

THE WATER MITES OF LAKE WAWASEE.

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The present paper is a study of the Hydracarina taken by Dr. Will Scott, of Indiana University, during the months of July and August, 1926 and 1927, from Lake Wawasee (Turkey Lake), in northern Indiana. Collections were made at several stations at moderate depths near shore in the course of ecological studies on the life of the lake. The author wishes to express her thanks to Doctor Scott for the opportunity to examine and report upon this material.

Over 250 individuals comprise the collection, most of which were identified. They are distributed among 15 genera and 27 species, four of which are new. In addition to these, the heretofore unknown males of two other species are described. Following the description is given a list of the species found.

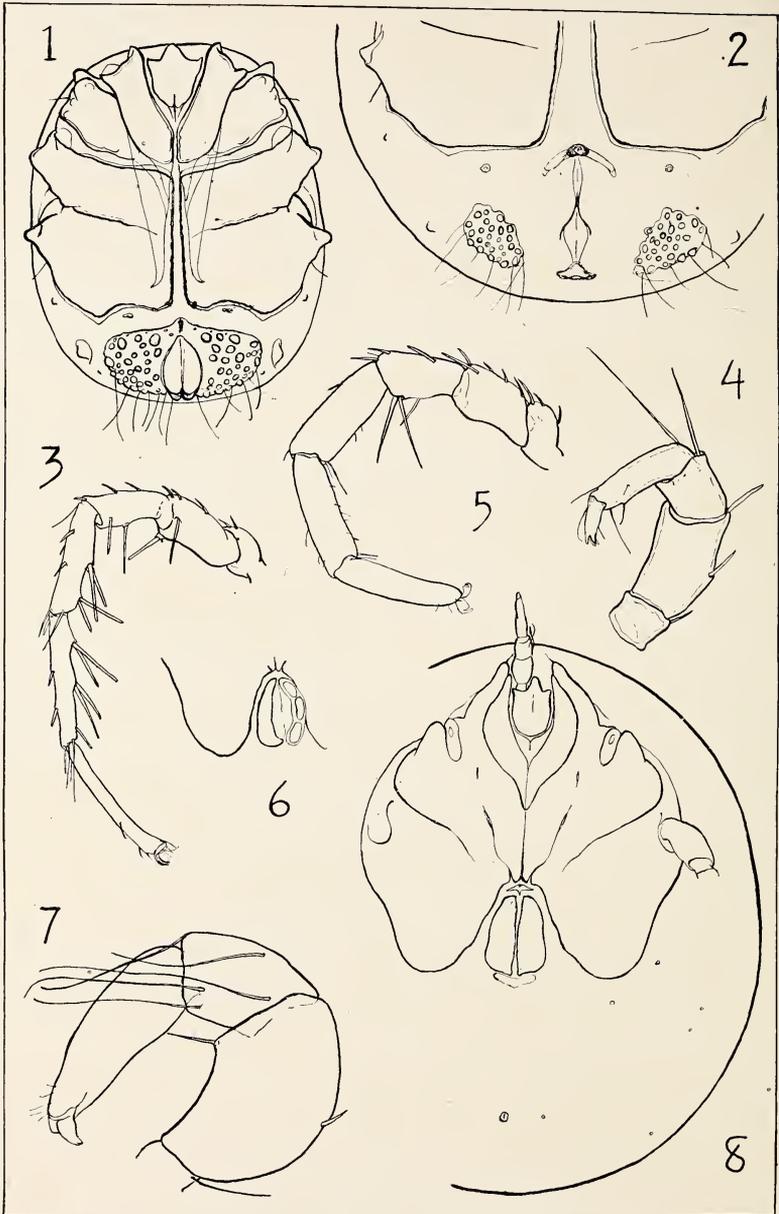
Limnesia wawaseea nov. spec. (Figs. 9-11).

Two large males, found in Johnson's Bay, represent this unusual and rare species. The larger of the two individuals is 2.73 mm. long and nearly as broad and moderately elevated. The antennary bristles are short. The plates of the ventral side are heavy and show a reddish tinge in preservation. The first pair of epimera do not meet in the middle line and all of the groups are well separated; the inner margin of the posterior pair diverge at a wide angle. The genital area lies within the bay thus formed, slightly above the center of the body. The genital plates bear each four conspicuous rounded acetabula; about them numerous small circles are seen, the bases of very fine hairs. The presence of extra acetabula is unusual although not unknown. An African species, *L. asper* Koen., and its variety, *L. macrospora* Viets, show the same peculiarity, while an extra acetabulum on one plate is occasionally found in other species.

The capitulum is broad. The palpi are about one-third of the length of the body; the second segment is broader than the first leg and its peg on the flexor surface is very small and on but a slight elevation. Both the second and third palpal segments bear several short bristles which are slightly feathered. The fourth segment is very long and bears on the inner side near the distal end five fine hairs on slight papillae. The legs are slender, the fourth somewhat shorter than the body and well provided with swimming hairs and bristles.

Lebertia quinquemaculosa nov. spec. (Figs. 5-8).

A very large species, individuals attaining a length of 2 mm., broad oval in form. Fine, broken, irregular lines can be made out on the



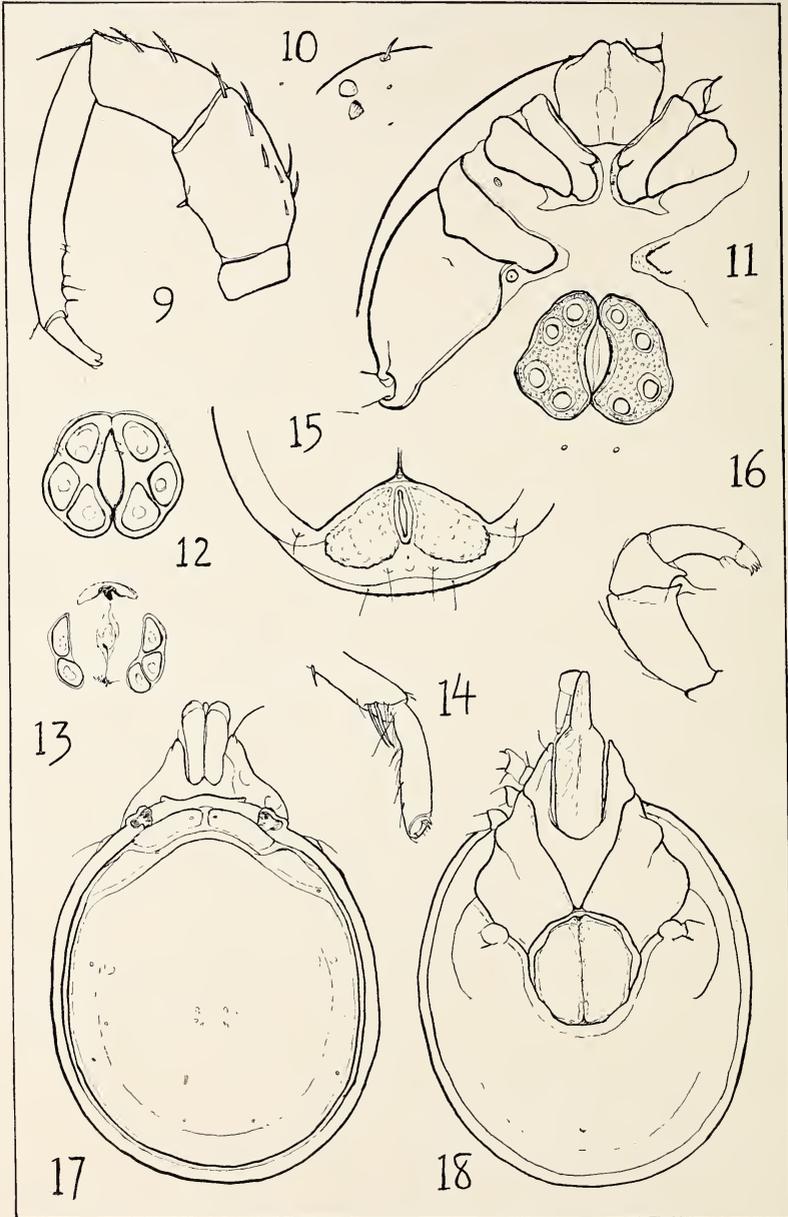
Figs. 1-8.—1, *Neumania pubescens*, male, ventral view; 2, female, genital area; 3, first leg; 4, palpus; 5, *Lebertia quinquemaculosa*, left first leg; 6, genital area, left plate turned back; 7, right palpus, inner side; 8, ventral view.

body, with small circles on the epimera and legs. The ventral shield of united epimera is relatively small. The first epimera are very narrow and short; the fourth are narrow at the posterior end and enclose a deep and broad bay, in which lies the genital area near the center of the body. The genital plates are elongated, broadened posteriorly; each covers three elongated acetabula of about the same size, which show faintly. The capitulum and palpi are small. The second segment of the palpus is stout and bears a small bristle on the inner concave side; the third is small with a few very long, slender hairs on the inner surface, and the fourth segment has a prolongation beyond the attachment of the fifth. The legs are short and stout and bear many heavy bristles; the second and third have each a tuft of hairs on the distal end of the fifth segment, while the fourth has large tufts on the fourth and fifth.

Four individuals were found in the Wawasee material; others have been found by the author in collections from Wisconsin from which notes on the living animals were made. The colors are striking: five bright red spots show dorsally (one anterior, one posterior, two lateral and one above the center), with a large ventral spot below the plates and sometimes several blotches besides. Occasionally, especially in young specimens, the red is diffused throughout the body. These spots are surrounded by brown blotches on a yellow green bright background. The plates are reddish blue or magenta, as are also the legs. The eyes are red.

Atractides indistinctus nov. spec. (Figs. 16-18).

Body oval, 0.70 mm. long by 0.60 mm. broad. The color is reddish brown in preservation. The body is strongly flattened dorso-ventrally and the integument is strongly chitinized and distinctly porous. Anterior to the large dorsal plate are two small oblong plates indistinctly outlined, while back of these and toward the margins of the body are indications of the two other plates commonly found here in species of this genus. In this respect the new species resembles *A. damkohleri* (Viets), an African species. The epimera are closely united to each other and to the general surface. The completely fused first pair are very long and the posterior end touches the genital area. The point of union of the second and third of each side is indicated by a line from the outer margin half way in. The outlines of the fourth pair are nearly obliterated on the posterior margins. The genital area is slightly broader in the anterior part and shows a heavy margin; at the meeting of the genital plates the outlines of oblong acetabula can be seen faintly. The capitulum is very long and with the points of the first pair of epimera extends considerably beyond the body margin. The palpi are relatively long and large. The second segment is long and bears a projection on the inner distal part, near which is a long hair; the third segment shows the same features. The terminal segment ends in four small finger-like processes. The legs are short and bear heavy bristles but no swimming hairs. The fourth leg, the longest, is but slightly longer than the body; the distal end of the last segment is conspicuously broadened.



Figs. 9-18.—9, *Limnesia wawaseea*, palpus; 10, double eye and antennary bristle, left side; 11, ventral plates, male; 12, *Megapus parviscutus*, genital area, male; 13, genital area, female, showing five acetabula; 14, distal end of first leg; 15, *Albia caerulea*, posterior ventral area, male; 16, *Atractides indistinctus*, palpus; 17, dorsal view; 18, ventral view.

One individual was found in the Wawasee collections; the species has also been found in Wisconsin. The specific name has reference to the character of the small dorsal plates which in related species are usually four in number and more clearly outlined. The long capitulum places the new species in the group of the "long-snouted" forms of the genus.

Neumania pubescens nov. spec. (Figs. 1-4).

Body elliptical, moderately arched, slightly depressed at the anterior end. Of the nine individuals found, one was a young male, 0.675 mm. in length, while the females ranged from 0.80 mm. to 1.03 mm. The body is semi-transparent and covered with very fine short projections. All plates and the appendages appear deep blue in preservation. The eyes are large, the antennary bristles long and fine. The epimera are large and heavy; they cover a considerable part of the ventral surface in the male but are relatively smaller in the adult females, with wider spaces between the groups. The underlying braces of the first pair are conspicuous and extend far back under the fourth. The dividing line between the third and fourth epimeral pair is not quite complete. The surfaces of the epimera show slight irregularities and the fourth has faint blotches. The genital areas in both sexes are situated well back, the slits long and not far from the last epimera. The united plates of the male form a broad oval; in the female the plates are widely separated, irregularly obovate in form. The acetabula in both sexes are conspicuous, irregular in shape, distribution and number. The plates are bordered by a row of long fine hairs, a feature which suggested the specific name. The palpi are relatively large, with heavy bristles, two of which on the distal end of the third segment are very long. The legs are stout and bear many stout bristles. The papillae supporting the bristles of the first leg are not conspicuously large. A few long, coarse swimming hairs are found on the last two pairs of legs, while some of the bristles of the older individuals are feathered.

Megapus parviscutus (Mar.) (Fig. 12-14).

Four females were found in three stations at depths varying from one-half to one and one-half meters. One individual had but two acetabula on the genital plate of the right side (fig. 13). The species has been found in several Wisconsin collections and the male is now known. This measures 0.70 mm. in length. The genital area is of the typical form (fig. 12). In living material the body is delicate and transparent, pale brownish red in color, with plates and legs bluish. A drawing is added of the end of the first leg (fig. 14), showing the slightly curved sixth segment and the two saber-like bristles on the proximal end of the fifth.

Albia caerulea Mar. (Fig. 15).

One individual of the collection was recognized as the undescribed male of this species. The characteristic colors were well preserved. The body is the same length as in the female (0.70 mm.) but is slightly

slimmer. The posterior border of the last epimeral pair is more distinct and angular in this sex, and the body here shows a slight protuberance and bears several hairs on papillae. The genital opening is well marked and has a thickened border. The genital areas are wing-shaped, faintly outlined on the anterior border, heavy on the posterior. The acetabula are numerous but faintly outlined. The entire genital area is broadly triangular and partly enclosed by a bay formed by the fourth epimera.

List of the Species.

Limnochares aquaticus (L.), *Limnesia undulata* (Müll.), *L. wawaseea* nov. spec., *Lebertia porosa* Thor., *L. quinque maculosa* nov. spec., *Frontipoda americana* Mar., *Atractides indistinctus* nov. spec., *Hygrobatas longipalpis* (Herm.), *Megapus parviscutus* (Mar.), *Unionicola crassipes* (Müll.), *Neumania pubescens* nov. spec., *Koenikea concava* Wol., *Piona spinulosa* (Wol.), *P. rotunda* (Kram.), *P. triangularis* (Wol.), *P. reighardi* (Wol.), *Albia caerulea* Mar., *Mideopsis orbicularis* (Müll.), *Krendowskiji ovata* Wol., *Arrhenurus infundibularis* Mar., *A. scutulatus* Mar., *A. manubriator* Mar., *A. megalurus* Mar., *A. parallelatus* Mar., *A. pseudocylindratus* Piers., *A. americanus* Mar., *A. falcicornis* Mar.