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DESCRIPTION OF A NEW SPECIES OF *BATHYMYSIS* WITH A REVISED DEFINITION OF THE GENUS

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THE genus *Bathymysis* was created by W. M. Tattersall (1907) to describe *B. helgae* collected off the North-East Atlantic Slope to the West of Ireland. The material was caught in a tow net attached to a trawl operated at 447-720 fathoms. A second collection of the same species was made in the Faroe Channel, North-East of Scotland at 1060-1100 m. (W. M. Tattersall, 1911). With the help of the second lot of specimens W. M. Tattersall corrected some of the errors in the earlier diagnosis of the genus. *Bathymysis* remained monotypic till W. M. Tattersall (1951) described a second species, *B. renoculata,* collected off the east coast of the United States at 120-264 fathoms. Unlike the type species, *B. renoculata* possessed normal eyes and a distinct rostral prolongation and W. M. Tattersall (1951, p. 153) made appropriate changes in the definition of the genus.

The Research Vessel *VARUNA* which is operated by the Central Marine Fisheries Research Institute collected a single male in the Arabian Sea. This discovery is of great interest as it extends the distribution of the genus considerably. This species shows such peculiar characters that substantial modification of the definition given by Tattersall and Tattersall (1951, p. 300) has become necessary. A detailed description of the species and a revised definition of the genus is given below.

I express my sincere thanks to Dr. S. Jones, Director, Central Marine Fisheries Research Institute, for permitting me to study and report on the Mysidacea in their collection.

Genus **Bathymysis** W. M. Tattersall

Bathymysis W. M. Tattersall, 1907, p. 116 ; 1911, p. 53 ; 1951, p. 153 ; Tattersall and Tattersall, 1951, p. 300.

Definition. Body smooth or spiny *(varunae).* Carapace anteriorly rounded *(helgae)* or produced into a short acute rostrum. Antennal scale lanceolate and setose all round, apical segment longer than broad *(varunae)* or broader than long. Eyes with or without *(helgae)* stalk, with or without *(helgae)* functional visual elements. Mandibles with incisor, molar and lacinia mobilis distinct, palp broad, third segment cylindrical. Maxillule with inner lobe comparatively large. Maxilla with distal segment of endopod transversely expanded and armed with a row of strong spines. First thoracic limb with segments two to four of endopod internally expanded or with endites, or only the second segment expanded or with endite *(helgae).* Second thoracic limb with endopod robust or slender *(varunae).* Thoracic limbs three to eight with carpopropodus divided into three subsegments,

dactylus and claw distinct. Pleopods of female rudimentary unsegmented plates, of male biramous, endopod of first pleopod reduced, one—or two—*(varunae)* segmented, exopod of fourth pleopod elongated, with modified setae on some of the distal segments. Uropods long and slender, exopod longer than endopod, endopod tapering, with a row of spines along the inner border. Telson as long as sixth abdominal segment, deeply cleft, cleft narrow or widening *(varunae),* lateral border completely spiny or the proximal half without spines *(varunae).*

Type species: *Bathymysis helgae* W. M. Tattersall, 1907.

The following key serves to distinguish the species:—

1a. Eyes with functional visual elements, carapace produced into a rostral process. 2

1b. Eyes without functional visual elements, carapace anteriorly rounded, without rostral process. . . . . *helgae*

2a. Lateral border of telson fully spiny, cleft of telson parallel-sided, apical segment of antennal scale broader than long. . . . . *renoculata*

2b. Lateral border of telson not fully spiny, cleft of telson diverging, apical segment of antennal scale longer than broad. . . *varunae*

Bathymysis varunae n. sp.

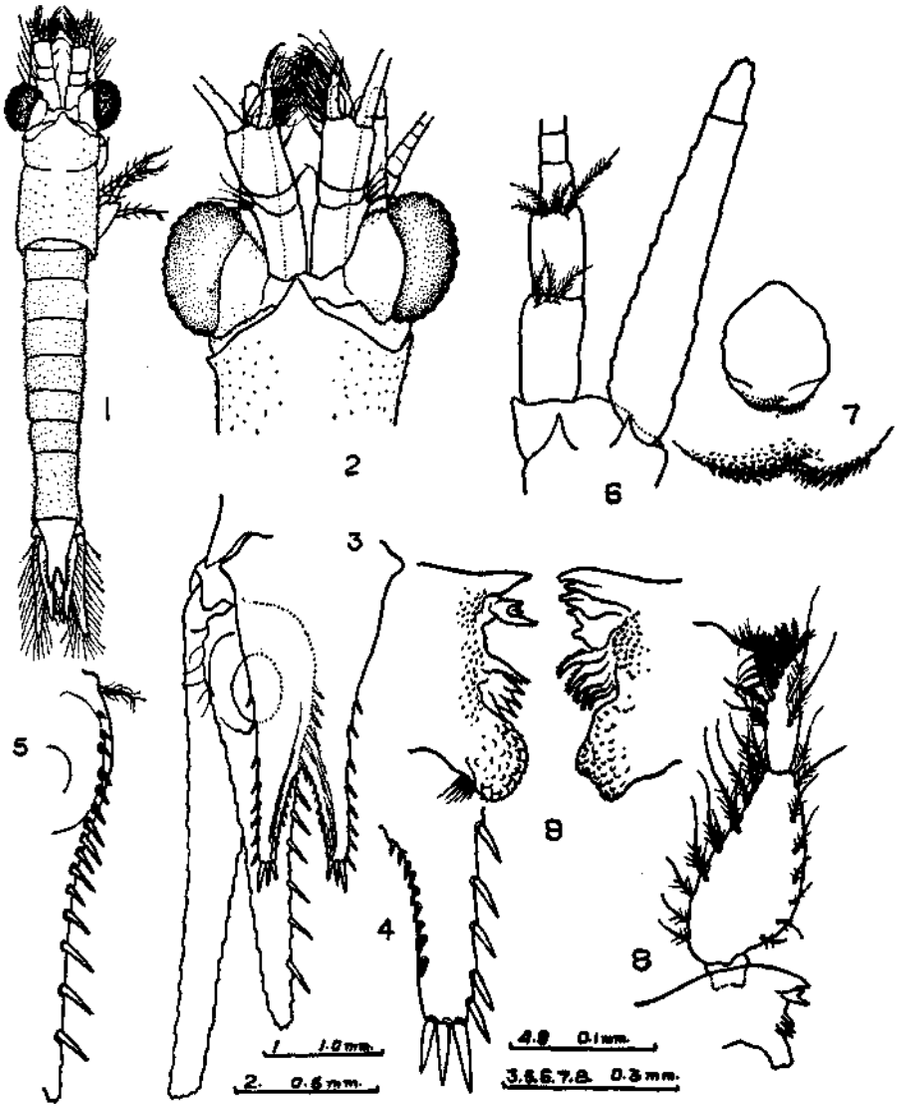
Figs. 1-20

Material: A single badly damaged male from Varuna Station 1196. Caught in a vertical haul of the plankton net from 200-0 m. As the specimen was badly damaged it was dissected and the dissected parts are preserved as the holotype.

Description : The surface of the body, except that of the telson, is covered with small spines producing a hispid appearance (fig. 1). Carapace is only sparsely spiny and is produced in front into a short triangular rostrum reaching the base of the eye-stalks (fig. 2); posterior border of the carapace is only slightly concave and a part of the seventh and the whole of the eighth thoracic segments are alone exposed. This part of the specimen was badly damaged. Abdomen steadily narrows backwards and the sixth segment is clearly twice as long as the fifth. Telson (fig. 3) is nearly as long as the sixth abdominal segment, steadily narrows to the middle of the lateral borders where the spines begin and further on is parallel-sided. Distal half of the lateral borders of the telson carries eight subsimilar sharp and well spaced spines. Cleft of telson is deep and nearly a third of the total length of the telson, diverging and armed with nine pairs of small spines, a short distal part of the border is free of spines. Apex of the telsonic lobe is armed with three large spines, of which the outer is the longest and the inner shortest (fig. 4). Eyes are comparatively large and prominent, eye-stalk, though short, is distinct and sparsely spiny, cornea is wider than the stalk, black and with well developed functional visual elements.

Basal segment of the antennular peduncle is as long as the rest of the peduncle, its outer distal part if produced and carries a bunch of setae. Male lobe is large and hirsute. Antennal sympod (fig. 6) is produced into two triangular spines, the scale is rather slender, setose all around and reaches well beyond the antennular peduncle, its apex is rounded and the apical segment is about one and a half times as long as

broad, antennal peduncle is slightly more than half as long as the scale, its second segment is only slightly longer than the third and each carries a bunch of setae. Labrum (fig. 7) is slightly longer than broad and not produced anteriorly, its distal border is slightly asymmetrical. Mandibles (figs. 8-9) have all the parts normally developed, second segment of its palp is flattened and the third is cylindrical. Maxillule (fig. 10) has a comparatively large inner lobe, part of the



FIGS. 1-9. *Bathymysis varunae* n. sp.,—1. entire animal (slightly reconstructed from damaged specimen); 2. anterior part of body ; 3. posterior part of body ; 4. telsonic lobe ; 5. endopod ofuropod; 6. antenna; 7. labrum ; 8. mandible; 9. cutting edge of mandibles.

outer border of the outer lobe is spiny. Maxilla (fig. 11) is broad, exopod is large and oblong, distally broader, endopod has its distal segment transversely expanded, making the segment broader than long, its distal border is armed with eight strong sparsely pectinate spines and three long slender setae, inner border carries a few barbed spines.

First thoracic limb (fig. 12) has a prominent endite on the second segment of the endopod, third, fourth and fifth segments are expanded on the inner side and the fourth segment has a distinct endite, claw is prominent. Second thoracic limb (fig. 13) has its basis prominently produced inwards, third segment (merus) of endopod is shorter but stouter than the carpopropodus, latter is undivided, claw is long and slightly curved. Fifth thoracic limb (fig. 14) has long slender endopod armed with long pectinate setae, carpus is fused with the propodus and subdivided into three subsegments, of which, the first is twice as long as second and subequal to third, dactylus is distinct and the claw long and slender, basal segment of exopod has a small outer distal spine. Of the thoracic limbs three to eight, only one member of the fifth pair had the endopod. Eighth thoracic limb (fig. 15) has a stout genital organ carrying a row of long plumose setae.

First pleopod (figs. 16-17) has its endopod reduced and indistinctly two-segmented, basal segment carries four long setae and the distal segment a single short seta, pseudobranchial lobe has five setae ; exopod is seven-segmented. Second pleopod (fig. 18) has subequal rami, endopod is six- and exopod seven-segmented, pseudobranchial lobe is expanded into a lobe on its lower side. Fourth pleopod (fig. 19) shows the usual modification, endopod is six-segmented with the pseudobranchial lobe as in the second pleopod, exopod is seven-segmented and one and a half times as long as the endopod, fifth and sixth segments carry a long stout barbed spine, seventh segment is small and carries a short simple seta (fig. 20). Exopod of uropod is setose all along the border and is nearly twice as long as the telson, endopod is one and a half times as long as telson, its inner border is armed with about fifteen sharp spines (fig. 5), steadily increasing in length distalwards.

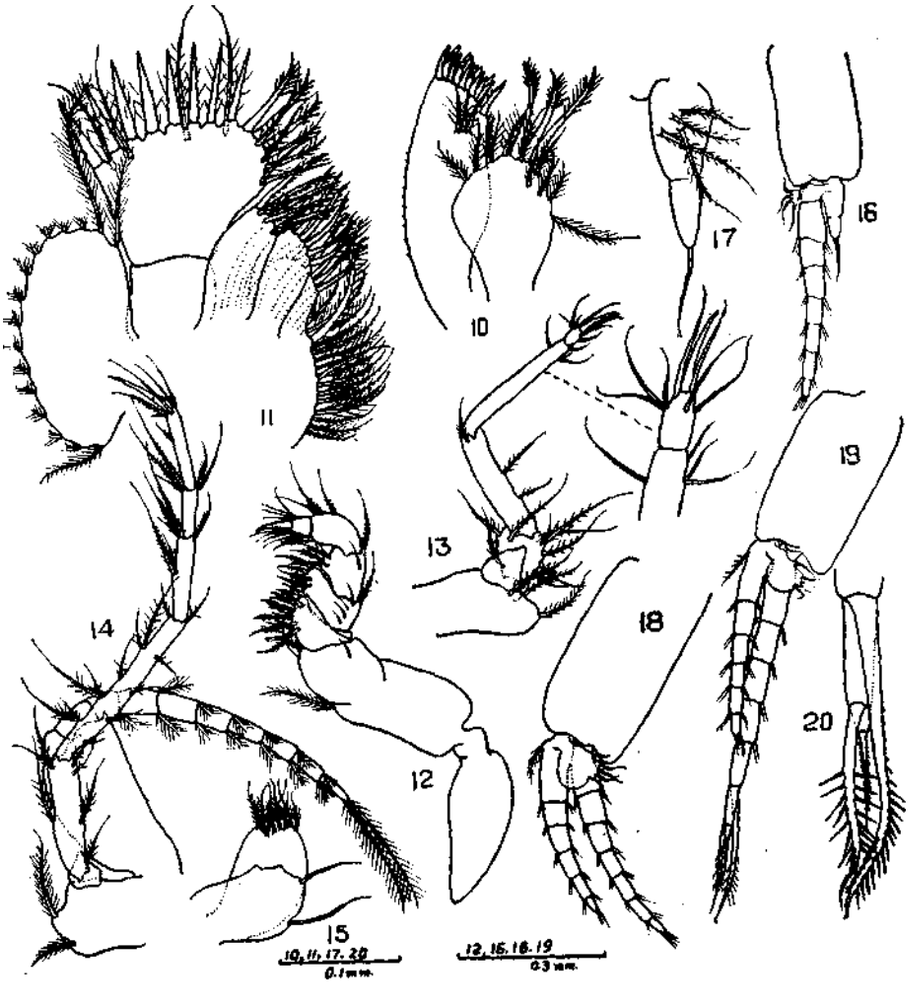
Length 3.9 mm.

The species is named after the ship *VARUNA* which captured the material.

Remarks : Except in two important characters, namely, the presence of normal functional eyes and the presence of a rostral projection, *B. renoculata* W. M. Tattersall closely resembles *B. helgae* W. M. Tattersall. But *B. varunae* n. sp. differs from both in several important characters. Nevertheless, the form of the antenna, maxilla, thoracic endopods and the pleopods and the absence of a pair of plumose setae within the cleft of the telson establish its identity.

B. varunae shows greater affinity with *B. renoculata* than with *B. helgae*. In *B. helgae* the anterior border of the carapace is rounded but in the other two species there is a distinct rostrum which is more prominent in *B. renoculata* than in *B. varunae*. In *B. helgae* the eyes are without stalk or functional visual elements, but in both *B. renoculata* and *B. varunae* the eyes have short but distinct stalk, stouter and spiny in *B. varunae*, and normal black cornea. In *B. helgae* the endopod of the first thoracic limb is comparatively narrow and without endites but in both *B. renoculata* and *B. varunae* the second, third and fourth segments are broad. In *B. helgae* the setae on three of the distal segments of the exopod of the fourth pleopod are

modified into barbed spines but in the other two species only two of the distal segments have such spines.



FIGS. 10-20. *Bathymysis vamnae* n. sp.,—10. maxillule ; 11. maxilla; 12. first thoracic limb; 13. second thoracic limb ; 14. fifth thoracic limb ; 15. genital organ on eighth thoracic limb ; 16. first pleopod ; 17. same, endopod ; 18. second pleopod ; 19. fourth pleopod ; 20. same, tip of exopod enlarged.

B. vamnae differs from both *B. helgae* and *B. renoculata* in the following characters. Body is prominently spiny. Only the distal half of the lateral borders of the telson is spiny and the spines are not closely arranged as in the other species. The apical cleft of the telson is prominently diverging and its border is armed with fewer spines than in the other species. The distal segment of the antennal scale is longer than broad, but just the reverse in the others. The endopod of the second thoracic limb is comparatively slender. The first and third tarsal segments

of thoracic limbs three to eight are subequal whereas in the other two species the first tarsal segment is longer than the combined length of the other two segments. The endopod of the uropod has a smaller number of spines less closely arranged than in the other two species.

Tattersall and Tattersall (1951, p. 300) observed that the pleopods of *Bathymysis* are like those of *Leptomysis* G. O. Sars. In the present species the endopod of the first pleopod of the male is two-segmented and the pseudobranchial lobe of pleopods two to five has a pronounced posterior expansion similar to what is seen in *Hypererythrops* (Tattersall and Tattersall, 1951, f. 48 H).

B. varunae shows very close resemblance to *Doxomysis pelagica* Hansen (1912). Both have the same type of telson and maxilla, with almost identical armature. But *B. varunae* can be easily distinguished by the absence of a pair of setae in the cleft of the telson. Tattersall and Tattersall (1951, p. 301) have observed that *Bathymysis* closely resembles *Leptomysis G.* O. Sars and *Pseudomysis* G. O. Sars. The characters of the present species show that *Bathymysis* much more closely resembles *Doxomysis* Hansen than *Leptomysis* and *Pseudomysis.*

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