

A new species of *Munidopsis* (Crustacea: Decapoda: Galatheidae) from deep waters off Taiwan

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Abstract.—A new galatheid crustacean, *Munidopsis latiangulata*, is described on the basis of a single specimen collected from deep waters off Taiwan. This new species is close to *M. orcina* McArdle, 1901, but is distinguished by the nearly horizontal rostrum lacking a distinct dorsal, longitudinal ridge and by having a telson composed of ten instead of eight plates. *Munidopsis latiangulata* is the fifth species of the genus recorded from Taiwan.

The deep water galatheid genus *Munidopsis* Whiteaves, 1874 now contains 122 Indo-Pacific species (Baba 2005:128), but only four species have been recorded from Taiwanese waters (Wu & Chan 2000, Wu et al. 1997). The Taiwanese species include *M. andamanica* MacGilchrist, 1905, *M. cylindrophthalma* (Alcock, 1894), *M. formosa* Wu & Chan, 2000, and *M. latimana* Miyake & Baba, 1966.

Recent deep-sea expeditions around Taiwan have yielded an abundance of material of *Munidopsis*. Among this is an unusual specimen with the carapace and abdomen covered with tubercles and bearing a broad triangular rostrum. Careful examination of the Taiwan specimen has shown that it closely resembles *M. orcina* McArdle, 1901, from the Arabian Sea at depth of 1150 fm (2105 m), but differs in the structure of the rostrum and telson. This Taiwanese form is herein described as new to science.

The holotype of the new species is deposited in the National Taiwan Ocean University (NTOU). The postorbital car-

apace length (cl) is measured from the orbital margin to the posterior margin of the carapace along the dorsal midline. Lengths of the segments of the chelipeds are measured along the mesial margins and of second to fourth pereopods (ambulatory legs) along the dorsal margins.

Munidopsis latiangulata, new species Figs. 1–4

Type material.—Taiwan. TAIWAN 2005, RV “Fisheries Researcher I”, stn CP 284, 24°16.34'N, 122°11.67'E, 2220–2424 m, 16 June 2005, beam trawl, holotype ovigerous female, cl 13.2 mm (NTOUA00804).

Description.—Carapace (Fig. 1A), exclusive of rostrum, 1.2 times longer than broad; dorsal surface moderately convex from side to side; surface covered with small protuberances and tubercles, margins occasionally granulate and with some short setae (Fig. 1B); regions well delineated by furrows including distinct anterior and posterior cervical grooves. Median branchial region well marked. Posterior cardiac region bluntly triangu-

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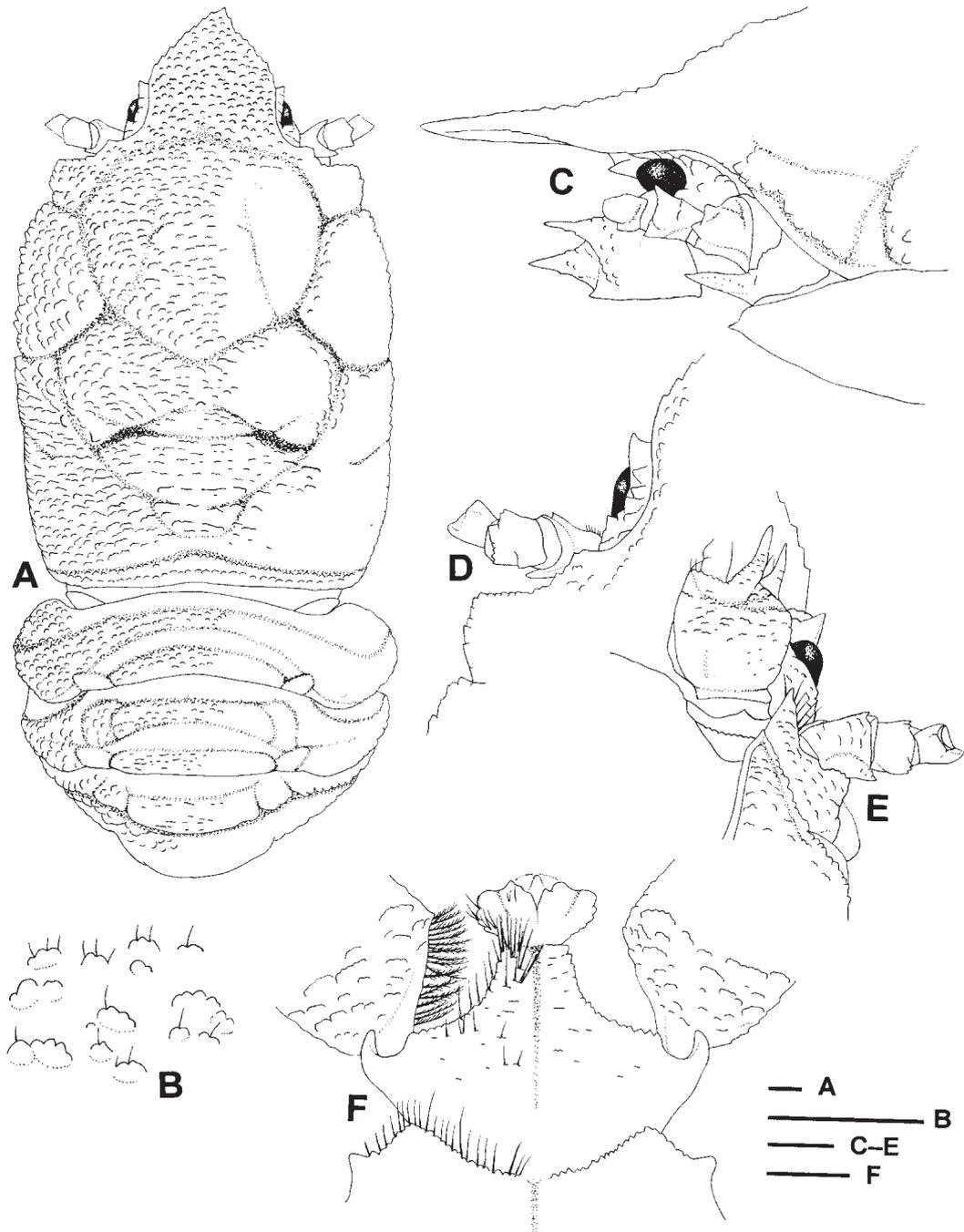


Fig. 1. *Munidopsis latiangulata*, holotype, ovigerous female, cl 13.2 mm (NTOUA00804). A, carapace and abdomen, dorsal view (tubercles omitted from right side); B, tubercles on median gastric region, dorsal view; C, left, anterior part of carapace and pterygostomian flap, ocular peduncle, basal article of antennular peduncle, and antennal peduncle, lateral view; D, left frontal margin, ocular peduncle, and antennal peduncle, dorsal view; E, left, anterior part of pterygostomian flap, ocular peduncle, basal segment of antennular peduncle, and antennal peduncle, ventral view; F, anterior part of sternal plastron and proximal parts of coxae of first pereopods. Scales = 1.0 mm.

lar, preceded by deep transverse depression on each side. Posterior margin preceded by elevated ridge of small tubercles. Lateral margins weakly convex and subparallel, anterior corner truncate, anterior end of anterior cervical groove with distinct notch, posterior cervical groove also with shallow notch at anterior end. Frontal margin concavely oblique behind ocular peduncle, leading to slightly produced region, then nearly transverse toward anterolateral corner of carapace. Rostrum (Fig. 1A) broad, subtriangular, nearly horizontal in lateral view, 0.3 length of remaining carapace, terminating acutely; lateral margins subparallel for proximal half and convergent in distal half; dorsal surface slightly convex, with numerous small protuberances and tubercles but without longitudinal ridge or groove; lateral margins crenulate.

Pterygostomial flap (Fig. 1C, E) with irregular rows of small, denticulate protuberances and tubercles, anteriorly ending in small spine.

Third sternite (Fig. 1F) moderately broad, anterior margin divided into 2 lobes by deep median notch; lateral margin of each lobe convex, with small tubercles. Fourth sternite (Fig. 1F) narrowly elongate anteriorly; lateral margin with row of small tubercles; surface depressed in midline, with short ridges bearing setae on anterior part; greatest width 2.9 times that of third sternite. Following sternites nearly smooth; sixth and seventh sternites with numerous, thin short setae.

Abdomen (Fig. 1A) with numerous small protuberances and tubercles (margins occasionally granulate) on transverse ridges and pleura; second to fourth segments each with 2 elevated transverse ridges, but fifth and sixth segments lacking such ridges and covered with small tubercles and short setae; sixth segment (Fig. 2A) with weakly produced posterolateral lobes and nearly transverse

posteromedian margin. Telson (Fig. 2A) composed of 10 plates.

Ocular peduncle (Fig. 1A, C–E) immovable, with short, dorsomesially placed eye-spine directed forward; other spines absent; surface with small protuberances; semicircular cornea cupped within broad-based eyestalk.

Basal segment of antennular peduncle (Fig. 1C, E) with distodorsal spine shorter and narrower than distolateral; distomesial margin with small tubercles but no dorsal spine.

Antennal peduncle (Fig. 1A, C–E) reaching tip of eye-spine. First segment with strong distomesial spine barely reaching distal margin of second segment. Second segment armed with 2 distal spines on mesial and lateral margins, distomesial spine very small. Third segment with small denticles on distal margin. Fourth segment unarmed.

Third maxilliped (Fig. 2B) with ischium slightly shorter than merus (when measured on extensor margin); flexor margin sharply ridged, terminating in small blunt spine; extensor margin also with small blunt spine; 17 (left) or 19 (right) corneous denticles on mesial ridge (crista dentata). Merus with short ridges on lateral surface, flexor margin with 2 or 3 distinct spines and several smaller spines, extensor margin with distal spine. Carpus slightly crenulate on extensor surface. Propodus and dactylus unarmed. Exopod far exceeding distal margin of merus.

First pereopods (Fig. 2C, D) subequal, stout relative to length, 1.4 times longer than postorbital carapace length, slightly longer than carapace, including rostrum; covered with small protuberances and tubercles (occasionally with denticulate margins) on merus to dactylus, those on fixed finger reduced in number; dense soft plumose setae present on dorsodistal margins and mesial surfaces of merus and carpus, mesial and lateral surfaces of palm, and mesial surface of dactylus.

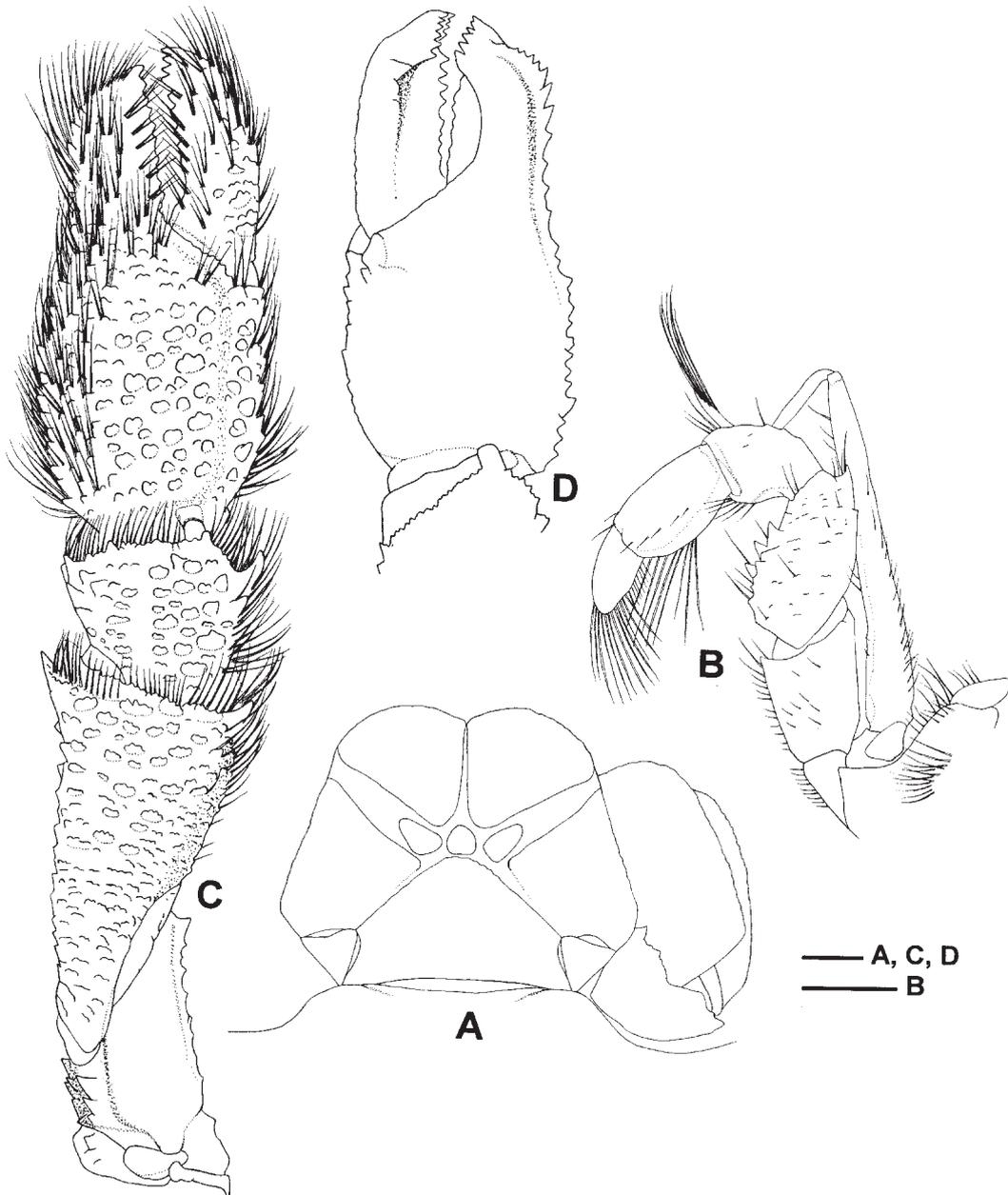


Fig. 2. *Muidopsis latiangularata*, holotype. A, posterior part of sixth abdominal segment, telson, and left uropod, extensor view; B, left third maxilliped, lateral view; C, left cheliped, dorsal view; D, same, chela, ventral view (surface structure and setae omitted). Scales = 1.0 mm.

Ischium with strong distal spine on dorsal crest; lateral and ventral surfaces with short granulate ridges; ventral margin serrated, with small but distinct distal spine. Merus with 3 terminal spines

(lateral, dorsomesial, and ventromesial), lateral and ventromesial spines prominent, dorsomesial spine small. Carpus slightly broader than long, with 2 terminal spines (dorsolateral and dorsomesial),

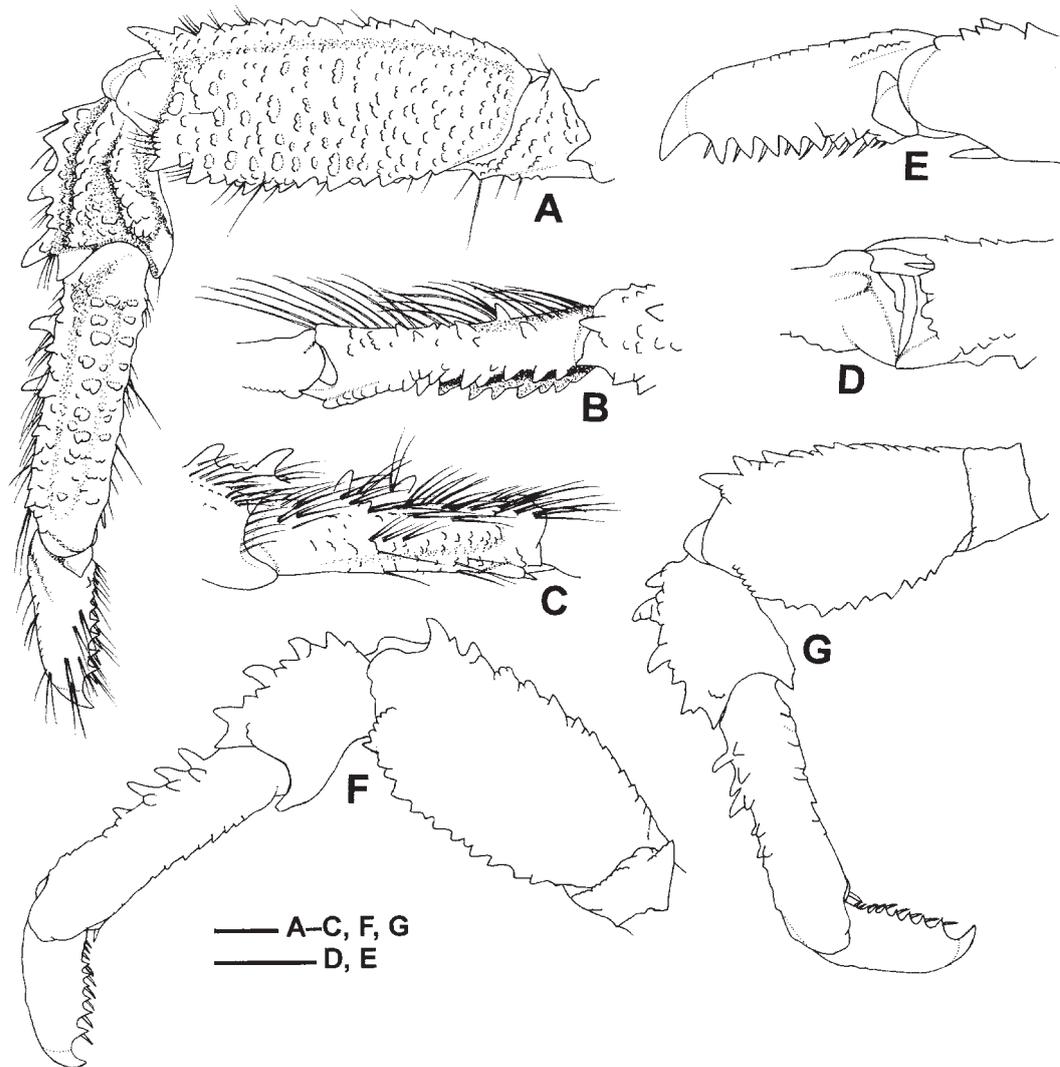


Fig. 3. *Munidopsis latiangulata*, holotype. A, left second pereopod, lateral view; B, same, distal part of carpus and propodus, dorsal view; C, same, mesial view; D, same, distal part of propodus, ventral view (setae omitted); E, same, dactylus and distal part of propodus, lateral view (setae omitted); F, left third pereopod, lateral view (setae omitted); G, left fourth pereopod, lateral view (setae omitted). Scales = 1.0 mm.

dorsomesial spine distinct; dorsodistal and dorsomesial margins with some small, tuberculate spines. Palm massive, moderately depressed, 1.4–1.5 length of carpus, 1.3 times as long as broad measured at bases of fingers; dorsal surface with shallow sulcus along mesial margin, tubercles somewhat upstanding and subacute in lateral view; lateral margin somewhat concave at base of fixed finger. Fingers as long as palm,

opposable margins nearly straight, not gaping, distally spooned; prehensile edges each with row of subtriangular teeth, proximal teeth obsolete; distal margins each with 10 rounded or subtriangular teeth; fixed finger with somewhat ventrally directed carina of blunt spines on distolateral surface.

Second to fourth pereopods (Fig. 3A–G) moderately stout, somewhat compressed laterally, decreasing in size poste-

riorly; second longest, barely reaching base of finger of first pereopod; ischium to propodus with soft plumose setae mesially on dorsal and ventral margins, setae on propodus dense and long; some long simple setae also present on ventral faces of merus to propodus; dactylus with tufts of short simple setae. Merus elongate, subrectangular in second but ovate in third and fourth in lateral view, with row of small blunt spines on dorsal crest, terminal spine pronounced; lateral surface, except rounded distal lobe, covered with small protuberances or tubercles occasionally with granulate margins; ventrolateral margin crenulate, with small distal spine on each second and third pereopod (more distinct in second) but unarmed on fourth; ventromesial distal margin without spines. Carpus with 2–4 prominent, blunt spines and some smaller spines on dorsal crest; dorsal margin terminating in small spine; lateral surface with elevated ridge of irregularly arranged small tubercles somewhat dorsally along midline, small tubercles also present near dorsal and ventral margins; ventrodistal margin produced, with small tubercles. Propodus, exclusive of distal rounded projection 2.8–3.0 times as long as height measured at base of distal projection, with 2–4 prominent, blunt spines on proximal half of dorsomesial margin; dorsolateral ridge with irregular row of small blunt spines; lateral surface with row of subacute tubercles; ventral surface with small protuberances and short ridges but unarmed except for 1 or 2 corneous spines on distal margin. Dactylus 0.7–0.8 length of propodus; terminal claw short, moderately curved; dorsal surface with short ridges and small low protuberances; ventral margin nearly straight, with 9 or 10 teeth decreasing in size proximally, each with slender corneous spine.

Small ovate epipod present on third maxilliped (Fig. 2B) but absent from pereopods.



Fig. 4. *Munidopsis latiangulata*, holotype. Fresh animal, dorsal view.

Color.—Carapace, abdomen, and pereopods entirely white (Fig. 4). Cornea orange–pink. Setae on pereopods grayish brown. Eggs pale orange and translucent.

Etymology.—The specific name is a combination of the Latin, *latus* (= broad) and *angulatus* (= angular), referring to the broad, subtriangular rostrum.

Remarks.—The new species resembles *M. granosa* Alcock, 1901, known from the Bay of Bengal and Mozambique Channel, *M. latirostris* Faxon, 1895, widely distributed in the Pacific, *M. orcina*, from the Arabian Sea, and *M. parfaiti* (Filhol, 1885), from the north-eastern and southeastern Atlantic (see Baba 2005, Macpherson & Segonzac 2005). The characters shared by the four species are the broad triangular rostrum, and the carapace and abdomen being

spineless but covered with tubercles. *Munidopsis latirostris* can be separated from *M. granosa*, *M. orcina*, *M. parfaiti*, and *M. latiangulata* by having the carapace with a pair of obtuse epigastric processes. *Munidopsis granosa* and *M. parfaiti* differ from the other two species in the nearly straight lateral rostral margins (vs. convex midlateral margins in *M. orcina* and *M. latiangulata*); second to fourth abdominal segments each with a blunt, low median process (unarmed in *M. orcina* and *M. latiangulata*); ocular peduncle lacking a dorsomesial eye-spine; spineless pereopods; and second pereopods reaching the tips of the first pereopods (not reaching in *M. orcina* and *M. latiangulata*). The present new species appears to be closely allied to *M. orcina*, which is known on the basis of a single male. An attempt to borrow the holotype of *M. orcina* from the Zoological Survey of India, Calcutta, was not successful. Nevertheless, the original description and illustration of *M. orcina* (McArdle 1901:523; Alcock & McArdle 1902:pl. 56, fig. 5) show that the Arabian Sea species is distinguished from the Taiwanese species by having the rostrum with a distinct dorsal longitudinal ridge and with the ventrally inclined distal half. In the Taiwanese species, the rostrum is nearly horizontal and completely lacks a dorsal ridge. Moreover, the telson is composed of ten plates in *M. latiangulata* instead of eight plates in *M. orcina*. The chelipeds of the Taiwanese specimen are comparatively much stouter than those of the holotype male of *M. orcina*, but this difference may reflect sexual dimorphism.

The preserved holotype of *M. latiangulata* carries only eight large eggs, each measuring about 1.8 mm in diameter.

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