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On the rotifer *Keratella canadensis* Berzins

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Keratella canadensis Berzins described from Canada is considered a form of *Keratella quadrata* Müller. Evidence for this comes from the appearance of this form in two lakes only once for 3 consecutive months during 2 years' regular sampling and the presence of typical "*quadrata*" characters. "*Keratella canadensis*" appears to have morphological features which place it at one extreme of the very variable *Keratella quadrata*.

The genus *Keratella* has a worldwide distribution in freshwater habitats. The different species of this genus have certain characters highly variable and there has been an increase in synonyms, particularly for *Keratella quadrata* (Müller). Since the revision of the genus by Ahlstrom (1943), a few more species have been added. A new species *Keratella canadensis* described by Berzins (1954) form the subject matter of this paper.

According to Ahlstrom the important criteria for separating most varieties and forms in *K. quadrata* depend on the foundation pattern of the dorsum which has to be used in conjunction with other features, including posterior spines. In the drawings showing the "*quadrata*" group, he has given the outline of a form of *K. quadrata* without any dorsal pattern from material collected from Clark Lake, Saskatchewan, and he says "sculpture indistinct" (Fig. 1). Berzins obtained some material from Southern Indian Lake, Manitoba, too, and found a form similar to the one described by Ahlstrom (Figs. 2–4). Berzins observed the foundation pattern in the

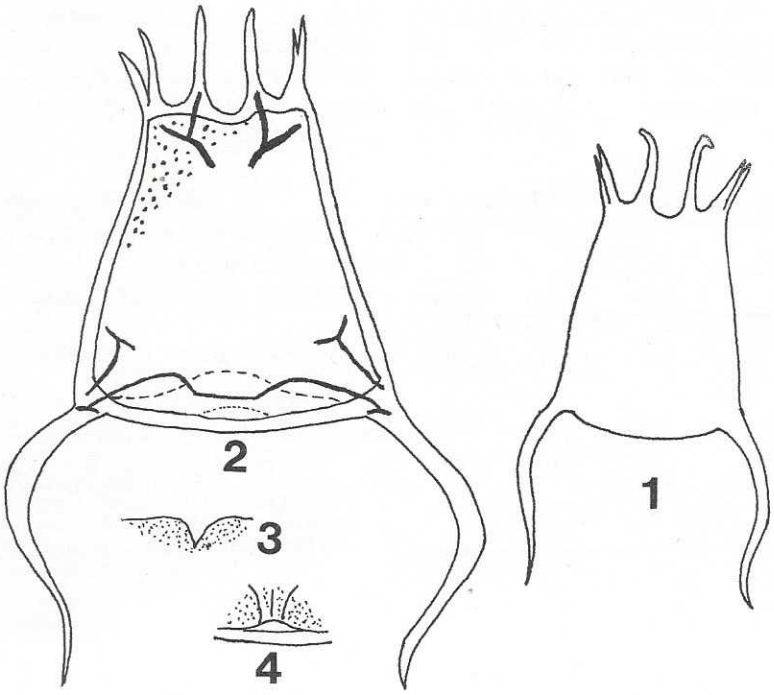

Fig. 1. *Keratella quadrata*, sculpture indistinct (after Ahlstrom 1943). Fig. 2. *Keratella canadensis*, dorsal view. Fig. 3. *Keratella canadensis*, occipital ventral margin. Fig. 4. *Keratella canadensis*, posterior part of body, ventral. Figs. 2–4 from Berzins 1954.

occipital region and posterior part of the dorsal plate. The nature of the foundation pattern, the peculiar nature of the posterior spines, and the narrowness of the body at the occipital region warranted Berzins to create a new species *Keratella canadensis*.

During our investigations on the rotifer ecology from Sunfish and Paradise Lakes in Waterloo, Ontario, a form similar to *K. canadensis* was collected. This species appeared early in winter and by the end of March, before the breakup of ice, disappeared. The population was distributed mainly in the top layers and the periods of abundance were similar in both the lakes. After March, this species did not reappear at any time in the subsequent year. *K. quadrata* was present from November onwards in both lakes. The population increased from January until April and then declined. It was again high by the end of May and during August the population disappeared. In Sunfish Lake this species was again present from January (George and Fernando 1968).

The general outline, foundation pattern, and anal opening of the specimen collected from Sunfish Lake are shown in Fig. 5. The narrow occipital region, the broad posterior region, and the arched posterior spines are seen in Fig. 5A. The dorsal pattern and tiny but prominent pustulations are clear from Fig. 5B and C. The foundation pattern is typical of *K. quadra* though not very sharp. The occipital vent margin is not clear but the anal opening is sho in Fig. 5D. A few specimens showed the patt rather indistinct. However, we have not had opportunity to examine the type material which Berzins described the new species.

Table I gives measurements of the forms fr Southern Indian, Clark, and Sunfish Lak The dimensions given in this table show that three forms are similar. Berzins has pointed that one of the important reasons for creat the new species is the narrowness at the occipi end. In fact the material from Sunfish Lake much narrower than the one described Berzins.

The foundation pattern was indistinct in t species examined by Ahlstrom, while in t material examined by Berzins there was so indication of it at the occipital and poster regions. The form studied by us showed cl *K. quadrata* pattern. With the material availa to us, we are inclined to agree with Ahlstr and include the form from Clark Lake and t one described as *K. canadensis* by Berzins *K. quadrata*. It appears that there may be for with indistinct pattern to those that approa the typical pattern of *K. quadrata*. As obser from Sunfish and Paradise Lakes, these for may occur from time to time in a populati of *K. quadrata*.

TABLE I

Measurements of the three forms, in microns

	Southern Indian Lake	Clark Lake	Sunfish Lake
Total length	382	338	331
Width	122	128	105
Width occipitally	92	—	78
Width posteriorly	140	—	125
Length of body	178	162	172
Length of posterior spine	152	132	167
Occipital spines, lateral	38	46	42
Occipital spines, intermedian	51	45	51
Occipital spines, median	74	60	54

Acknowledgments

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AHLSTROM, E. H. 1943. A revision of the rotatorian ge *Keratella* with descriptions of three new species a five new varieties. Bull. Am. Museum Nat. Hist. 8 411–457.

BERZINS, B. 1954. A new rotifer, *Keratella canadensis*. Quekett Microscop. Club, 4: 113–115.

GEORGE, M. G. and FERNANDO, C. H. 1968. Seaso distribution and vertical migration of planktor rotifers in two lakes in eastern Canada. *Paper presen at* 17th Intern. Congr. Limnol. Israel, 1968.

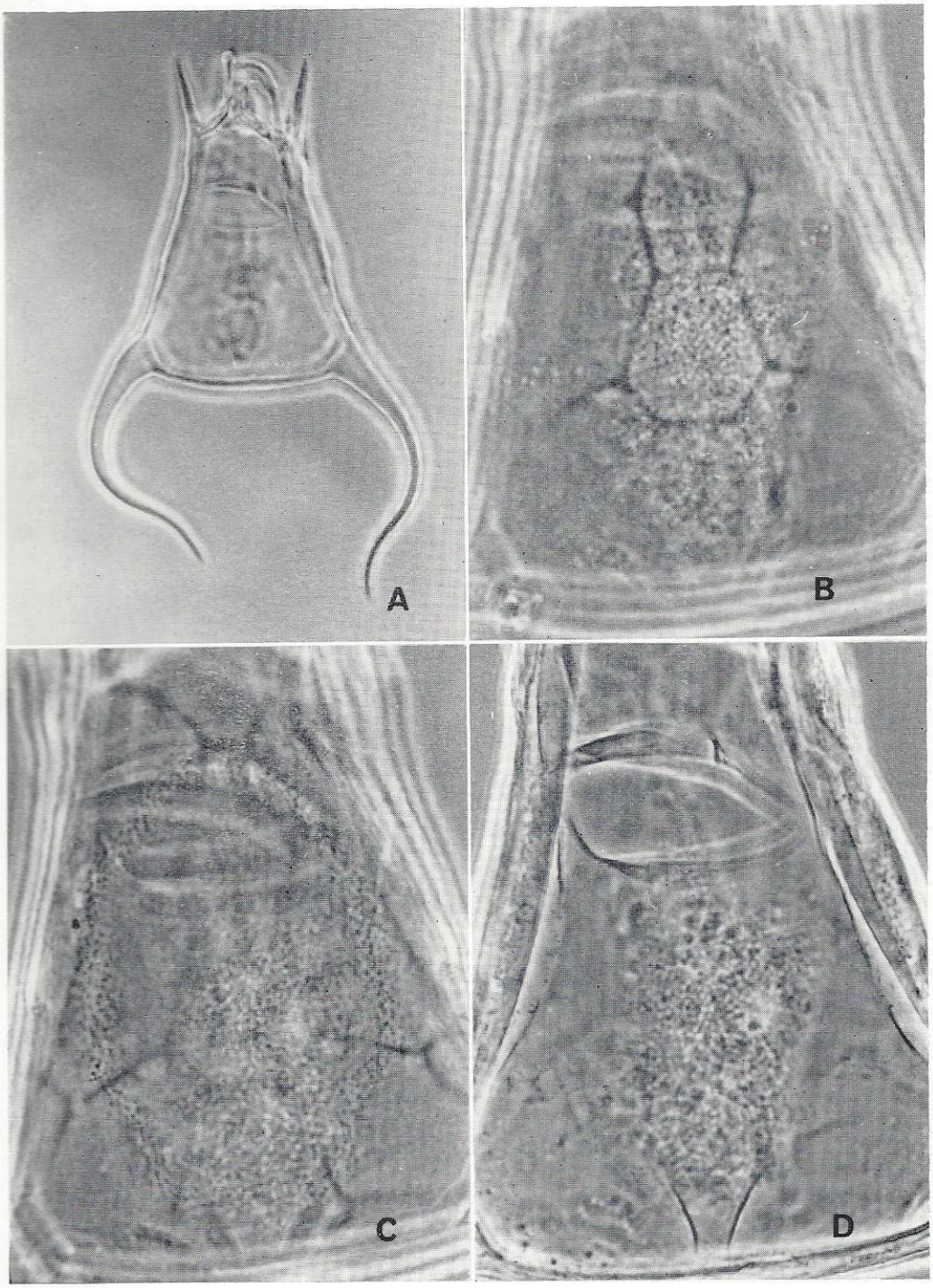

FIG. 5A. *Keratella quadrata*, outline of body. B–C. *Keratella quadrata*, dorsal pattern and pustulations. D. *Keratella quadrata*, showing anal opening.