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ASELLOIDEA FROM THE ATLANTIC
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Collaborator, Division of Marine Invertebrates, U. S. National Museum

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Published October 30, 1908



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Vlaams Instituut voor de Zee
Flanders Marine Institute

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SOME NEW ISOPODA OF THE SUPERFAMILY ASELOIDEA FROM THE ATLANTIC COAST OF NORTH AMERICA.

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In the U. S. Bureau of Fisheries collection recently received by the U. S. National Museum from Prof. A. E. Verrill, Yale University Museum, are a number of new and interesting forms belonging to the superfamily Aselloidea. Several new genera belong to the families, Janiridae and Desmosomidae, and also a new species of *Eurycope*, are herein described.

Family JANIRIDÆ.

Genus IOLELLA Richardson, 1903.

IOLELLA GLABRA, new species.

Body oblong-ovate, about twice as long as wide; surface of body without spines or tubercles.

Head much wider than long with the front produced in the middle in a long rostrum, which is about as long as the length of the head; the antero-lateral angles are also produced in acute, triangular processes, which are about half as long as the rostrum. The eyes are small, round, composite, and are placed halfway between the lateral margin and the median longitudinal line and halfway between the anterior and posterior margins of the head. The first pair of antennæ have the first two articles of the peduncle about equal in length; the third article is about half as long as the second; the flagellum, which consists of twenty-four articles, extends a little beyond the fifth article of the peduncle of the second pair of antennæ. The second pair of antennæ have the first two articles of the peduncle very short; the third article is equal in length to the first two taken together, and is furnished on the exterior margin with an antennal scale; the fourth article is also short; the fifth and sixth articles are elongate and are about equal in length; the flagellum is long and is composed of nearly one hundred articles.

The first segment of the thorax has the lateral margins produced in one triangular process on either side, directed anteriorly; the second, third, and fourth segments are each produced on either side in two triangular processes, one anterior and the other posterior; the last three segments have the lateral margins produced on either side in one long process directed posteriorly, with a rudimentary posterior process indicated on the posterior margin.

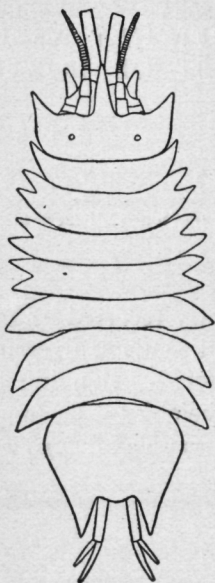


FIG. 1.—IOLELLA GLABRA.

The abdomen has the post-lateral angles produced in one long acute triangular process on either side of a small median rounded lobe. The uropods have the basal article about equal in length to the post-lateral angles of the abdomen; the inner branch is almost as long as the basal article; the outer branch is a little shorter.

The first pair of legs are prehensile; all the others are ambulatory and furnished with bi-unguiculate dactyli.

The single specimen is a male, and comes from Station 2116, off Cape Hatteras. It was collected at a depth of 888 fathoms in blue mud and fine sand by the U. S. Bureau of Fisheries' steamer *Albatross*.

The type is in the U. S. National Museum. Cat. No. 38963.

This species is very similar to *Iolella spinosa* (Harger), and differs chiefly from that species in lacking spines on the dorsal surface of the body.

Genus RHACURA, new.

Head without rostrum, but with a triangular median frontal process. Lateral margins of head with two triangular processes; eyes small, but distinct. First pair of antennae with a peduncle of three articles and a multi-articulate flagellum; second pair of antennae with the third article of the peduncle furnished with an antennal scale.

First and fourth thoracic segments with one lateral process on either side; second, third, fifth, and sixth segments with two lateral processes; seventh thoracic segment with three lateral processes.

Abdomen furnished with four lateral triangular processes on either side.

Legs as in the genus *Iolella*.

This genus differs from *Acanthaspidia* Stebbing,^a the type of which is *Acanthaspidia typhlops* (Sars),^b in the presence of eyes,

^a *Acanthaspidia* Stebbing=*Acanthoniscus* Sars, Hist. Crust., 1893, p. 378.

^b Norwegian North-Atlantic Expedition, XIV, Zoology, Crust., I, 1885, pp. 119-121, pl. x, figs. 27-30.

in having the first pair of legs prehensile, and not similar to the following pairs as in that genus, in having the legs furnished with bi-unguiculate dactyli; in not having a bifurcate rostrum, in having the fourth thoracic segment produced laterally in one process and not two, in having the fifth and sixth thoracic segments produced laterally in two processes and not three, in having the lateral margins of the abdomen produced in four large processes and not eight as in that genus.

It differs from *Iolanthe* Beddard^a in the presence of eyes, in having the first pair of legs prehensile, and not similar to the succeeding pairs as in that genus, in having the fourth thoracic segment produced laterally in one process and not two, as in both species of *Iolanthe*, *I. acanthonotus* Beddard, and *I. decorata* Hansen,^b in having the fifth and sixth segments produced in two processes laterally and the seventh segment in three, and not as in the two species mentioned in which the lateral margins of the fifth, sixth, and seventh segments are produced in one long spine. In the genus *Rhacura* the lateral margins of the abdomen are produced in four processes, while in *I. acanthonotus* there are three long processes and in *I. decorata* there are eight short ones.

This genus differs from *Ianthopsis* Beddard^c in having the first pair of legs prehensile and not similar to the succeeding pairs as in that genus, in having the first and fourth thoracic segments produced laterally in one process and not two, in having the fifth and sixth segments produced in two processes, the seventh in three, and not as in *Ianthopsis bovallii* (Studer),^d which has the last three thoracic segments produced laterally in one long process, and in having four long processes on the lateral margins of the abdomen and not rudimentary ones as in that genus.

This genus seems closer to *Iolella*^e Richardson than to any of the genera referred to above. It differs, however, in having the rostrum reduced to a triangular expansion, in having two lateral processes to the head instead of one, in having one lateral process to the fourth thoracic segment instead of two, in having two lateral processes to the fifth and sixth segments and three to the seventh segment, while in *Iolella* there is one process to each of these segments, and in having four triangular processes to the lateral margin of the abdomen instead of one post-lateral process as in *Iolella*.

^a Challenger Report, Zool., XVII, Pt. 48, Report on the Isopoda, Pt. 2, 1886, pp. 15-18, pl. iv, figs. 9-14; pl. v, figs. 1-4.

^b Plankton Expedition, II, 1895, pp. 6-7, pl. i, figs. 1-1e.

^c Challenger Report, Zool., XVII, Pt. 48, Report on the Isopoda, Pt. 2, 1886, p. 15, pl. v, fig. 5.

^d Abh. k. Akad. Wiss. Berlin, 1883, pp. 10-12, pl. i, fig. 2.

^e Bull. U. S. Nat. Mus., No. 54, 1905, p. 457 (footnote).

The differences between *Rhacura* and *Iolella* are greater than those between *Iolanthe* and *Acanthaspidia* and seem to warrant keeping them apart.

Type of the genus.—*Rhacura pulchra*, new species.

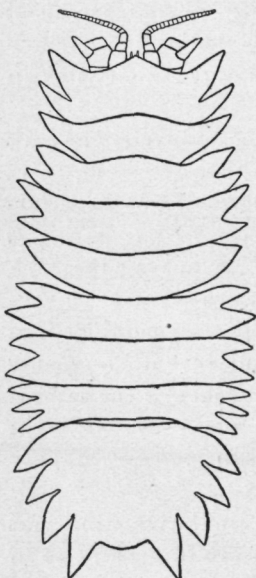


FIG. 2.—RHACURA PULCHRA.

RHACURA PULCHRA, new species.

Body oblong-ovate, about twice as long as wide. Dorsal surface covered with granulations.

Head much wider than long, with the front produced in the middle in an obtuse triangular process, which does not extend as far as the antero-lateral processes; the lateral margins are drawn out on either side in two acute triangular processes, both directed anteriorly; the posterior one is slightly narrower than the anterior process. The eyes are minute and are situated closer to the posterior margin than to the anterior margin. The first pair of antennæ have the first article of the peduncle largest; the second and third are subequal and are a little shorter than the first; the flagellum is composed of eighteen articles. The second pair of antennæ are broken at the fourth article of the peduncle in the only specimen; the third article is furnished with an antennal scale. The maxillipeds have the first three articles of the palp expanded and dilated.

The first segment of the thorax has the lateral margins drawn out on either side in one triangular expansion, acute at the extremity and directly anteriorly; the second and third segments have the lateral margins drawn out on either side in two triangular expansions, about equal in width, one anterior and the other posterior; the fourth segment has one triangular expansion to the lateral margin on either side; the fifth and sixth segments have the lateral margins drawn out on either side in two triangular expansions of about equal size; the seventh and last segment of the thorax has the lateral margins drawn out in three triangular processes on either side, all of equal size.

The abdomen has the lateral margins drawn out on either side in four triangular expansions, the last expansion corresponding to the post-lateral expansion in the species of the genus

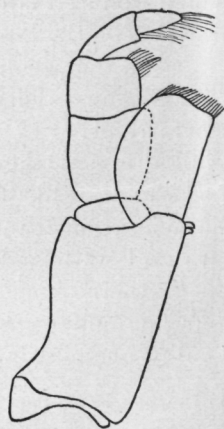


FIG. 3.—RHACURA PULCHRA. MAXILLIPED.

Iolella; between the post-lateral expansions is a small rounded lobe. The uropoda are lost in the only specimen.

The first pair of legs are prehensile, the other six ambulatory in character and furnished with bi-unguiculate dactyli. The margins of the entire body are armed with minute acute spinules.

The only specimen, a female, was found at Station 2572, steamer *Albatross*, southeast of Georges Bank, at a depth of 1,769 fathoms.

The type is in the U. S. National Museum, Cat. No. 38964.

Genus HAPLONISCUS, new.

Head without rostrum. First pair of antennæ with the peduncle composed of only two articles; flagellum composed of several articles; second antennæ with the peduncle composed of six articles, the third article furnished with an antennal scale. Eyes absent.

Terminal segment of body with posterior median lobe, on either side of which is a small triangular process; uropoda small, consisting of a single article.

The legs are all ambulatory, similar, with dactylus uni-unguiculate. They are alike in both sexes.

This genus differs from *Nannoniscus* Sars, its closest ally, in lacking the large median lobe of the head, in not having an olfactory papilla to the first antenna, in the differently shaped abdomen, and in having the uropoda composed of a single article and not double-branched as in that genus.

The type of the genus is *Nannoniscus bicuspis* Sars.^a In 1899, Sars admitted that this species was not congeneric with the type species of the genus *Nannoniscus*, but allowed it to remain there.

The following species also belongs to this genus and is very similar to Sars's species.

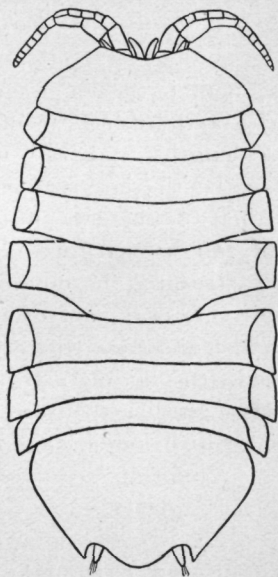


FIG. 4.—HAPLONISCUS EXCISUS.

HAPLONISCUS EXCISUS, new species.

Body oblong-ovate, a little less than twice as long as wide. Color in alcohol whitish. Surface smooth.

^a Norwegian North-Atlantic Expedition, XIV, Zoology, Crustacea, I, 1885, pp. 122-123.

Head wider than long, with the anterior margin slightly excavate between the antero-lateral angles; the head is wider posteriorly than anteriorly. There are no eyes. The first pair of antennæ have the first article of the peduncle short. The second article is much longer; the flagellum is composed of five articles and extends to the end of the peduncle of the second antennæ. The first four articles of the second antennæ are short; the last two are longer and subequal; the third article of the peduncle is furnished with an antennal scale; the flagellum is composed of eight articles.

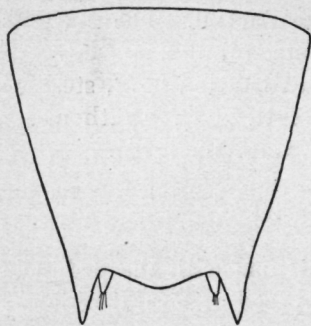


FIG. 5.—HAPLONISCUS RETROSPINIS. ABDOMEN OF FEMALE. (DORSAL VIEW.)

The first three segments of the thorax are about equal in length; the fourth segment is the longest and especially long in the middle region; the fifth and sixth segments are about equal in length, and are shorter than the fourth; the last segment is shorter than either of the two preceding segments; the lateral margins of all the segments are straight, the epimera occupying the entire lateral part of the segment.

The abdomen consists of a single segment, the lateral margins of which converge gradually to the posterior extremity, which has a large rounded median lobe, on either side of which

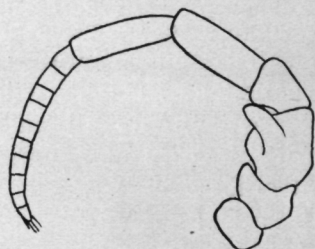


FIG. 6.—HAPLONISCUS RETROSPINIS. (SECOND ANTENNA.)

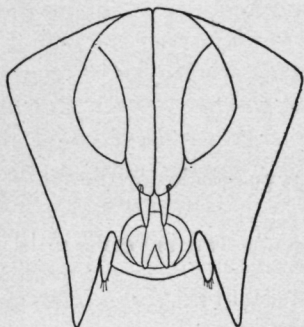


FIG. 7.—HAPLONISCUS RETROSPINIS. ABDOMEN OF MALE. (VENTRAL VIEW.)

is an acute triangular process. The uropoda consist of a single small article, not extending beyond the post-lateral tooth, and placed between that and the median lobe.

All the legs are ambulatory in character, similar and with dactylus uni-ungiculate. They are alike in both sexes.

Three specimens, two males and one female, come from Station 2572, U. S. Bureau of Fisheries' steamer *Albatross*, southeast of Georges Bank, taken at a depth of 1,769 fathoms.

The type is in the U. S. National Museum, Cat. No. 38965.

^a Norwegian North-Atlantic Expedition, XIV, Zoology, Crustacea, I, 1885, pp. 122-125.

This species differs from the species described by Sars,^a *Haploniscus bicuspis*, in having the front of the head excavate, in having the flagellum of the second antennæ composed of eight articles instead of thirteen, and in the broader abdomen in proportion to its length with the larger and differently shaped median lobe.

HAPLONISCUS RETROSPINIS, new species.

This species is more similar to *Haploniscus bicuspis* (Sars) in the shape of the head, which does not have the front excavated as in the preceding species. It differs, however, from Sars's species in having the flagellum of the antennæ composed of ten articles instead of thirteen and in having the post-lateral teeth of the abdomen longer; the teeth are twice as long as the uropoda in the female and about four times as long in the male, while in Sars's species they do not exceed the length of the uropoda.

About seventeen specimens, two males and fifteen females, were collected at Station 2547, south of Marthas Vineyard; they were taken at a depth of 390 fathoms.

The type is in the U. S. National Museum, Cat. No. 38966.

Genus JANIRELLA Bonnier, 1896.

Head with a prominent rostrum; lateral margins of head and of all the segments of the body produced in prominent processes. Eyes absent. First pair of antennæ with the peduncle composed of three articles; flagellum composed of several articles. Second pair of antennæ with the third article of the peduncle furnished with an antennal scale.

Terminal segment of body triangularly produced at the apex; uropoda biarticulate, consisting of two small articles.

Legs all ambulatory.

The second antennæ of this and the preceding genus, as in the genus *Nannoniscus* Sars, resemble the *Janiridæ* in having the peduncle composed of six articles, the third furnished with an antennal scale; they also with *Nannoniscus*, in the total absence of eyes, and in the character of the uropods (which are biarticulate and composed of two subequal articles in the present genus, but unarticulate in the preceding genus) resemble the *Desmosomidæ*; but, as Sars says of *Nannoniscus*, in the general form of the body, in the structure of the legs and antennæ they resemble the *Janiridæ*.

This genus differs from *Nannoniscus* in lacking the olfactory papilla to the first antenna, in having the peduncle of the first antenna composed of three articles, in having all the lateral margins of the body produced in processes, in the shape of the terminal segment of the body, and in having the uropoda composed of two articles, biarticulate and not double-branched as in that genus.

The type of the genus is *Janirella nanseni* Bonnier.^a

^a Ann. Univ. Lyon, 1896, pp. 587-593.

JANIRELLA LOBATA, new species.

Body oblong-ovate, about twice as long as wide. Color, in alcohol, whitish.

Head wider than long, with the front produced in a long, prominent rostrum, which is bifid at the extremity and has a rounded tooth or lobe on either side of the bifid extremity a little posterior to it; the lateral margins of the head, just back of the antero-lateral angles, are also produced in large lobes, one on either side, directed anteriorly and having broad extremities; on the dorsal surface of the head, on either side of the median line, is a small tubercle near the posterior margin.

The eyes are entirely absent. The first pair of antennæ have the first article of the peduncle large; the two following articles are subequal in length and are each about half as long and half as wide as the basal article; the flagellum is composed of six articles. The second pair of antennæ have the first four articles of the peduncle short, the third furnished with an antennal scale. In all the specimens (ten in number) the antennæ are broken at the fourth article.

The first segment of the thorax has the lateral margins produced on either side in a large lobe, broad at the extremity, similar in shape to the lateral lobes of the head, and also directed anteriorly; the second, third, and fourth segments have the lateral margins produced on either side in three lobes, the posterior lobe being the largest and very broad at the extremity, the median lobe the smallest, and the anterior lobe rounded; in the third and fourth segments the middle lobe is inclined to be double; the fifth and sixth segments have the lateral margins produced in a large rounded anterior lobe and a smaller posterior lobe, the posterior lobe in the fifth segment being subdivided into three small lobes; the seventh segment has the lateral margins produced in one large broad lobe on either side; the segments are about equal in length, and each is furnished with two tubercles, one on either side of the median line. In the four anterior segments the tubercles are placed on the anterior margin; in the three posterior segments they are placed in the middle transverse line of the segment.

The abdomen is composed of a single segment, which is broad at the base and converges to a narrow extremity. The lateral margins are

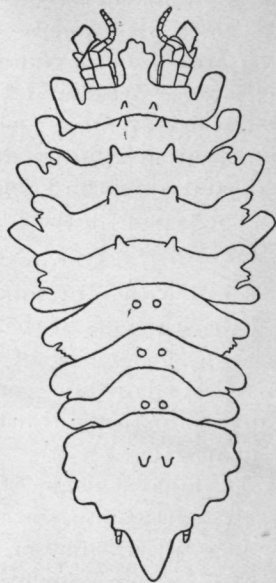


FIG. 8.—JANIRELLA LOBATA.



FIG. 9.—JANIRELLA LOBATA. FIRST LEG OF FEMALE.

produced in five rounded lobes, which occupy the anterior two-thirds of the length of the segment; below the last lobe the lateral margins are straight and converge to an acute triangular extremity, the apex of which is rounded; this triangular extremity occupies one-third of the length of the segment; on the dorsal surface of the abdomen, about one-third the distance from the anterior margin are two prominent tubercles, one on either side of the median longitudinal line. The uropoda are placed below the last lateral lobe, and are bi-articulate, consisting of two small subequal articles. The legs are alike in both sexes. The first pair are stouter than the following which are all ambulatory and furnished with uni-unguiculate dactyli.



FIG. 10.—JANIRELLA LOBATA. SEVENTH LEG OF FEMALE.

Ten specimens of this species, three males and seven females, are from southeast of Georges Bank.

Three specimens come from Station 2571, steamer *Albatross*, taken at a depth of 1,356 fathoms, one from Station 2572, taken at a depth of 1,769 fathoms, and six from Station 2573, taken at a depth of 1,742 fathoms.

The type, from Station 2571, is in the U. S. National Museum, Cat. No. 38967.

In some of the smaller and younger specimens the smaller lobes are not distinct, and seem to be fused, but in general character they resemble the type as described.

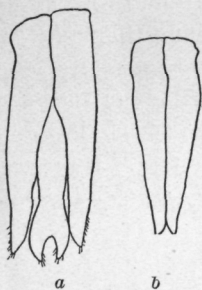


FIG. 11.—JANIRELLA LOBATA. FIRST PLEPOD OF MALE. a. AS FOUND IN ONE SPECIMEN. b. AS FOUND IN TWO SPECIMENS.

This species differs from *Janirella nanseni* Bonnier in having the lateral processes wider and more rounded like lobes than spine-like as in that species, in having the base of the rostrum not dilated as in that species, in having two spines on all the thoracic segments and not one on the first and three on the second, third, and fourth as in that species.

Family MUNNIDÆ.

Genus MUNNA Krøyer, 1839.

MUNNA TRUNCATA, new species.^a

Body oblong-ovate, about twice as long as wide. Surface smooth. Color, in alcohol, whitish.

^a I have placed this species with *Munna*, although I am inclined to think that it should be made the type of a new genus. If there is a consensus of opinion in favor of this, I would suggest the name *Cæcimunna* for this form, and for the species described from the Pacific coast of North America, which I called *Munna cæca*, I would suggest the name *Haplomunna*. (See Bull. U. S. Nat. Mus., No. 54, 1905, pp. 483-485.)

Head large, with the front produced in the middle in a large, broad median lobe, truncate at the extremity; on either side of the median lobe is a prominent triangular process; on either side of the triangular process the lateral margin is produced in a long acute spine-like process, which is about twice as long as the triangular process; these projections probably represent the ocular processes, but the eyes are entirely absent. The first pair of antennæ are short; the two peduncular articles are subequal in length, but the second is more slender than the first; the flagellum is composed of six articles. The second pair of antennæ are broken in all the specimens.

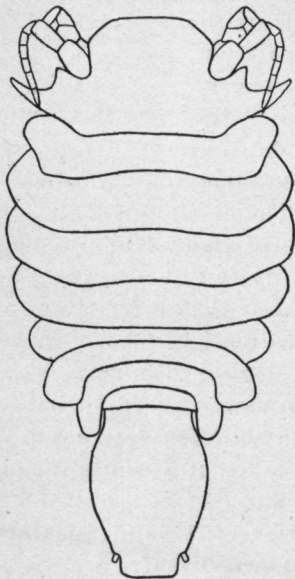


FIG. 12.—*MUNNA TRUNCATA*.

The first four segments of the thorax are the largest, the first being somewhat shorter than the three following; the fifth is the shortest, being less than one-third as long as the preceding segment; the sixth and seventh segments are subequal in length and are also short, but are about one and a half times as long as the fifth; the lateral margins of all the segments are rounded.

The first segment of the abdomen is short, not quite as long as the last thoracic segment; the terminal segment is large, with the lateral margins somewhat rounded, and the extremity truncate. On the ventral side of this segment at the extremity between the median line and the uropod are five sharp teeth as in *Munna fabricii* Krøyer. The uropoda are minute, simple, consisting of a single article, and are situated on either side of the truncate extremity. The first pair of pleopoda in the male are narrow, elongate, with lateral margins straight and not expanded; the extremity is truncate.

The first pair of legs are shorter than those following and are prehensile. The others are long and ambulatory.

About eight specimens of this species come from Station 2547, steamer *Albatross*, south of Marthas Vineyard, and were taken at a depth of 390 fathoms. Three other specimens were found at Station 2507, between Middle Ground and Halifax from a depth of 80 fathoms.

The type from Marthas Vineyard is in the U. S. National Museum, Cat. No. 38968.



FIG. 13.—*MUNNA TRUNCATA*. FIRST PLEOPODA OF MALE.

This species differs from the other species of the genus, found on the Atlantic coast, *M. fabricii* Krøyer and *Munna krøyeri* Goodsir, in the absence of eyes, in having, instead of peduncle-like projections of the head, spine-like processes, and in the truncate character of the terminal segment of the body.

Family DESMOSOMIDÆ.

ISCHNOMESUS, new name.

The above name is suggested for the genus *Ischnosoma* Sars, which is preoccupied, having been used for a genus of fishes in 1829, and also in 1832 for Coleoptera. Sars used the name for Crustacea in 1866, the type of the genus being *Ischnosoma bispinosum*. In the typical form the uropoda consist of two articles, and are bi-articulate. Later Sars describes another species which he also refers to the genus *Ischnosoma*, *I. quadrispinosum*. In this form the uropoda consist of a single article. I would suggest for this form the generic name *Haplomesus*. The two forms described by Beddard as *Ischnosoma bacillus* and *Ischnosoma bacilloides* have the uropoda bi-articulate as in the type-species, but the abdomen is composed of two segments instead of one as in that species. For these two forms I would suggest the generic name *Rhabdomesus*. For the forms described by Beddard as *Ischnosoma thomsoni* and *Ischnosoma spinosum* and the form described by Tattersall as *Ischnosoma greeni*, all of which agree in having the uropoda formed of a single article and the abdomen composed of two segments, I would suggest the generic name *Heteromesus*. The following key gives the generic characters in a concise form:^a

- a. Uropoda consisting of two articles; third article of peduncle of second antennæ not elongate.
 - b. Abdomen consisting of a single segment; fourth and fifth segments of thorax elongate, not produced in spines. *Ischnomesus*, *I. bispinosus* (Sars).
 - b'. Abdomen consisting of two segments; fourth and fifth segments of thorax exceedingly narrow and elongate, and produced laterally in spines,

Rhabdomesus ^b $\left\{ \begin{array}{l} \text{R. } \textit{bacillus} \text{ (Beddard).} \\ \text{R. } \textit{bacilloides} \text{ (Beddard).} \end{array} \right.$
- a'. Uropoda consisting of a single article; third article of peduncle of second antennæ elongate.
 - b. Abdomen composed of a single segment; peduncle of first antennæ composed of three articles.----- *Haplomesus*, *H. quadrispinosus* (Sars).
 - b'. Abdomen consisting of two segments; peduncle of first antennæ composed of two articles,

Heteromesus $\left\{ \begin{array}{l} \text{H. } \textit{thomsoni} \text{ (Beddard).} \\ \text{H. } \textit{spinosus} \text{ (Beddard).} \\ \text{H. } \textit{greeni} \text{ (Tattersall).} \\ \text{H. } \textit{spinescens}, \text{ new species.} \\ \text{H. } \textit{granulatus}, \text{ new species.} \end{array} \right.$

^a A similar arrangement has been suggested by Tattersall, Fisheries, Ireland, Sci. Invest., 1904, II [1905], p. 22.

^b The antennæ in these two species were lost, but I have placed them in this section because of the character of the uropoda.

HETEROMESUS GRANULATUS, new species.

Body of female about three and a half times longer than wide; surface closely covered with low granules. The head and all the segments of the thorax, with the exception of the anterior and middle portion of the fifth segment, closely covered with irregular wavy markings or impressions. The first segment of the abdomen is also similarly marked; the first three articles of the peduncle of the second antennæ are spinulose.

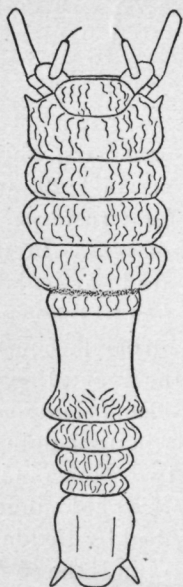


FIG. 14.—HETEROMESUS GRANULATUS. FEMALE.

The frontal margin of the head is straight. The eyes are absent. The first pair of antennæ are composed of two articles, the basal article large and inflated, the second narrow and elongate; there is a rudimentary flagellum consisting of a single article, minute and almost imperceptible. The second pair of antennæ have the first two articles of the peduncle short; the third article is narrow and elongate; the fourth is short; the fifth and sixth are narrow and elongate, the sixth being about one and a half times longer than the fifth, and the fifth about twice as long as the fourth, the sixth^a article is about equal in length to the third, but is about half as wide; the flagellum is composed of fourteen articles, the first three being elongate. In the male the flagellum is composed of sixteen articles, and only the first article is elongate.



FIG. 15.—HETEROMESUS GRANULATUS. SECOND ANTENNA OF FEMALE.

The head is immersed in the first thoracic segment, which surrounds the posterior half; the lateral margins of the first segment are drawn out on either side in one prominent spine. The first three segments are about equal in width and length; the fourth segment is longer, becoming narrower toward the posterior extremity and constricted; the fifth segment is narrow, elongate, about three times the length of the preceding segment. In the male this segment is narrower than in the female. The sixth and seventh segments are short and subequal in length. The seventh is a little narrower than the sixth.



FIG. 16.—HETEROMESUS GRANULATUS. FIRST LEG OF FEMALE.

^a The peduncle of the second antennæ is six-jointed and not five-jointed as other authors have described it for other species.

The first segment of the abdomen is short; the terminal segment is longer than wide and has the posterior margin produced in a prominent rounded lobe. In the female the uropoda are shorter than in the male, and scarcely extend much beyond the median lobe of the abdomen. In the male they are a little more than twice the length of the median lobe of the abdomen. They consist in both sexes of one long, pointed, spine-like article.

About fifty-seven specimens were collected by the steamer *Albatross* in the following localities: Forty-one females and four males at Station 2547, south of Marthas Vineyard, taken at a depth of 390 fathoms; two males and one female at Station 2572, southeast of Georges Bank, taken at a depth of 1,769 fathoms; one male at Station 2571, southeast of Georges Bank, taken at a depth of 1,356 fathoms; one male and six females at Station 2208, south of Block Island, taken at a depth of 1,178 fathoms, and one female at Station 2078, off Georges Bank, taken at a depth of 499 fathoms.

The type from Marthas Vineyard is in the U. S. National Museum, Cat. No. 38969.

This species is perhaps closer to *Heteromesus greeni* (Tattersall)^a than to any others of the genus; it differs, however, from that species in the character of the surface of the body which is covered with low granulations, and not with "spine-like tubercles;" in having a rudimentary flagellum to the first antennæ;^b in the shorter uropoda of the female (Tattersall figures only the female); in the fewer articles in the flagellum of the second antennæ which also has the three elongate first articles; and in the peculiar markings on the body.

HETEROMESUS SPINESCENS, new species.

This species is very close to the preceding, but differs in having a two-jointed flagellum to the first antennæ; in the



FIG. 17.—HETEROMESUS GRANULATUS. MIDDLE PART OF BODY OF MALE.



FIG. 18.—HETEROMESUS GRANULATUS. ABDOMEN OF MALE.

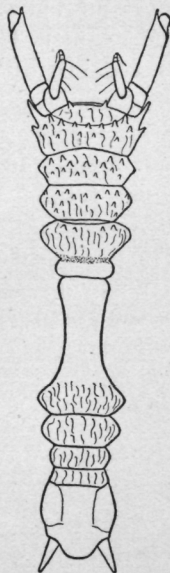


FIG. 19.—HETEROMESUS SPINESCENS. MALE.

^a Fisheries, Ireland, Sci. Invest., 1904, II [1905], pp. 20-22, pl. iv, figs. 1-6.

^b In all fifty-seven specimens the flagellum is rudimentary. I examined each one carefully, because at first I supposed the flagellum was broken, but a minute article was finally discovered, which is almost imperceptible.

more elongate second article of the first antennæ; in having a prominent spine at the distal extremity on the inner side of the third article of the peduncle of the second antennæ; in having the lateral margin of the first thoracic segment provided with two spines on either side, the anterior one long and prominent; in having the first four segments of the body furnished on the dorsal surface with spine-like tubercles definitely arranged, and the head furnished with two tubercles.

This species differs from *Heteromesus greeni* (Tattersall) in the definite arrangement of the spine-like tubercles on the head and first four segments of the body, which are lacking elsewhere; in the prominent spine at the distal extremity of the inner side of the third article of the peduncle of the second antennæ, and in lacking the "two-jointed" spine at the proximal end of this same article; in having a two-jointed flagellum to the first antennæ instead of a three-jointed one; and in the fewer number of articles to the flagellum of the second antennæ, there being fourteen, instead of eighteen or twenty.

About ten specimens were collected at the following localities by the steamer *Albatross*: One male at Station 2105, off Virginia, taken at a depth of 1,395 fathoms; two females at Station 2714, south of Marthas Vineyard, taken at a depth of 1,825 fathoms; one male at Station 2208, south of Block Island, taken at a depth of 1,178 fathoms; one female at Station 2084, off Georges Bank, taken at a depth of 1,290 fathoms; and five females from Station 2571, southeast of Georges Bank, taken at a depth of 1,356 fathoms.

The type from off Virginia is in the U. S. National Museum, Cat. No. 38970.

Family MUNNOPSIDÆ.

Genus EURYCOPE Sars, 1863.

EURYCOPE TRUNCATA Richardson.

Eurycope truncata RICHARDSON, Proc. U. S. Nat. Mus., XXXIV, 1908, pp. 67-69.

Localities.—Marthas Vineyard; southeast of Georges Bank.

Since the description of the above species has been published two more specimens have been found in the material from New Haven. These specimens, a male and a female, are from Station 2572, southeast of Georges Bank, and are from a depth of 1,769 fathoms. This is the first male found, all the other specimens being females. It agrees in every respect with the type.

EURYCOPE MAGNISPINIS, new species.

Body oblong-ovate, about twice as long as wide.

Head with the front produced in the middle in a rostrum with the extremity truncate and the sides incurved; on either side of

rostrum the frontal margin has a double excavation; the antero-lateral angles are acute. The eyes are absent. The first pair of antennæ have the basal article large and armed with one long spine; the two following articles are subequal in length and are small; the flagellum is lost in the only specimen. The first article of the peduncle of the second antennæ is short, and is furnished on the outer margin with a single spine; the second article is a little longer than the first and is unarmed; the third article is a little longer than the second and is armed with two spines, one on the outer and one on the inner margin; the antennæ are broken at the end of the fourth article.

The first segment of the thorax has the antero-lateral angles produced in one long spine on either side, directed anteriorly; the second segment has the lateral margin produced in one long anterior spine directed anteriorly and one small posterior one on either side; the third and fourth segments have the lateral margin produced on either side in three spines, two small ones on either side of one long one directed anteriorly; the last three segments have the lateral margins produced on either side in a single long spine, directed anteriorly in the fifth and sixth segments and a little posteriorly in the seventh segment.

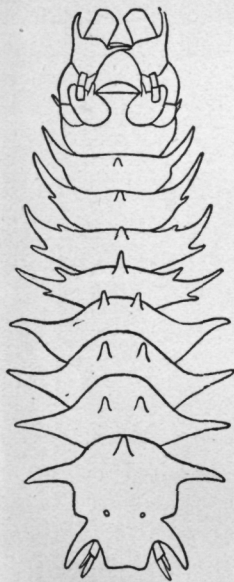


FIG. 21.—EURYCOPE MAG-
NISPINIS.



FIG. 20.—EURY-
COPE TRUNCATA
× 14½.

The abdomen has the lateral margin produced on either side at the base in one long spine directed a little posteriorly; below these spines, the lateral margins are nearly parallel to about the middle of the segment, where there is an abrupt incision; below this incision is a single long spine, directed posteriorly; below these spines the lateral margins of the segment converge slightly to a truncate extremity. The uropoda have the basal article short; the inner branch is about twice as long as the basal article; the outer branch is a little more than half the length of the inner branch.

The first four segments of the thorax are each armed on the dorsal surface in the median longitudinal line with a single spine on the anterior margin, the spine on the fourth segment being the longest and very prominent; on the three following segments there are two

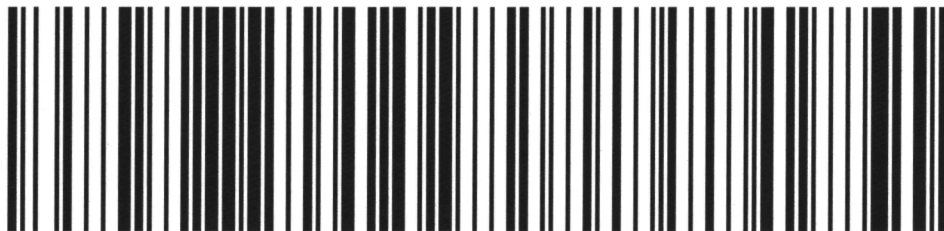
long spines, one on each side of the median longitudinal line on each segment, those on the sixth and seventh segments being nearer the middle transverse line of the segment. The abdomen has one long median spine near the base, and two rudimentary spines or tubercles on the dorsal surface, just opposite the incisions in the lateral margins.

Only one specimen, a male, from Station 2043, steamer *Albatross*, off Nantucket Shoals. It was taken at a depth of 1,467 fathoms.

The type is in the U. S. National Museum, Cat. No. 38971.

This species differs chiefly from *Eurycope truncata*, to which it is closely related, in the presence of spines on the dorsal surface of the body.





DOCUMENTSCHEIDING

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ASELLOIDEA FROM THE ATLANTIC
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SOME NEW ISOPODA OF THE SUPERFAMILY ASELOIDEA FROM THE ATLANTIC COAST OF NORTH AMERICA.

By HARRIET RICHARDSON,

Collaborator, Division of Marine Invertebrates, U. S. National Museum.

In the U. S. Bureau of Fisheries collection recently received by the U. S. National Museum from Prof. A. E. Verrill, Yale University Museum, are a number of new and interesting forms belonging to the superfamily Aselloidea. Several new genera belong to the families, Janiridæ and Desmosomidæ, and also a new species of *Eurycope*, are herein described.

Family. JANIRIDÆ.

Genus IOLELLA Richardson, 1903.

IOLELLA GLABRA, new species.

Body oblong-ovate, about twice as long as wide; surface of body without spines or tubercles.

Head much wider than long with the front produced in the middle in a long rostrum, which is about as long as the length of the head; the antero-lateral angles are also produced in acute, triangular processes, which are about half as long as the rostrum. The eyes are small, round, composite, and are placed halfway between the lateral margin and the median longitudinal line and halfway between the anterior and posterior margins of the head. The first pair of antennæ have the first two articles of the peduncle about equal in length; the third article is about half as long as the second; the flagellum, which consists of twenty-four articles, extends a little beyond the fifth article of the peduncle of the second pair of antennæ. The second pair of antennæ have the first two articles of the peduncle very short; the third article is equal in length to the first two taken together, and is furnished on the exterior margin with an antennal scale; the fourth article is also short; the fifth and sixth articles are elongate and are about equal in length; the flagellum is long and is composed of nearly one hundred articles.

The first segment of the thorax has the lateral margins produced in one triangular process on either side, directed anteriorly; the second, third, and fourth segments are each produced on either side in two triangular processes, one anterior and the other posterior; the last three segments have the lateral margins produced on either side in one long process directed posteriorly, with a rudimentary posterior process indicated on the posterior margin.

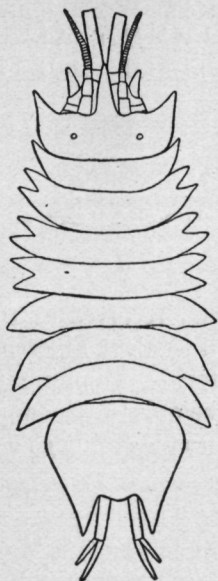


FIG. 1.—IOLELLA GLABRA.

The abdomen has the post-lateral angles produced in one long acute triangular process on either side of a small median rounded lobe. The uropods have the basal article about equal in length to the post-lateral angles of the abdomen; the inner branch is almost as long as the basal article; the outer branch is a little shorter.

The first pair of legs are prehensile; all the others are ambulatory and furnished with bi-unguiculate dactyli.

The single specimen is a male, and comes from Station 2116, off Cape Hatteras. It was collected at a depth of 888 fathoms in blue mud and fine sand by the U. S. Bureau of Fisheries' steamer *Albatross*.

The type is in the U. S. National Museum. Cat. No. 38963.

This species is very similar to *Iolella spinosa* (Harger), and differs chiefly from that species in lacking spines on the dorsal surface of the body.

Genus RHACURA, new.

Head without rostrum, but with a triangular median frontal process. Lateral margins of head with two triangular processes; eyes small, but distinct. First pair of antennæ with a peduncle of three articles and a multi-articulate flagellum; second pair of antennæ with the third article of the peduncle furnished with an antennal scale.

First and fourth thoracic segments with one lateral process on either side; second, third, fifth, and sixth segments with two lateral processes; seventh thoracic segment with three lateral processes.

Abdomen furnished with four lateral triangular processes on either side.

Legs as in the genus *Iolella*.

This genus differs from *Acanthaspidia* Stebbing,^a the type of which is *Acanthaspidia typhlops* (Sars),^b in the presence of eyes,

^a *Acanthaspidia* Stebbing=*Acanthoniscus* Sars, Hist. Crust., 1893, p. 378.

^b Norwegian North-Atlantic Expedition, XIV, Zoology, Crust., I, 1885, pp. 119-121, pl. x, figs. 27-30.

in having the first pair of legs prehensile, and not similar to the following pairs as in that genus, in having the legs furnished with bi-unguiculate dactyli; in not having a bifurcate rostrum, in having the fourth thoracic segment produced laterally in one process and not two, in having the fifth and sixth thoracic segments produced laterally in two processes and not three, in having the lateral margins of the abdomen produced in four large processes and not eight as in that genus.

It differs from *Iolanthe* Beddard^a in the presence of eyes, in having the first pair of legs prehensile, and not similar to the succeeding pairs as in that genus, in having the fourth thoracic segment produced laterally in one process and not two, as in both species of *Iolanthe*, *I. acanthonotus* Beddard, and *I. decorata* Hansen,^b in having the fifth and sixth segments produced in two processes laterally and the seventh segment in three, and not as in the two species mentioned in which the lateral margins of the fifth, sixth, and seventh segments are produced in one long spine. In the genus *Rhacura* the lateral margins of the abdomen are produced in four processes, while in *I. acanthonotus* there are three long processes and in *I. decorata* there are eight short ones.

This genus differs from *Ianthopsis* Beddard^c in having the first pair of legs prehensile and not similar to the succeeding pairs as in that genus, in having the first and fourth thoracic segments produced laterally in one process and not two, in having the fifth and sixth segments produced in two processes, the seventh in three, and not as in *Ianthopsis bovallii* (Studer),^d which has the last three thoracic segments produced laterally in one long process, and in having four long processes on the lateral margins of the abdomen and not rudimentary ones as in that genus.

This genus seems closer to *Iolella*^e Richardson than to any of the genera referred to above. It differs, however, in having the rostrum reduced to a triangular expansion, in having two lateral processes to the head instead of one, in having one lateral process to the fourth thoracic segment instead of two, in having two lateral processes to the fifth and sixth segments and three to the seventh segment, while in *Iolella* there is one process to each of these segments, and in having four triangular processes to the lateral margin of the abdomen instead of one post-lateral process as in *Iolella*.

^a Challenger Report, Zool., XVII, Pt. 48, Report on the Isopoda, Pt. 2, 1886, pp. 15-18, pl. iv, figs. 9-14; pl. v, figs. 1-4.

^b Plankton Expedition, II, 1895, pp. 6-7, pl. i, figs. 1-1e.

^c Challenger Report, Zool., XVII, Pt. 48, Report on the Isopoda, Pt. 2, 1886, p. 15, pl. v, fig. 5.

^d Abh. k. Akad. Wiss. Berlin, 1883, pp. 10-12, pl. i, fig. 2.

^e Bull. U. S. Nat. Mus., No. 54, 1905, p. 457 (footnote).

The differences between *Rhacura* and *Iolella* are greater than those between *Iolanthe* and *Acanthaspidia* and seem to warrant keeping them apart.

Type of the genus.—*Rhacura pulchra*, new species.

RHACURA PULCHRA, new species.

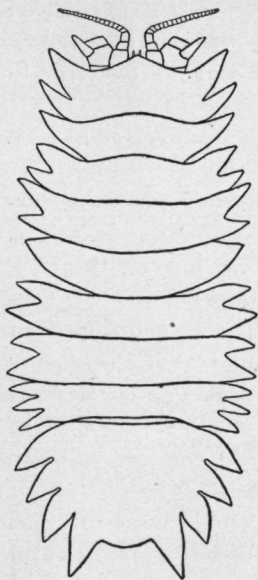


FIG. 2.—RHACURA PULCHRA.

Body oblong-ovate, about twice as long as wide. Dorsal surface covered with granulations.

Head much wider than long, with the front produced in the middle in an obtuse triangular process, which does not extend as far as the antero-lateral processes; the lateral margins are drawn out on either side in two acute triangular processes, both directed anteriorly; the posterior one is slightly narrower than the anterior process. The eyes are minute and are situated closer to the posterior margin than to the anterior margin. The first pair of antennæ have the first article of the peduncle largest; the second and third are subequal and are a little shorter than the first; the flagellum is composed of eighteen articles. The second pair of antennæ are broken at the fourth article of the peduncle in the only specimen; the third

article is furnished with an antennal scale. The maxillipeds have the first three articles of the palp expanded and dilated.

The first segment of the thorax has the lateral margins drawn out on either side in one triangular expansion, acute at the extremity and directly anteriorly; the second and third segments have the lateral margins drawn out on either side in two triangular expansions, about equal in width, one anterior and the other posterior; the fourth segment has one triangular expansion to the lateral margin on either side; the fifth and sixth segments have the lateral margins drawn out on either side in two triangular expansions of about equal size; the seventh and last segment of the thorax has the lateral margins drawn out in three triangular processes on either side, all of equal size.

The abdomen has the lateral margins drawn out on either side in four triangular expansions, the last expansion corresponding to the post-lateral expansion in the species of the genus

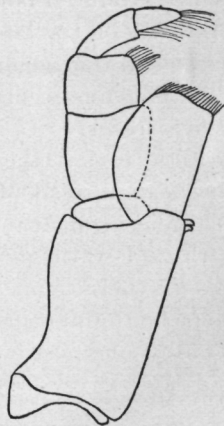


FIG. 3.—RHACURA PULCHRA. MAXILLIPED.

Iolella; between the post-lateral expansions is a small rounded lobe. The uropoda are lost in the only specimen.

The first pair of legs are prehensile, the other six ambulatory in character and furnished with bi-unguiculate dactyli. The margins of the entire body are armed with minute acute spinules.

The only specimen, a female, was found at Station 2572, steamer *Albatross*, southeast of Georges Bank, at a depth of 1,769 fathoms.

The type is in the U. S. National Museum, Cat. No. 38964.

Genus HAPLONISCUS, new.

Head without rostrum. First pair of antennæ with the peduncle composed of only two articles; flagellum composed of several articles; second antennæ with the peduncle composed of six articles, the third article furnished with an antennal scale. Eyes absent.

Terminal segment of body with posterior median lobe, on either side of which is a small triangular process; uropoda small, consisting of a single article.

The legs are all ambulatory, similar, with dactylus uni-unguiculate. They are alike in both sexes.

This genus differs from *Nannoniscus* Sars, its closest ally, in lacking the large median lobe of the head, in not having an olfactory papilla to the first antenna, in the differently shaped abdomen, and in having the uropoda composed of a single article and not double-branched as in that genus.

The type of the genus is *Nannoniscus bicuspis* Sars.^a In 1899, Sars admitted that this species was not congeneric with the type species of the genus *Nannoniscus*, but allowed it to remain there.

The following species also belongs to this genus and is very similar to Sars's species.

HAPLONISCUS EXCISUS, new species.

Body oblong-ovate, a little less than twice as long as wide. Color in alcohol whitish. Surface smooth.

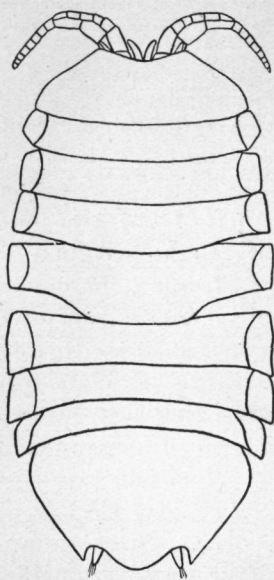


FIG. 4.—HAPLONISCUS EXCISUS.

^a Norwegian North-Atlantic Expedition, XIV, Zoology, Crustacea, I, 1885, pp. 122-123.

Head wider than long, with the anterior margin slightly excavate between the antero-lateral angles; the head is wider posteriorly than anteriorly. There are no eyes. The first pair of antennæ have the first article of the peduncle short. The second article is much longer; the flagellum is composed of five articles and extends to the end of the peduncle of the second antennæ. The first four articles of the second antennæ are short; the last two are longer and subequal; the third article of the peduncle is furnished with an antennal scale; the flagellum is composed of eight articles.

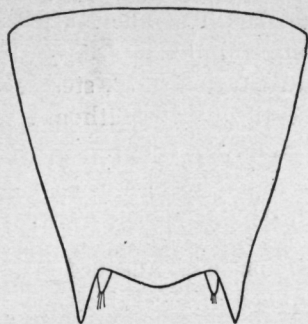


FIG. 5.—HAPLONISCUS RETROSPINIS. ABDOMEN OF FEMALE. (DORSAL VIEW.)

The first three segments of the thorax are about equal in length; the fourth segment is the longest and especially long in the middle region; the fifth and sixth segments are about equal in length, and are shorter than the fourth; the last segment is shorter than either of the two preceding segments; the lateral margins of all the segments are straight, the epimera occupying the entire lateral part of the segment.

The abdomen consists of a single segment, the lateral margins of which converge gradually to the posterior extremity, which has a large rounded median lobe, on either side of which

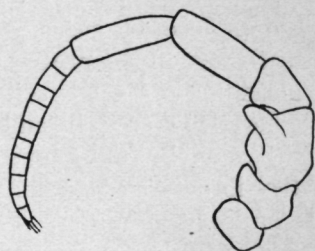


FIG. 6.—HAPLONISCUS RETROSPINIS. (SECOND ANTENNA.)

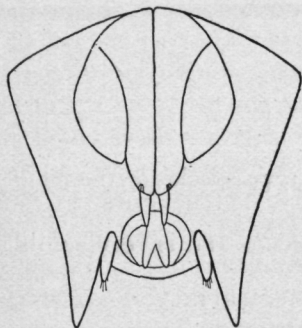


FIG. 7.—HAPLONISCUS RETROSPINIS. ABDOMEN OF MALE. (VENTRAL VIEW.)

is an acute triangular process. The uropoda consist of a single small article, not extending beyond the post-lateral tooth, and placed between that and the median lobe.

All the legs are ambulatory in character, similar and with dactylus uni-ungiculate. They are alike in both sexes.

Three specimens, two males and one female, come from Station 2572, U. S. Bureau of Fisheries' steamer *Albatross*, south-east of Georges Bank, taken at a depth of 1,769 fathoms.

The type is in the U. S. National Museum, Cat. No. 38965.

^a Norwegian North-Atlantic Expedition, XIV, Zoology, Crustacea, I, 1885, pp. 122-125.

This species differs from the species described by Sars,^a *Haploniscus bicuspis*, in having the front of the head excavate, in having the flagellum of the second antennæ composed of eight articles instead of thirteen, and in the broader abdomen in proportion to its length with the larger and differently shaped median lobe.

HAPLONISCUS RETROSPINIS, new species.

This species is more similar to *Haploniscus bicuspis* (Sars) in the shape of the head, which does not have the front excavated as in the preceding species. It differs, however, from Sars's species in having the flagellum of the antennæ composed of ten articles instead of thirteen and in having the post-lateral teeth of the abdomen longer; the teeth are twice as long as the uropoda in the female and about four times as long in the male, while in Sars's species they do not exceed the length of the uropoda.

About seventeen specimens, two males and fifteen females, were collected at Station 2547, south of Marthas Vineyard; they were taken at a depth of 390 fathoms.

The type is in the U. S. National Museum, Cat. No. 38966.

Genus JANIRELLA Bonnier, 1896.

Head with a prominent rostrum; lateral margins of head and of all the segments of the body produced in prominent processes. Eyes absent. First pair of antennæ with the peduncle composed of three articles; flagellum composed of several articles. Second pair of antennæ with the third article of the peduncle furnished with an antennal scale.

Terminal segment of body triangularly produced at the apex; uropoda biarticulate, consisting of two small articles.

Legs all ambulatory.

The second antennæ of this and the preceding genus, as in the genus *Nannoniscus* Sars, resemble the *Janiridæ* in having the peduncle composed of six articles, the third furnished with an antennal scale; they also with *Nannoniscus*, in the total absence of eyes, and in the character of the uropods (which are biarticulate and composed of two subequal articles in the present genus, but unarticulate in the preceding genus) resemble the *Desmosomidæ*; but, as Sars says of *Nannoniscus*, in the general form of the body, in the structure of the legs and antennæ they resemble the *Janiridæ*.

This genus differs from *Nannoniscus* in lacking the olfactory papilla to the first antenna, in having the peduncle of the first antenna composed of three articles, in having all the lateral margins of the body produced in processes, in the shape of the terminal segment of the body, and in having the uropoda composed of two articles, biarticulate and not double-branched as in that genus.

The type of the genus is *Janirella nanseni* Bonnier.^a

^a Ann. Univ. Lyon, 1896, pp. 587-593.

JANIRELLA LOBATA, new species.

Body oblong-ovate, about twice as long as wide. Color, in alcohol, whitish.

Head wider than long, with the front produced in a long, prominent rostrum, which is bifid at the extremity and has a rounded tooth or lobe on either side of the bifid extremity a little posterior to it; the lateral margins of the head, just back of the antero-lateral angles, are also produced in large lobes, one on either side, directed anteriorly and having broad extremities; on the dorsal surface of the head, on either side of the median line, is a small tubercle near the posterior margin.

The eyes are entirely absent. The first pair of antennæ have the first article of the peduncle large; the two following articles are subequal in length and are each about half as long and half as wide as the basal article; the flagellum is composed of six articles. The second pair of antennæ have the first four articles of the peduncle short, the third furnished with an antennal scale. In all the specimens (ten in number) the antennæ are broken at the fourth article.

The first segment of the thorax has the lateral margins produced on either side in a large lobe, broad at the extremity, similar in shape to the lateral lobes of the head, and also directed anteriorly; the second, third, and fourth segments have the lateral margins produced on either side in three lobes, the posterior lobe being the largest and very broad at the extremity, the median lobe the smallest, and the anterior lobe rounded; in the third and fourth segments the middle lobe is inclined to be double; the fifth and sixth segments have the lateral margins produced in a large rounded anterior lobe and a smaller posterior lobe, the posterior lobe in the fifth segment being subdivided into three small lobes; the seventh segment has the lateral margins produced in one large broad lobe on either side; the segments are about equal in length, and each is furnished with two tubercles, one on either side of the median line. In the four anterior segments the tubercles are placed on the anterior margin; in the three posterior segments they are placed in the middle transverse line of the segment.

The abdomen is composed of a single segment, which is broad at the base and converges to a narrow extremity. The lateral margins are

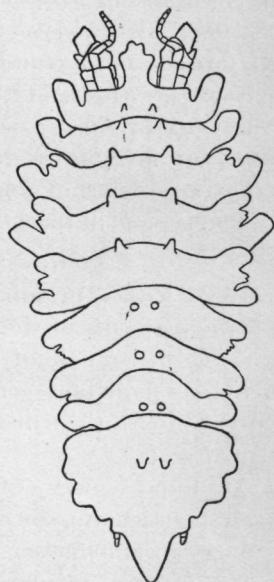


FIG. 8.—JANIRELLA LOBATA.



FIG. 9.—JANIRELLA LOBATA. FIRST LEG OF FEMALE.

produced in five rounded lobes, which occupy the anterior two-thirds of the length of the segment; below the last lobe the lateral margins are straight and converge to an acute triangular extremity, the apex of which is rounded; this triangular extremity occupies one-third of the length of the segment; on the dorsal surface of the abdomen, about one-third the distance from the anterior margin are two prominent tubercles, one on either side of the median longitudinal line. The uropoda are placed below the last lateral lobe, and are bi-articulate, consisting of two small subequal articles. The legs are alike in both sexes. The first pair are stouter than the following which are all ambulatory and furnished with uni-unguiculate dactyli.

Ten specimens of this species, three males and seven females, are from southeast of Georges Bank.

Three specimens come from Station 2571, steamer *Albatross*, taken at a depth of 1,356 fathoms, one from Station 2572, taken at a depth of 1,769 fathoms, and six from Station 2573, taken at a depth of 1,742 fathoms.

The type, from Station 2571, is in the U. S. National Museum, Cat. No. 38967.

In some of the smaller and younger specimens the smaller lobes are not distinct, and seem to be fused, but in general character they resemble the type as described.

This species differs from *Janirella nansenii* Bonnier in having the lateral processes wider and more rounded like lobes than spine-like as in that species, in having the base of the rostrum not dilated as in that species, in having two spines on all the thoracic segments and not one on the first and three on the second, third, and fourth as in that species.

Family MUNNIDÆ.

Genus MUNNA Krøyer, 1839.

MUNNA TRUNCATA, new species.*

Body oblong-ovate, about twice as long as wide. Surface smooth. Color, in alcohol, whitish.

* I have placed this species with *Munna*, although I am inclined to think that it should be made the type of a new genus. If there is a consensus of opinion in favor of this, I would suggest the name *Cæcimunna* for this form, and for the species described from the Pacific coast of North America, which I called *Munna cæca*, I would suggest the name *Haplomunna*. (See Bull. U. S. Nat. Mus., No. 54, 1905, pp. 483-485.)



FIG. 10.—JANIRELLA LOBATA. SEVENTH LEG OF FEMALE.

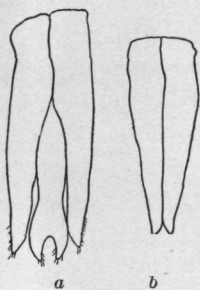


FIG. 11.—JANIRELLA LOBATA. FIRST PLEPOD OF MALE. a. AS FOUND IN ONE SPECIMEN. b. AS FOUND IN TWO SPECIMENS.

Head large, with the front produced in the middle in a large, broad median lobe, truncate at the extremity; on either side of the median lobe is a prominent triangular process; on either side of the triangular process the lateral margin is produced in a long acute spine-like process, which is about twice as long as the triangular process; these projections probably represent the ocular processes, but the eyes are entirely absent. The first pair of antennæ are short; the two peduncular articles are subequal in length, but the second is more slender than the first; the flagellum is composed of six articles. The second pair of antennæ are broken in all the specimens.

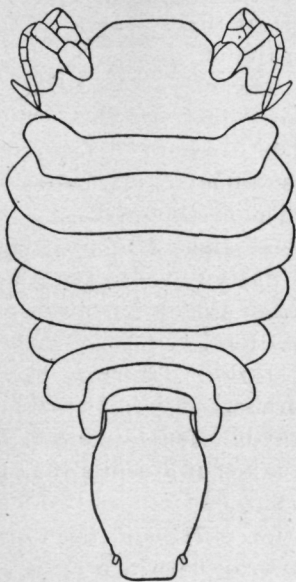


FIG. 12.—MUNNA TRUNCATA.

The first four segments of the thorax are the largest, the first being somewhat shorter than the three following; the fifth is the shortest, being less than one-third as long as the preceding segment; the sixth and seventh segments are subequal in length and are also short, but are about one and a half times as long as the fifth; the lateral margins of all the segments are rounded.

The first segment of the abdomen is short, not quite as long as the last thoracic segment; the terminal segment is large, with the lateral margins somewhat rounded, and the extremity truncate. On the ventral side of this segment at the extremity between the median line and the uropod are five sharp teeth as in *Munna fabricii* Krøyer. The uropoda are minute, simple, consisting of a single article, and are situated on either side of the truncate extremity. The first pair of pleopoda in the male are narrow, elongate, with lateral margins straight and not expanded; the extremity is truncate.

The first pair of legs are shorter than those following and are prehensile. The others are long and ambulatory.

About eight specimens of this species come from Station 2547, steamer *Albatross*, south of Marthas Vineyard, and were taken at a depth of 390 fathoms. Three other specimens were found at Station 2507, between Middle Ground and Halifax from a depth of 80 fathoms.

The type from Marthas Vineyard is in the U. S. National Museum, Cat. No. 38968.



FIG. 13.—MUNNA TRUNCATA. FIRST PLEOPODA OF MALE.

This species differs from the other species of the genus, found on the Atlantic coast, *M. fabricii* Krøyer and *Munna krøyeri* Goodsir, in the absence of eyes, in having, instead of peduncle-like projections of the head, spine-like processes, and in the truncate character of the terminal segment of the body.

Family DESMOSOMIDÆ.

ISCHNOMESUS, new name.

The above name is suggested for the genus *Ischnosoma* Sars, which is preoccupied, having been used for a genus of fishes in 1829, and also in 1832 for Coleoptera. Sars used the name for Crustacea in 1866, the type of the genus being *Ischnosoma bispinosum*. In the typical form the uropoda consist of two articles, and are bi-articulate. Later Sars describes another species which he also refers to the genus *Ischnosoma*, *I. quadrispinosum*. In this form the uropoda consist of a single article. I would suggest for this form the generic name *Haplomesus*. The two forms described by Beddard as *Ischnosoma bacillus* and *Ischnosoma bacilloides* have the uropoda bi-articulate as in the type-species, but the abdomen is composed of two segments instead of one as in that species. For these two forms I would suggest the generic name *Rhabdomesus*. For the forms described by Beddard as *Ischnosoma thomsoni* and *Ischnosoma spinosum* and the form described by Tattersall as *Ischnosoma greeni*, all of which agree in having the uropoda formed of a single article and the abdomen composed of two segments, I would suggest the generic name *Heteromesus*. The following key gives the generic characters in a concise form:^a

a. Uropoda consisting of two articles; third article of peduncle of second antennæ not elongate.

b. Abdomen consisting of a single segment; fourth and fifth segments of thorax elongate, not produced in spines. *Ischnomesus*, *I. bispinosus* (Sars).

b'. Abdomen consisting of two segments; fourth and fifth segments of thorax exceedingly narrow and elongate, and produced laterally in spines,

Rhabdomesus $\left\{ \begin{array}{l} \text{R. } bacillus \text{ (Beddard).} \\ \text{R. } bacilloides \text{ (Beddard).} \end{array} \right.$

a'. Uropoda consisting of a single article; third article of peduncle of second antennæ elongate.

b. Abdomen composed of a single segment; peduncle of first antennæ composed of three articles.----- *Haplomesus*, *H. quadrispinosus* (Sars).

b'. Abdomen consisting of two segments; peduncle of first antennæ composed of two articles,

Heteromesus $\left\{ \begin{array}{l} \text{H. } thomsoni \text{ (Beddard).} \\ \text{H. } spinosus \text{ (Beddard).} \\ \text{H. } greeni \text{ (Tattersall).} \\ \text{H. } spinescens, \text{ new species.} \\ \text{H. } granulatus, \text{ new species.} \end{array} \right.$

^a A similar arrangement has been suggested by Tattersall, Fisheries, Ireland, Sci. Invest., 1904, II [1905], p. 22.

^b The antennæ in these two species were lost, but I have placed them in this section because of the character of the uropoda.

HETEROMESUS GRANULATUS, new species.

Body of female about three and a half times longer than wide; surface closely covered with low granules. The head and all the segments of the thorax, with the exception of the anterior and middle portion of the fifth segment, closely covered with irregular wavy markings or impressions. The first segment of the abdomen is also similarly marked; the first three articles of the peduncle of the second antennæ are spinulose.

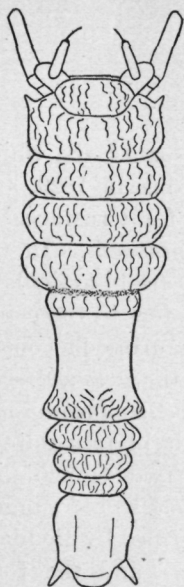


FIG. 14.—HETEROMESUS GRANULATUS. FEMALE.

The frontal margin of the head is straight. The eyes are absent. The first pair of antennæ are composed of two articles, the basal article large and inflated, the second narrow and elongate; there is a rudimentary flagellum consisting of a single article, minute and almost imperceptible. The second pair of antennæ have the first two articles of the peduncle short; the third article is narrow and elongate; the fourth is short; the fifth and sixth are narrow and elongate, the sixth being about one and a half times



FIG. 15.—HETEROMESUS GRANULATUS. SECOND ANTENNA OF FEMALE.

longer than the fifth, and the fifth about twice as long as the fourth, the sixth^a article is about equal in length to the third, but is about half as wide; the flagellum is composed of fourteen articles, the first three being elongate. In the male the flagellum is composed of sixteen articles, and only the first article is elongate.

The head is immersed in the first thoracic segment, which surrounds the posterior half; the lateral margins of the first segment are drawn out on either side in one prominent spine. The first three segments are about equal in width and length; the fourth segment is longer, becoming narrower toward the posterior extremity and constricted; the fifth segment is narrow, elongate, about three times the length of the preceding segment. In the male this segment is narrower than in the female. The sixth and seventh segments are short and subequal in length. The seventh is a little narrower than the sixth.



FIG. 16.—HETEROMESUS GRANULATUS. FIRST LEG OF FEMALE.

^a The peduncle of the second antennæ is six-jointed and not five-jointed as other authors have described it for other species.

The first segment of the abdomen is short; the terminal segment is longer than wide and has the posterior margin produced in a prominent rounded lobe. In the female the uropoda are shorter than in the male, and scarcely extend much beyond the median lobe of the abdomen. In the male they are a little more than twice the length of the median lobe of the abdomen. They consist in both sexes of one long, pointed, spine-like article.

About fifty-seven specimens were collected by the steamer *Albatross* in the following localities: Forty-one females and four males at Station 2547, south of Marthas Vineyard, taken at a depth of 390 fathoms; two males and one female at Station 2572, southeast of Georges Bank, taken at a depth of 1,769 fathoms; one male at Station 2571, southeast of Georges Bank, taken at a depth of 1,356 fathoms; one male and six females at Station 2208, south of Block Island, taken at a depth of 1,178 fathoms, and one female at Station 2078, off Georges Bank, taken at a depth of 499 fathoms.

The type from Marthas Vineyard is in the U. S. National Museum, Cat. No. 38969.

This species is perhaps closer to *Heteromesus greeni* (Tattersall)^a than to any others of the genus; it differs, however, from that species in the character of the surface of the body which is covered with low granulations, and not with "spine-like tubercles;" in having a rudimentary flagellum to the first antennæ;^b in the shorter uropoda of the female (Tattersall figures only the female); in the fewer articles in the flagellum of the second antennæ which also has the three elongate first articles; and in the peculiar markings on the body.

HETEROMESUS SPINESCENS, new species.

This species is very close to the preceding, but differs in having a two-jointed flagellum to the first antennæ; in the



FIG. 17.—HETEROMESUS GRANULATUS. MIDDLE PART OF BODY OF MALE.



FIG. 18.—HETEROMESUS GRANULATUS. ABDOMEN OF MALE.

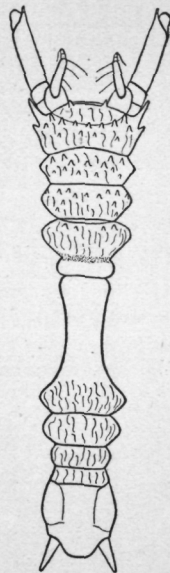


FIG. 19.—HETEROMESUS SPINESCENS. MALE.

^a Fisheries, Ireland, Sci. Invest., 1904, II [1905], pp. 20-22, pl. iv, figs. 1-6.

^b In all fifty-seven specimens the flagellum is rudimentary. I examined each one carefully, because at first I supposed the flagellum was broken, but a minute article was finally discovered, which is almost imperceptible.

more elongate second article of the first antennæ; in having a prominent spine at the distal extremity on the inner side of the third article of the peduncle of the second antennæ; in having the lateral margin of the first thoracic segment provided with two spines on either side, the anterior one long and prominent; in having the first four segments of the body furnished on the dorsal surface with spine-like tubercles definitely arranged, and the head furnished with two tubercles.

This species differs from *Heteromesus greeni* (Tattersall) in the definite arrangement of the spine-like tubercles on the head and first four segments of the body, which are lacking elsewhere; in the prominent spine at the distal extremity of the inner side of the third article of the peduncle of the second antennæ, and in lacking the "two-jointed" spine at the proximal end of this same article; in having a two-jointed flagellum to the first antennæ instead of a three-jointed one; and in the fewer number of articles to the flagellum of the second antennæ, there being fourteen, instead of eighteen or twenty.

About ten specimens were collected at the following localities by the steamer *Albatross*: One male at Station 2105, off Virginia, taken at a depth of 1,395 fathoms; two females at Station 2714, south of Marthas Vineyard, taken at a depth of 1,825 fathoms; one male at Station 2208, south of Block Island, taken at a depth of 1,178 fathoms; one female at Station 2084, off Georges Bank, taken at a depth of 1,290 fathoms; and five females from Station 2571, southeast of Georges Bank, taken at a depth of 1,356 fathoms.

The type from off Virginia is in the U. S. National Museum, Cat. No. 38970.

Family MUNNOPSISÆ.

Genus EURYCOPE Sars, 1863.

EURYCOPE TRUNCATA Richardson.

Eurycope truncata RICHARDSON, Proc. U. S. Nat. Mus., XXXIV, 1908, pp. 67-69.

Localities.—Marthas Vineyard; southeast of Georges Bank.

Since the description of the above species has been published two more specimens have been found in the material from New Haven. These specimens, a male and a female, are from Station 2572, southeast of Georges Bank, and are from a depth of 1,769 fathoms. This is the first male found, all the other specimens being females. It agrees in every respect with the type.

EURYCOPE MAGNISPINIS, new species.

Body oblong-ovate, about twice as long as wide.

Head with the front produced in the middle in a rostrum with the extremity truncate and the sides incurved; on either side of

rostrum the frontal margin has a double excavation; the antero-lateral angles are acute. The eyes are absent. The first pair of antennæ have the basal article large and armed with one long spine; the two following articles are subequal in length and are small; the flagellum is lost in the only specimen. The first article of the peduncle of the second antennæ is short, and is furnished on the outer margin with a single spine; the second article is a little longer than the first and is unarmed; the third article is a little longer than the second and is armed with two spines, one on the outer and one on the inner margin; the antennæ are broken at the end of the fourth article.

The first segment of the thorax has the antero-lateral angles produced in one long spine on either side, directed anteriorly; the second segment has the lateral margin produced in one long anterior spine directed anteriorly and one small posterior one on either side; the third and fourth segments have the lateral margin produced on either side in three spines, two small ones

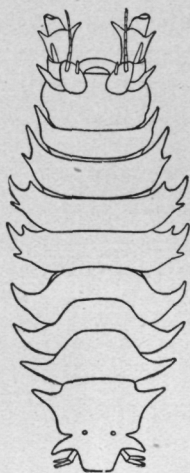


FIG. 20.—EURYCOPE TRUNCATA
×14½.

on either side of one long one directed anteriorly; the last three segments have the lateral margins produced on either side in a single long spine, directed anteriorly in the fifth and sixth segments and a little posteriorly in the seventh segment.

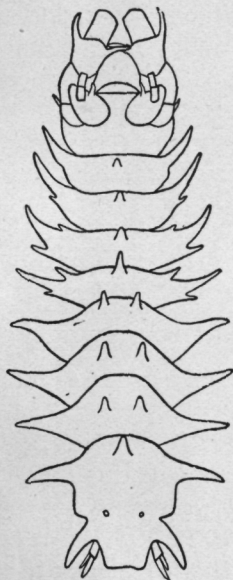


FIG. 21.—EURYCOPE MAGNISPINIS.

The abdomen has the lateral margin produced on either side at the base in one long spine directed a little posteriorly; below these spines, the lateral margins are nearly parallel to about the middle of the segment, where there is an abrupt incision; below this incision is a single long spine, directed posteriorly; below these spines the lateral margins of the segment converge slightly to a truncate extremity. The uropoda have the basal article short; the inner branch is about twice as long as the basal article; the outer branch is a little more than half the length of the inner branch.

The first four segments of the thorax are each armed on the dorsal surface in the median longitudinal line with a single spine on the anterior margin, the spine on the fourth segment being the longest and very prominent; on the three following segments there are two

long spines, one on each side of the median longitudinal line on each segment, those on the sixth and seventh segments being nearer the middle transverse line of the segment. The abdomen has one long median spine near the base, and two rudimentary spines or tubercles on the dorsal surface, just opposite the incisions in the lateral margins.

Only one specimen, a male, from Station 2043, steamer *Albatross*, off Nantucket Shoals. It was taken at a depth of 1,467 fathoms.

The type is in the U. S. National Museum, Cat. No. 38971.

This species differs chiefly from *Eurycope truncata*, to which it is closely related, in the presence of spines on the dorsal surface of the body.

