

SOME NEW ISOPODS OF THE FAMILY GNATHIIDÆ
FROM THE ATLANTIC COAST OF NORTH AMERICA.

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In the present paper three new species are described. One is especially interesting, as it is only the second species known of the genus *Bathygnathia*, the original species having been described from a fragment and referred to the genus *Anceus*. The other two species belong to the genus *Gnathia*. The specimens described have recently been returned by Prof. A. E. Verrill to the U. S. National Museum.

Family GNATHIIDÆ.

Genus BATHYGNATHIA Dollfus, 1901.

All seven segments of thorax free; eyes absent; head with a long, prominent rostrum; first gnathopods of male consisting of five articles; other characters as in the genus *Gnathia*.

The type of the genus is *Anceus bathybius* Beddard.^a

In 1893 Stebbing^b suggested that the form described by Beddard would no doubt require to be transferred to a new genus, but that inasmuch as the species was described from a fragment it would be better to wait until more material was obtained.

In 1901 Dollfus, without additional material, erected for Beddard's species the new genus *Bathygnathia*.

BATHYGNATHIA CURVIROSTRIS, new species.

Body elongate, about four times longer than wide; surface smooth.

Head squarish, with the front produced in a long, prominent rostrum, equal in width to one-third the width of the head, and about two-thirds as long as the head; lateral margins even and rounded and

^a Challenger Report, Zool., XVII, Pt. 48, Report on the Isopoda (Pt. 2), 1886, pp. 135-137, pl. xviii, figs. 1-7.

^b Hist. of Crustacea, 1893, p. 338.



converging to a pointed extremity; eyes entirely absent. First pair of antennæ with the first two articles of the peduncle subequal; third article about one and a half times longer than either of the two preceding. Flagellum composed of four articles on one side and five on the other; first article minute; second and third elongate, the third being longer than the second; fourth half as long as third; fifth half as long as fourth. First antennæ extend to end of peduncle of second pair. Second pair of antennæ with first article of peduncle long; second article half as long as first; third article almost as long as first; fourth about one and a half times longer than third; flagellum, composed of seven articles, extends to tip of mandibles. Mandibles narrow and elongate, extend one-third of their entire length beyond extremity of rostrum. About one-third the distance from the base, on the outer margin, is a prominent, acute tooth.



FIG. 1.—BATHYGNATHIA CURVIROSTRIS.

Tip of mandible bent and directed inward; mandibles narrower from a point beginning about opposite tip of rostrum and converging from that point to the acute extremity.

All seven segments of the thorax free; first short, about half as long as the two following which are subequal, and equal in width to those succeeding; fourth segment equal in length to second and third together; fifth longest, about one and a fourth times longer than the fourth; sixth about equal in length to the fourth; seventh extremely short, not longer than the segments of

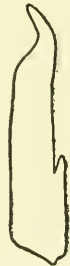


FIG. 2.—BATHYGNATHIA CURVIROSTRIS. MANDIBLE.

the abdomen and not as wide. The second and fourth segments have the lateral margins produced at the anterior portion in small angular processes.



FIG. 3.—BATHYGNATHIA CURVIROSTRIS. FIRST LEG OF MALE.

First four segments of abdomen equal in length, with their lateral margins produced in triangular processes directed posteriorly; fifth segment about one and a half times longer than the preceding; terminal segment triangular, the sides converging to a long, narrow, pointed extremity. Branches of uropoda similar in shape, with the sides converging to a rounded extremity; outer branch shorter than the inner, which extends beyond the tip of the terminal abdominal segment. The outer branch does not extend beyond the extremity of the last abdominal segment.

First pair of legs in male transformed into a sort of operculum, arching over the ventral side of the head and concealing the mouth parts; they are composed of five articles, the third being the largest. The terminal or fifth article is nearly twice as long as the fourth. The other five pairs of legs are ambulatory. There are no appendages to the seventh thoracic segment.

This species is very similar to the type species described by Beddard, but differs in the structure of the mandibles, in the additional article to the flagellum of the second antennæ, in the longer terminal joint of the first gnathopods, in the differently shaped rostrum, in the absence of the bunch of hairs at the tip of the rostrum, and in having the mandibles fitting closely around the rostrum, not projecting straight forward at a distance from the rostrum.

Two fine specimens, both males, are from the following localities: One (type) from *Albatross* Station 2547, south of Marthas Vineyard, was taken at a depth of 390 fathoms; another from *Albatross* Station 2528, east of George's Bank, was taken at a depth of 677 fathoms.

Type.—Cat. No. 38972, U.S.N.M.

Beddard's species was taken at a depth of 900 fathoms. The division proposed by Dollfus,^a in which genera provided with eyes are littoral or do not extend below a depth of 500 fathoms and those deprived of eyes live at a depth of 1,000 fathoms can not be maintained, for we have now a species belonging to a genus without eyes found at a depth of only 390 fathoms.

Genus GNATHIA Leach, 1814.

GNATHIA MULTISPINIS, new species.

Body ovate; lateral margins drawn out in small spines; dorsal surface covered with small spines and tubercles. Legs also covered with small spines.

Head broader than long, about twice as wide as long; frontal margin not produced in a rostrum, but in a small median point; antero-lateral angles produced in a bifurcated spine; lateral margins drawn out on either side in spines; dorsal surface covered with small spines and tubercles. Eyes moderately large, composite, and placed on the lateral margins. First pair of antennæ with the first two articles of the peduncle short and subequal; third as long as first two taken together; flagellum composed of four articles, the first very short. Second antennæ with the first two articles of the peduncle short; last two elongated and subequal; flagellum broken at the fourth article. Mandibles projecting a considerable distance in front of the head; broad at base and produced to narrow, acute extremities; on the outer margin, on the posterior half furnished

^a Bull. Soc. Zool. France, XXVI, 1901, pp. 239-240.

with a row of three spines, two tubercles, and a bifurcated spine, the latter being the most anterior.

First segment of thorax partly coalesced with head and not free, narrower and also much shorter than the following segment; second and third segments (the first and second free segments) about equal in length and width, with the lateral margins produced in spines and the dorsal surface covered with small spines and tubercles; fourth segment (third free segment) longest, with the lateral margins drawn out anteriorly and posteriorly in spines and the dorsal surface covered with small spines and tubercles; fifth segment (fourth free segment) not quite as long as the preceding, with the dorsal surface divided up into areas, these areas being covered with small spines and tubercles; sixth segment

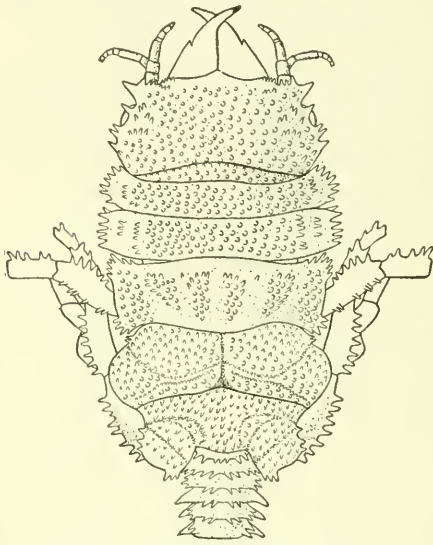


FIG. 4.—GNATHIA MULTISPINIS.

(fifth free segment) almost as long as the fourth (third free segment), with the dorsal surface also divided up into areas, which are beset with small spines and tubercles; seventh segment (sixth free segment) exceedingly short, only about half as long as the abdominal segments and not quite as wide, produced on its posterior margin in spines.

First five abdominal segments about equal in length and width, produced laterally in triangular processes and spines, with the posterior margins also produced in spines. The last segment with the uropoda is lost in the only specimen.

All five ambulatory legs are beset with spines in rows. First pair of legs, or gnathopods, composed of three articles, a large basal article, a small middle article, and a minute terminal joint.

Only one specimen, a male, was collected at *Albatross Station* 2231, off Delaware, taken at a depth of 965 fathoms.

Type.—Cat. No. 38973, U.S.N.M.

This species is very similar to *Gnathia cristata* (Hansen)^a but differs from that form in not having the front of the head produced

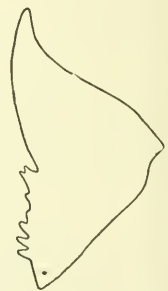


FIG. 5.—GNATHIA MULTISPINIS. MANDIBLE.

^a Vidensk. Meddel. Naturh. Foren i. Kjøbenhavn., 1887-88, p. 182, pl. VII, figs. 2-2a. See also Richardson, Bull. U. S. Nat. Mus., No. 54, 1905, pp. 56-57.

in a rostrum (no mention is made of the rostrum in the description, but the figure shows this point), in the bifurcate antero-lateral angles of the head (this character is also taken from the figure), in all the segments of the thorax with the dorsal surfaces covered with small spines and tubercles, while in Hansen's species the sixth segment (fifth free segment) is described as smooth, the fifth segment (fourth free segment) as ornamented with a few tubercles, the median part being smooth, and the fourth segment (third free segment) as smooth posteriorly. The present species also has more spines on the legs and abdomen, and the arrangement of the spines on the lateral margins of the head and of the segments of the thorax differs from the species figured by Hansen.

GNATHIA SERRATA, new species.

Body elongate, about three times longer than wide. Head covered with small tubercles, the tubercles being denser on the lateral and posterior portions. First, second, third, and fifth free segments of the thorax also covered with small tubercles; fourth free segment smooth.

Head large, squarish in shape, with the front produced in the middle in a rostrum rounded anteriorly; antero-lateral angles acute. In a dorsal view the eyes are not visible; they are placed at the sides of the head and are moderately large and composite. The mandibles are small, not projecting much beyond the rostrum; curved at base and at the anterior extremity, the inner margins converging abruptly to the narrow, pointed extremity. Just back of the mandibles the anterior margin of the head, seen from the underside, is produced in wheel-like processes, one on either side (not visible from above), edged with six teeth; between these processes the anterior margin is furnished with four teeth on either side, which may be



FIG. 6.—*GNATHIA SERRATA*.

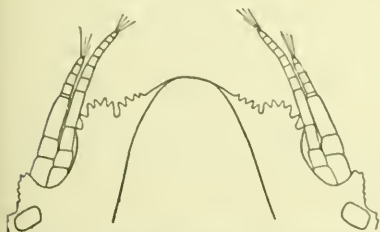


FIG. 7.—*GNATHIA SERRATA*. UNDERSIDE OF ANTERIOR PORTION OF HEAD.

seen in a dorsal view, as they are situated close to the mandibles at the base of the rostrum. First pair of antennae with a peduncle of three articles, the third the longest, about twice as long as the second, and a flagellum of five articles, the first of which is minute. Second pair of antennae with a peduncle of four articles, and a flagellum of seven.

First segment of thorax coalesced with the head; second and third (first and second free segments) subequal and furnished dorsally with

small tubercles; lateral margins of second free segment produced in a few small spines; fourth segment (third free segment) about equal in length to first two taken together, also covered dorsally with small tubercles and with the antero-lateral angles produced in a few small spines; fifth segment (fourth free segment) the longest and perfectly smooth; sixth segment (fifth free segment) almost as long as the preceding, covered dorsally with small tubercles and with the post-lateral angles produced backward in a tuberculated process on either side; seventh segment (sixth free segment) not longer than and not quite so wide as the abdominal segments.

First five abdominal segments about equal in length; sixth or terminal segment tapering to a narrow, pointed extremity. Outer branch of uropoda shorter than the inner, which extends a little beyond the extremity of the abdomen; both are furnished with long hairs.

First pair of legs or gnathopods composed of three articles, the first extremely large, the second small, and the third or terminal one minute. The gnathopods form a sort of operculum covering the mouth parts. The following five pairs of legs are ambulatory; the third pair with a crest of four spines on the ischium at the distal end. The fourth and fifth pairs of legs have a prominent process at the distal extremity of the merus, carpus, and propodus on the inferior margin.

Two specimens, both males, were taken at *Albatross* Station 2547, south of Marthas Vineyard, at a depth of 390 fathoms.

Type.—Cat. No. 38974, U.S.N.M.

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^a Bull. U. S. National Museum, No. 54, 1905.