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Author(s): B. W. Skvortzow

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SOME NEW AND LITTLE KNOWN SPECIES
OF TRACHELOMONES FROM NORTH
MANCHURIA, CHINA

B. W. SKVORTZOW

(WITH PLATE VII)

The summer of 1924 was spent by the writer at the biological station of the Manchuria Research Society at Harbin, who during that time studied the algae of the district surrounding the station. This paper presents a list of the new forms of *Trachelomonas* EHRENBERG discovered in marshes, ponds, and lakes of the Sungary River valley, and also descriptions of some little known species from Europe and other countries.

TRACHELOMONES TUBEROSA Skv., Jour. Asiatic Soc. Shanghai 4:53. 1919; PASCHER, Archiv Protistenkunde 48:504. 1924.—Shell elongated, variable in shape, contracted at both ends, brown, 28 by 13 μ ; neck 4.5 μ broad; chromatophores numerous; stigma distinct; cilia 1.5–2 times longer than shell.—Fig. 1.

In marshes near Harbin.

TRACHELOMONES TUBEROSA **conspersa**, var. nov.—Shell brown and covered with knobs, 33.3 by 18.5 μ ; chromatophores 8; stigma distinct; cilia 1.5 times longer than shell.—Fig. 2.

In marshes near Harbin.

Trachelomonas cucurbita, sp. nov.; *T. helvetica* Lemm. var. *hispidula* Skv., Jour. Asiatic Soc. Shanghai 4:72. 1919.—Shell brown, covered with sharp pointed spines, elongated, contracted at both ends and rounded at the end, 30–35 by 14.5–15.7 μ ; cilia aperture 4.2 μ in breadth; chromatophores numerous.—Fig. 3.

In marshes near Harbin.

TRACHELOMONES CUCURBITA **ovata**, var. nov.—Shell brown, smooth, 25–27 by 10.2–12 μ , tubelike neck 4.4 by 3.4 μ ; in other respects similar to the species.—Fig. 4.

In marshes near Harbin.

Trachelomonas vestita, sp. nov.; *T. hexangulata* Swir. var. *sinica* Skv., Jour. Asiatic Soc. Shanghai 4:193. 1919.—Shell oblong or

hexagonal, with rounded end, $35\ \mu$ long, brown, lower part covered with spines, tubelike neck serrated.—Fig. 5.

Known only from marshes in South China.

Trachelomones schewiakoffii, sp. nov.; *T. rhombica* Skv. var. *planktonica* Skv., Jour. Asiatic Soc. Shanghai 4:53. 1919.—Shell oval, contracted at both ends, brown, smooth, 30 by $20\ \mu$; neck 5.5 by $3.5\ \mu$; chromatophores numerous.—Fig. 6.

Named in honor of Dr. W. T. SCHEWIAKOFF, well known Protistologist of Irkutsk University, Siberia, Russia.

TRACHELOMONES SCHEWIAKOFFII var. **polonica** (Koczw.) nob., comb. nov.; *T. polonica* Koczwara, Kosmos, Lwow 40:231-275. 1915.—Shell oval, contracted at both ends, more pointed at end, 35 – 38 by 15 – $17\ \mu$, tubelike neck $4\ \mu$ long.—Fig. 7.

Known only in Biatogorski Lake in Polen.

Trachelomones woloszynskii, sp. nov.; *T. eurystoma acuta* Lemm. Kryptog. Mark Brand. 3:528. 1910; STEIN, Ker Organismus der Infusionstiere 3:1878; PASCHER et LEMMERMAN, Die Süßwasser Flora Deutschlands 2:151. 1913.—Shell brown, smooth, rhomboidal with rounded end and very broad middle part, neck cut obliquely; chromatophores numerous.—Fig. 8.

Known from Europe.

TRACHELOMONES WOLOZYNSKII ASPERA Skv.; *T. regularis* (Lemm.) Skv. *asperum* Skv. Jour. Microbiol. 4:71. 1917, and Winter phytoplankton of the fish ponds of Foochow 53:193. 1922.—Shell more elongate, 27.8 by $13\ \mu$, brown, covered with knobs, neck straight; cilia 1.5 times longer than shell; chromatophores numerous.—Fig. 9.

Known from South China and Manchuria.

TRACHELOMONES WOLOZYNSKII **longicollis**, var. nov.; *T. regularis asperum* Skv. *forma*, Winter phytoplankton of the fish ponds of Foochow 53:193. 1922.—Shell brown, covered with knobs, contracted at both ends and broadly rounded, 27 by $12\ \mu$, upper part passing directly into serrated neck.—Fig. 10.

Known only in South China in fish ponds.

Trachelomones kozlovii, sp. nov.—Shell oval, rough, transparent, 81.4 by $47\ \mu$, upper part contracted and passing directly into neck cut obliquely and $7.4\ \mu$ broad, lower part contracted and little

drawn out and rounded; chromatophores numerous; stigma distinct; paramylons small and round.—Fig. 11.

Found only near Harbin.

Named in honor of I. W. KOZLOV, who collected this form.

Trachelomones rapacea, sp. nov.; *T. volgensis chinensis* Skv. Jour. Asiatic Soc. Shanghai 4:7. 1919.—Shell brown, covered with knobs, spherical, contracted and pointed at the end, 38–40 by 21–25 μ ; chromatophores numerous; stigma distinct; paramylons small and round.—Fig. 12.

Known only from South China.

Trachelomones stagnalis, sp. nov.; *T. fluviatilis curta* Skv. Jour. Asiatic Soc. Shanghai 4:54. 1919.—Shell brown, broad, oval, contracted at both ends, upper part passing directly into neck 2.5 μ broad, lower part pointed, 22 by 16 μ ; chromatophores numerous.—Fig. 13.

In marshes near Harbin.

TRACHELOMONES TAMBOWIKA SWIRENKO **amphora**, var. nov.—Shell oval, smooth, neck enlarged at end to 7 μ broad, 44.4 by 29.6 μ , lower part of shell pointed, end spine 11.1 μ long; chromatophores numerous; stigma distinct.—Fig. 14.

In plankton near Harbin.

TRACHELOMONES URCEOLATA STOKES var. **HYALINA** (Swir.) nob.; *T. hyalina* Swirenko, Trav. Inst. Bot. Univ. Kharkoff, no. 26. p. 25. 1915.—Shell transparent, covered with small knobs, elongate oval 62 by 32 μ , upper part passing directly into serrated neck, lower part pointed; chromatophores numerous, 6.5 μ in diameter; stigma distinct, 4.5 μ in diameter; paramylons small, elongate.—Fig. 15.

Known only from ponds in Russia.

TRACHELOMONES ENSIFERA DADAY var. **LONGICAUDA** (Swir.) nob.; *T. longicauda* Swirenko, Beitr. Kent. Flagell. der Charkow. 1913.—Shell brown, rough, spherical, contracted and pointed at end, 44–5 by 22–29 μ , end spine 21 μ long, upper part passing into neck 12 by 7 μ , oblique; stigma round, 3 μ in diameter; paramylons oblong or round.—Fig. 16.

At present found only in ponds of Russia.

TRACHELOMONES SCHAUNINSLANDII **manschurica**, var. nov.—Shell stiff, oval, covered with small knobs, 66.6–70.3 by 30–40.7 μ ,

end contracted and pointed, upper part passing into oblique neck 5.7–6 μ broad; chromatophores numerous; stigma distinct.—Fig. 17.

In marshes in North Manchuria.

TRACHELOMONES INFLATA **crenulatocollis**, var. nov.—Shell brown, covered with dots, elongate, oval, contracted at both ends, 66.6 by 31 μ , lower contracted part rounded and with a small spine at end; neck straight, brown, smooth and serrate, 7.4 by 5.7 μ , distinct from shell.—Fig. 18.

Known only from plankton near Harbin.

Trachelomones dangeardii, sp. nov.; *T. fluviatilis* Lemm. in SWIRENKO, Archiv Hydrobiol. Plank 9:640–645. 1914.—Shell oval, brown, smooth or rough, 25.9 by 11.1–17 μ , upper part passing directly into neck which is enlarged at end to 5.5 μ in diameter; chromatophores 4 or 5, without pyrenoids; cilia 2–3 times longer than shell; paramylons small, round.—Fig. 19.

Known only in Russia and North Manchuria.

Named in honor of Professor P. A. DANGEARD, of France.

TRACHELOMONES DANGEARDII var. **glabra**, comb. nov.; *T. fluviatilis glabra* Skv. Jour. Asiatic Soc. Shanghai 4:54. 1919.—Shell oval, brown, covered with knobs, 26 by 14.1 μ , neck oblique; chromatophores numerous.—Fig. 20.

In marshes near Harbin.

TRACHELOMONES DANGEARDII var. **laverta** (Swi.) nob.; *T. fluviatilis lacerta* Swirenko, Trav. Inst. Bot. Univ. Karkoff, no. 26, p. 30. 1915.—Shell brown, smooth, spherical, contracted and pointed at end, 32–34 by 14–16 μ , end spine 10 μ long, upper part passing directly into serrated neck 7 μ long and broad.—Fig. 21.

In marshes of Russia.

TRACHELOMONES HELVETICA **manschurica**, var. nov.—Shell brown, covered with sharp pointed spines, oval, contracted at both ends, 40.7 by 18.5 μ ; neck straight, 5.7 μ broad, distinct from shell; lower part pointed and rounded at end; chromatophores numerous.—Fig. 22.

In plankton near Harbin.

TRACHELOMONES SWIRENKO Skv. **sinensis**, var. nov.—Shell brown dotted and only in lower part covered with knobs, contracted

at both ends, 40.7 by 18.5 μ , upper part passing directly into neck, 4 by 4.5 μ ; chromatophores numerous.—Fig. 23.

As yet found only near Harbin.

TRACHELOMONES FLUVIATILIS LEMM. var. LEVIS (Lemm.), comb. nov.; *T. affinis levis* Lemm., FORSCH. Biol. Sta. Plön 2:157; Kryptog. Mark Brand. 3:530. 1910; PASCHER et LEMM., Die Süßwasser Flora Deutschlands, 2:153. 1913; SKVORTZOW, Winter phytoplankton of the fish ponds of Foochow 43:193. 1922.—Shell oval, contracted at both ends, 60–68.5 by 26–27 μ , upper part passing directly into neck, which is 5.7 by 5.5 μ , lower part pointed.—Fig. 24.

Found in Europe and South China.

Trachelomonas maxima, sp. nov.—Shell oval, contracted at both ends, 103.6–107 by 40.7–44.4 μ , upper part passing directly into neck, which is 7.4 μ broad and oblique, lower part pointed; chromatophores numerous; stigma distinct; paramylons round or long.—Fig. 25.

In plankton near Harbin.

Trachelomonas nadsonii, sp. nov.—Shell brown, contracted at both ends, 66.6 by 22.5 μ , upper part passing directly into neck, which is 9.2 by 5 μ and serrate, lower part pointed, end spine 14.8 μ long; chromatophores numerous; paramylons round.—Fig. 26.

In plankton near Harbin.

Named in honor of Dr. G. A. NADSON of Leningrad, Russia.

Trachelomonas baikovii, sp. nov.—Shell brown, covered with spines, oval, contracted at both ends, 51.8–55.5 by 23–25.9 μ ; neck straight, serrate, 7.4 by 5.7 μ , distinct from shell; lower part of shell with thick rounded spine; chromatophores numerous; stigma distinct; paramylons small; cilia larger than shell.—Figs. 27, 28.

Found near Harbin.

Named in honor of N. A. BAIKOV, a well known naturalist in Manchuria, who has found this form.

TRACHELOMONES ACUMINATA (Schmarda) Stein; *Lagenella acuminata* Schmarda, Denkschr. Wiener Akad. Wiss. 1:1850; LEMMERMANN, Kryptog. Mark Brand. 3:525. 1910; PASCHER et LEMMERMANN, Die Süßwasser Flora Deutschlands, 2:151. 1913; SKVORTZOW, Winter phytoplankton of fish ponds of Foochow, p. 192.

1922.—Shell smooth, trapezoid, 50–59 μ long, upper part passing directly into oblique neck, lower part pointed; cilia twice as long as shell.

Known from Europe and South China.

TRACHELOMONES ACUMINATA **triangulata**, var. nov.; STEIN Der Organismus der Infusionstiere 3:1878; LEMMERMAN, Kryptog. Mark Brand. 3:151. 1910; PASCHER et LEMMERMAN, Die Süßwasser Flora Deutschlands, 2:151. 1913.—Shell triangular; in other respects similar to typical form.—Fig. 29.

Known from Europe.

TRACHELOMONES ACUMINATA VERRUCOSA Teodoresco, Beih. Bot. Centralbl. 21:215; SKVORTZOW, on phytoplankton from ponds of Tientsin, p. 189. 1922.—Shell brown, covered with knobs, 26–34 by 14–22 μ .—Fig. 30.

Found in Rumania and North China.

TRACHELOMONES ACUMINATA MAJOR Skv., Jour. Microbiol. 4:70. 1917.—Shell transparent, smooth, 90–92.9 by 37.4–38 μ , neck oblique; chromatophores numerous; stigma distinct.

In plankton from Manchuria.

HARBIN, MANCHURIA
CHINA

EXPLANATION OF PLATE VII

- FIG. 1.—*Trachelomonas tuberosa*.
- FIG. 2.—*T. tuberosa conspersa*.
- FIG. 3.—*T. cucurbita*.
- FIG. 4.—*T. cucurbita ovata*.
- FIG. 5.—*T. vestita*.
- FIG. 6.—*T. schewiakoffii*.
- FIG. 7.—*T. schewiakoffii polonica*.
- FIG. 8.—*T. woloszynskii*.
- FIG. 9.—*T. woloszynskii aspera*.
- FIG. 10.—*T. woloszynskii longicollis*.
- FIG. 11.—*T. kozlovii*.
- FIG. 12.—*T. rapacea*.
- FIG. 13.—*T. curta*.
- FIG. 14.—*T. tambowika amphora*.
- FIG. 15.—*T. urceolata hyalina*.
- FIG. 16.—*T. ensifera longicauda*.

FIG. 17.—*T. schauminslandii manschurica*.

FIG. 18.—*T. inflata crenulatocollis*.

FIG. 19.—*T. dangeardii*.

FIG. 20.—*T. dangeardii glabra*.

FIG. 21.—*T. dangeardii lacerta*.

FIG. 22.—*T. helvetica manschurica*.

FIG. 23.—*T. swirenko sinensis*.

FIG. 24.—*T. fluviatilis levis*.

FIG. 25.—*T. maxima*.

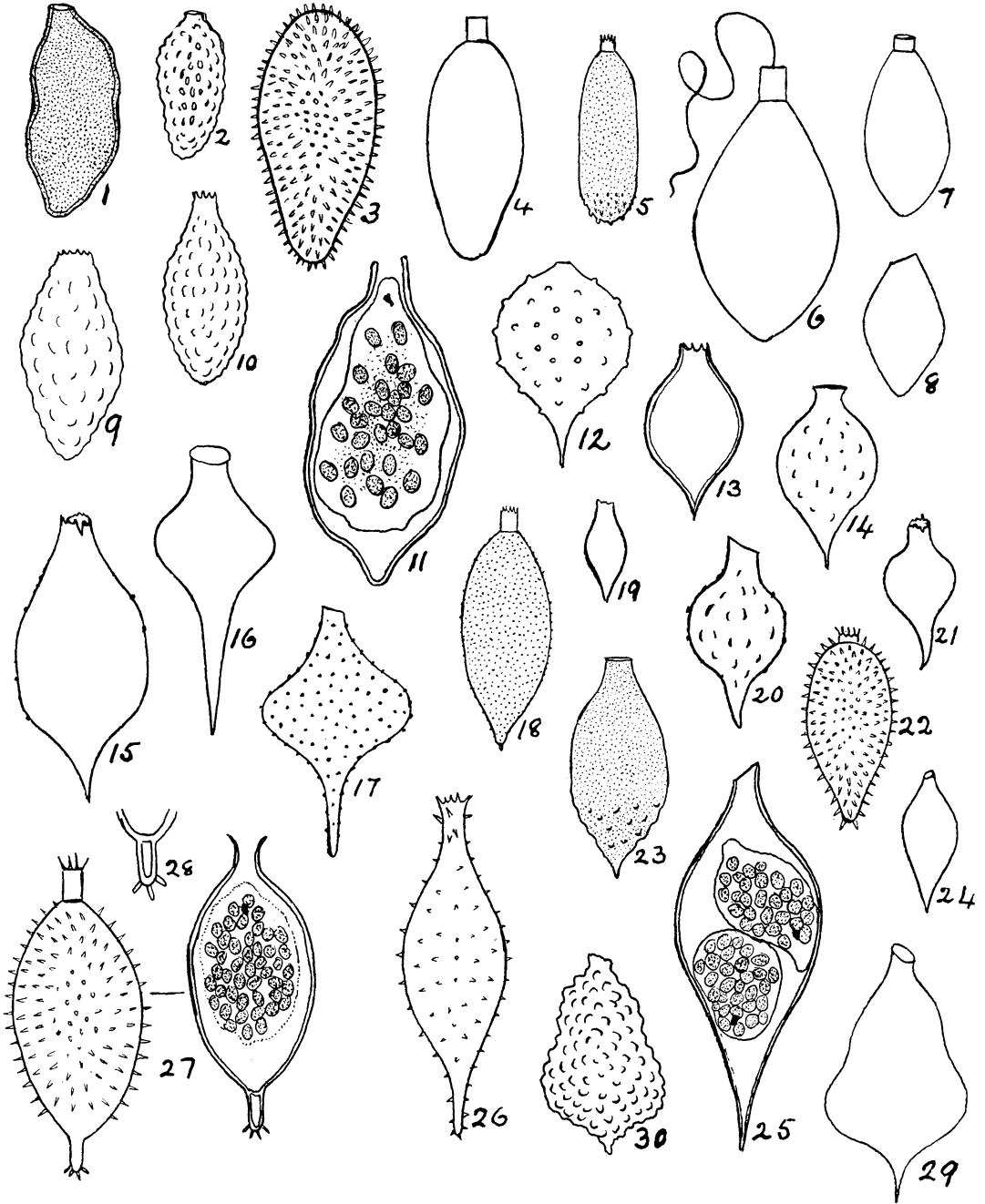
FIG. 26.—*T. nadsonii*.

FIG. 27.—*T. baikovii*.

FIG. 28.—*T. baikovii*.

FIG. 29.—*T. acuminata triangulata*.

FIG. 30.—*T. acuminata verrucosa*.



SKVORTZOW on TRACHELOMONES