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A new *Bomolochus* (Copepoda parasitica) from the California Grunion*)

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INTRODUCTION

The grunion, *Leuresthes tenuis* (AYRES) (family *Atherinidae*), a fish with a distribution limited to coastal southern California, U.S.A., and Lower California, Mexico, yielded the recently described copepod *Caligus olsoni* PEARSE, 1953, and still another parasitic copepod which proved to be an undescribed species of the genus *Bomolochus*. The species was collected by MR. ANDREW C. OLSON, Assistant Professor of Zoology at San Diego State College, who entrusted me with the material for description.

Bomolochus pectinatus nov. spec.

MATERIAL AND TYPES

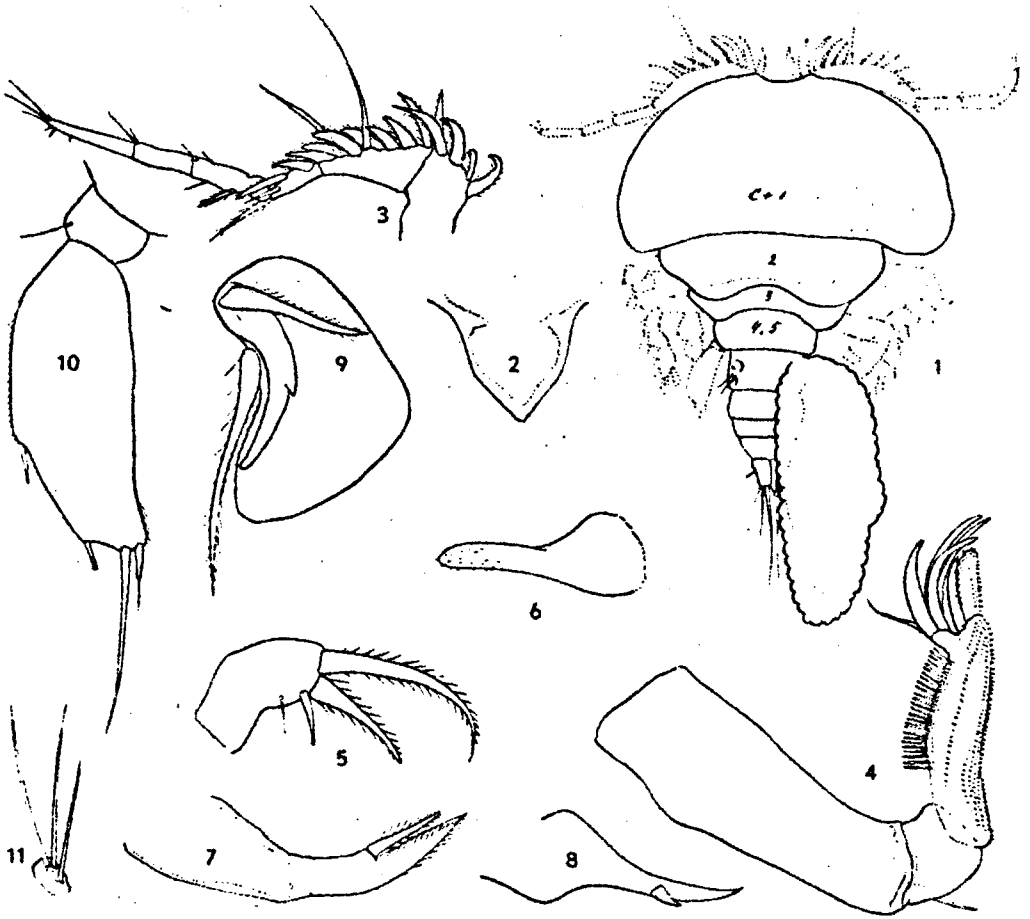
About 25 specimens, among which 2 males, were collected from the gill chamber, mostly from the underside of the operculum, of *Leuresthes tenuis* (AYRES), captured at Coronado Strand, Apr. 21, 1954; at South Pylon, San Diego Bay, Apr. 20, 1954; and at Mission Beach, July 3, 1954. All of these localities are in San Diego County, California. At the former of the three localities, Coronado Strand, MR. OLSON obtained 37 copepods from 16 fish.

A female (holotype), and a male (allotype) from Mission Beach are in the collections of the Zoological Museum, Amsterdam, nr. Co. 100,223. Remaining specimens Z.M.A. Co. 100,224—226.

DESCRIPTION

FEMALE: Total length 1.0—1.2 mm. Thorax segments 2, 3, 4, and 5 overlapping dorsally, like in certain „*Artacolax*” (genus not separable from *Bomolochus*). Cephalic segment fused with thorax segment 1, very wide. Triangular rostrum. Ovisacs robust, slightly overreaching the furcal

*) Received March 11, 1955.

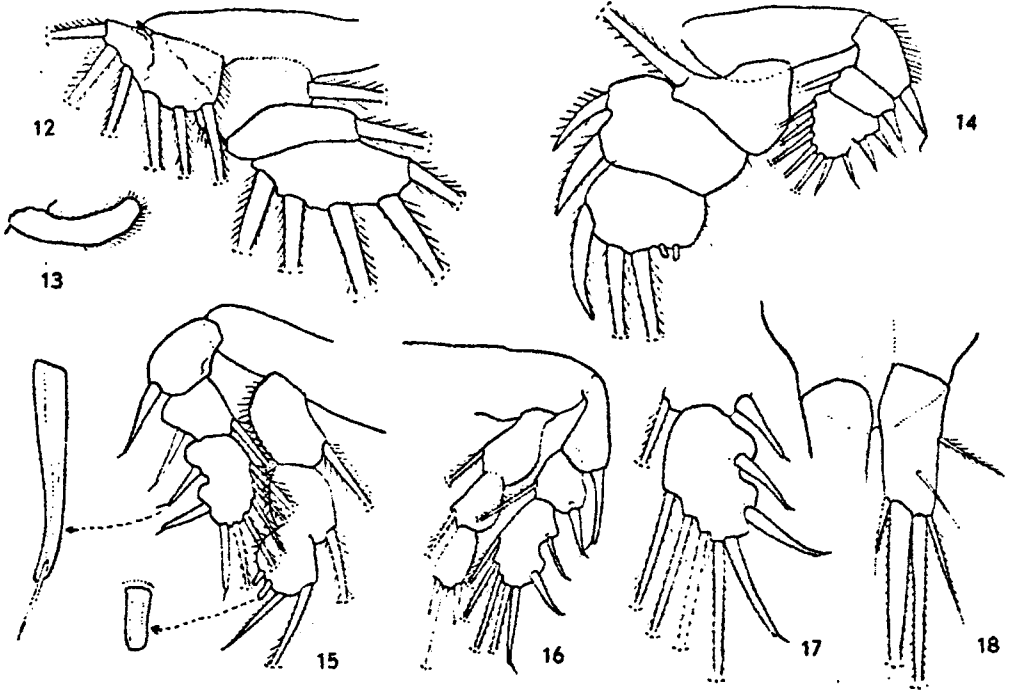


FIGURES 1—11. *Bomolochus pectinatus*, female: 1, dorsal view; 2, rostrum; 3, first antenna; 4, second antenna; 5, first maxilla; 6, paragnath; 7, second maxilla; 8, mandible; 9, maxilliped; 10, fifth leg; 11, sixth leg.

setae: Furca fairly slender, with 2 outer-edge bristles: one at about 40% of its length, another at about 80%.

Antenna 1 with 3 perfectly articulated, slender distal joints, and a basal portion bearing 2 segmentation lines; the longer joint of the basal portion is apparently made up of 2 joints, but their articulation is not evident. The basal portion is armed with broad setae, those of joint 1 claw-like curved. Two long setae moreover on the longer joint of the basal portion.

Antenna 2, 3rd joint, with roughened inner surface, and a comb-like marginal row of densely placed spines. The proposed specific name, *pectinatus*, alludes to this character. The 3rd joint terminates in a short claw; a short seta; 3 strong, claw-like setae; a short, claw-like structure, armed at the inner margin with a row of setae; and an elongated membranous joint, roughened like the 3rd joint itself.



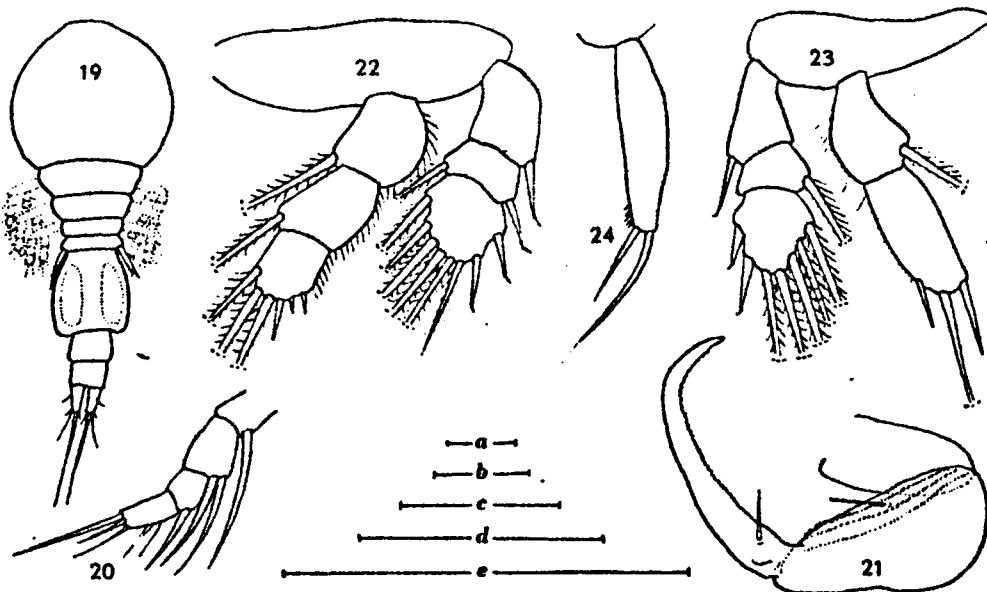
FIGURES 12—18. *Bomolochus pectinatus*, female: 12, first leg: 13, median appendage of basipod of first leg: 14, second leg: 15, third leg: 16, fourth leg: 17, distal joint of exopod of fourth leg: 18, furca.

Mouth parts of the usual pattern: mandible, however, with a rather slender distal portion. Paragnaths present. Maxillipeds with 2 setae, and a tooth on the claw.

Legs 1 and 2 with widened endopods. Exopod of leg 1 only indistinctly segmented. Third joints of exopods of legs 2 to 4 with a strong incurvation halfway its length, a characteristic of specific importance. Third joints of endopods of legs 2 and 3, except for setae, bearing also 2 rudimentary, "cylindrical spines", likewise a taxonomic characteristic. The outer-edge spines of the exopods of legs 2 to 4 not serrated, but only tipped with a seta.

Spine-formula of the 4 anterior pairs of legs (arabic figures = setae; latin figures = spines; the rudimentary, "cylindrical spines" are placed between parentheses):

		P 1	P 2	P 3	P 4
exopod	joint 1	1-1 or 1-0	1-6	1-0	1-0
	joint 2	0-3		1-1	1-1
	joint 3	0-3 or 0-2		IV-5	III-5
endopod	joint 1	0-1	0-1	0-1	0-1
	joint 2	0-1	0-2	0-1	0-1
	joint 3	0-5	(II)-3	(II)-2	II-1



FIGURES 19-24. *Bomolochus pectinatus*, male: 19, dorsal view; 20, distal joints of first antenna; 21, maxilliped; 22, second leg; 23, fourth leg; 24, fifth leg.

Fifth leg 2-jointed, with 1 outer-edge bristle, and 3 terminal spines and setae.

Sixth leg single jointed, with 3 long setae.

MALE: The male is fixed on the dorsum of the female, pigmy, though with well-developed body-segmentation and appendages. Total length 550—600 μ . The trunk segments 2 to 5 do not overlap each other. Abdomen consisting of a large genital segment and two smaller segments. Furca as in female.

First antennae with short distal joints, which are armed with numerous long setae. Antenna 2, and mouth parts as in female, except for the maxilliped, which is, as usual, transformed into a strong grasping organ. Legs without widened rami, without special "cylindrical spines" on the endopod, without incurvated third joints of the exopod, but with hair-tipped outer-edge spines on the exopod. Endopod of 4th leg 2-jointed. Fifth leg very slender, armed with 2 distal setae only.

REMARKS

B. pectinatus belongs to a group of species in the genus, the females of which share the following characters: maxilliped claw with tooth; antenna 1, distal joints slender, proximal joints without special chitinous plates, or appendages like that; furca fairly elongated; endopods of legs 1 and 2 widened. In all these respects the new species resembles *B. megaceros* HELLER (as redescribed by GNANAMUTHU, 1949), *B. cunea-*

tus FRASER, 1920, *B. concinnus* WILSON, 1911, and *B. soleae* CLAUS (as redescribed by STOCK, 1953), but differs from all these species in slight deviations in the chaetotaxis of the legs, in the shape of the "cylindrical spines" on legs 2 and 3, in the structure of leg 5, in the structure of the outer-edge spines of the exopods of legs 2 to 4, in the armature of the 2nd antenna, and in several other details.

The closest relative of *B. pectinatus* is no doubt *B. decapteri* YAMAGUTI, 1936, which seems to agree with the new species not only in the characters mentioned above, but moreover in the presence of a comb-like row of spines on the 2nd antennae. Differences between these two species are to be found in the structure of the outer-edge spines of the exopods of legs 2 to 4 (serrated in *decapteri*, only tipped with a seta in *pectinatus*), in the incurvation of the 3rd joint of the exopods of legs 2 to 4 in *pectinatus*, in the shape of the "cylindrical spines", etc.

The male of *B. pectinatus* hardly shows any peculiar characteristic.

REFERENCES

- FRASER, C. McLEAN
1920 Copepods parasitic on Fish from the Vancouver Island Region. — Proc. & Trans. Roy. Soc. Canada, 1919, (3) 13: 45—67, pls. 1—8.
- GNANAMUTHU, C. P.
1949 Two Male Parasitic Copepods from Madras. — Ann. Mag. Nat. Hist. (12) 2: 359—367, figs. 1—23.
- PEARSE, A. S.
1953 A new copepod parasite from the grunion. — Journ. Parasitol., 39 (3): 332—333, figs. 1—16.
- STOCK, J. H.
1953 *Bomolochus soleae* CLAUS, 1864, and *B. confusus* n.sp.: two hitherto confounded parasitic copepods. — Beaufortia, 2 (24): 1—13, figs. 1—47.
- WILSON, CH. B.
1911 North American parasitic copepods belonging to the family Ergasilidae. — Proc. U.S. Nat. Mus., 39 (1788): 263—400, textfigs. 1—41, pls. 41—60.
- YAMAGUTI, S.
1936 Parasitic Copepods from Fishes of Japan. Part 1. Cyclopoida. I. Published by the author. (8 pp., 5 pl.).

NOTE CONCERNING THE FIGURES

All figures were drawn with the aid of a camera lucida. The scales all represent a length of 100 μ . Scale *a* applies to figures 3, and 19; scale *b* to figures 12, 13, 14, 15, and 16; scale *c* to figures 2, 9, 10, 11, 17, and 18; scale *d* to figures 4, 5, 6, 7, 8, and 21; scale *e* to figures 20, 22, 23, and 24.

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