

Notes on Two Deep-Water Calanoids (*Aetideopsis rostrata* and *Neoscolecithrix farrani*) from Lancaster Sound

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ABSTRACT. Two unusual calanoid copepods were collected in deep-water samples from eastern Lancaster Sound. The hitherto unknown male of *Aetideopsis rostrata* is described and the first record of *Neoscolecithrix farrani* from the western North Atlantic is reported.

Key words: Canadian Arctic, zooplankton, Calanoida, morphology, distribution

RÉSUMÉ. Deux espèces inhabituelles de copépodes calanoids furent recueillies au cours de l'échantillonnage des eaux profondes de la partie est du détroit de Lancaster. Le spécimen mâle de l'*Aetideopsis rostrata*, autrefois inconnu, est décrit et le *Neoscolecithrix farrani* identifié pour la première fois dans la partie ouest de l'Atlantique du nord.

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INTRODUCTION

In conjunction with studies on sea birds and marine mammals in the Canadian Arctic, a general survey of marine plankton was conducted in eastern Lancaster Sound and northern Baffin Bay (Buchanan and Sekerak, 1982). The samples were taken with a half-metre plankton net with a mesh aperture of 239 μm and a closing mechanism. We examined three of the deep-water samples collected from the area between Devon and Bylot islands (Fig. 1) and found some unusual copepods. In this paper we describe the hitherto unknown male of *Aetideopsis rostrata* and re-

port the first Canadian record of *Neoscolecithrix farrani*. The material from this study is deposited in the National Museum of Natural Sciences, Ottawa, Ontario.

AETIDEOPSIS ROSTRATA SARS 1903 (Fig. 2)

Material examined: one adult female (4.20 mm), two adult males (4.20 and 3.98 mm), one copepodite V female (3.42 mm), one copepodite V male (3.44 mm) and one copepodite IV female (2.80 mm) from a vertical tow (1000-250 m) on 24 July 1978 at Station D1; one adult male (4.08 mm) and one copepodite V male (3.52 mm) from a vertical tow (600-235 m) on 8 September 1978 at Station C5.

Description of the adult male: body shape generally similar to that of the adult female; cephalosome and first metasomal segment fused; fourth and fifth metasomal segment fully separate; rostrum bifurcate, pointed downward and slightly backward; rostral rami comparatively shorter and closer to each other than in the female; metasomal processes weaker and shorter than in the female, extending backward slightly beyond posterior margin of first urosomal segment; urosome 5-segmented, length slightly greater than width.

Antennule 23-jointed; segments eight, nine and ten fused; incomplete segmentation between segments nine and ten barely visible; proximal segments heavily expanded, when pressed against body, reaching nearly to posterior margin of third metasomal segment.

Antenna similar to that of female.

Mandible with degenerate gnathobase; exopod five-segmented, slightly longer than endopod.

Maxillule degenerate; first and third inner lobes present, with four and three setae, respectively; second inner lobe represented by an indistinct outgrowth; basis with three, endopod with four and five, and exopod with nine setae; outer lobe with two setae.

Maxilla very much reduced in size and structure.

Maxilliped similar, in general, to that of the female;

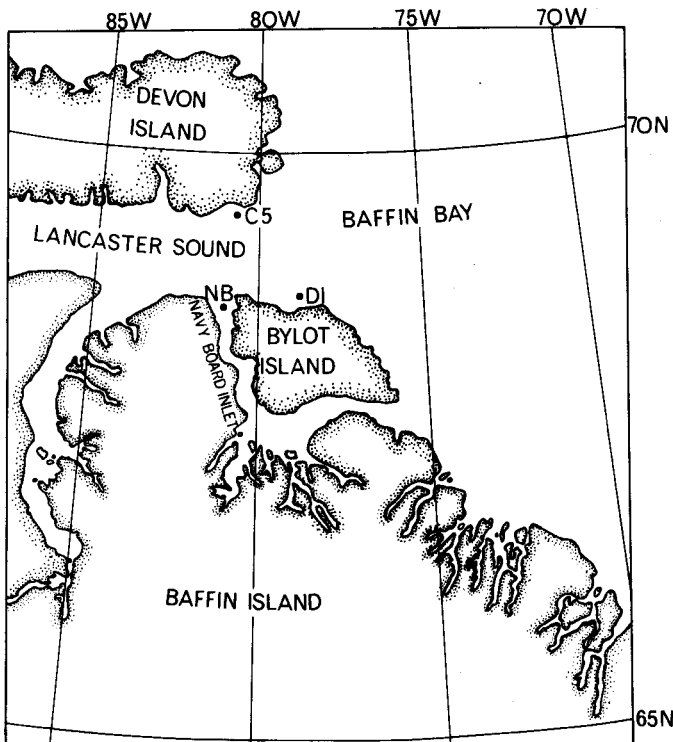


FIG. 1. Sampling stations in Lancaster Sound from which deep water calanoids were obtained.

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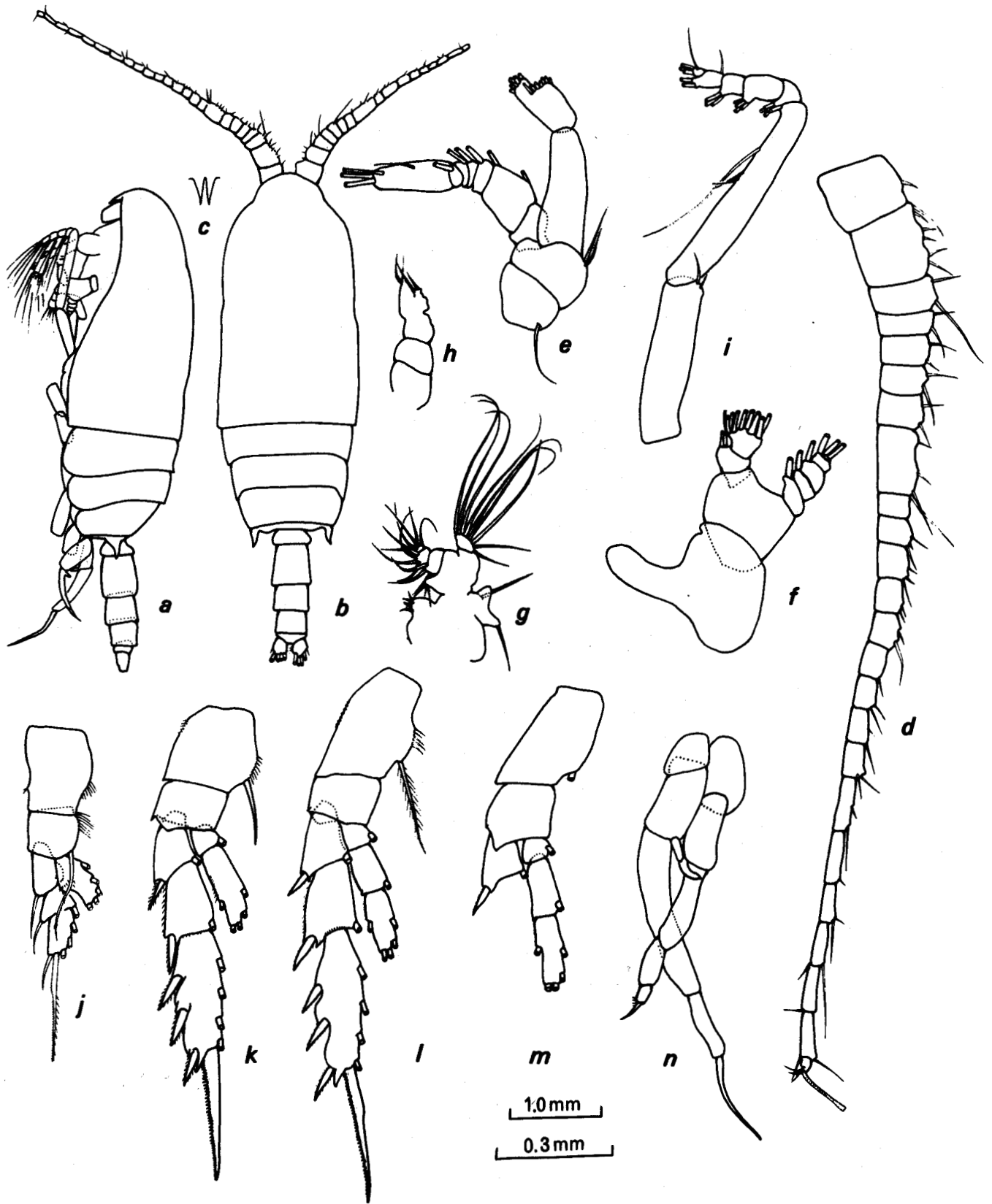


FIG. 2. *Aetideopsis rostrata* G.O. Sars, adult male: a and b, lateral and dorsal view of whole animal; c, frontal view of rostrum; d, antennule (left); e, antenna; f, mandible; g, maxillule; h, maxilla; i, maxilliped; j-n, P1-P5. Upper scale for whole animal; lower scale for appendages.

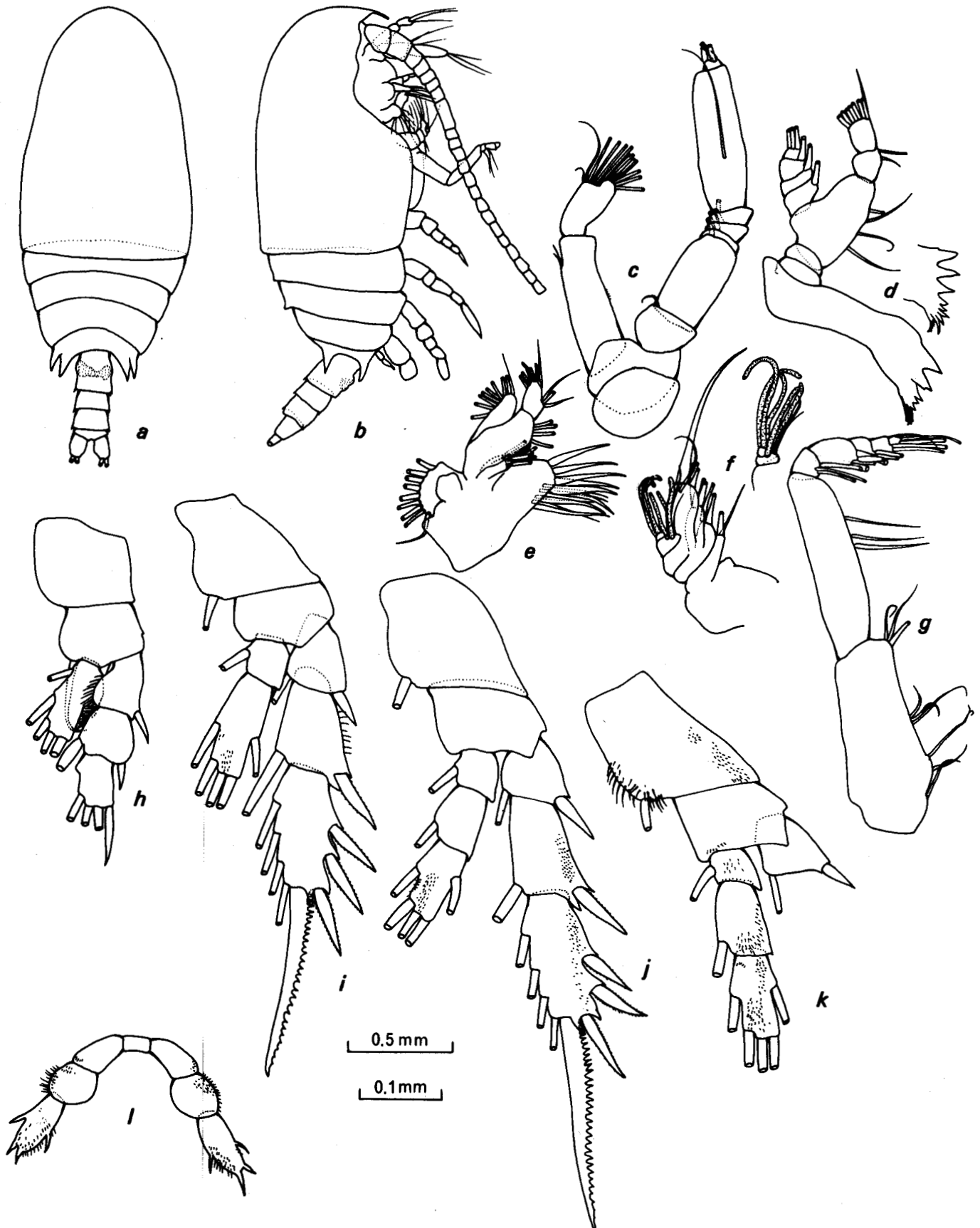


FIG. 3. *Neoscolecithrix farrani* Smirnov, adult female: a and b, whole animal; c, antenna; d, mandible; e, maxillule; f, maxilla; g, maxilliped; h-l, P1-P5. Upper scale for whole animal; lower scale for appendages.

basipod segment one with only distal lobe present.

First to fourth legs similar to those of the female; number of teeth on terminal spine of P2 and P3 exopods, 55 and 53, respectively; endopod of first to fourth legs with one, two and three segments, respectively.

Fifth legs biramous and asymmetrical; right leg longer than left, exopod with first two segments fused, third segment with a long and slightly curved terminal spine, endopod one-segmented and reduced in size, with a minute point at distal end; left leg exopod three-segmented, distal segment with hairs on inner distal margin, and bearing a terminal spine; endopod one-segmented with a minute point at distal end.

Remarks. *Aetideopsis rostrata* has been frequently reported from the north Atlantic including the North Sea and the Mediterranean (Sars, 1903; With, 1915; Rose, 1933; Vervoort, 1952; Furnestin, 1960) and the Arctic (Jespersen, 1934, 1939; Brodsky, 1950, 1957; Brodsky and Nikitin, 1955; Fontaine, 1955; Dunbar and Harding, 1968; Hansen *et al.*, 1971; Vidal, 1971, Shih and Laubitz, 1978). Pacific records are doubtful. A. Scott's (1909) collections from the Molucca Sea are generally considered to be a misidentification of *A. multiserrata* (cf. Sars, 1925; Vervoort, 1963) and, according to Vervoort (1949), also contain a young copepodid of *A. trichechus*. Tanaka and Omori (1971) equated *A. divergens* from Japanese waters with *A. rostrata* but did not explain the basis for this conclusion. We compared the fifth legs of our specimens with the illustration of *A. divergens* by Tanaka (1957) and found that they differ not only in general shape but also in proportions of different segmental lengths. The mature female specimens in the present study and in the Beaufort Sea collection (Shih and Laubitz, 1978) are identical with Sars's (1903) description of *A. rostrata*. We therefore consider *A. divergens* a valid species until additional evidence proves otherwise.

The genus *Aetideopsis* presently includes 16 species (Shih and Maclellan, 1981). Some of these species are morphologically similar but widely separated in geographical distribution. To clarify the taxonomy of these species, a thorough revision of the genus based on world-wide collections is urgently needed.

NEOSCOLECITHRIX FARRANI SMIRNOV 1935 (Fig. 3)

Material examined: Two adult females (2.20 and 2.12 mm) were found in a vertical plankton sample taken from 400-243 m depth at Station NB on 19 August 1978.

Description: *Neoscolecithrix* originated with Canu (1896) for his new species *N. koeleri*, collected from deep water of the Bay of Biscay. Two other species in this genus have been reported. *N. farrani* was described by Smirnov (1935) for a White Sea calanoid and *N. magna* by Grice (1973) as *Oothrix magna* from the western North Atlantic (39°46'45"N, 70°34'25"W). Additional records of *N. koeleri* have been reported from deep waters off the west coast of Ireland by Farran (1905) as *Oothrix bidentata*, the north coast of Scot-

land by T. Scott (1909) and the east coast of Greenland by Damas and Koefoed (1907). *N. farrani* has been reported from fjords on the Norwegian coast by Wiborg (1949) as *Oothrix borealis* and by Fosshagen (1972). Our report is the first record of this species from the western Atlantic.

We compared our specimens with Norwegian specimens taken from bottom water in Ullsfjord (69°45'N, 19°46.5'E). They are similar to Smirnov's (1935) description of the White Sea material. The spinulation on the posterior surface of the second to fourth legs is weaker and sparser in our specimens. The fifth legs in our specimens are relatively longer. The length ratio of the fifth leg to the endopod of the fourth leg is 5:6 in our specimens and 7:10 in Norwegian specimens. The spines on the distal segment of the fifth leg are longer but weaker in our specimens. According to Smirnov (1935), the number of distal spines on this segment varies from one to two in White Sea specimens. He reported one specimen with one spine on one leg and two on the other. In both Norwegian and our specimens, this segment always possess two distal spines. Except for these minor differences, our specimens are identical with the description of *N. farrani* by Smirnov (1935) and Fosshagen (1972), especially in the form of the rostral filaments, metasomal processes, the fifth legs, and in the general pattern of spinulation on the swimming legs, particularly on the basipod segment 1 of the fourth leg.

Species of *Neoscolecithrix* inhabit deep water and probably live on or close to the sea bottom. *N. farrani* was rated second in numbers to *Calanus* in the deep water of Ullsfjord (Fosshagen, 1972) and was found in stomach contents of young cod (Wiborg, 1949). It probably plays an important role in the deep water ecosystem.

Marine zooplankton in Canada is well documented (cf. Shih *et al.*, 1971) but most studies have been limited to surface waters. Our inadequate knowledge of epibenthic invertebrates in Canadian waters is demonstrated by the new records reported in this paper based on only a handful of samples of deep-water plankton.

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