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THE DISTRIBUTION OF ROTIFERA ON MOUNT DESERT ISLAND. PART VII[1]

NEW TESTUDINELLIDAE OF THE GENUS *TESTUDINELLA* AND A NEW SPECIES OF BRACHIONIDAE OF THE GENUS *TRICHOTRIA*

BY FRANK J. MYERS

As was the case with several other genera, the waters of Mount Desert Island contained an unsuspected number of new testudinellids.

The anatomy and the trophi are very constant throughout the genus. The salient characters are to be found in the lorica of fully contracted specimens. They are: the general shape and size, the shape of the anterior and mental margins, the position of the lateral antennae, the position and shape of the foot opening, and the shape of the transverse section of the body. The trophi are of the malleo-ramate type.

The new species described in this paper are as follows:

Testudinella angulata — *Testudinella dentata*
Testudinella triangularis — *Testudinella ovata*
Testudinella epicopta — *Testudinella dicella*
Trichotria eukosmeta

ORDER **MONOGONONTA**

Family **Testudinellidae**

Testudinella angulata, new species

Figures 1, 2

The lorica is roughly triangular and ovate, narrowest anteriorly, then gradually widening to a position marked by the lateral spines. The posterior portion is evenly rounded and marked by a median blunt projection of the foot opening. There are a pair of lateral spinules situated at the point of the greatest body width. The dorsal anterior margin is roughly trilobed, the median lobe being more prominent and acute than the lateral lobes. The mental margin is undulate; it has a small blunt median lobe bounded by larger laterals.

The lateral antennae are situated on the dorsum about half way between the anterior and posterior margins of the lorica.

The foot opening is elongate, oval, and terminal.

[1]The preceding parts of this article appeared in American Museum Novitates as follows: part I (not numbered) in No. 494, Sept. 28, 1931; part II in No. 659, Sept. 15, 1933; part III in No. 660, Sept. 15, 1933; part IV in No. 699, March 10, 1934; part V in No. 700, March 10, 1934; part VI in No. 760.

The transverse section of the lorica is greatly depressed and its exact shape will best be understood by reference to figure 2.

Length of lorica, 130μ. Width of lorica at widest part, 90μ; anterior margin, 60μ.

Testudinella angulata was fairly common throughout the island in association with submerged *Sphagnum* and *Fontinalis*. It has also been collected in Vilas County, Wisconsin, and in Atlantic County, New Jersey.

In *Testudinella parva* (Ternetz), lateral spines may be present or absent. The form having lateral spines is now recognized as a variety and is known as *Testudinella parva bidentata* (Ternetz). In *Testudinella angulata* the lateral spines are constant and always present.

The type is deposited in The American Museum of Natural History; Cat. No. A M.N.H. 390.

Testudinella triangularis, new species

Figures 3, 4

The body is roughly triangular and ovate in shape. The posterior portion is truncate, slightly rounded and marked by a median notch of the foot opening. There are a pair of lateral spines, situated relatively lower down than in the preceding species, and nearly opposite the anterior limit of the foot opening. The dorsal anterior margin projects strongly, is bluntly pointed and has a median notch dividing it into two lobes. The mental margin is excavate and widely V-shaped. The lateral antennae are situated low down in the lumbar region.

The foot opening is subsquare and terminal.

The transverse section is triangular; the lateral edges are rounded and there is a low median keel extending the entire length of the venter.

Length of lorica, 120μ. Width of lorica at widest part, 88μ; anterior margin, 40μ.

Although *Testudinella triangularis* was not as common as the preceding species, it was evenly distributed throughout the Island in similar associations. It has also been collected in Atlantic County, New Jersey, and was abundant in Wheeler Lake, Vilas County, Wisconsin, during several summers. It bears a superficial resemblance to *Testudinella angulata*, but differs from that species principally in the anterior margins and in the transverse section of the lorica.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 760.

Testudinella epicopta, new species

Figures 5, 6

The body is squarely truncate anteriorly and posteriorly, widest in front and diminishing gradually from mid-length to the foot opening. The anterior dorsal margin is nearly straight; the mental margin is slightly undulate and has a shallow central

notch. The lateral antennae are situated nearly opposite the middle of the longitudinal body axis.

The foot opening is narrow, very wide and terminal.

The transverse section of the lorica is relatively stout; its exact shape will best be understood by reference to figure 6.

Length of lorica, 90μ. Width of body at widest part, 75μ; anterior margin, 65μ.

Testudinella epicopta was evenly distributed throughout the island. It is commensal on the cladoceran *Acantholeberis curvirostris*, and was generally found attached, by the ciliated tip of the foot, to the posterior portion of the carapace. It has also been collected in Atlantic County, New Jersey, and in Vilas County, Wisconsin.

This is not the only species of the genus that has developed the habit of commensalism. *Testudinella elliptica* Ehrenberg, *Testudinella caeca* (Parsons) and *Testudinella truncata* (Gosse), are to be found attached to the legs and gill plates of *Asellus*.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 455.

Testudinella dentata, new species

Figures 7, 8

The body is ovoid and truncate anteriorly. The dorsal anterior margin is convex and projects in the form of two low lobes. The mental edge is slightly undulate and has a deep median sinus bounded by two acute spines. The lateral antennae are situated slightly above the median transverse body axis.

The foot opening is narrow and situated on the posterior fifth of the venter.

The transverse section of the body is much compressed, stouter in the middle portion and rounded at the lateral edges.

Length of lorica, 150μ. Width of lorica at widest part, 90μ; anterior margin, 75μ.

Testudinella dentata was common in brackish water near the outlet of the Barcelona at Thomas Cove. It has also been collected in brackish water in Powell's Creek, Atlantic County, New Jersey. It bears a certain resemblance to *Testudinella clypeata* Ehrenberg, which also has been found in salt and brackish water. It differs from that species in having a notched anterior margin, instead of being simply convex; the transverse section of the lorica is symmetric both dorsally and ventrally, instead of being convex dorsally and having a much smaller convex ventral side.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 140.

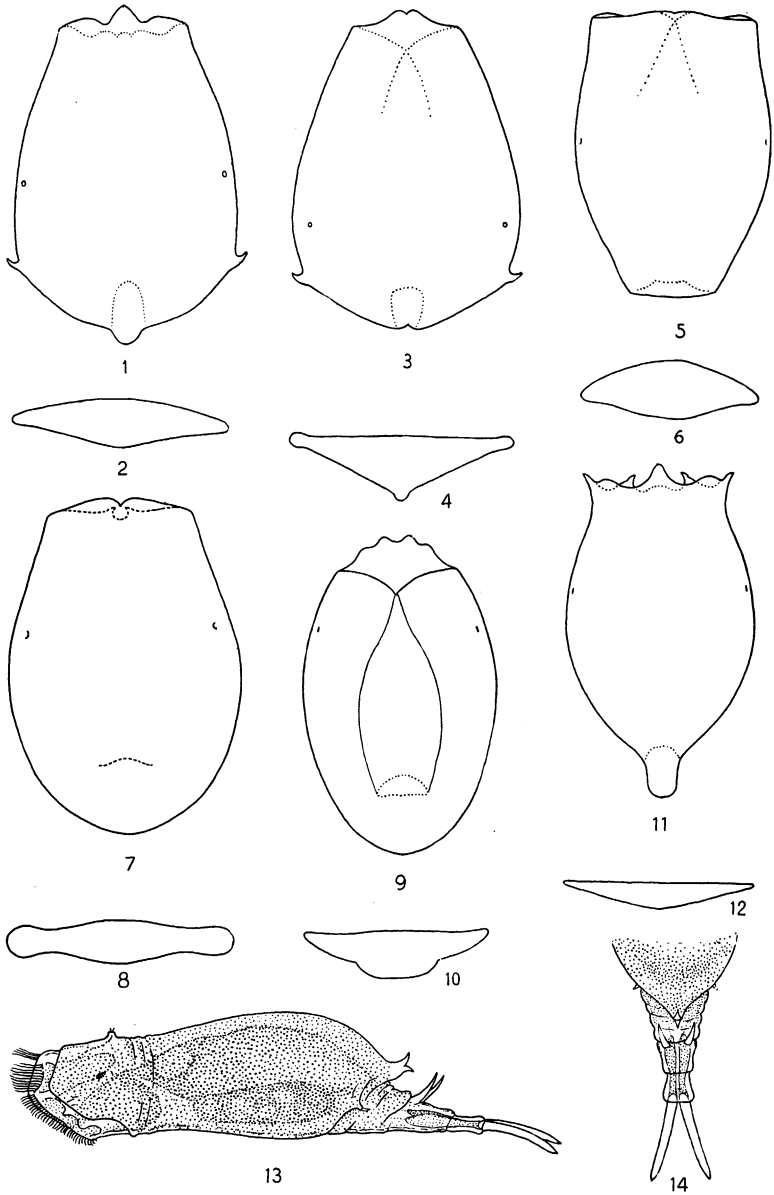

Fig. 1. *Testudinella angulata*, dorsal view of lorica. Fig. 2. Transverse section. Fig. 3. *Testudinella triangularis*, dorsal view of lorica. Fig. 4. Transverse section. Fig. 5. *Testudinella epicopta*, dorsal view of lorica. Fig. 6. Transverse section. Fig. 7. *Testudinella dentata*, dorsal view of lorica. Fig. 8. Transverse section. Fig. 9. *Testudinella ovata*, dorsal view of lorica. Fig. 10. Transverse section. Fig. 11. *Testudinella dicella*, dorsal view of lorica. Fig. 12. Transverse section. Fig. 13. *Trichotria eukosmeta*, lateral view. Fig. 14. Dorsal view of posterior portion of body. Dotted lines are features of the venter.

Testudinella ovata, new species

Figures 9, 10

The body is elongate and oval in shape. The dorsal margin is strongly convex and disposed into four prominent lobes. The mental margin is excavate and widely V-shaped. The lateral antennae are situated nearly opposite the first third of the longitudinal body axis.

The foot opening is wide and semicircular in shape; it is situated on the posterior fifth of the venter. There is a low ventral elevation, starting at the apex of the V-shaped mental margin, which gradually widens and terminates at the foot opening.

The transverse section of the lorica is nearly straight dorsally and bluntly keeled ventrally: its exact shape will best be understood by reference to figure 10.

Length of lorica, 125μ. Width of lorica at widest part, 90μ; anterior margin, 55μ.

Testudinella ovata was not common. A few specimens were collected in several locations at different ntervals, always in association with submerged *Sphagnum.*

The projecting four-lobed anterior margin and the longitudinal ventral elevation readily distinguish this from any other species of the genus.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 739.

Testudinella dicella, new species

Figures 11, 12

The lorica is greatly depressed, urn-shaped, and has a prominent median, posterior, subsquare projection. The dorsal anterior margin is undulate; it is bounded laterally by two out-curved spines and has a prominent angular, median projection. The mental margin is undulate and has a wide subsquare median sinus bounded laterally by two blunt spines. The lateral antennae are situated somewhat above the median transverse body axis.

The foot opening is terminal and protected dorsally by a prominent subsquare projection of the dorsum.

The transverse section of the lorica is greatly compressed, straight dorsally and widely angular ventrally.

Length of lorica, 130μ. Width of lorica at widest part, 85μ; anterior margin, 78μ.

Testudinella dicella was fairly common and well distributed on the island. It has also been collected in abundance in the Pocono Mountains, Pennsylvania, Vilas County, Wisconsin, and Atlantic County, New Jersey.

Although this species seems to be closely related to *Testudinella tridentata* Smirnov, from which it differs principally in the details of the anterior margins and the shape of the lorica, it seems justifiable to name it as a new species, in view of the fact that Smirnov (1) does not show the

location of the lateral antennae nor does he give a transverse section of the lorica, both very important in the determination of species.

The type is deposited in The American Museum of Natural History; Cat. No. A.M.N.H. 261.

Family **Brachionidae**

Trichotria eukosmeta, new species

Figures 13, 14

The body is slightly gibbous dorsally. The lorica is minutely punctate and quite flexible. The posterior portion of the dorsum is acuminate from the dorsal view; from the lateral view it terminates in a prominent recurved, bifid projection.

The foot has two joints; the basal joint is stout and conical and bears two long acute condyles on its dorsal surface. The toes are blade-shaped, slightly decurved and parallel-sided; they are about equal to the foot in length.

The lateral antennae are guarded by a prominent hook-like spine. The dorsal antenna is a prominent papillose projection from which emerges a tuft of sensory setae.

The mastax is malleate and the anatomy agrees with that of the other members of the genus.

Total length, 220μ; toes 30μ.

A few specimens of *Trichotria eukosmeta* were collected in Fawn Pond during the summer of 1926. It has not been found again.

Although the other members of the genus *Trichotria* are notable for the thickness of the lorica, which is always marked by facets, the integument of this species is thin and flexible without any traces of faceting. *Trichotria tetractis caudata* (Lucks) has a posterior pointed projection of the lorica, but it is never bifid from the lateral view. Moreover, that variety has a normal faceted lorica and closely resembles *Trichotria tetractis* (Ehrenberg).

The type is deposited in The American Museum of Natural History; Cat. No. A. M.N.H. 653.

GENERAL REMARKS ON DISTRIBUTION OF ROTIFERS

Although it is true that there seem to be a number of species that are indigenous to the separate localities, the rotatorian faunas of Mount Desert Island, Vilas County, Wisconsin, and Atlantic County, New Jersey are strikingly similar. The various bodies of water included in the three localities range in p_H from 3.5 to 6.8 in the littoral regions. Therefore, the fauna is an acid water fauna and most of the species of such typical alkaline genera as *Brachionus, Mytilina, Eosphora, Notholca, Asplanchna, Lacinularia* and *Sinantherina* are practically absent; at least they are only represented by occasional stragglers.

METHODS OF COLLECTION AND STUDY

In describing new species preference has been given to those whose habitats are also Wisconsin and New Jersey. There remain a number of provisional species that may be indigenous and new. These have been left in abeyance until such time as more is learned about them by future research.

In view of the fact that such a large number of species were recorded from an island of only one hundred and five square miles in area, a note on the method of collecting will not be amiss.

It was decided, in order to be as accurate as possible in the determination of species and the description of new ones, to examine all material in the living state. Therefore it was necessary to transport the specimens collected to the laboratory as quickly as possible, instead of narcotizing and fixing the material in the field, as is frequently done.

Aquatic plants were gently lifted above the surface and placed in wide-mouthed jars of 1000 cc. capacity, containing water from the same source, care being taken not to crowd too much. This trapped the rotifers among the leaves while washing off most of the undesirable organisms, such as Entomostraca, insect larvae, and aquatic worms. In such collections the change in environment is not too sudden, but takes place gradually, while the food and safety factors are maintained better than in clear collections which have been concentrated by means of a net of fine mesh. The net was only resorted to occasionally in the absence of aquatics. Thousands of organisms are introduced into the containers with the plants. Animal death and post-mortem changes begin to take place at once. Therefore, in order to work over the collections while they were as fresh as possible, and in view of the fact that virtually all of the locations were bounded by good roads, an automobile was in constant use for transporting the collections to the laboratory. On arrival, the containers were placed several feet from the source of light. The heavier vitiated water gradually sank to the bottom and the lighter purer water rose to the top. After a certain interval, depending on the temperature, the rotifers came out from among the plants and ascended with the fresher water; they eventually reached the surface and assembled on the side nearest the light and crowded into the meniscus, from which they were removed and transferred to watch glasses. Virtually 90 per cent of all the rotifers listed were collected in the above manner.

Material of the species described in Parts VI and VII have been placed in the collection of The American Museum of Natural History.

All investigations and research work on the Rotifers of Mount

Desert Island were carried on at the Wier Mitchell Station of the Mount Desert Island Biological Laboratory, situated at Salisbury Cove, Maine. The author wishes to express his appreciation and thanks for the many courtesies enjoyed and pleasant associations formed there during the summers of 1921 to 1931 inclusive.

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