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*LICHOMOLGUS EGANAE* N. SP. (COPEPODA, CYCLOPOIDA):

AN ASCIDICOLOUS COPEPOD FROM NEW SOUTH WALES

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## ABSTRACT

Description of *Lichomolgus eganae* n. sp., a cyclopoid copepod collected from the ascidian *Cnemidocarpa etheridgii* Hartmeyer in the neighbourhood of Sydney Harbour, Australia, N.S.W. The new species is related with *L. indicus* Ummerkutty.

## INTRODUCTION

In July, 1973, I received from Mrs. E.A. Egan (University of Sydney) some small cyclopoids collected three months previously from the ascidian *Cnemidocarpa etheridgii* Hartmeyer. The hosts were found at Edwards Beach, the Bottle and Glass Rocks, and on wharf piles at Neilsen Park - all in the general locality of Sydney Harbour.

These copepods, of which I have already made brief mention (Gotto, 1975) have proved to be a hitherto undescribed species of *Lichomolgus*.

I am much indebted to Mrs. Egan for her care in

collecting and preserving the specimens, and have pleasure in naming the species after her.

*Lichomolgus eganae* n. sp.

Material.- Numerous males and females (several ovigerous) from *Cnemidocarpa etheridgii* Hartmeyer (= *Styela etheridgii*), from the localities mentioned above. Collected April, 1973 and October, 1974.

1 ♀ and 1 ♂ (holo- and allotype) and 3 ♀♀ (paratypes) have been deposited in the collections of the Zoölogisch Museum, Amsterdam (cat. nr. Co. 102.583); other paratypes have been sent to the Australian Museum, Sydney.

Description of female.- Four individuals, two ovigerous and two non-ovigerous, averaged 0.396 mm in length from anterior end to caudal rami inclusive (size-range 0.887 - 0.906 mm). Average maximum breadth, 0.450 mm (range, 0.434 - 0.472 mm). Habitus typical of the genus (fig. 1), though with a relatively short urosome and very short caudal

rami (figs. 2 and 3). Genital segment markedly swollen, and bearing ventro-laterally two small setae representing the sixth legs (fig. 2). A well developed U-shaped rostrum is present (fig. 4).

Antennule (fig. 5) with seven segments, the second being the longest. The setation appears to be as follows: 1st segment - 3 setae; 2nd - 10; 3rd - 3; 4th - 3; 5th - 4; 6th - 2; 7th - 6.

Antenna (fig. 6) of four segments. The first is geniculate and bears a single very small seta close to the distal extremity. The second is long, rectangular, and carries a little seta about  $\frac{1}{2}$  way along its length. The third is small and bears one short and two longer setae. The last is minutely spinous along one border and is ornamented terminally with two claws, two fairly long and one shorter seta, and one small seta projecting at right angles to the segment.

Mandible (fig. 7) of usual type, with a slender, attenuated pectinate lash. The latter's terminal ciliation can only be distinguished using oil immersion.

Maxillule (fig. 8) very small, lobate, carrying terminally one longer and one shorter seta.

Maxilla (fig. 9) provided with the usual long, pectinate lash, and with a strong seta nearer the base which bears a series of distally diminishing spinules along one margin.

Maxilliped (fig. 10) stout, 3-segmented, unadorned, the third segment largely represented by a strong, slightly curved claw.

Pereiopods 1-4 as illustrated (figs. 12 - 15). Their chaetotaxy is shown in the subjoined table, with Roman numerals indicating spines and Arabic numerals, setae:

P1. coxa 0-1, basis 1-0, exp	I-0; I-1; III, I, 4,
end	0-1; 0-1; I, 5.
P2. coxa 0-1, basis 1-0, exp	I-0; I-1; III, I, 5,
end	0-1; 0-2; II, I, 3.
P3. coxa 0-1, basis 1-0, exp	I-0; I-1; III, I, 5,
end	0-1; 0-2; I, II, 2.
P4. coxa 0-1, basis 1-0, exp	I-0; I-1; II, I, 5,
end	0-1; II.

Fifth leg (fig. 16) with a somewhat triangular free segment, medially indented. It carries two terminal setae, one longer than the other.

Caudal rami (figs. 2 and 3) slightly broader than long and provided with six setae, two of them appreciably longer than the others.

The egg-sacs (fig. 1) are elongate-oval, though a little broader at the anterior end. They measure approximately 0.45 mm in length and 0.21 mm at the

widest point.

Description of male.- Length (average of three individuals) 0.739 mm (range, 0.717 - 0.774 mm). Average maximum breadth, 0.333 mm (range, 0.330 - 0.339 mm). General body form typically cyclopid (fig. 11), genital segment swollen, flask-shaped.

Cephalic appendages (with the exception of the maxilliped) and pereopods 1-4 almost identical to those of the female, although on a slightly smaller scale.

Maxilliped (fig. 17) 4-segmented, with rather inflated basal segment. Second segment long and robust, with an elongate patch of small but conspicuous spines on one side, and a blunt prominence bearing a lanceolate seta just over half-way along the segment's length. Third segment small. Dactylus (in part representing the fourth segment) long, slender, slightly curved, distal tip somewhat spatulate.

Fifth leg (fig. 18) more slender and less obviously triangular than that of the female. The single plain seta adorning this leg's basal segment is also relatively longer.

Other features substantially as in the female.

Remarks.- This is one of the smallest species of *Lichomolgus* so far discovered. In this respect, it resembles *Lichomolgus indicus* Ummerkuty, and, like it, has caudal rami which are broader than long. However, as pointed out by Humes & Stock (1973), *L. indicus* has the unusual formula of II, I, 4 on the third segment of the P4 exopod, unlike the present species.

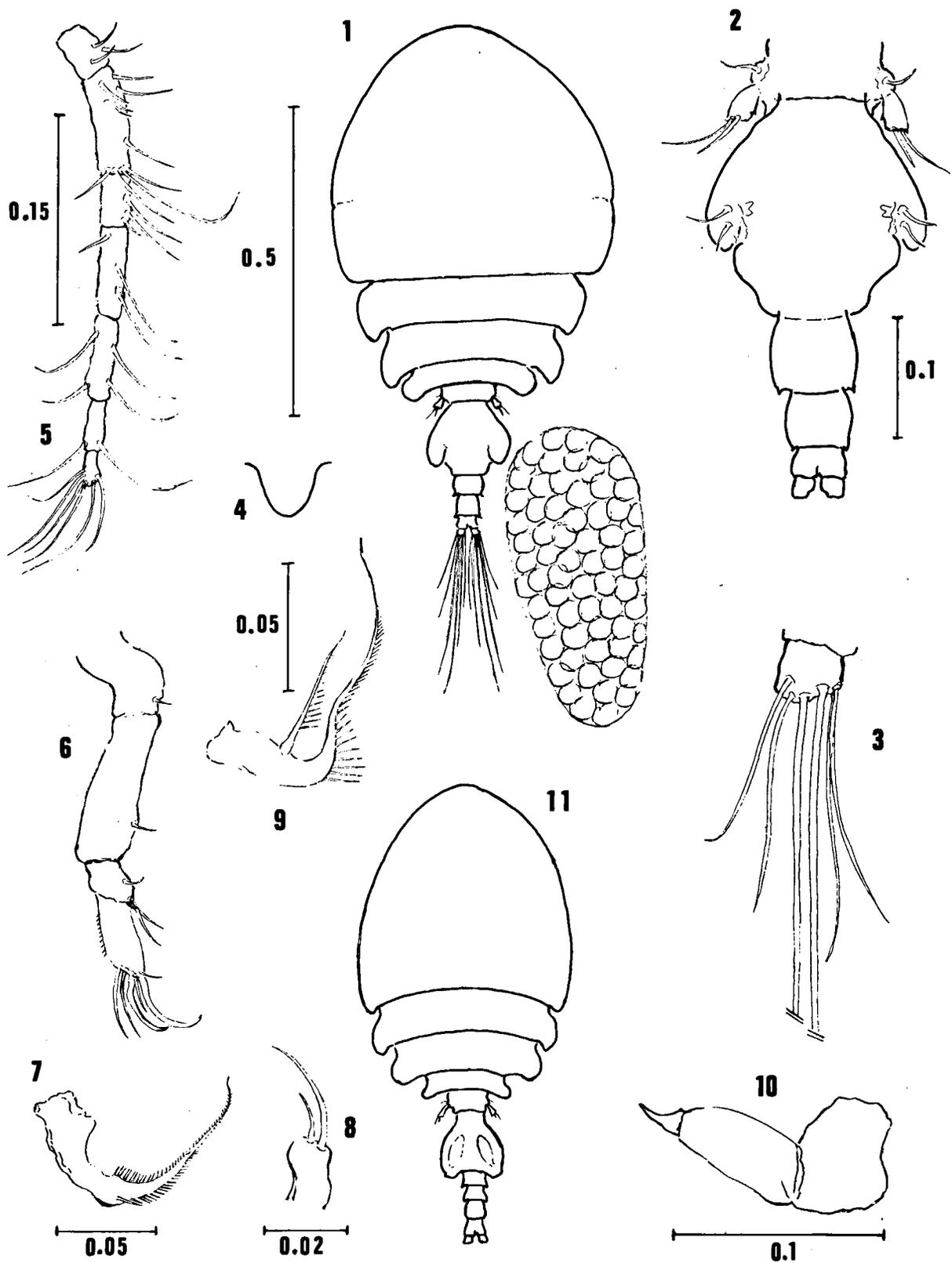
*L. eganae* n. sp. agrees with other ascidian-dwelling members of the genus in possessing two claws on the terminal segment of the antenna.

Biological notes.- Up to three copepods per host have been found, usually near the oesophageal region of the branchial sac. They are very active swimmers when removed from the ascidian. Most of the specimens collected in October are reported to be adult.

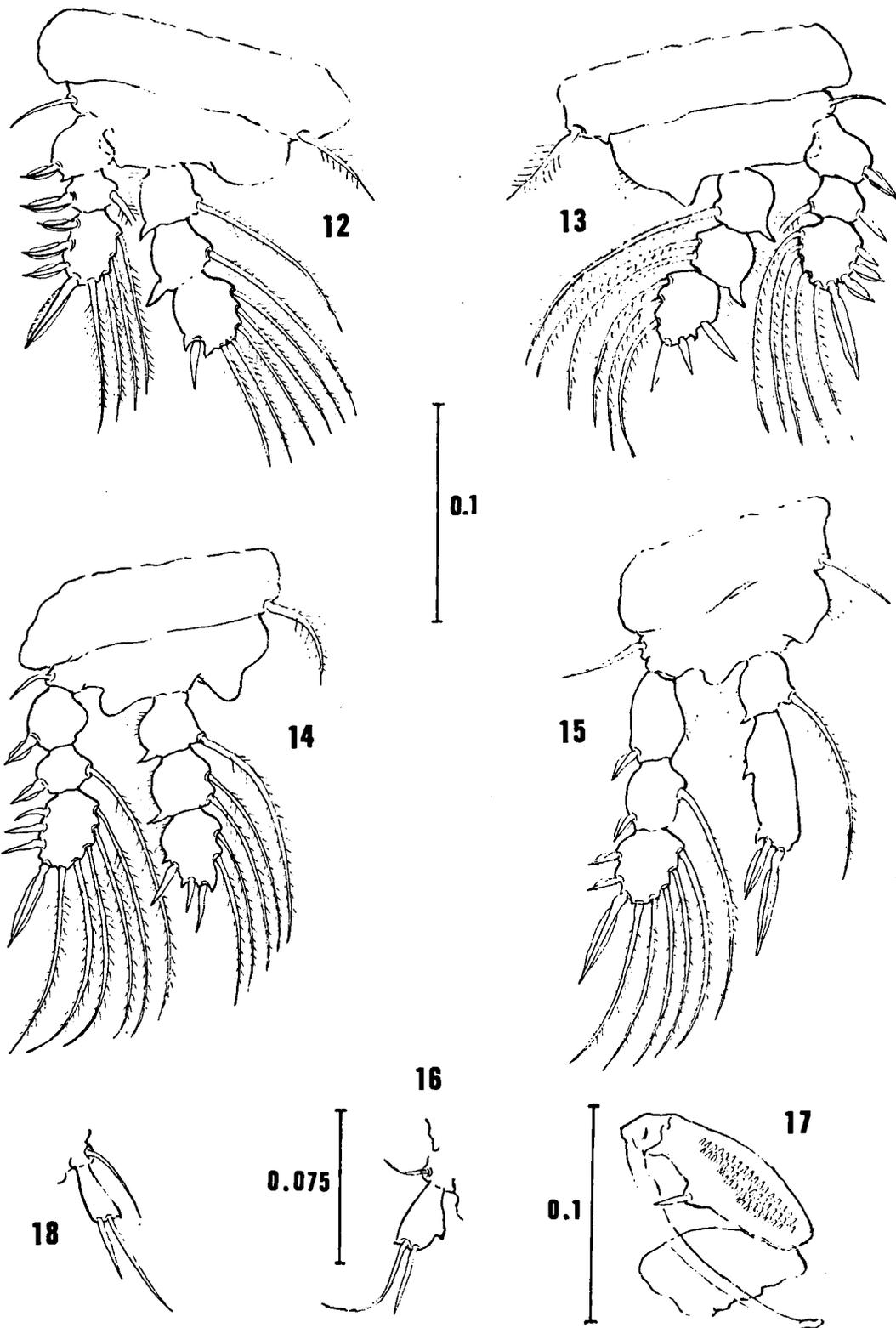
## REFERENCES

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- HUMES, A.G. & J.H. STOCK, 1973. A revision of the family Lichomolgidae Kossman, 1877, cyclopoid copepods associated mainly with marine invertebrates. Smithsonian Contrib. Zool., 127: 1-368.

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Figs. 1-11. *Lichomolgus eganae* n. sp. 1, ♀ and egg-sac, dorsal view; 2, urosome of ♀ (caudal setae omitted); 3, caudal ramus of ♀; 4, rostrum of ♀; 5, ♀ antennule; 6, ♀ antenna; 7, ♀ mandible; 8, ♀ maxillule; 9, ♀ maxilla; 10, ♀ maxilliped; 11, ♂ dorsal view (caudal setae omitted). (All scales refer to mm.)



Figs. 12-18. *Lichomolgus eganae* n. sp. 12, ♀ first pereopod; 13, ♀ second pereopod; 14, ♀ third pereopod; 15, ♀ fourth pereopod; 16, ♀ fifth leg; 17, ♂ maxilliped; 18, ♂ fifth leg. (All scales refer to mm.)