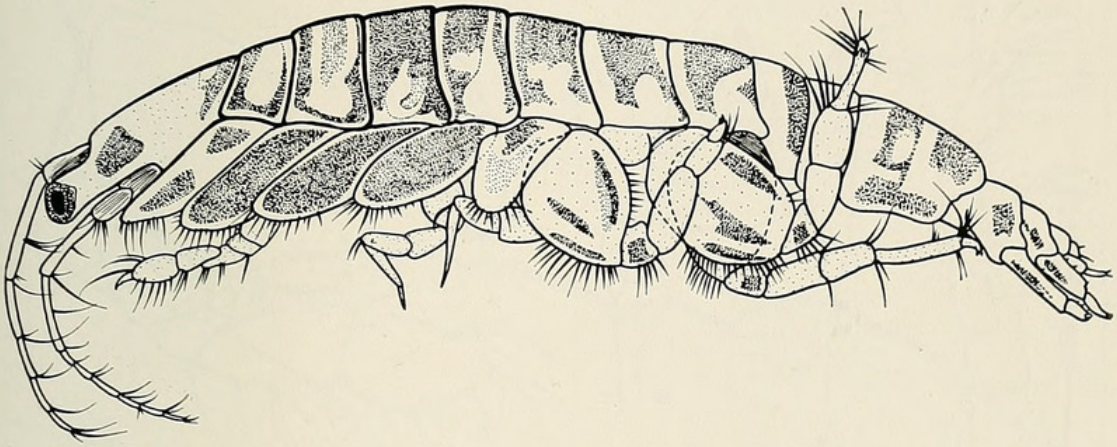

PLATE 26

Gaviota podophthalma n.g. n. sp. Holotype, female, 4.5 mm, sta. 4845, lateral view.

Gaviota, new genus

Diagnosis.—Uropod 3 uniramous, mandibular palp triarticulate, antenna 1 lacks accessory flagellum, antenna 2 slender, gnathopods 1 and 2 of both sexes similar in size and subchelate (gnathopod 2 is slightly larger), urosome segments 1-3 each distinct, uropods 1 and 2 biramous, the rami of equal length, coxae contiguous and large, eyes borne on long projections of the head.

Type species.—*Gaviota podophthalma,* n. sp.

Relationships.—The genus *Gaviota* resembles *Kamaka* Derjavin (1923) more than any other genus in the family due to the projecting eye lobes which *Kamaka* bears in a lesser degree. The lack of sexual differences in the gnathopods and the distinct segments of the urosome distinguish *Gaviota* from *Kamaka.* (See Gurjanova, 1951, for a review of *Kamaka,* which is composed of three species in the northwestern Pacific.)

Gaviota podophthalma, new species

(Plates 26 and 27)

Descriptive features.—The drawings of the species are diagnostic and more or less self-explanatory but several points need emphasizing: (1) the first coxa is as long as the second but more

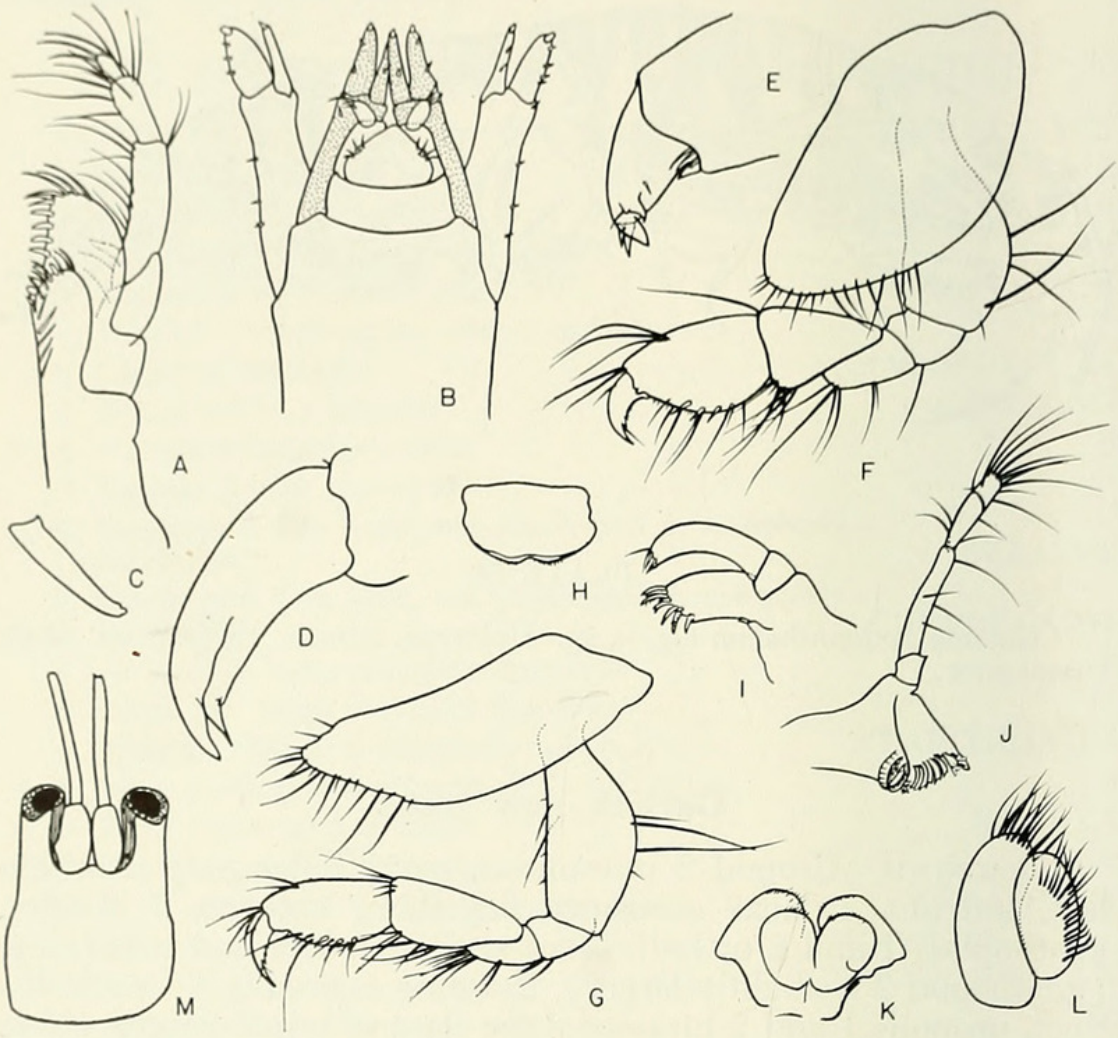

PLATE 27

Gaviota podophthalma n.g. n. sp. Paratype, female, 4.5 mm, sta. 4845. Figs. A, maxilliped; B, urosome, dorsal; C, article 7, peraeopod 1; D, article 7 of peraeopods 4 (and 5); E, article 7 and part of 6 of peraeopod 3; F, G, gnathopods 2, 1; H, upper lip; I, maxilla 1; J, mandible; K, lower lip; L, maxilla 2; M, head, dorsal.

slender, while in *Kamaka* the first coxa is very broad and plate-like; (2) the seventh articles (dactyli) of the peraeopods are unusual and contrast with the long slender ones of *Kamaka;* (3) the apices of the mandibular and maxillipedal palps as well as the eye lobes and mandibular lobes of the lower lip are blunter in *Gaviota;* (4) the lower anterior corner of the head is not produced in *Gaviota.*

Careful identification of the male and female of the species has been made, the male bearing genital papillae on the ventrum of segment 7.

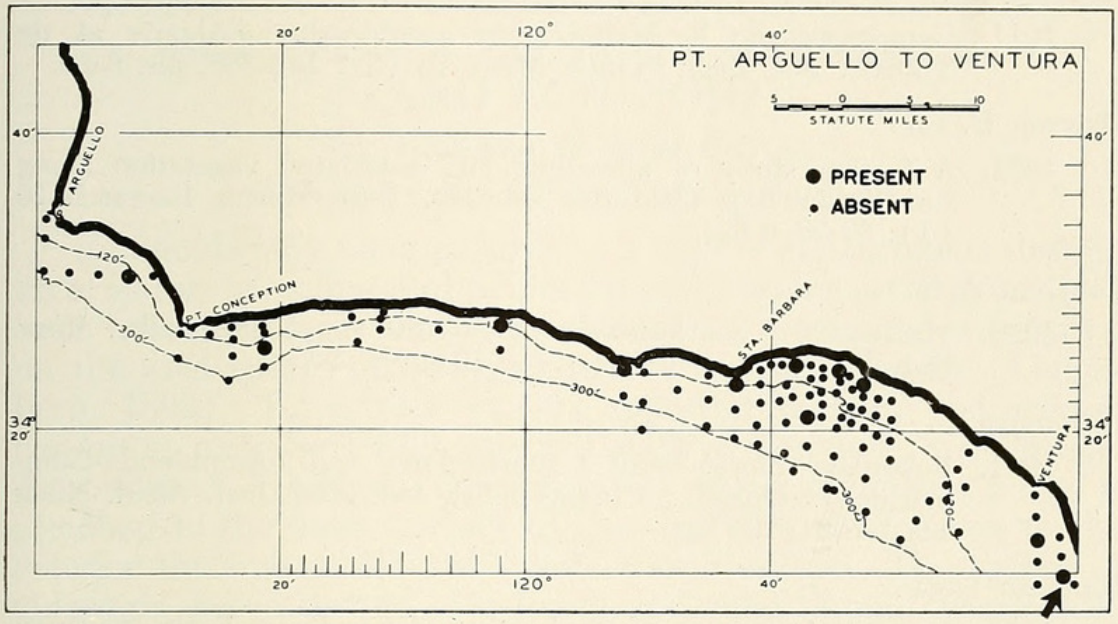

PLATE 28

Map showing distribution of *Gaviota podophthalma*. The arrow indicates the type locality.

COLOR.—In formalin, heavily pigmented in a purplish brown according to the pattern shown for the lateral view of the animal.

HOLOTYPE.—AHF No. 571, female, 4.5 mm.

TYPE LOCALITY.—Station 4845, 3.25 mi 240° T from Port Hueneme Light, California, 34-07-00 N, 119-16-05 W, 39 ft, olive green sand, Feb. 7, 1957, collected with an orange-peel-grab.

MATERIAL EXAMINED.—(listed in order of west to east, shallow to deep, (according to map) Stations 4817 (14), 5561 (3), 4823 (14), 5161 (6), 5566 (1) (= same position as 5161), 4953 (2), 4825 (1), 5270 (3), 5581 (1), 5177 (4), 4839 (12), 4845 (30).

DISTRIBUTION.—Pt. Arguello to Pt. Mugu, California, 39 to 190 feet (12 to 58 meters).

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