COLLOCHERIDES ASTROBOAE N. GEN., N. SP., A SIPHONOSTOME CYCLOPOID COPEPOD LIVING IN THE STOMACH OF BASKET STARS

by

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ABSTRACT

The new genus *Collocherides*, which is created for the reception of *C. astroboae* n. sp., is closely related to *Collocheres*. Whereas the species of *Collocheres* all are, as far as we know, ectoparasites of echinoderms, *Collocherides* was found endoparasitic in basket stars (*Astroboa nuda, A. albatrossi*) at Eilat (Israel), in the Dahlak Archipelago (Ethiopia), and in Indonesia.

INTRODUCTION

In the stomach of tropical basket stars of the genus *Astroboa*, small siphonostome cyclopoid copepods can be found, which always are undigested and thus apparently are parasites of the echinoderm. For the present description, material was available from three localities as far apart as Israel, Ethiopia, and Indonesia, and from two different hosts, *Astroboa nuda* and *A. albatrossi*. All this material proved to be a single species, belonging to the family Asterocheridae, and apparently related to the genus *Collocheres*. Certain morphological features (all of which reductions or adaptations, no doubt under influence of the endoparasitic mode of life of the present form), make it advisable to isolate the parasites of *Astroboa* in a special genus, closely related to, but not identical with *Collocheres*. Not for all seven species attributed to *Collocheres* the host is precisely known, but the four it is known for, were always ectoassociates of crinoids or brittle stars (Stock, 1966). Although the present form is an internal parasite, its host preference is the same as that for *Collocheres*.

DESCRIPTIVE PART

Collocherides n. gen.

Asterocheridae. Close to *Collocheres*, but differing in the following features: (1) absence of a free segment in the exopod of A 2, which is reduced to a single seta; (2) presence of strong "hooks" at the distal end of the caudal ramus; (3) the chaetotaxis formula of II-2-2 in the 3rd exopod segment of P 1 (III-2-3 in *Collocheres*); (4) the chaetotaxis formula of III-I-3 in the 3rd exopod segment of P 3 (III-I-4 in *Collocheres*); (5) the reduction in length of all but one furcal setae, and the absence of plumosity thereon; (6) the ovate shape of the distal segment of P 5 (linear in *Collocheres*).

Monotypic; type species *C. astroboae* n. sp.; endoparasitic in basket stars.

Collocherides astroboae n. sp.

Synonymy. — "Cyclopoid copepods"; Tsurnamal & Marder, 1966: 15.

Material examined. — 23 ♀, 6 ♂. In the stomach of *Astroboa nuda* (Lyman). Eilat, 8—9 June 1965, M. Tsurnamal coll. From this sample 1 ♀ (holotype), 1 ♂ (paratype) and 16 ♀ and 5 ♂ (paratypes) have been deposited in the Zoölogisch Museum Amsterdam (cat. no. Co. 101.090 a-b); another six paratypes, all ♀, in the Department of Zoology of the Hebrew University, Jerusalem.

More than 100 specimens, of both sexes, from the stomach of 1 specimen of *A. nuda*, southwestern end of the island of Umm Aabak, Dahlak Archipelago, Ethiopia, depth about 50 cm, 23 March 1962, J. H. Stock coll. Preserved in the Zoölogisch Museum Amsterdam (cat. no. Co. 101.091).

16 ♀, 9 ♂, from the stomach of 1 specimen of *Astroboa albatrossi* Döderlein, Indonesia, precise locality not quite sure but probably Java Sea, 26 June 1926. Preserved in the Zoölogisch Museum Amsterdam (cat. no. Co. 101.092 a-b).

Description. — Female. Total length (excluding furcal setae) 564—628 μ (mean, based on 10 specimens, 606 μ); greatest width, at the level of the cephalosome, 177—193 μ (mean 183 μ). The body (fig. 1a) gradually tapers from the wider cephalo-

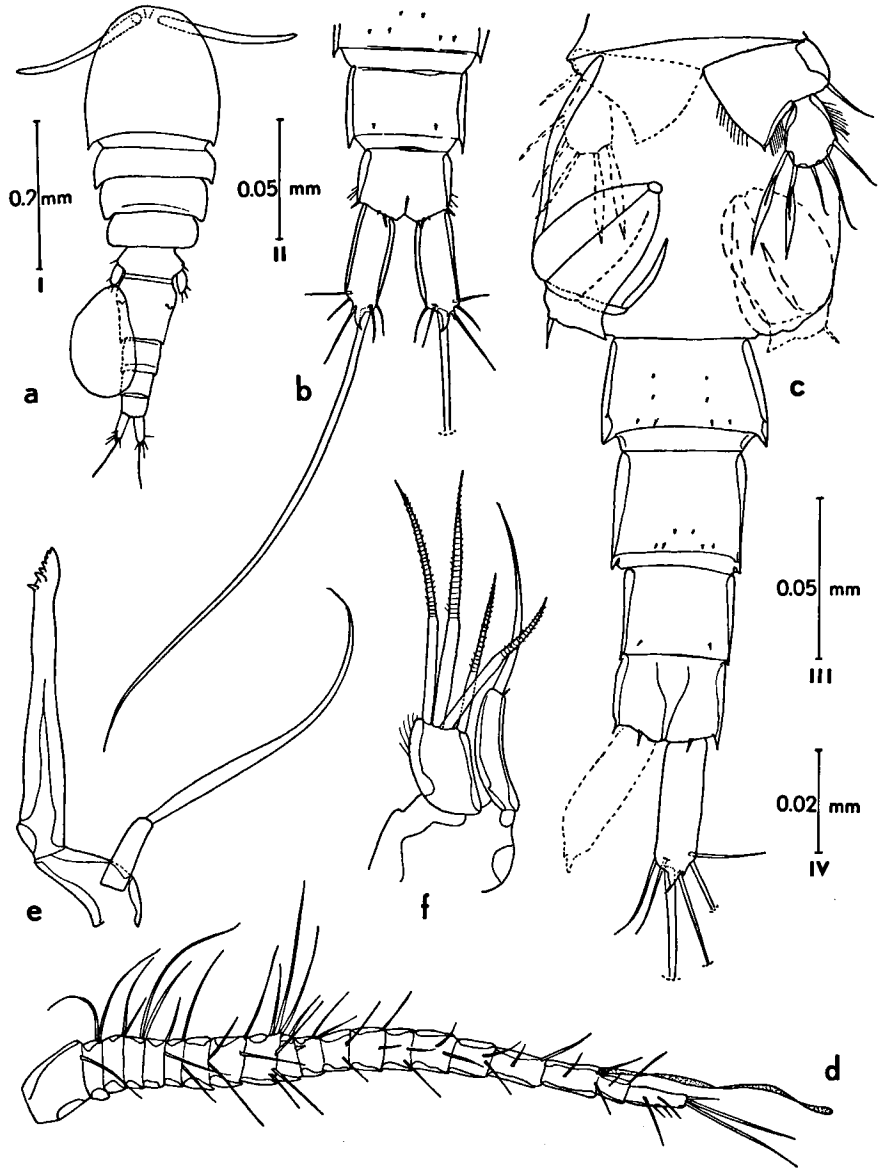

Fig. 1. *Collocherides astroboae* n. gen., n. sp., from Eilat. a, female, dorsal (scale I); b, posterior portion of urosome with caudal rami, ♀, ventral (II); c, urosome, ♂. ventral (III); d, anterior antenna, ♀ (III); e, mandible, ♀ (IV); f, anterior maxilla, ♀ (IV).

some into the narrower anal segment. The first pedigerous segment is fully incorporated in the cephalosome. The genital segment is slightly swollen at the level of the genital openings. Ventrally, the urosome segments 2, 3, and 4 are ornamented with minute cuticular spines: 2 on segment 2, 6 on segment 3, 2 on segment 4. Segment 5 (= the anal segment) bears 2 larger and 1 smaller spinule at either side (fig. 1b). The caudal ramus (fig. 1b) is —measured along its lateral margin —41 μ long and 14 μ wide. Terminally, it is provided with 2 cuticular spiniform projections, the larger of which is curved inward. The lateral furcal seta arises not far from the distal end of the ramus; it is, like the 4 terminal setae, smooth. A smooth dorsal seta arises near the base of the most robust furcal seta.

The female bears only 1 egg, either on the left or on the right side of the body; this large, ovate egg, measures 84—116 × 163—184 μ (fig. 1a).

The anterior antenna (fig. 1d) is 20-segmented. All segments bear 2 setae, except for segments 1 (1 seta), 9 (6 setae), 10 (1 seta + 1 spine), 18

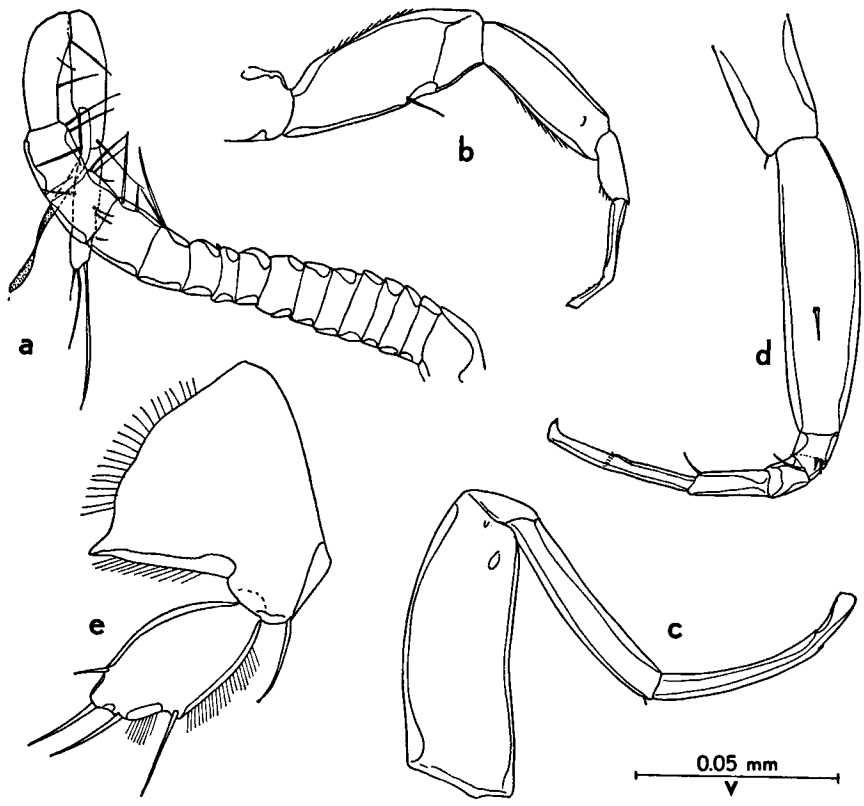

Fig. 2. *Collocherides astroboae* n. gen., n. sp., from Eilat. a, anterior antenna, ♂ (scale III); b, posterior antenna, ♀ (IV); c, posterior maxilla, ♀ (IV); d, maxilliped, ♀ (V); e, fifth leg, ♀ (IV).

(3 setae + 1 aesthete), and 20 (7 setae).

The posterior antenna (fig. 2b) consists of a 2-segmented protopod and a 2-segmented endopod; the latter bears some setules along its lateral margin and is distally provided with a slender claw, which shows up hooked (as in the figure) in some slides, or straight with a slight swelling on the place where the bent was in other slides. The exopod is reduced to a heavily sclerotized place in the chitin, at the base of which 1 setule is borne.

The oral cone is short, broadly pear-shaped.

The mandible (fig. 1e) has a robust, tapering stylet, distally armed with 6 teeth. The "palp" is well-developed: its unique segment bears a long, thick seta that overreaches the mandibular stylet.

The anterior maxilla (fig. 1f) has a narrow outer lobe, armed with 1 seta and 1 spinule, and a much wider and shorter inner lobe, armed with 4 terminal setae.

The posterior maxilla (fig. 2c) has an unarmed basal segment and a 2-segmented claw, the tip of which is truncated.

The maxilliped (fig. 2d) consists of a 2-segmented basal portion, and of a 4-segmented claw portion.

The distalmost segment has a slightly widened, recurved tip.

The legs 1 to 4 are biramous, each ramus being 3-segmented (figs. 3a-d). Intercoxal plates are present. The basipods bear a lateral setule, the coxopods are unarmed. The endopods slightly overreach the exopods, and are provided with spiniform projections of some importance on segments 2 and 3. The chaetotaxis formula is as follows (elements in parentheses are rudimentary):

P 1 { exp. I—(1); I—1; II—2—2
end. 0—(1); 0—2; 1—2—3

P 2 { exp. I—1; I—1; III—I—4
end. 0—1; 0—2; 1—2—3

P 3 { exp. I—1; I—1; III—I—3
end. 0—1; 0—2; 1—I—3

P 4 { exp. I—1; I—1; III—I—3
end. 0—1; 0—2; 1—I—2

The fifth leg (fig. 2e) consists of a wide basal segment bearing 1 lateral seta and a large, triangu-

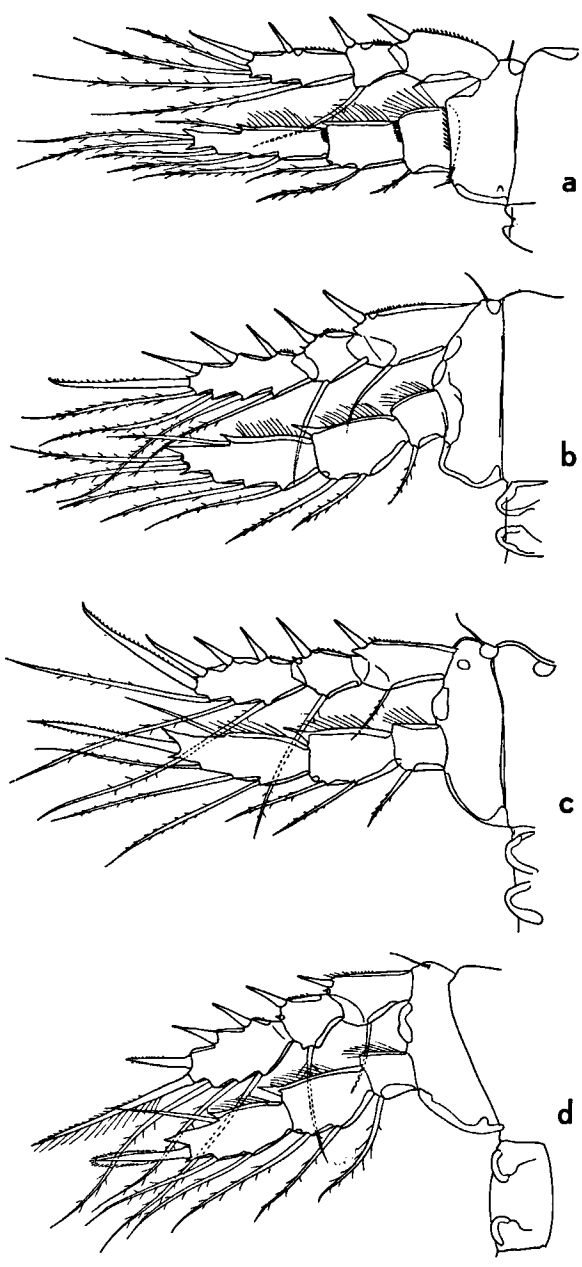

Fig. 3. *Collocherides astroboae* n. gen., n. sp., from Eilat. a, first leg, ♀; b, second leg, ♀; c, third leg, ♀; d, fourth leg, ♀ (all scale III).

lar, medial lobe, ciliated at both free margins. The terminal segment is laterally ciliated and bears 1 lateral, 2 terminal, and 1 medial setae.

Male. Length 499—531 μ (mean 515 μ, based on 6 specimens); greatest width 145—161 μ (mean 152 μ). Urosome 6-segmented (fig. 1c); genital segment with "genital lobes" (= transformed P 6), consisting of chitinous plates and a frame armed with 1 spine. The post-genital segments are ornamented with 8, 6, 2, and 4 cuticular spinules, respectively. Caudal rami as in female. The only appendages showing secondary sexual differences are the anterior antenna and the fifth leg.

The anterior antenna (fig. 2a) is 18-segmented. The long aesthete is borne on segment 17.

The fifth leg (fig. 1c) is 2-segmented, as in female; the basal segment resembles that of the female, but the distal segment is narrow at the base, expanding into a rounded lobe bearing 3 lateral setae and 2 medial feather-shaped spines.

Colour. — Body and eggs are colourless.

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