

## Rotifera from Sri Lanka (Ceylon) 2

### Further Studies on the Eurotatoria Including New Records

by

R. CHENGALATH\*, C. H. FERNANDO\* and W. KOSTE†

#### INTRODUCTION

In the first paper of this series, Chengalath and Fernando (1973) dealt with the genus *Lecane* from Sri Lanka. In all, twenty five species were recorded, of which seventeen species were new records. Two new species were also described. On the present paper we deal with the rest of the Eurotatoria. Again we have found many new records. In all 79 species are described in the present paper of which 47 are new records.

The present study is based on the examination of over 300 samples from 135 localities including large and small tanks, ponds of various sizes, rice fields, streams and marshes. The collections cover the whole area of Sri Lanka and were taken during different seasons of the year mainly from 1968–1972. The sampling localities are given in Fig. 1.

In the previous paper (Chengalath and Fernando 1973) the literature on the Sri Lanka species was reviewed. Also the literature on the Eurotatoria of South and South-East Asia was given. Therefore, we have omitted reference to this literature. The methods used in the present study were the same as those referred to in Chengalath and Fernando (1973).

In the present paper we have given short descriptions of the species we have recorded. Measurements are included for most species. All species are illustrated. While we have not recorded all the variation in morphological features of the species we have studied, we have given some notes on variations in a few cases. Locality data is not given for each species but its general occurrence is noted. All this material will be referred to in a detailed study on Sri Lanka Zooplankton being prepared. All localities for each species will be included in this study. In the present paper a locality for each species is given in Appendix I.

#### List of species

We have listed the species under their respective families and have used the classification of Kutikova (1970).

#### Family Asplanchnidae

*Asplanchna brightwelli* Gosse, 1850

‡ *A. priodonta* Gosse, 1850

‡ *A. sieboldi* Leydig, 1854

*Asplanchnopus multiceps* Schrank, 1783

---

\* Department of Biology, University of Waterloo, Waterloo, Ontario, Canada.

† D 457 Quakenbruck, W. Germany.

‡ New Records for Sri Lanka.

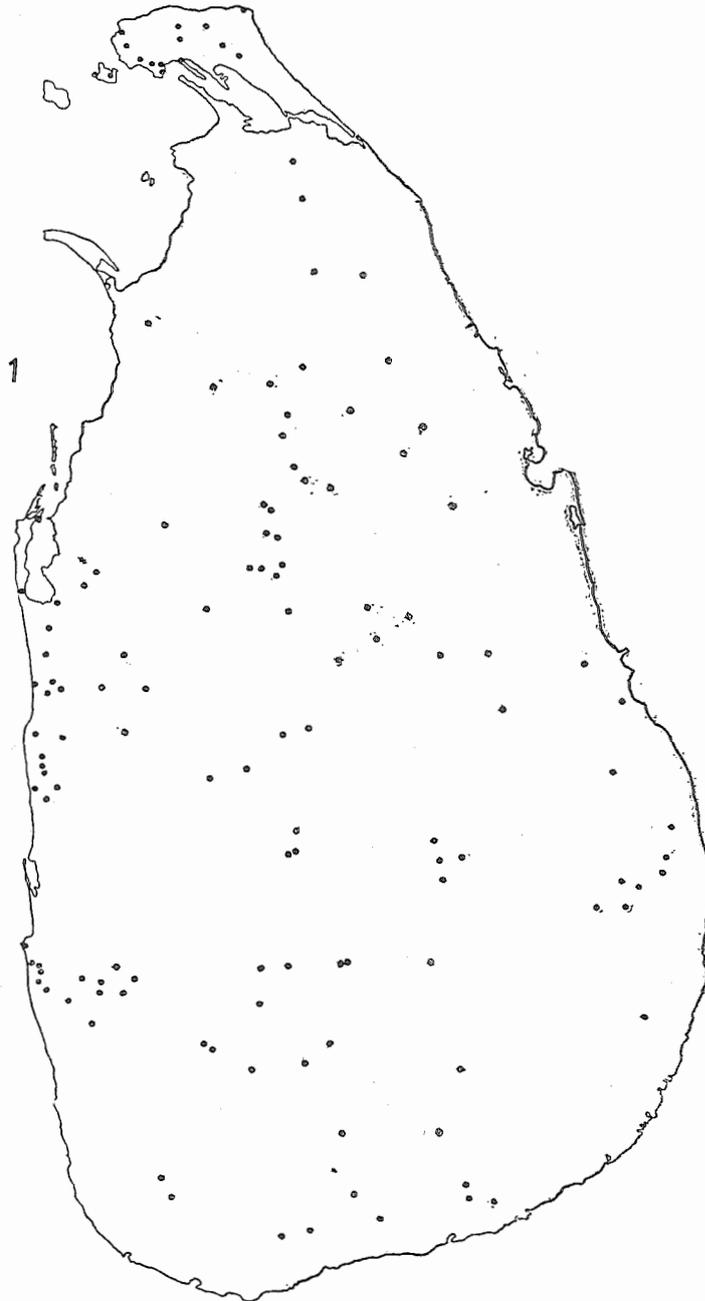


Fig 1. Map of Sri Lanka showing the collecting stations.

## Family Brachionidae

- \**Anuraeopsis coelata* De Beauchamp, 1932
- Anuraeopsis fissa* Gosse, 1851
- Brachionus angularis* Gosse, 1851
- B. budapestensis* Daday, 1885
- B. calyciflorus* Pallas, 1776.
- B. caudatus* Barrois and Daday, 1894
- \**B. caudatus* var. *aculeatus* Hauer, 1937
- \**B. donneri* Brehm, 1950
- B. falcatus* Zacharias, 1898
- B. forficula* Wierzejski, 1891
- \**B. leydigi* Cohn, 1862
- \**B. nilsoni* Ahlstrom, 1940
- B. quadridentatus* Herman, 1783
- B. rubens* Ehrenberg, 1838
- \**B. sessilis* Varga, 1951
- \**B. urcues* Linneaus, 1758
- \**B. urcoelaris* Muller, 1773
- B. patulus* Muller, 1786
- \**Kellicottia longispina* Kellicott, 1879
- Keratella cochlearis* Gosse, 1851
- \**K. earlinae* Ahlstrom, 1943
- \**K. lenzi* Hauer, 1953
- \**K. taurocephala* Myers, 1938
- K. tropica* Apstein, 1907
- Platylas quadricornis* Ehrenberg, 1832

## Family Euchlanidae

- Euchlanis dilatata* Ehrenberg, 1832
- \**E. incisa* Carlin, 1939
- \**E. oropha* Gosse, 1887
- \**Dipleuchlanis macrodactyla* Hauer, 1965
- \**D. propatula* Gosse, 1887
- \**Tripleuchanis plicata* Levander, 1894

## Family Mytilinidae

- Mytilina mucronata* Muller, 1773
- M. ventralis* Ehrenberg, 1832

## Family Notommatidae

- \**Cephalodella forficula* Ehrenberg, 1832
- \**C. gibba* Ehrenberg, 1832
- \**Notommata* sp.
- Scaridium longicaudum* Muller, 1786

**Family Trichotridae**

- \**Macrochaetus collinsi* Gosse, 1867
- \**M. sericus* Thorpe, 1893
- Trichotria pocillum* Muller, 1776
- \**T. tetractis* Ehrenberg, 1832

**Family Trichocercidae**

- \**Trichocerca bicristata* Gosse, 1887
- \**T. braziliensis* Murray, 1913
- \**T. chattoni* De Beauchamp, 1907
- \**T. cylindrica* Imhoff, 1891
- \**T. dixon-nuttali* Jennings, 1903
- \**T. rattus* Muller, 1776
- \**T. similis* Wierzejski, 1893
- \**T. stylata* Gosse, 1851

**Family Colurellidae**

- \**Lepadella costata* Wulfert, 1940
- L. ovalis* Muller, 1796
- \**L. patella* Muller, 1786
- \**L. rhomboides* Gosse, 1886

**Family Dicranophoridae**

- \**Dicranophorus robustus* Haring and Myers, 1928

**Family Synchaetidae**

- \**Polyarthra dolichoptera* Idelson, 1925
- P. vulgaris* Carlin, 1943

**Family Collotheceidae**

- \**Collotheca ornata natans* Tschugunoff, 1921

**Family Filinidae**

- \**Filinia camascela* Myers, 1938
- F. longiseta* Ehrenberg, 1834
- F. opoliensis* Zacharias, 1898
- \**F. pejleri* Hutchinson, 1964
- F. terminalis* Plate, 1886

**Family Hexarthridae**

- Hexarthra intermedia* Wisniewski, 1929
- H. mira* Hudson, 1871

**Family Floscularidae**

- \**Floscularia ringens* Linneaus, 1758
- Sinantherina semibullata* Thorpe, 1889
- \**S. spinosa* Thorpe, 1893

**Family Conochilidae**

- \**Conochilus unicornis* Rousselet, 1892
- \**Conochiloides dossuarius* Hudson, 1885
- \**C. natans* Seligo, 1900

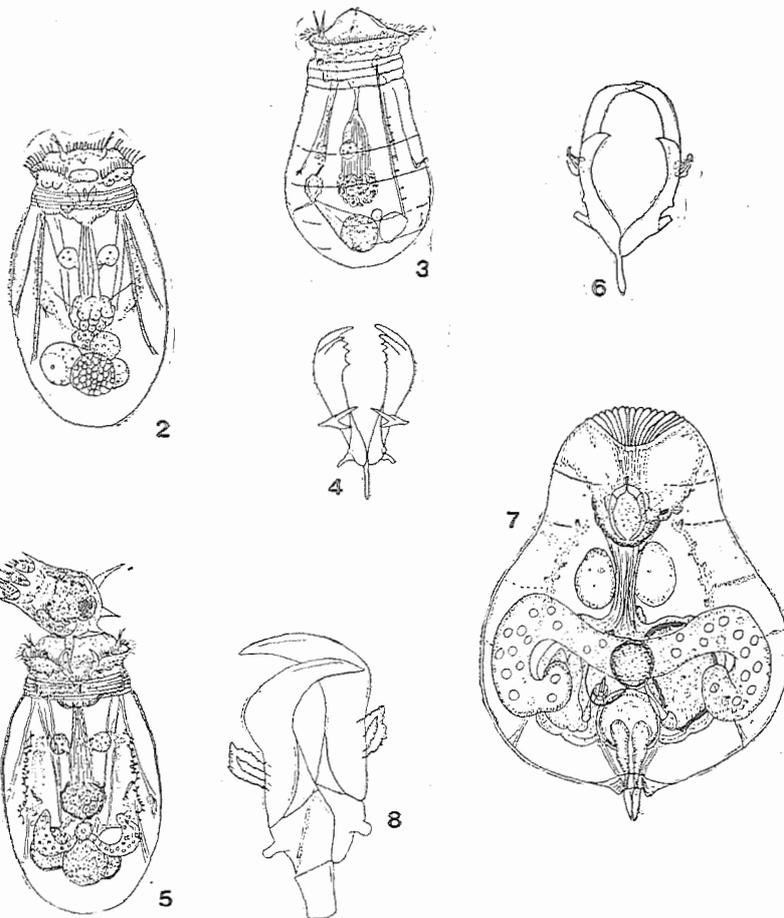
## Family Testudinellidae

- \**Horealla brehmi* Donner, 1949  
*Pompholyx complanata* Gosse, 1851  
 \**Testudinella parva* Ternetz, 1892  
*Testudinella patina* Herman, 1783  
*Trochosphaera equatorialis* Semper, 1872

## DESCRIPTION OF SPECIES

Genus *Asplanchna* Gosse, 1850

The transparent, sac-like *Asplanchna* is represented by 3 species in Sri Lanka. Of the 3 species *Asplanchna priodonta* and *A. brightwelli* are much more common than *A. sieboldi*. The identification of the species was done using the works of Voigt (1957), Bartos (1959) and Kutikova (1970).



Figs. 2 and 3.—*Asplanchna priodonta* ventral and lateral view respectively.

Fig. 4.—*Asplanchna priodonta* trophi.

Fig. 5.—*Asplanchna brightwelli*.

Fig. 6.—*Asplanchna sieboldi* trophi

Figs. 7 and 8.—*Asplanchnopus multiceps* contracted form and trophi respectively.

*Asplanchna brightwelli* Gosse, 1850 (Fig. 5)

Vitellarium horse-shoe shaped with more than 30 nuclei. The trophi resemble the drawings given by Kutikova (1970). Most of the specimens examined measured close to 1mm. in length even in the contracted state.

MEASUREMENTS Length of body—1250\*, Trophi—100

Very common in large and small lakes especially in eutrophic situations.

Measurements in  $\mu$  unless otherwise stated.

*Asplanchna priodonta* Gosse, 1850 (Fig. 2-4)

Vitellarium rounded. The trophi are characteristic and the inner edge of the rami has 4 to 6 teeth at the anterior end. There are also two lateral prolongations at the base of the rami. Fulcrum narrow. *A. priodonta* has not been recorded from Sri Lanka previously. However, it has been reported from India (Wulfert, 1966).

MEASUREMENTS Length of body—1200, Trophi—60.

Rare ; found in large lakes usually.

*Asplanchna sieboldi* Leydig, 1854 (Fig. 6)

Vitellarium horse-shoe shaped like in *A. brightwelli* but can be easily identified by the structure of the trophi. The trophi of the Sri Lanka specimens correspond exactly to the drawings of Hauer (1938) for material from Indonesia. The only minor difference from Hauer's drawings is in the shape of the allulae arising from the rami and in the single spine-like projection inwards in the middle of the rami. *A. sieboldi* has not been reported from Sri Lanka previously.

MEASUREMENTS Trophi—78.

Rare ; found in lakes.

Genus *Asplanchnopus* de Guerne, 1888.

This genus is represented by only a single species. The identification of this species is based on the works of Voigt (1957) and Kutikova (1970).

*Asplanchnopus multiceps* Schrank, 1783 (Fig. 7 and 8)

The foot in contracted specimens is hard to see sometimes. Trophi characteristic. The allulae on the rami differ in different specimens from little developed to well developed.

MEASUREMENTS Total length—980.

Common in ponds, rice fields and lakes.

Genus *Anuraeopsis* Lauterborn, 1900

This genus is represented by two species. The identification of species is based on Wulfert (1966).

*Anuraeopsis coelata* De Beauchamp, 1932 (Fig. 9)

The forms found in Sri Lanka are exactly like the ones found in India (Wulfert, 1966), except that the specimens found in Sri Lanka are slightly larger in size. There is a 'U' shaped sinus in the anterior end and no teeth are present inside the sinus. Small teeth are present outside the anterior sinus. Lorica pustulated. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS Length of lorica—112, Width—50

Common in ponds, lakes and rice fields.

*Anuraeopsis fissa* Gosse, 1851 (Fig. 10)

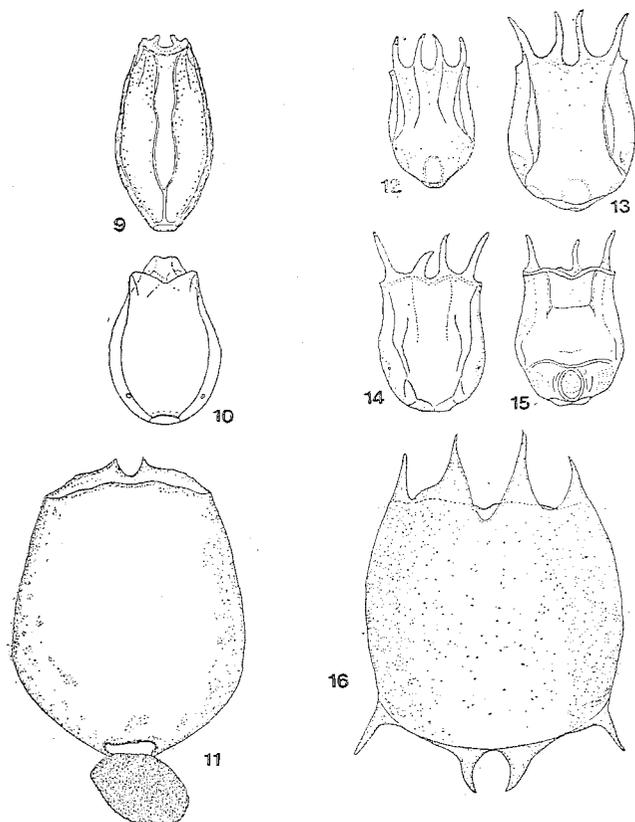
Lorica made of two plates dorsal and ventral. The dorsal plate is round. The forms found in Sri Lanka resemble the Indian specimens (Wulfert, 1966). However, the Sri Lanka forms are larger.

MEASUREMENTS Length of lorica—90, Width—50.

Common in ponds and lakes.

Genus *Brachionus* Pallas, 1766

Sixteen species of *Brachionus* are recorded and this is the commonest genus in Sri Lanka. Identification of species is based on the comprehensive works of Voigt (1957), Kutikova (1970) and the monograph of Ahlstrom (1940).

Fig. 9.—*Anuraeopsis coelata*.Fig. 10.—*Anuraeopsis fissa*.Fig. 11.—*Brachionus angularis*.Figs. 12–15.—*Brachionus budapestensis*.Fig. 16.—*Brachionus clayciftorus*.*Brachionus angularis* Gosse, 1851 (Fig. 11)

*B. angularis* is one of the more variable species of *Brachionus*. Many forms found in Sri Lanka lack intermediate spines in which case the occipital lateral margin invariably rounds off the middle to form median spines. Most of the forms found in Sri Lanka are similar to the ones reported from Rajasthan, India (Nayar, 1968). Only the median spines are prominent and there is a deep sinus in between them. The Sri Lanka forms are smaller compared to the ones described by Nayar (1968) from North India. Ahlstrom (1940) describes a small form from Madras, S. India and the Sri Lanka forms fall in between the North and South Indian forms in size.

MEASUREMENTS :	<i>Sri Lanka</i>		<i>S. India</i>		<i>N. India</i>	
	Length	Width	Length	Width	Length	Width
	101	75	91	71	120	96

Found in large and small lakes. Not common.

*Brachionus budapestensis* Daday, 1885 (Figs. 12–15)

Lorica firm and sturdy. Foot opening more or less rounded. In some cases the lorica is lightly stippled. The forms found in Sri Lanka seems to be larger compared to the measurements given by Ahlstrom (1940) from North and South America.

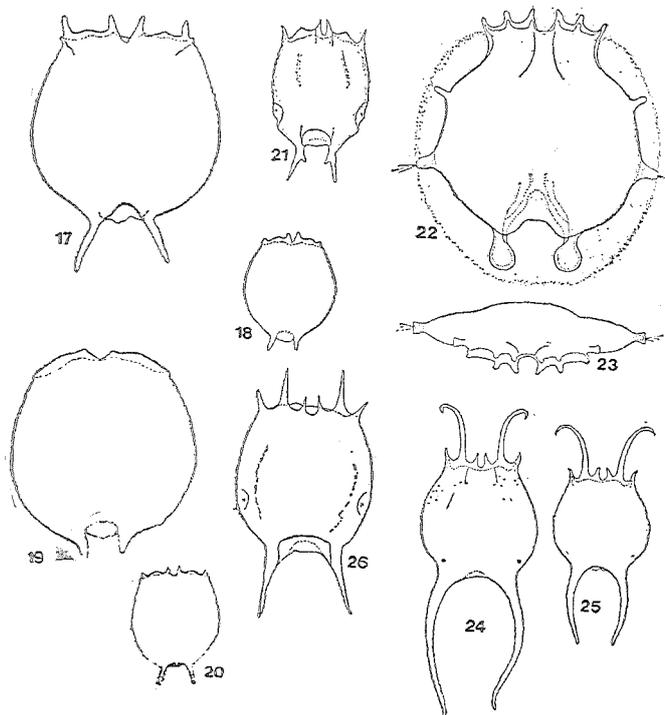
	<i>Present study</i>	<i>Ahlstrom (1940)</i>
Total length	150-200	115-170
Very rare; found only in a few large lakes.		

*Brachionus calyciflorus* Pallas, 1776 (Fig. 16)

A variable species especially with respect to the development of anterior and posterior spines. The cyclomorphosis of this species has been studied by Nayar (1963) in Northern India and he gives the variations in dimensions of *B. calyciflorus* in another paper Nayar, (1964). Apart from the usual forms an exceptional form with a very wide lorica was encountered in some samples (Fig. 16). These large forms had well developed anterior spines but the posterior spines are relatively shorter.

MEASUREMENTS : Total length—490, width—420, Anterior median spines—65, Anterior lateral spines—47, Posterior lateral spines—25, Posterior median spines—22.

Very common in large and small lakes, also occurs in rivers. Rare in ponds.



Figs. 17-20.—*Brachionus caudatus* showing variation.

Fig. 21.—*Brachionus caudatus* var. *aculeatus*.

Figs. 22 and 23.—*Brachionus donneri* dorsal view and lateral view from head side respectively.

Figs. 24 and 25.—*Brachionus falcatus* showing variation.

Fig. 26.—*Brachionus falcatus* short spined riverine form.

*Brachionus caudatus* Barrois and Daday, 1894 (Figs. 17-20)

*B. caudatus* is a highly variable species. The variability has been studied in detail by Green (1960). The posterior spines vary from little developed to well developed and even asymmetrically developed. Among the anterior spines the lateral spines may or may not be present. Specimens with different degrees of development in anterior and posterior spines were found in the same sample. Ahlstrom (1940) has recorded measurements of specimens from Brazil, Argentina and Mexico and compared to these the Sri Lanka specimens are smaller and the posterior spines are much shorter.

MEASUREMENTS : Total length—153, Width—114, Anterior median spines—9, Anterior lateral spines—3, Right posterior spine—18, Left posterior spine—12.

This species is restricted to the tropical region unlike most *Brachionus* species. Fairly common in large and small lakes.

*Brachionus caudatus* var. *aculeatus* Hauer, 1937 (Fig. 21)

The specimens from Sri Lanka are typical. The anterior median and lateral spines are of the same length. The inward projection from the posterior spines are prominent. Posterior spines equal in length. This species is not common in Sri Lanka. Nayar (1968) mentions that this variety is found commonly in Rajasthan, North India. The Sri Lanka forms are a little smaller compared to the Indian forms.

MEASUREMENTS : Total length—133, Width—81, Anterior median spines—12, Anterior lateral spines—12, Posterior spines—33.

Found in only one locality namely Giants Tank, Nr. Mannar.

*Brachionus donneri* Brehm, 1950 (Figs. 22 and 23) (Plate-A)

This interesting species is usually covered with filamentous algae and other debris making it very difficult to locate in samples and thus may be easily missed. So far it has been described only from India (Brehm, 1951). The forms found in Sri Lanka differs from the original material in some respects. Forms found in Sri Lanka are much more rounded compared to the drawings given by Brehm (1951). Brehm (1951) shows 6 blunt spines at the anterior dorsal margin and 4 blunt spines at the anterior ventral margin, whereas forms found in Sri Lanka have 6 blunt spines on both the ventral and dorsal aspects. The posterior projections of the lorica are club shaped and have a deep sinus between them. The projections from the side of lorica are also prominent.

MEASUREMENTS : Length of lorica—206, Width at anterior end—170.

Rare ; recorded in two localities, Senanayake Samudra and pond near Kandy.

*Brachionus falcatus* Zacharias, 1898 (Figs. 24–26)

The anterior and posterior spines vary considerably. A form with very short spines was found in large numbers from a river (Battuluoya). This form with shorter spines may be a modification for running water existence since longer spines tend to entangle easily.

MEASUREMENTS : Total length—246, Width—96, Anterior lateral spines—12, Anterior intermediate spine—69, Anterior median spine—12.

RIVER FORM : Total length—213, Width—114, Anterior lateral spines—18, Anterior intermediate spine—33, Anterior median spine—15.

Very common in all types of habitats.

*Brachionus forficula* Wierzekski, 1891 (Fig. 27) (Plate-B).

Anterior intermediate spines missing. The antero-laterals are longer than the antero-median spines. The Sri Lanka forms resemble a new variety described from Kerala, South India (Nayar, 1969). The only difference is in the absence of anterior intermediate spines which are present in the South Indian forms. Lorica terminates posteriorly in a pair of stout more or less equal spines and have no swellings at the base of these spines. Compared to the measurements given by Nayar (1960) the Ceylonese forms seems to be a little smaller.

MEASUREMENTS : Total length—195, Width 92, Anterior median spines—10, Anterior lateral spines—20, Posterior spines—84.

Very common in large and small lakes, rivers, rice fields and ponds.

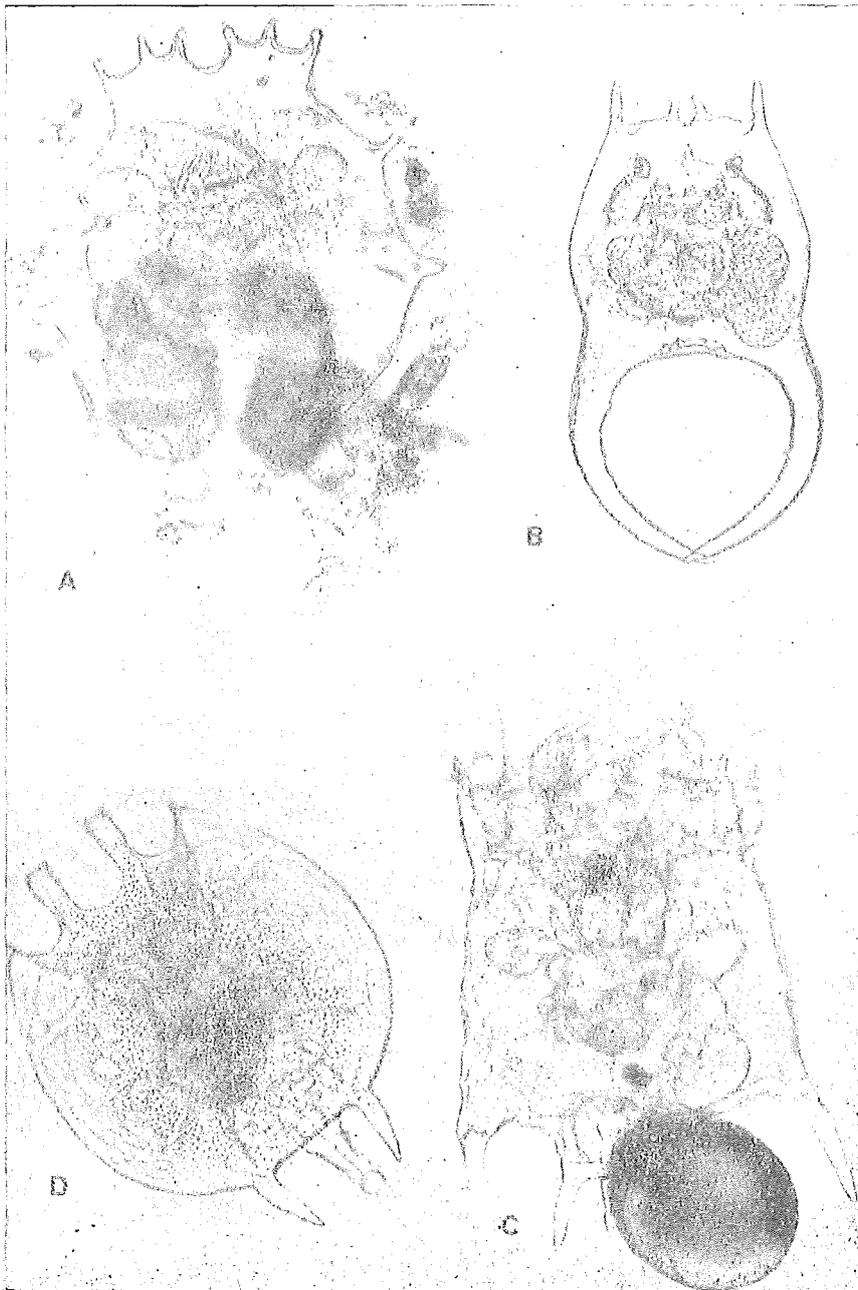


Plate 1 : A.—*Brachionus donneri*, dorsal view.  
B.—*Brachionus forficula*.  
C.—*Brachionus patulus*.  
D.—*Platyas quadricornis*.

*Brachionus leydigi* Cohn, 1862 (Fig. 28 and 29)

Anterior spines are all curved. The inner two spines curve outward, the intermediates and laterals usually curve inwards. The posterior end of the lorica usually broader than the anterior end. The three spines surrounding the foot opening are prominent. *B. leydigi* has been recorded from China and India (Ahlstrom, 1940) but was not been reported from Sri Lanka previously.

MEASUREMENTS : Total length—280.

Rare, occurs in large and small lakes.

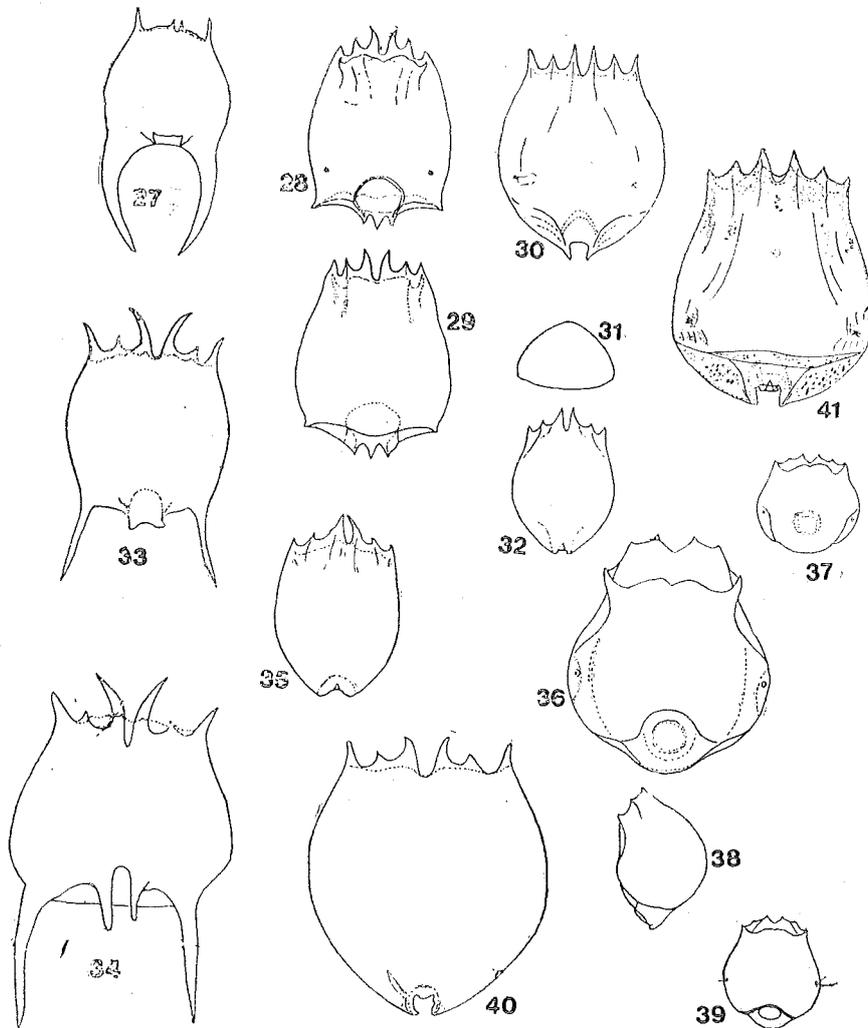


Fig. 27—*Brachionus forcifera*

Figs. 28 and 29—*Brachionus leydigi*

Figs. 30-32—*Brachionus nilsoni*

Figs. 33 and 34—*Brachionus quadridentatus*

Fig. 35—*Brachionus rubens*

Figs. 36-39—*Brachionus sessilis*

Fig. 40—*Brachionus urceus*

Fig. 41—*Brachionus urceolaris*

*Brachionus nilsoni* Ahlstrom, 1940 (Fig. 30-32)

Lorica more or less rounded. Anterior spines are narrow, pointed and short with a short strengthening ridge. Median sinus prominent. Juvenile forms of *B. nilsoni* were found in some samples. They were smaller and the spines have not developed well except for the antero-medians. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Total length—136-196.

Rare, but occurs in large and small lakes, in the littoral region.

*Brachionus quadridentatus* Herman, 1783 (Fig. 33 and 34)

A variable species. Anterior and posterior spines were well developed in all specimens examined. The lorica seemed to be longer than is usually described. Some specimens were heavily stippled while some were only lightly stippled. The foot sheath is well developed in some specimens projecting as blunt spines bounding the foot opening and is always asymmetric. This species is considered to be cosmopolitan.

MEASUREMENTS : Total length—240, width—135, Anterior lateral spines—21, Anterior intermediate spines—9, Anterior median spines—63, and posterior spine—66.

Very common in weedy ponds and rice fields.

*Brachionus rubens* Ehrenberg, 1838 (Fig. 35)

Lorica sturdy with six anterior spines of which the median spines are the longest. There is a 'V' shaped median sinus. Intermediate and lateral spines are short and pointed. All the anterior spines have a strengthening rib. Lorica not ornamented. *B. rubens*, found in Sri Lanka are much smaller than the Indian (Nayar, 1968), European or American forms (Ahlstorm, 1940).

MEASUREMENTS: Total length 144, Width—102, Anterior lateral spines—6, Anterior intermediate spines—6, Anterior median spines—12.

Rare, found in ponds and small lakes.

*Brachionus sessilis* Varga, 1951, (Fig. 36—39)

This species was first described by Varga(1951) from Lake Balaton, epizoic on *Diphanosoma bachyurum* (Lieven) and has not been reported since. The anterior end of the lorica has four clear small spine-like projections with a fairly deep sinus between the median spines. Foot opening ventral, large and more or less round. Eggs were attached to the posterior end of some specimens. In Sri Lanka *B. sessilis* was found from only one lake (Pavatkulam) and was living epizootically on *Diaphanosoma excisum* (Sars). This species of epizoic rotifera has not been recorded from Sri Lanka previously.

Only a single record so far from Sri Lanka, but probably fairly common as an epizoite. It is interesting to note that in widely different parts of the world it occurs on the same genus of Cladocera showing specificity.

*Brachionus urceus* (Linnaeus, 1758) (Fig. 40)

*B. urceus* is similar to *B. urceolaris* but differs from it in its smaller size and the shape of the anterior spines. The lorica is distinctly rounded and without ornamentation. The anterolateral and anteromedian spines are longer than intermediate spines. All the spines have a broad base. No strengthening ribs for the spines were discernible in specimens from Sri Lanka. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Length of lorica—150, width—120, Anterior lateral spines—18, Anterior intermediate—6, Anterior median spines—18.

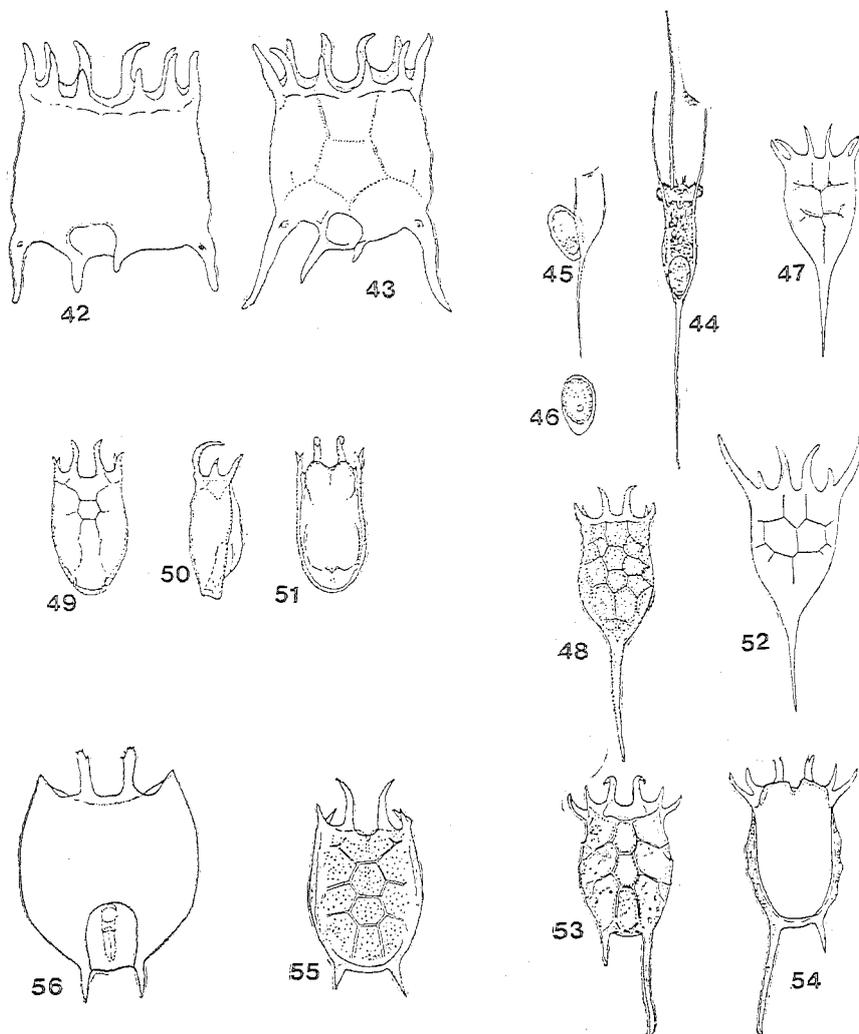
Rare, occurs in similar habitats as *B. nilsoni* and *B. urceolaris*, i.e. small and large lakes littoral

*Brachionus urceolaris* Muller, 1773 (Fig. 41)

Lorica sturdy with longitudinal lines. The anterior spines have strengthening ribs. Lorica is lightly stippled especially at the edges. This species has not been reported from Sri Lanka previously.

MEASUREMENTS : Total length of lorica-245.

Rare ; occurs in similar habitats as *B. nilsoni* and *B. urceus*, i.e. small and large lakes, littoral.



Figs. 42 and 43—*Brachionus patulus*.

Figs. 44 and 45.—*Kellicottia longispina* ventral view and end of body with egg respectively.

Fig. 46—*Kellicottia longispina* egg.

Fig. 47—*Keratella cochlearis* dorsal view.

Fig. 48—*Keratella erlinae*.

Figs. 49 and 50—*Keratella lenzi* dorsal view and lateral view respectively.

Fig. 51—*Keratella lenzi* ventral view.

Fig. 52—*Keratella taurocephala*

Figs. 53 and 54—*Keratella tropica* dorsal and ventral view respectively.

Fig. 55—*Keratella tropica* small riverine form.

Fig. 56—*Platyas quadricornis* dorsal view.

*Brachionus patulus* (Muller, 1786) (Fig. 42 and 43) (Plate-C)

*B. patulus* is a very common rotifer and varies considerably in the development of spines. Some specimens have long posterior spines, both lateral and median. However, in most specimens the posterior median spines are shorter than the lateral and are asymmetrical. Sri Lanka forms agree with the description of Ahlstrom (1940). This species is considered to be cosmopolitan.

MEASUREMENT : Total length—255-275

Very common in ponds but also occurs especially in littoral samples from lakes.

Genus *Kellicottia* Ahlstrom, 1938

This genus is a new record for Sri Lanka and is represented by a single species *K. longispina*. *Kellicottia* are long bodied, long spined rotifers with unpaired occipital spines of an equal length. Identification of species is based on Ahlstrom (1938).

*Kellicottia longispina* (Kellicott, 1879) (Fig. 44-46)

This species can be easily identified by its long thin body and long anterior and posterior spines. *K. longispina* has 6 anterior spines of varying length. Mental margin elevated with a 'U' shaped sinus. The anterior spines have short strengthening ridges and the lorica is not ornamented. Usually found entangled together in clusters because of long spines, this species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Total length—780.

Rare ; only recorded from a few lakes.

Genus *Keratella* Bory de St. Vincent, 1822

This genus is represented by 5 species. However, *K. tropica* is the commonest of all species in the genus ; the other species are found only very occasionally. The identification of species is based on the revision of *Keratella* by Ahlstrom (1943).

*Keratella cochlearis* Goose, 1851 (Fig. 47)

The shape and the foundation pattern of this species is as described in Ahlstrom (1943). *K. cochlearis* has been recorded from North India (Edmondson and Hutchinson, 1934), but has not been recorded from Sri Lanka previously.

MEASUREMENTS : Total length—211, length of body—99, width—67, Anterior lateral spine—29, Anterior intermediate spine—25, Anterior median spines—32, posterior spine—80.

Rare ; recorded from a few large lakes.

*Keratella earlinae* Ahlstrom, 1943 (Fig. 48)

*K. earlinae* found in Sri Lanka agrees with the description given by Ahlstrom (1943) for material from North America. The lorica has pustules distributed along the ridges of the dorsal plate and also irregularly inside the plaques. There seems to be an extra anterolateral polygon on either side situated between the median frontal area and the accessory antero-median hexagon which is small. The posterior spine is relatively long. This species has not been recorded from outside North America so far and is a first record for Sri Lanka. Sri Lanka forms are larger compared to the North American forms.

MEASUREMENTS : Total length—256, Length of body—108, Width—89, Antero-lateral spine—29, Anterior intermediate spine—16, Anterior median spines—38, Posterior spine—106.

Rare ; found in lakes and ponds.

*Keratella lenzi* Hauer, 1953 (Fig. 49-51)

This species was first recorded from Barzil by Hauer (1953). Subsequently it has been reported from Transval, South Africa by Edmondson and Hutchinson (1934), whose identification was corrected by Berzins (1955) and by Green (1967) from lake Victoria, Lake Kyoga and Lake Albert in Africa. The forms found in Sri Lanka agree with the drawings of Berzins (1955). This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Length of lorica—148.

Rare ; occurs in large and small lakes.

*Keratella taurocephala* Myers, 1938 (Fig. 52)

The Sri Lanka specimens agrees with the description given by Ahlstrom (1943) for materia, from the United States. The dorsal pattern in the lorica was clearly visible. Posterior spine very long. The Sri Lanka forms are larger than those mentioned in Ahlstrom's (1943) paper but falls within the range of specimens from Ontario, Canada (Chengalath, 1971). *Keratella taurocephala* is recorded for the first time from outside North America, and is a new record for Sri Lanka.

MEASUREMENTS : Total length—285, Length of body—109, Width—83, Anterior lateral spine—54, Anterior intermediate spine—16, Anterior median spine—38, Posterior spine—125.

Rare, considered an acid water species. Found in few lakes.

*Keratella tropica* Asptein, 1907 (Fig. 53–55)

The posterior spines have varying lengths. However, the left is always shorter than the right. This species has been reported from India (Edmondson and Hutchinson, 1934), Indonesia (Hauer, 1938) and Africa (Green, 1967). The cyclomorphosis of this species have been studied by George (1966) in India and by Green (1967) in Africa. A diminutive form of this species with small lorica and small stumpy spines was found in a sample from a river (Batuluoya) (Fig. 55). This may be a special adaptation for running waters (Hynes, 1970) and was found in large numbers.

MEASUREMENTS : Total length of lorica—240.

RIVER FORM : Total length—132, Width—63, Anterior lateral spines—18, Anterior intermediate spines—12, Anterior median spines—30, Right posterior spine—18, Left posterior spine—12.

The most common species in lakes. But also occurs in rivers, ponds and rice fields.

Genus *Platyias* Haring, 1913

Wufert (1965) revised this genus and has removed all the species except *P. quadricornis* from stand has included in the genus *Brachionus*. Identification of species based on Ahlstrom (1940) and Wulfert (1965). This genus is represented by only one species.

*Platyias quadricornis* Ehrenberg, 1832 (Fig. 56) (Plate—D)

The material agrees with the description of Ahlstrom (1940). The tips of anterior median spines are invariably curved ventrally.

MEASUREMENTS : Total length—319, Width—156, Anterior spine—42, Posterior spine—24.

Very common in ponds. Also occurs in littoral samples from lakes.

Genus *Euchlanis* Ehrenberg, 1832 (including *Dipleuchlanis* and *Tripleuchlanis*)

The members of this genus are littoral forms and they are represented in Sri Lanka by six species. The identification of species is based on the paper of Myers (1930) and the comprehensive works of Voigt (1957), Bartos (1959) and Kutikova (1970).

*Euchlanis dilatata* Ehrenberg, 1832 (Fig. 57–60)

This species varies considerably in size and shape not only in dorsal and ventral views but also in cross sections, the dorsal arc being high or low. The anterior end and the posterior notch which is shaped like an inverted 'U' are characteristic. It is large and has a characteristic shape.

MEASUREMENTS : Length of ventral plate—120–260, Length of dorsal plate—108–205, Width of ventral plate—72–135, Width of dorsal plate—108–165, Length of toes—51–72.

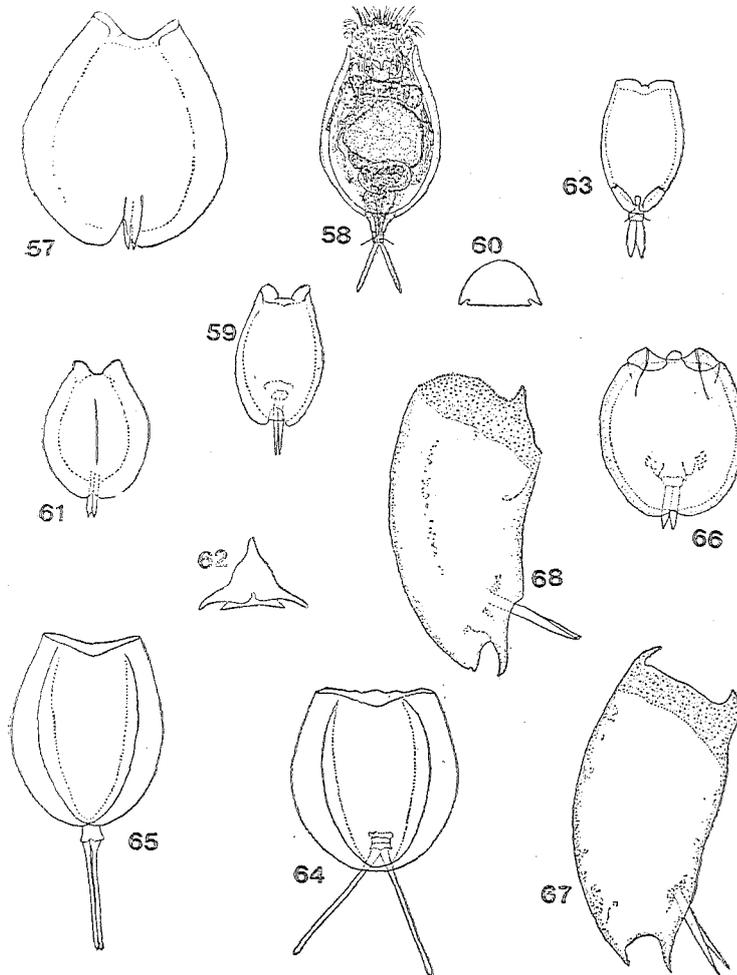
One of the commonest rotifer species occurring in all types of habitats equally frequently.

*Euchlanis incisa* Carin, 1939 (Fig. 61-62)

Body oval shaped. This species is smaller compared to most of the *Euchlanis dilatata* and *E. oropha* found in Sri Lanka. The 'V' shaped notch at the posterior end of the dorsal plate is characteristic. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Length of ventral of plate—172, Length of dorsal plate—110, Width of lorica—80, Length of toe—66.

Rare ; found in ponds and lakes.



Figs. 57-59.—*Euchlanis dilatata*

Fig. 60.—*Euchlanis dilatata* cross section.

Figs. 61 and 62.—*Euchlanis incisa* dorsal view and cross section respectively.

Fig. 63.—*Euchlanis oropha*

Fig. 64.—*Dipleuchlanis macrodactyla*

Fig. 65.—*Dipleuchlanis propatula*

Fig. 66.—*Tripleuchlanis plicata*

Fig. 67.—*Mytilina mucronata*

Fig. 68.—*Mytilina ventralis*

*Euchlanis oropha* Goose, 1887 (Fig. 63)

Body oval, Dorsal plate has a deep notch at the posterior end. Toes wide. The anterior end is more or less straight and characteristic. This species has not been reported from Sri Lanka previously.

MEASUREMENTS : Length of lorica—190

Rare ; found in lakes.

*Dipleuchlanis macrodactyla* Hauer, 1965 (Fig. 64)

The anterior end of the ventral plate is more or less straight with a slight hump in the middle flanked by two slight depressions. Dorsal plate is much narrower than the ventral plate. Toes,

long, measures more than two-thirds the body length. *D. macrodactyla* has not been reported from Sri Lanka previously. This species was first recorded from the Amazon region by Hauer (1965) and has not been recorded since.

MEASUREMENTS : Length of ventral plate—142, Length of dorsal plate—132, Width of ventral plate—137, Width of dorsal plate—89, Toe—115.

Fairly common. Found in small ponds.

*Dipleuchlanis propatula* Goose, 1886 (Fig. 65)

Both the dorsal and ventral plates in the anterior end have median sinuses. Though at first sight *D. Propatula* can be mistaken for *D. macrodactyla* a close examination reveals differences. Toes of *D. propatula* are not as long as the toes of *D. macrodactyla* and also there are differences in the anterior margin especially of the ventral plate. In some preserved specimens the foot had not contracted into the lorica ; making the toes appear longer than they really are. This species has been reported from Kerala, India (Nayar, 1969) and from the river Sokoto, West Africa (Green, 1960) but has not been recorded from Sri Lanka previously. Compared to Indian specimens Sri Lanka specimens are smaller.

MEASUREMENTS : Length of ventral plate—165, Length of dorsal plate—151, Width of ventral plate—135, Width of dorsal plate—102, Width at anterior margin—87, Toe—99.

Fairly common in ponds.

*Triplecuhlanis plicata* Levander, 1894 (Fig. 66)

The body ovoid in shape. Foot is wide and robust, composed of three joints. Toes are short and less than one-third the length of the body and are parallel sided ending in sharp points. This species has been reported from Indonesia (Hauer, 1938) but has not been reported from Sri Lanka previously.

MEASUREMENTS : Length of ventral plate—138, length of dorsal plate—129, Width of lorica—123, Width at anterior margin—45, Toes—42.

Rare ; found in ponds.

Genus *Mytilina* Bory de St. Vincent, 1826

This genus is represented by two species. The identification of species was based on Kutikova (1970).

*Mytilina mucronata* Muller, 1773 (Fig. 67)

Lorica consists of one piece and in cross section the dorsal sulcus is 'V' shaped. The forms found in Sri Lanka are typical. There are four spine-like projections at the anterior end which also bears very small spines.

MEASUREMENTS : Length of lorica—172, Width—83, Toe—49.

Rare ; found in the littoral of lakes and small ponds.

*Mytilina ventralis* Ehrenberg, 1832 (Fig. 68)

The anterior end of lorica with small spines along the edges and hispid to about one-fifth of the length. Posterior end narrow. Dorsal side arched. Sri Lanka specimens of *M. ventralis* are a little smaller than *M. mucronata*.

MEASUREMENTS : Length of lorica—165, Width—81 Toe—51.

Rare ; found in the littoral of lakes and small ponds.

Genus *Cephalodella* Bory de St. Vincent, 1826

This genus is new to Sri Lanka and is represented by two species. Identification of species was based on Donner (1950) and Voigt (1957).

*Cephalodella forficula* Ehrenberg, 1832 (Fig. 71 and 72)

Body more or less cylindrical with a neck segment. Toes characteristic and have a small acute tooth in the middle of the dorsal side and a row of very small teeth at the end of the swollen basal part. *C. forficula* varies very much in size. The Sri Lanka specimens are larger compared to European forms (Donner, 1950 : Eriksen, 1969). This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Total length—275.

Rare ; found in ponds.

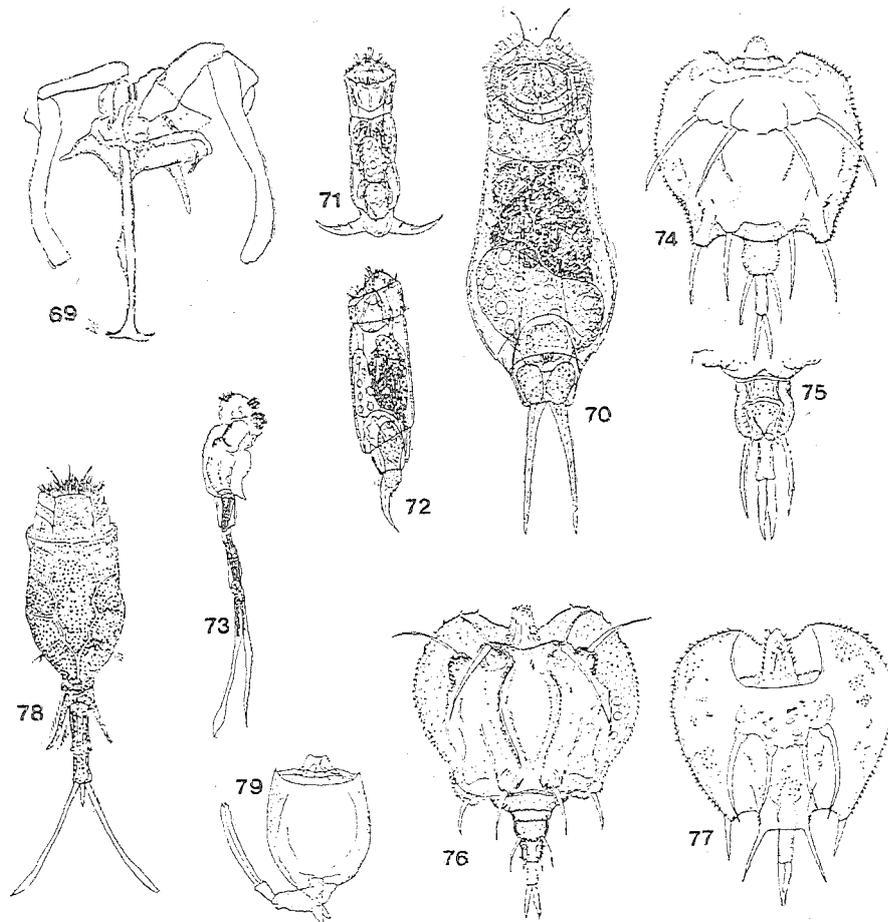


Fig. 69.—*Notmmata* sp., trophi.

Fig. 70.—*Cephalodella gibba* ventral view

Figs. 71 and 72.—*Cephalodella forficula* ventral view and lateral view respectively.

Fig. 73.—*Scaridium longicaudum*.

Figs. 74 and 75.—*Macrochaetus collinsi* dorsal view and ventral view of foot respectively.

Fig. 76.—*Macrochaetus collinsi* another form.

Fig. 77.—*Macrochaetus sericus* dorsal view.

Fig. 78.—*Trichotria pocuillm* dorsal view.

Fig. 79.—*Trichotria tetractis*.

*Cephalodella gibba* Ehrenberg, 1832 (Fig. 70)

Body fairly large bulging towards the posterior end. Toes long and ending in a point. *C. gibba* also varies in size of body and toes (Eriksen, 1969). This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Total length—275.

Common in ponds and lakes.

Genus *Notommata* Ehrenberg, 1830 (Fig. 69)

This genus is new to Sri Lanka. Trophi diagnostic. *Notommata* sp. The species found in Sri Lanka has typical *Notommata* trophi but differs from all the drawings in the literature. Outwardly the contracted specimens looked like *Notommata coepus* Ehrenberg. However, the trophi is incompatible with *N. coepus* trophi.

Rare, found in small ponds.

Genus *Scaridium* Ehrenberg, 1930

Only one species is known in this genus. Identification of this species was based on Voigt (1957).

*Scaridium longicaudum* Muller, 1786 (Fig. 73)

Lorica more or less cylindrical and very thin and transparent. Body comparatively small with a long foot. Two segmented foot. The toes are very long.

MEASUREMENTS : Total length—321, Length of body—96, Foot—90, Toe—132.

Rare, found in ponds and littoral of lakes.

Genus *Macrochaetus* Perty 1850

This genus is a new record for Sri Lanka and is represented by two species. The identification of species was based on Wulfert (1964).

*Macrorchaetus collinsi* Goose, 1867 (Figs. 74–76)

The shape of the lorica is more or less rounded with spines on the margins. There are some large tooth like spines at the antero-lateral margin. The number of these spines varies from specimen to specimen but are usually one to three. The outer anterior dorsal spines are placed higher than the inner spines and their position can be variable according to the state of preservation of the animal. Like the anterior median and lateral spines, the posterior median spines also emerge from fleshy lobes. The lorica is covered with spines. Two forms of *M. collinsi* were encountered in the samples from Sri Lanka. In one form, there is only one anal segment from the base of which arise the two anal spines. Sometimes two very small spines can also be noticed ventral to this. In the other form the anal segment is composed of three or four segments and the anal spine originates from the third segment with a smaller spine arising from the fourth segment. There are also some spinules at the edges of the anal segment (Fig. 76). *M. collinsi* has been recorded from Indonesia (Hauer, 1938) and India (Nayar, 1968) but has not been recorded from Sri Lanka previously.

MEASUREMENTS: Length of lorica—100.

Commoner of the two species of *Macrochaetus*. Found in small ponds.

*Macrorchaetus sericus* Thorpe, 1893 (Fig. 77)

The lorica is horse-shoe shaped with prominent spines at the edges and is wider than long. The two outer antero-dorsal spines are higher than the inner spines, all of which originated from fleshy protuberances. There is no anal segment and the posterior end of the lorica is pushed inward between the posterior outer and inner spines. Though at first glance it resembles *M. collinsi* it can

be distinguished by the aforementioned characters. This species has been reported from China (Thorpe, 1893) and from India (Arora, 1965). However, it has not been reported from Sri Lanka previously. The previous records of this species show that this may be a cosmopolitan form.

MEASUREMENTS: Length of lorica—81, Width—86, Foot—25, Claw—16.

Rare, found in small ponds.

#### Genus *Trichotria* Bory de St. Vincent, 1827

This genus is represented by two species. The identification was based on Voigt (1957), Wulfert (1966) and Kutikova (1970).

#### *Trichotria pocillum* Muller, 1776 (Fig. 78)

The lorica is comparatively long and not very wide, with a jutting edge along the dorsal surface of the lorica. The foot is 3 segmented and withdrawn in contracted specimens. Two main toes long with pointed ends. In between these two toes is a small spine which is characteristic.

MEASUREMENTS: Total length—290.

Rare, found in ponds.

#### *Trichotria tetractis* Ehrenberg, 1832 (Fig. 79)

Though somewhat variable most of the specimens examined had a lorica not much longer than wide. Foot with 3 segments, the first segment bearing two dorsal triangular spines. The second segment of the foot is longer than the other two, Toes long slender ending in a point. The forms from Sri Lanka agree with some forms described by Wulfert (1966) from India. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS: Length of lorica—114, Width—96, Foot—69, Toe—90.

Commoner than *T. pocillum*, occurs in ponds.

#### Genus *Trichocerca* Lamarck, 1801

This genus is represented by eight species in Sri Lanka. The identification of species was based on Jennings (1902), Hauer (1938), Voigt (1957) and Kutikova (1970).

#### *Trichocerca bicristata* Gosse, 1887 (Figs. 80 and 81)

This species resembles *T. braziliensis* but differs from it in several characters (see *T. braziliensis*). The body is long. The main toe is more than half the length of the body. The keel on the body extends for more than half the body length. Trophi large, the right manubrium larger than the left. The right manubrium seems to be wider in Sri Lanka specimens compared to the drawings given by Kutikova (1970). *T. bicristata* has not been reported from Sri Lanka previously. Green (1960) reported it from the river Sokoto, West Africa.

MEASUREMENTS: Length of body—225, Main toe—150, Width—69.

Fairly common in lakes and ponds.

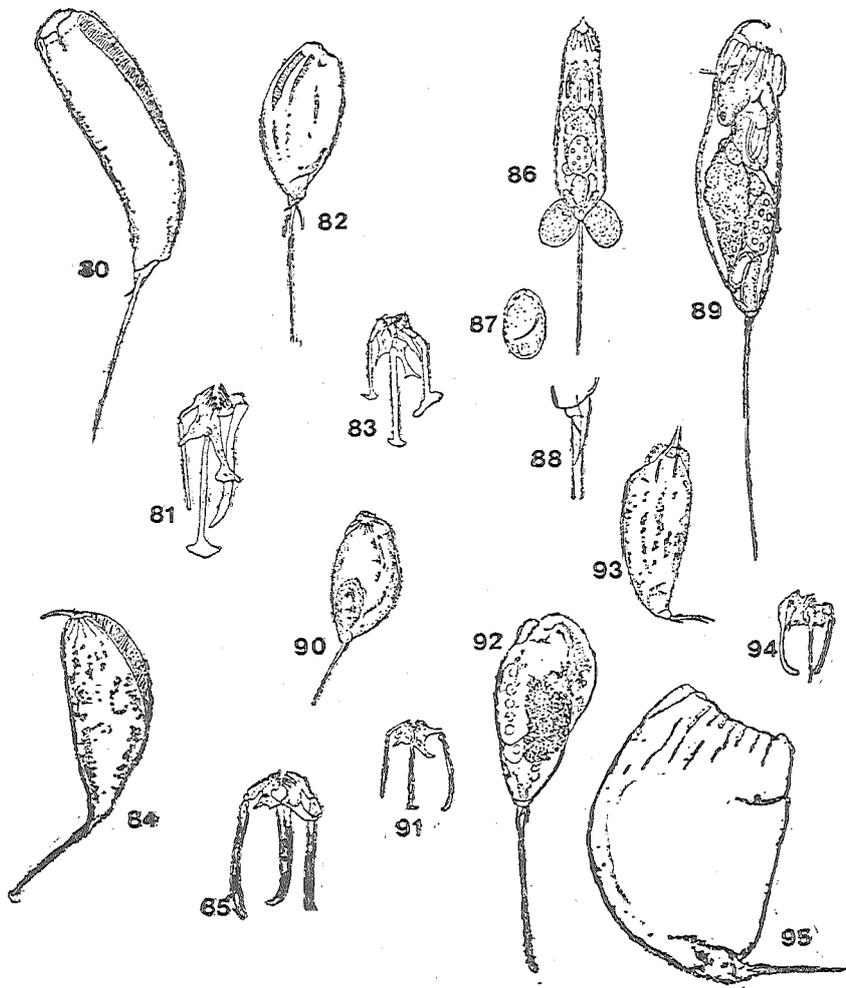
#### *Trichocerca braziliensis* Murray, 1913 (Figs. 82 and 83)

The body as well as the trophi resembles *T. bicristata*. However, the differences can be easily discerned by close examination. The two keels on the body extend less than one-third of the body length. Also the body is short and slightly squat. Main toe longer than the body, The shape of

the body of specimens from Sri Lanka resembles the drawings of Hauer (1965) from the Amazon. The trophi also resembles Hauer's (1965) material in general outline but there are some minor differences. The left manubrium is smaller than the right and has a small spoon shaped projection outwards which is not present in Hauer's (1965) drawing. Again there is a small spine-like extension from the right side of the rami-uncus complex. The forms found in Sri Lanka are more or less of the same size as that found in South America. So far this species has not been reported from outside the South American continent and is a new record for Sri Lanka.

MEASUREMENTS: Length of body—138, Width—69, Main toe—144, Trophi—50, Length of fulcrum 40, Right manubrium—36, Left manubrium—20.

Rare found from only, one pond, Nr. Tabbowa.



Figs. 80 and 81.—*Trichocerca bicristata* lateral view and trophi respectively.

Figs. 82 and 83.—*Trichocerca braziliensis* lateral view and trophi respectively.

Figs. 84 and 85.—*Trichocerca chattoni* lateral view and trophi respectively.

Figs. 86 and 87.—*Trichocerca cylindrica* and embryo respectively.

Figs. 88 and 89.—*Trichocerca cylindrica* enlarged portion of the proximal portion of foot and lateral view respectively.

Figs. 90 and 91.—*Trichocerca dixonnuttali* and trophi respectively.

Fig. 92.—*Trichocerca rattus* lateral view.

Figs. 93 and 94.—*Trichocerca similis* and trophi respectively.

Fig. 95.—*Trichocerca stylata*

*Trichocerca chattoni* De Beauchamp, 1907 (Figs. 84 and 85)

*T. chattoni* can be easily distinguished by its anterior spine which is fairly large and curved inwards. The head opening is folded in contracted specimens. On the dorsal side of the body starting from the anterior end there is a striped area running almost to the middle. *T. chattoni* has been recorded from Indonesia (Hauer, 1938) but has not been recorded from Sri Lanka previously.

MEASUREMENTS: Length of body—177, Width—72, Anterior spine—30, Main Toe—105.

Fairly common in lakes and ponds.

*Trichocerca cylindrica* Imhoff, 1891 (Figs. 86-89)

This rotifer also has an anterior spine called a mucron which is bent but it is not as prominent as in *T. chaitony*. This species differs from *T. chattoni* in having a longer toe and a much longer, cylindrical body. The forms found in Sri Lanka are typical and agrees with the description given by Jennings (1903). *T. cylindrica* has not been reported from Sri Lanka previously.

MEASUREMENTS: Total length—560.

Rare, found in lakes.

*Trichocerca dixon-nuttali* Jennings, 1903 (Figs. 90 and 91)

The body is more or less cylindrical and the anterior end has many folds which close the head opening in contracted specimens. Two toes present. The longer left toe is half the length of the body. *T. dixon-nuttali* closely resembles *T. ruttneri*, Donner. However, *T. dixon-nuttali* can be recognised by its two toes and a body which is more slender than that of *T. ruttneri*. The mastax is also diagnostic. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS: Length of body—120, Width—54, Main toe—63, Trophi—34.

Found only in rice fields but in fairly large numbers.

*Trichocerca rattus* Muller, 1776 (Figs. 92)

*T. rattus* is distinguishable by its wide keel at the anterior end especially in a lateral view. The keel is usually striated. The toe is long reaching up to the total body length.

MEASUREMENTS: Total length—214.

Common in lakes and ponds.

*Trichocerca similis* Wierzejski, 1893 (Fig. 93 and 94)

The anterior end has two spines of equal length. Starting from just below the spines are two keels with a striped area running down from about one-third of the body length. Foot clearly visible. Toes unequal and short. Hauer (1965) recorded *T. similis* from the Amazon region in South America. He encountered specimens of different sizes from 166-525 which all had typical *T. similis* characteristics. Hauer (1938) also reported it from Indonesia. The Sri Lanka forms are small and agree with the West Indian form described by Wulfert (1965). *T. similis* has not been recorded from Sri Lanka previously.

MEASUREMENTS: Length of body—111, Foot—6, Toe—49, Trophi—30.

Common in ponds and lakes. The commonest species of *Trichocerca* in Sri Lanka.

*Trichocerca stylata* Gosse, 1851 (Fig. 95)

This small *Trichocerca* species has a short and wide body. The width of body is more than half the length. Toes short and emerges from a prominent foot. The anterior end has folds but is usually wide. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS: Length of body—171, Width—111, Longest toe—60.

Fairly common. Found in lakes and ponds.

Genus *Lepadella* Bory de St.Vincent, 1826

This genus is represented by four species in Sri Lanka. The identification of species was based on Voigt (1957) and Kutikova (1970).

*Lepadella costata* Wulfert, 1940 (Fig. 96)

Lorica oval in shape. There are two strengthening keel-like structures running from the anterior end for about one-third of the body length. Toes long and pointed. This species has not been recorded from Sri Lanka Previously.

MEASUREMENTS: Length of lorica—82, Width—77, Foot—17, Toe—27.

Rare; found only in one pond, Tabbowa.

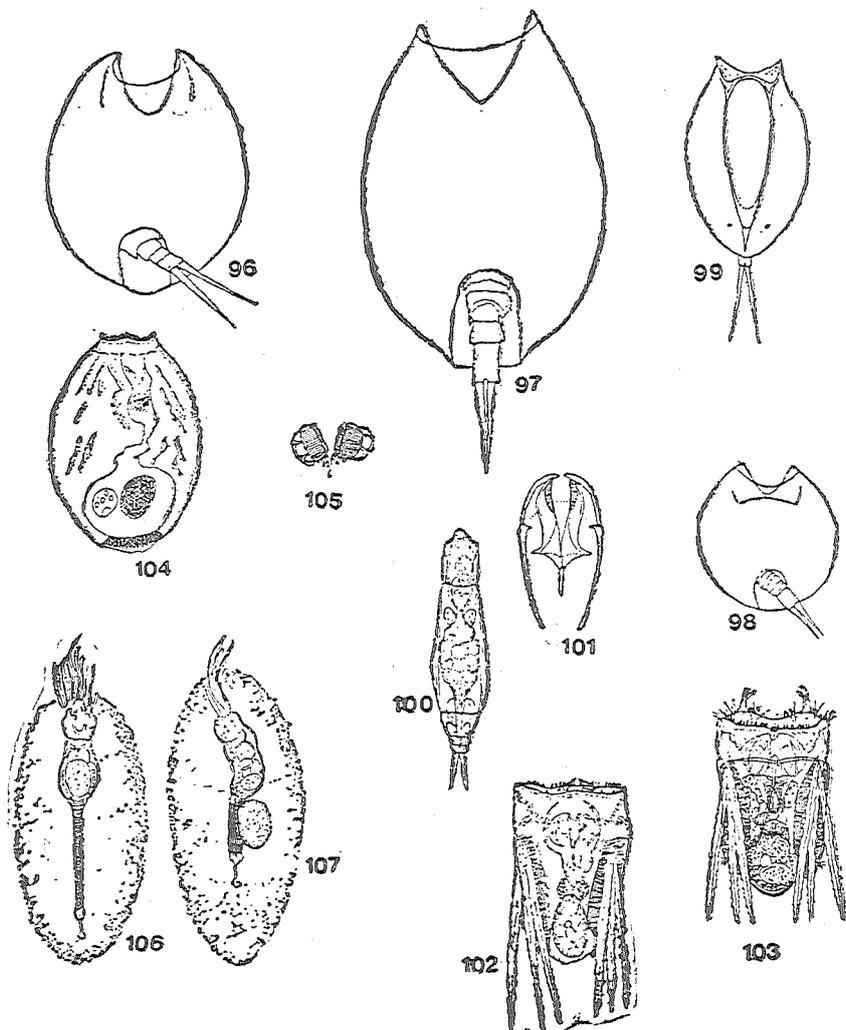


Fig. 96.—*Lepadella costata*.

Fig. 97.—*Lepadella ovalis*.

Fig. 98.—*Lepadella patella*.

Fig. 99.—*Lepadella rhomboides*.

Figs. 100 and 101.—*Dicranophorus robustus* dorsal view and trophi respectively.

Fig. 102.—*Polyarthra dolichoptera* ventral view.

Fig. 103.—*Polyarthra vulgaris* ventral view.

Figs. 104 and 105.—*Horaella brehmi* and trophi respectively.

Figs. 106 and 107.—*Collotheca ornata natans* ventral and view lateral view respectively.

*Lepadella ovalis* Muller, 1796 (Fig. 97)

Lorica small and oval. Foot opening board. Toes long and pointed. Lorica without any striations.

MEASUREMENTS : Length of lorica—96, Width—87, Foot opening—27, Foot—30, Toe—27.

Common ; found in ponds, littoral of lakes and rice fields.

*Lepadella patella* Müller, 1786 (Fig. 98)

Usually smaller and more rounded than *L. ovalis*, widest at the posterior part of shell. Foot opening broad. Toes short and pointed. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Length of lorica—87, Width—79, Foot opening—22, Toe—18.

Common ; found in ponds and rice fields.

*Lepadella rhomboides* Gosse, 1886 (Fig. 99)

Lorica has a keel on the dorsal side which is very tall and conspicuous and extends about half the length of the lorica. Toes long and pointed. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Length of body—120, Toes—60.

Not common, found in ponds and littoral of lakes.

Genus *Dicranophorus* Nitzsch, 1827

This genus is represented in Sri Lanka by only one species, *Dicranophorus robustus*. The identification of species was made using the monograph of Harring and Myers (1928).

*Dicranophorus robustus* Harring and Myers, 1928 (Fig. 100 and 101)

The body is long and slender. A distinct neck segment present. Foot very short and stout. Toe short and slender. Trophi is large and elongated. Fulcrum half as long as rami. Manubrium long and slender. The Sri Lanka forms agree with the description of Harring and Myers (1928) of material from the United States of America, except in size the Sri Lanka forms being larger.

MEASUREMENTS : Total length—500, Trophi—65.

Rare ; found in ponds and lakes.

Genus *Polyarthra* Ehrenberg, 1834

This genus is represented by two species. The identification of species in this genus is based on the key of Bartos (1950).

*Polyarthra dolichoptera* Idelson, 1925 (Fig. 102)

The body more or less square with appendages narrow and longer than the body. The lateral edges of the appendages are toothed. The median rib of appendages are well developed all along the length. Vitellarium has 8 nuclei. This species has not been reported from Sri Lanka previously.

MEASUREMENTS : Length of body—102, Width—59, Length of appendage—112.

Rare ; found in lakes and ponds.

*Polyarthra vulgaris* Carlin, 1943 (Fig. 103)

Body usually larger than in *P. dolichoptera*. Lateral antennae situated at the posterior lateral end of body. Appendages as long as body, spear-shaped with lateral teeth. Vitellarium has 8 nuclei.

MEASUREMENTS : Length of body—160.

Common in lakes, ponds and rice fields.

Genus *Collotheca* Haring, 1913

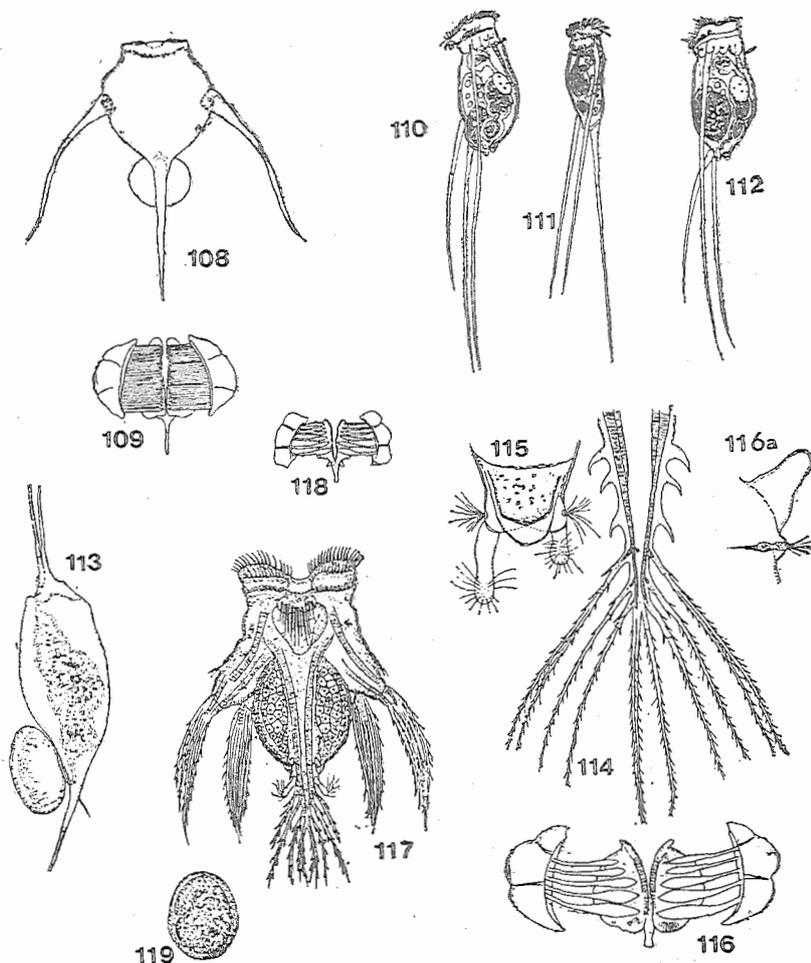
Only one species found and this is a new genus for Sri Lanka. Identification of species was done using Kutikova (1970).

*Collotheca ornata natans* Tschugunoff, 1921 (Fig. 106 and 107)

Shape of body characteristic with a slight bulge towards the posterior end. The cilia at the anterior end thick and long. Foot long and ringed. Preserved specimens highly contracted. This species has not been reported from Sri Lanka previously.

MEASUREMENTS : Total length—300, Cilia—150.

Rare, found in ponds



Figs. 108 and 109.—*Filinia camascela* with resting eggs and trophi respectively.

Fig. 110.—*Filinia longiseta*.

Fig. 111.—*Filinia pejeri*.

Fig. 112.—*Filinia terminalis*.

Fig. 113.—*Filinia opoliensis*.

Figs. 114 and 115.—*Hexarthra intermedia* ventral and arm posterior end body respectively.

Figs. 116 and 116a.—*Hexarthra intermedia* trophi and dorsal antenna respectively.

Figs. 117 and 118.—*Hexarthra mira* ventral view and trophi respectively.

Fig. 119.—*Hexarthra mira* amictic egg.

Genus *Filinia* Bory de St. Vincent, 1824

This genus is represented by four species and is fairly common in Sri Lanka fresh waters. Identification of species is based on the works of Myers (1938), Voigt (1957) and Kutukova (1970).

*Filinia camascela* Myres, 1938 (Fig. 108 and 109)

The shape of the lorica is circular, truncate anteriorly. Lorica is firm. Two lateral spines have swollen bases. The terminal spines are straight and end in sharp points. Eggs were present in some specimens. This has not been recorded from anywhere since 1938 when Myers described it for the first time, from material from Panama. This is a new record for Sri Lanka.

MEASUREMENTS : Total length—240, Trophi—23, Egg.—52/48.

Rare ; only recorded from a few large lakes and ponds.

*Filinia longiseta* (Ehrenberg, 1832) (Fig. 110)

Body fairly broad. The posterior seta is almost invariably ventrally situated.

MEASUREMENTS : Length of body—200.

Rare ; occurs in small and large lakes.

*Filinia opoliensis* (Zacharias, 1898 (Fig.) 113)

Body cylindrical with two anterior spines which have broad bases. Anterior spines very long. Of the two posterior spines the longer one is as long as the anterior spines. The smaller spines in all specimens examined are very small measuring up to about one-sixth of the longer posterior spine. Because of their long spines they entangle each other and are often seen clumped together.

MEASUREMENTS : Length of body—209, Anterior spines—369 and 197, Posterior spine—221 and 36.

Common ; found in lakes and large ponds.

*Filinia pejlery* Hutchinson, 1964 (Fig. 111)

Body spindle shaped. Dorsal and ventral sides are rounded. *F. pejlery* is the smallest member of this genus. This species has not been reported from Sri Lanka previously.

MEASUREMENTS : Length of body—180.

Very common in large and small lakes.

*Filinia terminalis* (Plate, 1886) (Fig. 112)

This common rotifer found in Ceylon is typical for the species in morphology.

MEASUREMENTS : Length of body—200.

Very common in large and small lakes.

Genus *Hexarthra* Schmarda, 1854

This genus is represented by two species. The identification of species is based on Bartos (1948, 1959).

*Hexarthra intermedia* Wisniewski, 1929 (Fig. 114–116a)

Body conical, fairly large. Ventral arm has three pairs of spines and eight filaments. Trophi characteristic with 5 teeth on either side. This species has not been reported from Sri Lanka previously.

MEASUREMENTS : Total length—220, Ventral arm—160.

Common ; occurs in lakes, ponds and rice fields.

*Hexartha mira* (Hudson, 1871) (Figs. 117 and 118)

Body large, of the same shape as that of *H. intermedia*. Ventral arm has three spines and 8 filaments. The trophi has 6 teeth on either side.

MEASUREMENTS : Total length—300, Resting egg—112.

Common ; occuring in lakes, ponds and rice fields.

Genus *Floscularia* Cuvier, 1798

This genus is represented by only one species, and this is a new record for Sri Lanka. Identification of species is based on Wulfert (1939) and Voigt (1957)

*Floscularia ringens* (Linnaeus, 1758) (Fig. 120)

Body encased in a tube made of small rounded pebble like structures. Only the head is found outside the tube in living animals. Since they are usually found attached to leaves of plants or other substrata only, very rarely was it seen in plankton samples. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Total length—900.

Rare; found in ponds.

Genus *Sinantherina* Bory de St. Vincent, 1826

This genus is represented by two species in Sri Lanka. The identification of species was done using thorpe (1893), Voigt (1957) and Kutikova (1970).

*Sinantherina semibullata* (Thorpe, 1889) (Figs. 123 and 124)

Colonial, members of the colony attached at their foot. *S. semibullata* has two wart like structures on the anterior part of the dorsum and has nine pairs of gastric glands.

MEASUREMENTS : Contracted specimen—600, Egg—140-68.

Found in rice fields ; abundant in this habitat.

*Sinantherina spinosa* (Thorpe, 1893) (Figs. 121 and 122)

Colonial, but in preserved state most of them are detached. Young ones and adult were seen in the same colony. Fine spines are present in the dorsum which is characteristic. This species has been recorded from India (Arora, 1963) but has not been reported from Sri Lanka previously.

MEASUREMENTS : Length of contracted specimens—585, Width—81.

Found abundantly in rice fields.

Genus *Conochilus* Ehrenberg , 1834

This genus is represented in Sri Lanka by only one species which is a colonial form. The identification of the species is based on the standard works of Voigt (1957) and Bartos (1959).

*Conochilus unicornis* Rousselet, 1892 (Fig. 125)

The colonies can be seen with the naked eye as rounded bodies in fresh and preserved samples. Ventral antennae are fused with groups of cilia at the end. Foot as long as body smooth, and

appears ringed in contracted specimens. Colony entirely covered with jelly like substance with cannot be seen sometimes in preserved material. This species has not been recorded from Sri Lanka previously.

MEASUREMENTS : Contracted specimens range from 250–310.

Rare ; found in ponds.

#### Genus *Conochiloides* Hlava, 1904

This genus is represented by two species and is a new record for Sri Lanka. Identification of species is based on Ahlstrom (938) and Voigt (1957).

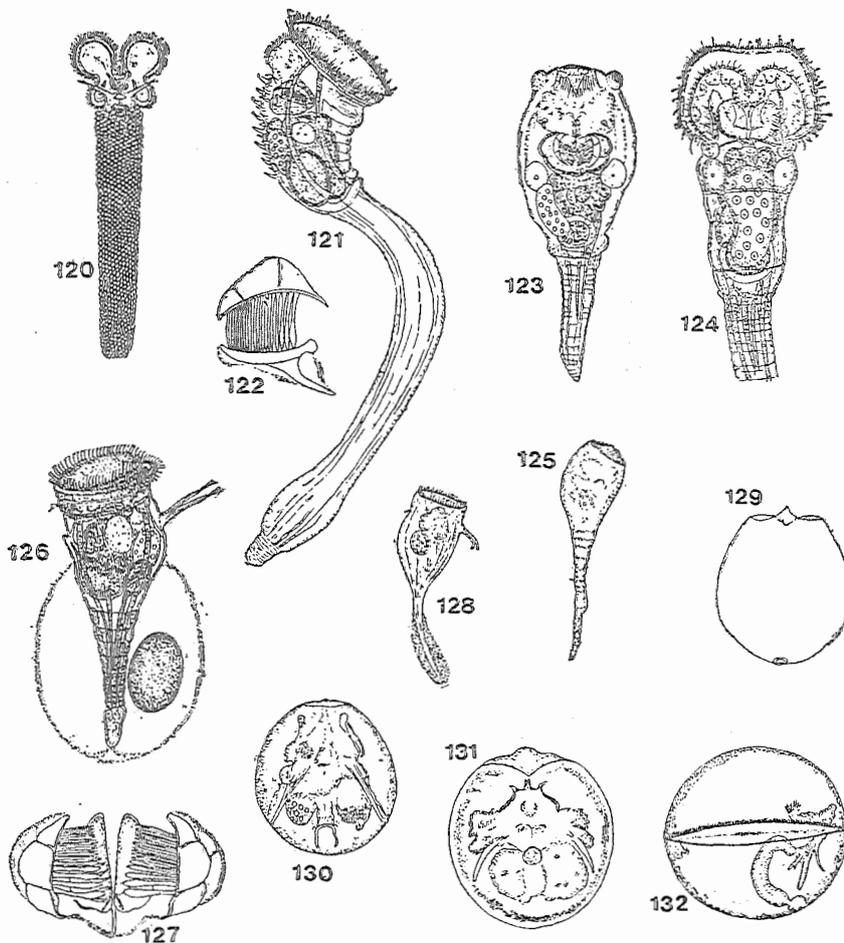


Fig. 120.—*Floscularia ringens* ventral view.

Figs. 121 and 122.—*Sinantherina spinosa* lateral view and trophi respectively.

Figs. 123 and 124.—*Sinantherina semibullata* contracted specimen and ventral view respectively.

Fig. 125.—*Conochilus unicornis* contracted specimen.

Figs. 126 and 127.—*Conochiloides dossuarius* lateral view and trophi respectively.

Fig. 128.—*Conochiloides natans* lateral view.

Fig. 129.—*Pompholyx complanata*

Fig. 130.—*Testudinella parva*

Fig. 131.—*Testudinella patina*

Fig. 132.—*Trochosphaera equatorialis*

#### *Conochiloides dossuarius* (Hudson, 1885) (Figs. 126 and 127)

The body vase shaped. Foot appears like a stalk and ringed in contracted specimens. Not colonial. Ventral antennae fused at the proximal end to about one-third the length and free at the distal end. Eggs were attached to some specimens by means of jelly-like substance. This species has been reported from India (Wulfert, 1966). However, it has not been reported from Sri Lanka previously.

Fairly common ; found in ponds.

*Conochiloides natans* (Silego, 1900) (Fig. 128)

Contracted specimens looks more or less like *C. dossuarius*. Ventral antennae are not fused and are free from proximal end. Cilia present terminally. Not colonial. This species has not been reported from Sri Lanka previously.

Fairly common ; found in ponds, lakes and rice fields.

Genus *Pompholyx* Goose, 1851

This genus is a new record for Sri Lanka and is represented by one species. The identification of this species is based on Bartos (1951).

*Pompholyx complanata* Gosse, 1851 (Fig. 129)

Lorica almost circular with the dorsal plate having a pointed protuberance in the middle. This species has not been recorded from Sri Lanka previously. *P. complanata* has been reported from India (Wulfert, 1966).

MEASUREMENTS : Length of lorica—62, Width—39.

Common in ponds, lakes and rice fields.

Genus *Horaella* Donner, 1949

Only one species is known in this genus. The identification of this species is based on Donner (1949).

*Horaella brehmi* Donner, 1949 (Figs. 104 and 105)

Body transparent and oval shaped rather than rounded with a short neck bearing the circular corona. Foot and toe absent. Trophi typical malleoramate. At the anterior end of fulcrum are two wing like projections. This species is recorded only from India before (Donner, 1949).

MEASUREMENTS : Length of body—224, Width—158.

Recorded from a pond nr. Kandy and a few small lakes.

Genus *Testudinella* Bory de St. Vincent, 1826

This genus is represented by two species. The identification of species was done using Bartos (1951).

*Testudinella parva* (Ternetz, 1892) (Fig. 130)

Body small, more or less rounded. The dorsal plate has one lobe anteriorly. Foot opening large and situated towards the posterior end and elevated. Also it is somewhat irregularly shaped. This species has not been reported from Sri Lanka Previously.

MEASUREMENTS : Length of body—96, Width—87, Foot opening 15.

Rare ; found in ponds.

*Testudinella patina* (Hermann, 1783) (Fig. 131)

Body is rounded, with one prominent lobe anteriorly. Size variable. Foot opening approximately one-third from the posterior end and circular.

MEASUREMENTS : Length of body—179, Width—160.

Very common especially in temporary ponds and rice fields. Also in the littoral of lakes.

### Genus *Trochosphaera* Semper, 1872

Only two species are known in this genus of which *T. equatorialis* is found in Sri Lanka. The original description of this species was given by Semper (1972)

*Trochosphaera equatorialis* Semper, 1872 (Fig. 132)

The shape of body spherical with a band of cilia around the equator. The surface of the body is very smooth and the whole animal is extremely transparent making it possible to see all organs inside which are loosely hung inside.

MEASUREMENTS : Diameter—357.

Only a single record from Senanayake Samudra. Previously recorded in Asia from the Philippines and China from rice fields. Mendis (1965) recorded *Trochosphaerium* from Sri Lanka. We are indebted to him for a sample of his material. Although this lake was sampled many times subsequently this species was not found.

### SUMMARY AND DISCUSSION

In the present paper a total of 79 species of Eurotatoria are recorded and described from Sri Lanka. This includes 8 new generic records and 47 new specific records. In a previous paper (Chengalath and Fernando, 1973) 25 species of the genus *lecan* were recorded and described from Sri Lanka bringing the total to 104 species. A conservative estimate of Eurotatoria present in Sri Lanka is about 200 to 250. The rotifer fauna of the South East Asian region is not well known at present. From Indonesia slightly over 140 species are known, from the Indian sub-continent 130 species are on record while the fauna of Burma, Malaysia and Thailand are very poorly known.

The composition of the Eurotatoria of Sri Lanka is similar to that of India and Indonesia. Many forms are of course cosmopolitan. A few interesting records have been found, that include *Brachionus donneri*, *Brachionus nilsoni*, *Brachionus sessilis*, *Dipleuchlanis macrodactyla*, *Tripleuchlanis plicata*, *Filinia camascela*, *Horaella brehmi*, *Trichocerca braziliensis* and *Trochosphaera equatorialis*. Since there are no natural lakes in Sri Lanka no typically limnetic species of Rotifera are present. The limnetic species in man-made lakes are found in rivers and large ponds while many pond forms occur in the littoral region. The commonest genus is *Brachionus*. This is characteristic of many tropical rotifer faunas together with the absence of *Notholca* (Green, 1972). Typical tropical rotifers like *Brachionus caudatus* were recorded. Incidentally this species also shows great variability.

Some rare rotifers were recorded namely *Brachionus Donneri* previously known from only India. *Brachionus sessilis* and epizootic rotifer known only from Hungary, *Horaella brehmi* known only from India and *Trochosphaera equatorialis* which is geographically widely distributed yet uncommon. All these species were recorded in only one to three samples of the over 300 samples examined.

Five species recorded in the present paper have so far been recorded from only Southern North America and South America. These are *Brachionus nilsoni*, *Dipleuchlanis macrodactyla*, *Trichocerca braziliensis*, *Keratella taurocephala* and *Filina camascela*.

The Eurotatorian fauna of Sri Lanka is rich in species and shows considerable variety. It is typically tropical in composition and has many interesting and rare species. We consider that the 104 species so far recorded from Sri Lanka is about half the number of species present. Many of the species missing from this list are non-loricate forms and rare species which will be found with more extensive collecting and study of live material.

## ACKNOWLEDGEMENTS

We wish to thank Dr. M. G. George, School of Urban and Regional Planning, University of Waterloo for placing at our disposal his collection of literature on Rotifera systematics. Part of the material studied was collected by Messers. M. J. Fernando, P. B. Fernando, P. B. Karunaratne and Mrs. R. Selvarajah.

## REFERENCES

- AHLSTROM, E. H., 1938. Plankton Rotatoria from North Carolina. *Jour. Elisha Mitchel. Scientific Society*. 54 : 88—110.
- , 1940. A revision of the rotatoria genera *Brachionus* and *Platyias* with description of one new species and two new varieties. *Bull. American Museum Natural History*, 77 : 143—184.
- , 1943. A revision of the rotatorian genus *Keratella* with description of three new species and five new varieties. *Bull. American Museum Natural History*. 80 : 411—457.
- ARORA, H. C., 1963. Studies on Indian Rotifera 4. On some species of sessile Rotifera from India. *Archiv fur Hydrobiol.* 59 : 502—507.
- , 1965. Studies on Indian Rotifera 6. On collection of Rotifera from Nagpur, India with four new species and a new variety. *Hydrobiologia*, 26 : 444—456.
- BARTOS, E., 1950. Klic kurcovani Virniku rodu *Polyarthra* Ehrbg. *Cas nav Musea, Prirod. oddil.* 118 : 82—91.
- , 1951. Czechoslovakian species of genera *Testidinalla* and *Pompholyx*. *Sbornik Klubu privodovedeckeho v Brue.* 29 : 10.20.
- , 1959. Virnici-Rotatoria. Nakladatelstvi Cesko. *Slovenske Akademie Ved. Praha.* 969. pp.
- BERZINS, B., 1955. Taxonomic and verbreitung von *Keratella valga* und verwandten formen. *Archiv fur Zoologi.* 7 : 549—559.
- BREHM, V., 1951. Ein neue *Brachionus* aus Indien (*Brachionus donneri*). *Zool. Anz.* 146 : 54—55.
- CHENGALATH, R., 1971. Systematics and distribution of Limnetic Rotifera of Ontario. M.Sc. Thesis University of Waterloo, 124 pp.
- CHENGALATH, R., and C. H. FERNANDO, (In press). The planktonic Rotifera of Ontario with records of distribution and notes on some Morphological variation. *Can. Fld. Naturalist.*
- CHENGALATH, R. and C. H. FERNANDO, 1973. Rotifera from Ceylon I. The genus *Lecane* with description of two new species. *Bull. Fish. Res. Stn., Ceylon.*
- DONNER, J., 1949. *Horaella brehmi* nov. gen. nov. sp. ein neue Radertier aus Indien. *Hydrobiol.* 52 : 304—328.
- EDMONDSON, W. T. and G. E. HUTCHINSON, 1934. Report on Rotatoria. Yale North India Expedition. *Mem. Con. Acad. Arts and Sciences.* 10 : 153—186.
- ERIKSEN, B. G., 1969. Rotifers from two tarns in Southern Finland, with a description of a new species and a list of Rotifers Previously found in Finland. *Acta Zool., Fennica.* 125 : 1—36.
- GEORGE, M. G., 1966. Cyclomorphosis in a plankton rotifer *Keratella tropica* Apstein. *Curr. Sci.* 35 : 67—68.
- GREEN, J., 1960. Zooplankton of the river Sokoto. The Rotifera. *Proc. Zool. Soc. London.* 135 : 491—523.
- , 1967. Associations of Rotifera in the Zooplankton of the lake sources of the White Nile. *Jour. Zool. London.* 151 : 343—378.
- , 1972. Latitudinal variation in associations of planktonic Rotifera. *Jour. Zool. London.* 167 : 31—39.
- HARRING, H. K. and F. J. MYERS, 1928. The rotifera fauna of Wisconsin 4. The Dicranophorinae. *Trans. Wisconsin Acad. Sci. Arts and Letters.* 23 : 667—808.
- HAUER, J., 1938. Die Rotatorian von Sumatra, Java and Bali. *Archiv. fur Hydrobiol suppl.* 15 : 296—391 and 507—602.

- , 1953. Zur Rotatorienfauna von Nordostbrazilien. *Archiv. fur Hydrobiol.* 48 : 154—172.
- , 1965. Zur Rotatorienfauna des Amazonasgebietes. *Int. Rev. ges. Hydrobiol.* 50 : 341-389.
- HYNES, H. B. N., 1970. The Ecology of Running Waters. *Liverpool University Press.* 555 pp.
- JENNINGS, H. S., 1903. Rotatoria of the United States 2. A monograph of the Hattulidae. *Bull. U. S. Fish. Comm* 1902 : 272—352.
- KUTIKOVA, L. A., 1970. Rotifer fauna of SSSR. Sub-class Eurotatoria (In Russian). *Nauka, Leningrad.* 742 pp.
- MENDIS, A. S., 1965. A preliminary Survey of 21 Ceylon lakes—2. Limnology and Fish production potential. *Bull. Fish. Res. Stn., Ceylon.* 18 : 7—16.
- MYERS, F. J., 1930. The Rotifera fauna of Wisconsin 5. The gener *Euchlanis* and *Monommata*. *Trans. Wisconsin Acad. Sci. Arts and Letters.* 25 : 353—413.
- , 1938. New species of Rotifera from the collection of the American Museum of natural History. *American Museum Novitates.* 1011: 1—16.
- NAYAR, C. K. G., 1964. Morphometric studies on the Rotifera *Brachionus calyciflorus* Pallas. *Current Science* 33 : 469—470.
- , 1968. Rotifer fauna of Rajasthan. *Hydrobiologia.* 31 : 168—185.
- NAYAR, C. K. G. and K. K. N. NAYAR., 1969. A collection of Brachionid rotifers from Kerala. *Proc. Indian Acad. Soc.* 69 : 223—233.
- RUDESCU, L., 1960. Rotatoria. *Editura Academic Republicii Populare Romine.* 1188 pp.
- SEMPER, C., 1982. Zoologische Aphorismen *Trochosphaera aequatorialis*, das Kugelradertier der philippinen. *Z. Wiss. Zool.* 22 : 305—312.
- THORPE, V. G., 1893. The Rotifera of China. *Jour. Roy. Micro. Soc.* 145—152.
- VARGA, L. 1951. *Brachionus sessilis* n. sp., Uj Kerekesfereg faj A Balatonbol. *Ann. Biol. Tihany.* 20 : 217—224.
- VOIGT, M., 1957., Rotatoria. Die Radertiere Mitteleuropas, Gebruder Borntrager, Berlin-Nikolassee. 508 pp. + plates.
- WULFERT, K., 1964. Unsere gegenwartige kenntnis der Rotatorian gattung *Macrochaetus* Perty 1850. *Limnologica. (Berlin),* 2—3 : 281—309.
- , 1965. Revision der Rotatorian gattung *Platyias* Harring, 1913. *Limnologica (Berlin),* 3—1 : 41—64.
- , 1966. Rotatorion aus dem stausee Ajwa und der Trinkwasser-Aufbereitung der stadt Baroda (Indien). *Limnologica (Berlin).* 4—1 : 53—93.

## APPENDIX I

## Examples of localities where species were collected in Sri Lanka

<i>Species</i>	<i>Locality Records</i>
Anuraeopsis coelata	Kandy Lake 13.3.1969
A. fissa	Moonplains Res. 15.11.1968
Asplanchna brightwelli	Nachchaduwa tank 6.7.1969
A. Priodonta	Marawila, pond 6.9.1970
A. sieboldi	Topawewa 7.3.1969
Asplanchnopus multiceps	Nugegoda, rice field 25.3.1971
Brachionus angularis	Tabbowa tank 2.3.1969
B. budapestensis	Kandalama tank 3.8.1969
B. calyciflorus	Megalla wewa 2.3.1969
B. caudatus	Na eliya tank 8.8.1968 (Nr. Battuluoya)
B. Caudatus var. aculeatus	Giants tank 15.12.1970
B. donneri	Uduwatukelle tank 13.3.1969 (Nr. Kandy)
B. falcatus	Senanayake samudra 12.08.1968
B. forficula	Megalla wewa 2.3.1969
B. leydigi	Medawachchiya tank 4.3.1969
B. nilsoni	Handapangala tank 10.7.1969
B. patulus	Norton Bridge Res. 15.7.1969
B. quadridentias	Nugegoda, rice field 14.1.1971
B. rubens	Wirawila tank 6.7.1969
B. sessilis	Pavatkulam 4.3.1969
B. urceus	Wirawila tank 6.7.1969
B. urceolaris	Na eliya tank 8.8.1969
C. ephalodella forficula	Iranamadu tank 3.3.1969
C. gibba	Kantalai tank 6.3.1969
Collotheca oranata natans	Nachchaduwa tank 6.7.1969
Conochilus unicornis	Nugegoda, rice field 19.3.1971
Conocihloides dossuarius	Kandy Lake 13.3.1969
C. natans	Senanayake samudra 6.8.1969
Dicranophorous robustus	Aranaganwila tank 7.1.1972
Dipleuchalnis macrodactyla	Marawila pond 6.12.1970
D. propatula	Amparai wewa 6.8.1969
Euchlanis dilatata	Nugegoda, rice field 30.6.1971
E. incisa	Tabbowa tank 6.8.1969
E. oropha	Vakaneri tank 3.8.1969
Filinia camascela	Kantalai tank 6.3.1969
F. longiseta	Batalagoda tank 8.3.1969
F. opoliensis	Kandy Lake 13.3.1969
F. pejleri	Vakaneri tank 7.8.1969
F. terminalis	Kebittigollawa wewa 23.3.1971
Floscularia ringnes	Medawachchiya tank 4.3.1969

<i>Species</i>	<i>Locality Records</i>
Hexarthra intermedia	Norton Bridge Res. 15.7.1969
H. mira	Sooriyawewa Nr. Embilipitiya ; 22.1.1971
Horaella brehmi	Udawatukelle tank 10.8.1968
Kellicottia longispina	Iranamadu tank 3.3.1969
Keratella cochlearis	Tabbowa tank 2.3.1969
K. earlinae	Tabbowa tank 25.1.1971
K. lenzi	Moonplains Res. 15.11.1968
K. taurocephala	Tabbowa tank 2.3.1969
K. tropica	Battuluoya river 2.6.1972
Lepadella costata	Tabbowa, pond 25.7.1971
L. ovalis	Divulwewa, Anuradhapura ; edge of rice field 11.8.1972
L. patella	Sigiriya tank 3.3.1972
L. rhomboides	Tabbowa tank 25.7.1971
Macrocheatus collinsi	Kantalai tank 6.3.1969
M. sericus	Tabbowa, pond 25.7.1971
Mytilina mucronata	Sigiriya tank 19.8.1969
M. ventralis	Amparai wewa 8.8.1969
Notommata sp.	Kantalai tank 6.3.1969
Platyias quadricornis	Tabbowa pond 25.7.1971
Polyarthra dilichoptera	Tabbowa pond 6.8.1969
P. vulgaris	Udawalawe Res. 16.7.1969
Pompholys complanata	Udawalawe Res. 16.7.1969
Scaridium longicaudum	Tabbowa pond 25.7.1971
Sinitherina semibullatta	Moonplains Res. 10.8.1968
S. spinosa	Nugegoda, rice field 19.3.1971
Testudinella parva	Waga pond 31.12.1970
T. patina	Giants tank 15.12.1970
Trichocerca bicristata	Lake Gregory 8.3.1969
T. Braziliensis	Tabbowa tank 25.1.1971
T. chattoni	Kesbawa wewa 1.8.1969
T. cylindrica	Udawalawe Res. 16.7.1969
T. dixon-nuttali	Divulwewa, edge of rice field 11.8.1972
T. rattus	Senanayake samudra 12.8.1968
T. similis	Senanayake samudra 6.8.1969
T. stylata	Mahaillupuluma 10.8.1968
Trichotria pocillum	Helanda, Ratnapura, pond 18.8.1968
T. tetractis	Tabbowa tank 25.7.1971
Tripleuchlanis plicata	Tabbowa tank, 25.7.1971
Trochosphera equatorialis	Senanayake samudra 12.8.1968