

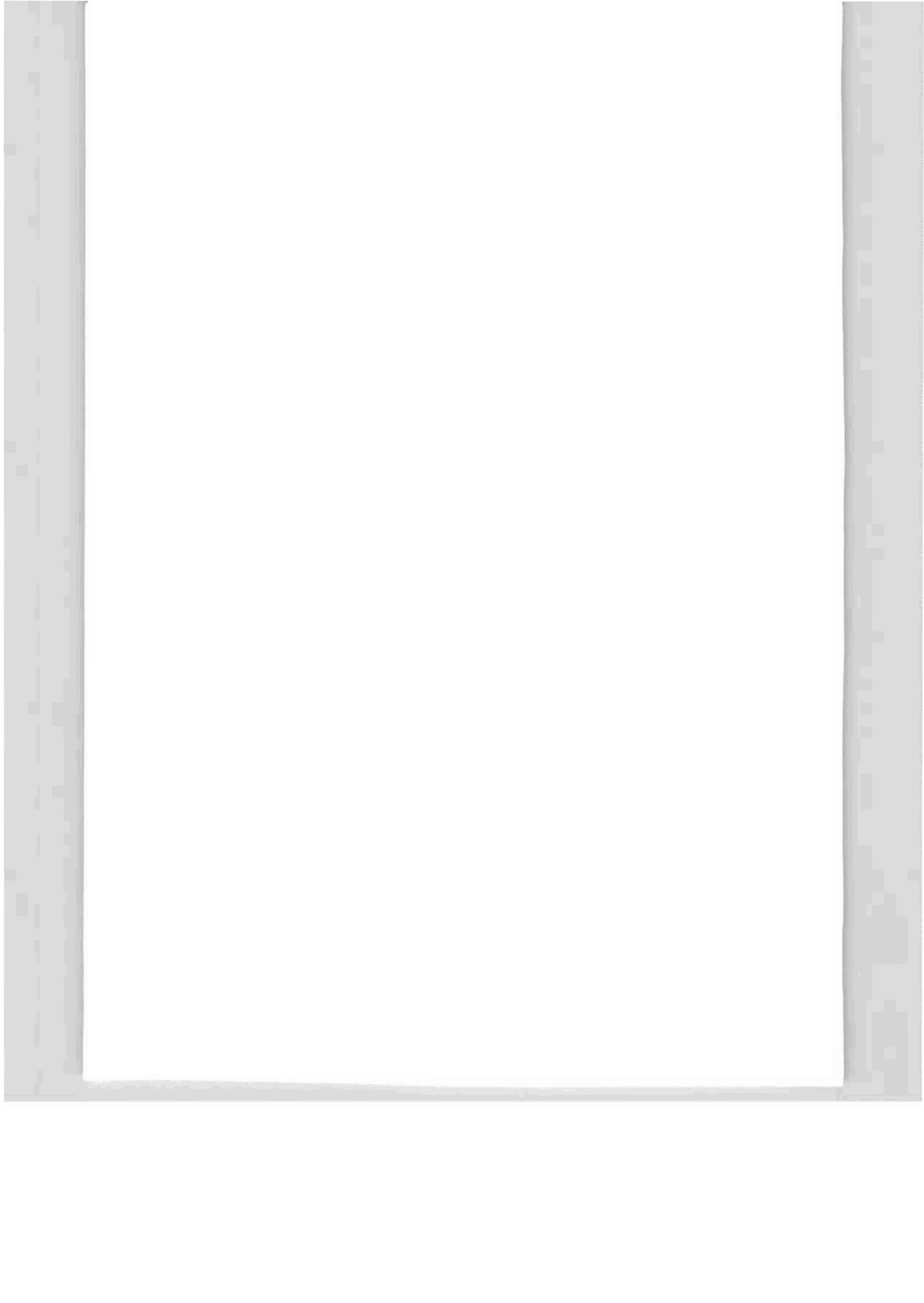
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Kuno Thomasson
HELEOPLANKTON FROM A POOL IN
SOUTH TRØNDELAG PROVINCE,
CENTRAL NORWAY

TRONDHEIM 1979



HELEOPLANKTON FROM A POOL IN SOUTH TRØNDELAG
PROVINCE, CENTRAL NORWAY

by

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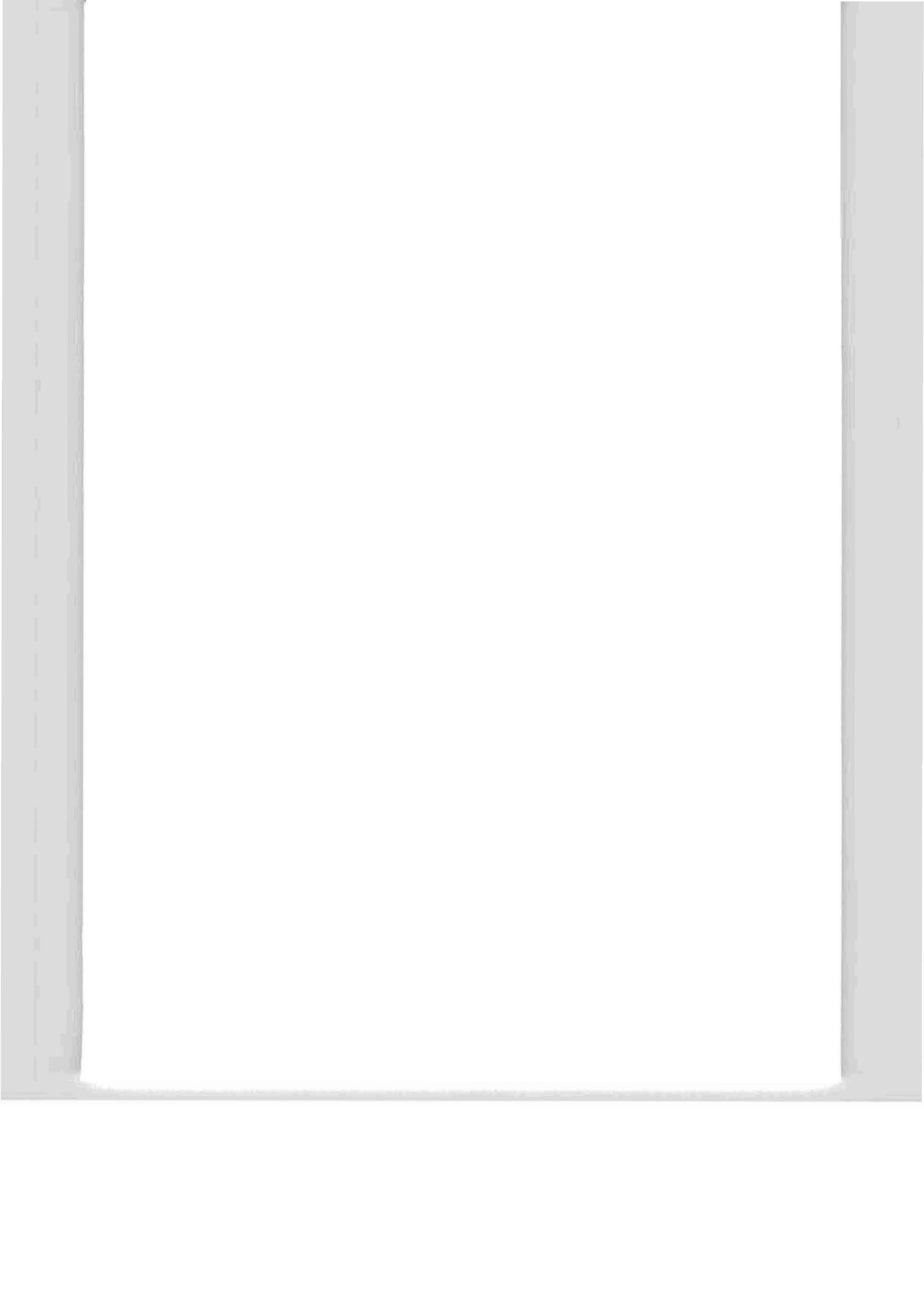
ABSTRACT

Thomasson, Kuno. 1979. Heleoplankton from a pool in South Trøndelag province, Central Norway. *Gummeria* 32: 1-23¹⁾.

The composition of the planktic and tychoplanktic algal vegetation in a small pool, located in Gauldalen, Central Norway, is listed. 323 algal taxa were recorded from the four net samples. Some notes on the faunal component of this heleoplanktic biocenosis are also included. The Rotiferae were the largest group represented with 55 taxa.

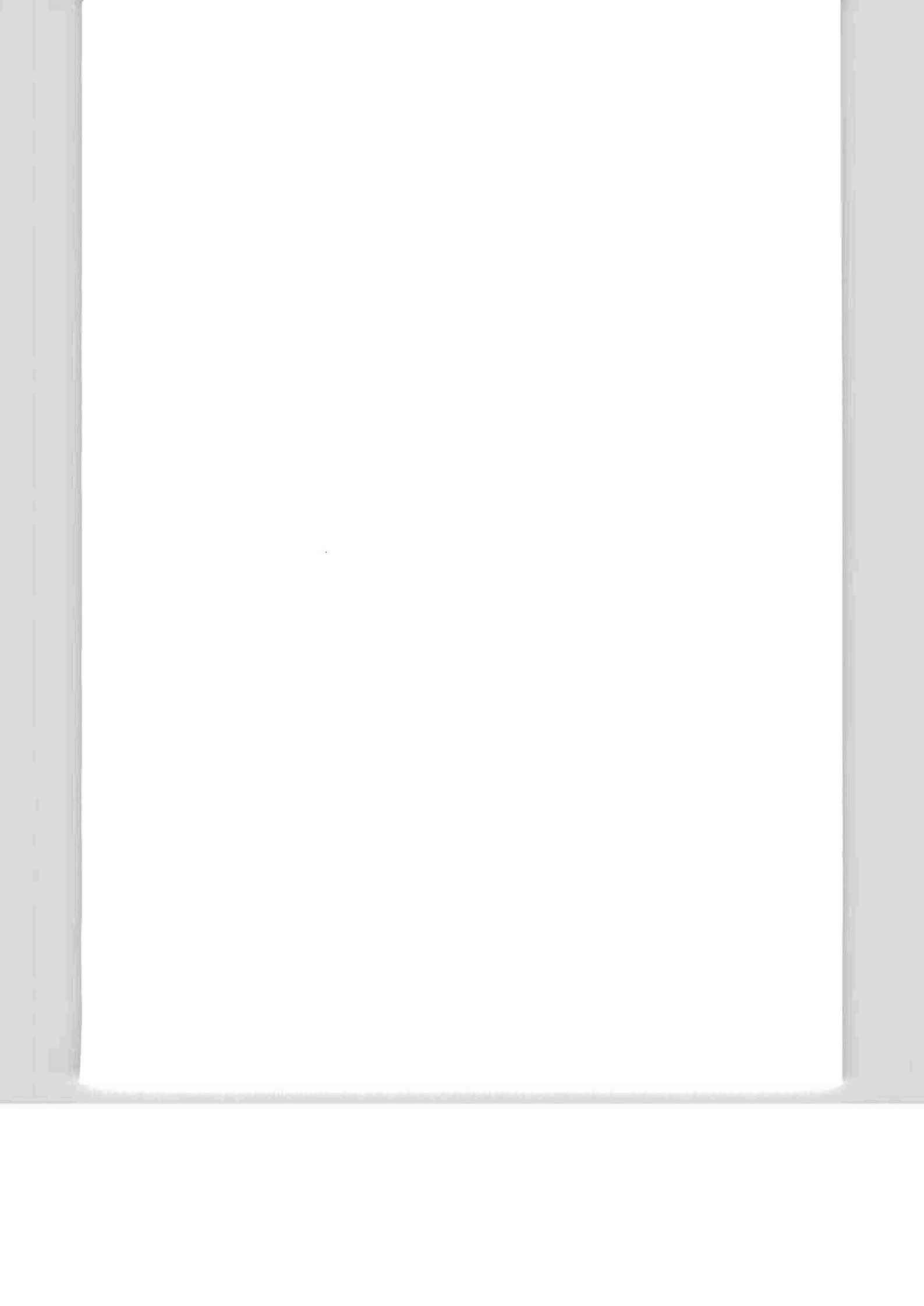
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INTRODUCTION

In 1885 Junge, a pupil of the father of biocoenosis Karl Möbius, published his biology textbook for elementary schools. It appeared in no less than three editions and was widely used. In his book he introduced the ecosystem approach into the teaching of natural history. His book is based on short studies of pond life, i.e. the pond as a microcosm. Very likely it was also influential at higher educational levels, especially in countries where few large water bodies exist, since much of early hydrobiology is based on pond studies. Many phycologists have studied ponds, e.g. Pascher (1910), Naumann (1914-25), Griffiths (1916-22), Bethge (1938-55), Middelhoek (1947), Nygaard (1949), Hortobágyi (1959-63), and Fott & Komárek (1960).

In the Scandinavian countries the main stress during past decades has been on the study of the limnoplankton. The heleoplankton has been almost entirely neglected. As a rule, the environmental factors are more extreme in small bodies of water, which is reflected in the algal vegetation. The composition of the heleoplankton, a mixture of euplanktic and tychoplanktic organisms, together with a number of benthic ones, is often very interesting. Study of such complex ecosystems provides good exercise in phycology.

MATERIALS AND METHODS

This study is based on four net samples collected in 1975 and 1976 by Mr. Peter Blomqvist from a pool called Krogstaddammen situated beside the railway line near Hovin in Gauldal, South-Trøndelag province, south of Trondheim. The approximate area of the pool is 25 x 100 m, and its maximum depth about 3 m. Some hydrochemical data, for the summer of 1974, are given by Dolmen, Sæther & Aagaard (1973 p. 22): viz. pH 6.3, Cl^- 2.0 mg/l, total hardness 6.5 mg/l, CaO-hardness 4.5 mg/l, conductivity (K_{18}) 33, permanganate consumed 40.8 mg/l. According to Blomqvist's analyses, the following values were recorded on October 10, 1975: pH 6.4, conductivity (K_{20}) 40, total alkalinity 0.1872 meq/l, Ca+Mg 0.1136 mmol/l, hardness (dH°) 0.64, colour 80 mg Pt/l, SO_4

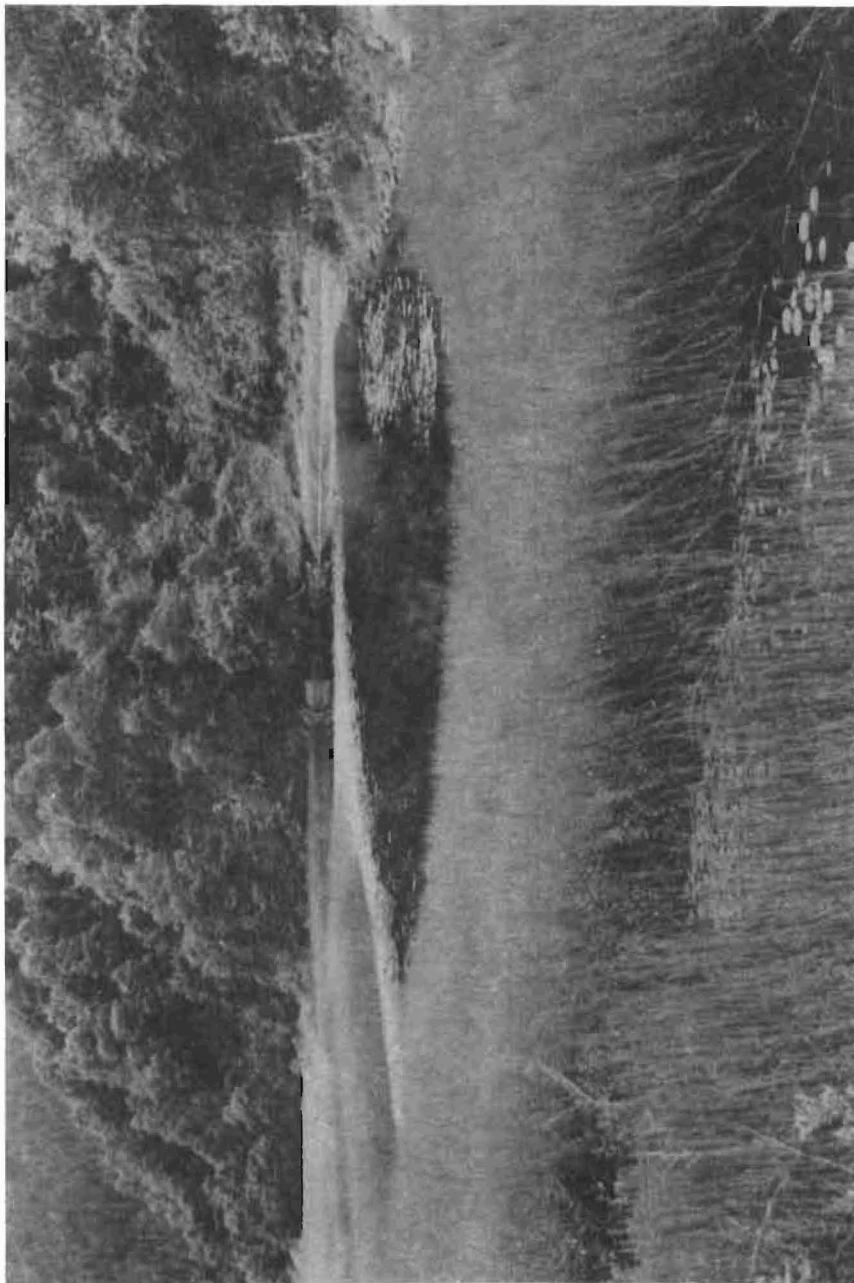


Fig. 1. Krogstaddammen, northern view.
Photo: Bjørn Sæther, 10.7.78.

0.267 meq/l, NO_3^- 165 $\mu\text{g/l}$, Ca 0.1925 meq/l, Na 0.141 meq/l, K 0.014 meq/l, Fe 235 $\mu\text{g/l}$, Kjeldahl-N 266 $\mu\text{g/l}$.

The pool margins are fringed by a belt of sedges (*Carex* spp.), water-horsetail (*Equisetum fluviatile*), buckbean (*Menyanthes trifoliata*), broad-leaved pondweed (*Potamogeton natans*), and white water lily (*Nymphaea alba*). The central area is open water with no aquatic vegetation.

The samples were taken from the central part of the pool, using of 25 μm -mesh net. Two of the samples were preserved by adding formaldehyde and two with Lugol's solution. The strong staining effect of Lugol's solution obscured the morphological features essential for the reliable specific identification of some of the algae. In those two samples, therefore, many algae were left unidentified.

OBSERVATIONS

The sample collected on August 13, 1975 was characterized by an abundance of *Botryococcus braunii* and *Staurodesmus* species, especially *Staurodesmus dickiei* v. *rhomboideus*. In addition, *Stichogloea doederleinii*, *Xanthidium cristatum*, and *Staurastrum anatinum* v. *vestitum* were also numerous. The richness of desmids in this sample lead to the study of this heleoplankton community, the results are summarized in Table 1.

One month later, on September 15, the number of *Botryococcus braunii* colonies had greatly declined. Members of the genus *Staurodesmus*, especially *Staurodesmus convergens* v. *laportei* and *Staurodesmus dickiei* v. *maximus*, were still predominant, together with *Staurastrum anatinum* v. *vestitum*. *Crucigeniella rectangularis*, which was frequent in the previous sample, had now vanished. *Chroococcus limneticus* had increased in abundance.

The autumnal phytoplankton sample, taken on October 7, was wholly dominated by *Uroglena americana*. All the other species listed in Table 1 occurred only sparsely.

The sample taken on July 7, 1976 was dominated by *Polyarthra vulgaris* and *Synura uvella*, together with *Dinobryon bavaricum*. *Ceratium cornutum* was also frequent.

Table 1. Heleoplankton from Krogstaddammen, Sør-Trøndelag, Central Norway

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
BACTERIOPHYTA				
<i>Galionella minor</i> Chol.	.	+	.	.
<i>Ochrobium tectum</i> Perf.	.	+	.	.
CYANOPHYTA				
<i>Achroonema lentum</i> Skuja	+	.	.	.
<i>Anabaena spiroides</i> v. <i>crassa</i> (Lemm.) Elenk.	+	.	.	.
<i>Anabaena</i> sp.	+	+	.	.
<i>Aphanizomenon flos-aquae</i> (L.) Ralfs	.	+	.	+
<i>Chroococcus limneticus</i> Lemm.	+	+	.	.
<i>C. turgidus</i> (Kütz.) Näg.	+	+	+	+
<i>Coelosphaerium kuetzingianum</i> Näg.	+	.	.	.
<i>Gloeotrichia echinulata</i> (J.S. Smith) P. Richt.	.	+	.	.
<i>Gomphosphaeria lacustris</i> Chod.	.	+	.	.
<i>G. naegeliana</i> (Unger) Lemm.	.	+	.	.
<i>Merismopedia elegans</i> A. Br.	+	.	.	.
<i>Microcystis aeruginosa</i> Kütz.	+	+	.	.
<i>M. elachista</i> (W. & W.) Starm.	+	.	.	.
<i>M. elachista</i> f. <i>planctonica</i> G.M. Smith	.	+	.	.
<i>M. incerta</i> (Lemm.) Starm.	.	.	.	+
<i>Oscillatoria lacustris</i> (Kleb.) Geitl.	+	+	.	+
<i>O. limnetica</i> Lemm.	.	+	.	.
<i>Oscillatoria</i> sp.	+	.	.	.
<i>Pelonema pseudovacuatatum</i> Laut.	.	+	.	.
<i>Phormidium dictyothallum</i> Skuja	+	.	.	.
<i>Synechococcus linearis</i> (Schmidle & Laut.) Kom.	+	.	.	.
PYRRHOPHYTA				
Cryptophyceae				
<i>Cryptomonas erosa</i> Ehr.	+	.	.	.
<i>C. marssonii</i> Skuja	+	.	.	.
<i>C. obovata</i> Skuja	.	+	.	.
Chloromonadophyceae				
<i>Vacuolaria virescens</i> Cienk.	.	+	.	.
Dinophyceae				
<i>Ceratium cornutum</i> (Ehr.) Clap. & Lachm.	+	+	.	+
<i>C. hirundinella</i> f. <i>austriacum</i> (Zederb.) Bachm.	+	.	.	.
<i>C. hirundinella</i> f. <i>gracile</i> Bachm.	.	+	.	.
<i>C. hirundinella</i> f. <i>silesiacum</i> Schroeder	+	.	.	+
<i>Cystodinium cornifax</i> (Schill.) Klebs	+	+	.	.
<i>C. steinii</i> Klebs	.	.	+	+
<i>Gymnodinium fuscum</i> (Ehr.) Stein	+	.	.	.
<i>G. neglectum</i> (Schill.) Lindem.	.	.	.	+
	Cont.			

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
Gymnodinium sp.	+	.	.	.
Katodinium sp.	+	.	.	.
Peridinopsis pygmaeum (Lindem.) Bourr.	.	.	.	+
Peridinium centennale (Playf.) Lef.	+	.	.	.
P. inconspicuum Lemm.	+	.	.	.
P. willei Huitf.-Kaas	.	.	.	+
P. volzii Lemm.	+	.	+	+
P. volzii v. cinctiforme Lef.	.	.	.	+
Peridinium sp.	+	.	.	.
CHROMOPHYTA				
Chrysophyceae				
Bitrichia chodatii (Rev.) Holl.	.	.	.	+
Chrysophaerella multispina Bradley	+	+	.	.
Chrysoxys maior v. astigmata Skuja	+	.	.	.
Chrysostephanosphaera globulifera Scherff.	+	.	.	.
Dinobryon bavaricum Imh.	.	.	.	+
D. cylindricum Imh.	.	+	+	.
D. cylindricum v. palustre Lemm.	.	.	.	+
D. sertularia Ehr.	+	.	.	.
D. sociale Ehr.	.	+	.	.
D. sociale v. americanum (Brunnth.) Bachm.	+	+	.	+
Epipyxis ramosa (Laut.) Hill. & Asm.	.	+	.	.
Epipyxis sp.	.	+	.	.
Hyalobryon sp.	+	.	.	.
Mallomonas sp.	.	+	+	+
Ochromonas polychrysis Skuja	+	.	.	.
Pseudokephyrion entzii Conrad	+	.	.	.
Rhipidodendron sp.	.	+	.	.
Stichogloea delicatula (G.S. West) Skuja	.	+	.	.
S. doederleinii (Schmidle) Wille	+	+	.	.
Stylochrysalis parasitica Stein	+	.	.	.
Synura sphagnicola Korsch.	.	.	.	+
S. uvella Ehr.	+	+	.	+
Synura sp.	.	+	.	.
Uroglena americana Calk	.	+	+	.
Xanthophyceae				
Centritractus belonophorus Lemm.	.	+	.	.
Characiopsis falax Pascher	.	+	.	.
C. submalleolus Starm.	.	.	.	+
Goniochloris mutica (A. Br.) Fott	.	+	.	.
Ophiocytium bicuspidatum Lemm.	+	.	.	.
O. capitatum Wolle	+	+	.	.
O. cochleare A. Br.	.	+	.	.
O. gracillimum Borzi em. Pascher	.	.	.	+
O. maius Näg.	+	.	.	.

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
<i>Peroniella curvipes</i> Pascher	.	+	.	.
<i>P. planctonica</i> G.M. Smith	+	.	.	.
<i>Pseudostaurastrum enorme</i> (Ralfs) Chod.	+	.	.	.
<i>P. limneticum</i> (Borge) Chod.	+	.	.	.
<i>P. trispinatum</i> (W. & W.) Skuja	+	.	.	.
<i>Pseudostaurastrum</i> sp. (<i>Tetraedron lobulatum</i> v. <i>polyfurcatum</i> G.M. Smith)	.	+	.	.
<i>Pseudostaurastrum</i> sp. (<i>Tetraedron planctonicum</i> G.M. Smith)	.	+	.	.
<i>Stipitococcus urceolatus</i> W. & W.	.	+	.	.
<i>Tribonema taeniatum</i> Pascher	+	.	.	.
Bacillariophyceae				
<i>Asterionella formosa</i> Hass.	+	.	.	.
<i>Cyclotella</i> sp.	+	.	.	.
<i>Eunotia flexuosa</i> (Bréb.) Kütz.	.	.	+	.
<i>E. lunaris</i> (Ehr.) Grun.	+	.	.	.
<i>E. monodon</i> Ehr.	.	.	.	+
<i>E. pectinalis</i> v. <i>ventralis</i> (Ehr.) Hust.	.	.	+	.
<i>E. robusta</i> v. <i>tetraodon</i> (Ehr.) Ralfs	.	+	+	+
<i>Gomphonema acuminatum</i> v. <i>coronata</i> (Ehr.) W. Smith	+	+	.	+
<i>Melosira ambigua</i> (Grun.) O. Müll.	+	+	.	.
<i>M. granulata</i> (Ehr.) Ralfs	.	+	.	+
<i>Pinnularia</i> sp.	+	.	.	+
<i>Synedra acus</i> Kütz.	+	+	.	+
<i>Tabellaria fenestrata</i> (Lyngb.) Kütz.	+	+	+	.
<i>T. flocculosa</i> v. <i>flocculosa</i> (Roth) Knud.	+	+	+	+
<i>T. flocculosa</i> v. <i>asterionelloides</i> (Grun.) Knud.	+	.	+	.
EUGLENOPHYTA				
<i>Cyclidiopsis acus</i> Korsch.	.	.	.	+
<i>Entosiphon polyaulax</i> Skuja	+	.	.	.
<i>Euglena acus</i> Ehr.	+	+	.	+
<i>E. charkowiensis</i> Swir.	+	.	.	.
<i>E. gasterosteus</i> Skuja	.	+	.	.
<i>E. spirogyra</i> Ehr.	+	.	.	+
<i>E. spirogyra</i> v. <i>suprema</i> Skuja	.	+	.	.
<i>Euglena</i> spp.	+	.	.	.
<i>Lepocinclis texta</i> (Duj.) Lemm. em. Conr.	+	.	.	.
<i>Menoidium pellucidum</i> Perty	.	.	.	+
<i>Petalomonas gigas</i> Skuja	.	+	.	.
<i>Phacus contortus</i> Bourr.	.	+	.	.
<i>P. lismorensis</i> Playf.	+	+	.	+
<i>P. longicauda</i> (Ehr.) Duj.	+	+	.	.
<i>P. longicauda</i> v. <i>insecta</i> Koczw.	.	+	.	.
<i>P. longicauda</i> v. <i>maior</i> Swir.	.	.	.	+
<i>P. moraviensis</i> Pochm. morpha	.	+	.	.

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
<i>Phacus orbicularis</i> Hübner	+	.	.	+
<i>P. polytrophos</i> Pochm.	.	.	.	+
<i>P. suecicus</i> v. <i>inermis</i> Nyg.	+	.	.	+
<i>Trachelomonas armata</i> v. <i>longa</i> Defl.	+	+	.	+
<i>T. armata</i> v. <i>steinii</i> Lemm. em. Defl.	+	.	.	.
<i>T. bernandinensis</i> W. Vischer em. Defl.	+	+	.	+
<i>T. caudata</i> (Ehr.) Stein	.	+	.	.
<i>T. furcata</i> Dolg.	.	+	.	.
<i>T. hispida</i> (Perty) Stein em. Defl.	.	+	+	+
<i>T. hispida</i> v. <i>coronata</i> Lemm.	+	+	.	.
<i>T. hispida</i> v. <i>duplex</i> Defl.	.	+	.	.
<i>T. pusilla</i> v. <i>punctata</i> Playf.	+	.	.	.
<i>T. superba</i> v. <i>duplex</i> Defl.	.	+	.	.
<i>T. superba</i> v. <i>spinosa</i> Presc.	+	.	.	.
<i>T. volvocina</i> Ehr.	+	+	.	.
<i>Trachelomonas</i> sp.	.	.	.	+
CHLOROPHYTA				
Volvocales				
<i>Chlamydomonas</i> spp.	+	+	.	.
<i>Eudorina cylindrica</i> Korsch.	+	.	.	+
<i>E. elegans</i> Ehr.	+	+	+	+
<i>Gonium pectorale</i> O.F. Müll.	+	+	.	+
<i>G. sociale</i> (Duj.) Warm.	+	+	.	+
<i>Pandorina morum</i> (O.F. Müll.) Bory	+	+	+	+
<i>Pleodorina californica</i> Shaw	.	.	.	+
<i>Volvox aureus</i> Ehr.	+	.	.	.
Tetrasporales				
<i>Chlamydocapsa ampla</i> (Kütz.) Fott	+	+	.	.
<i>C. bacillus</i> (Teil.) Fott	.	.	+	+
<i>C. planctonica</i> (W. & W) Fott	+	.	.	.
<i>Paulschulzia pseudovolvox</i> (Schulz) Skuja	+	+	.	.
Chlorococcales				
<i>Ankistrodesmus fusiformis</i> Corda sensu Korsch.	+	+	+	.
<i>A. gracilis</i> (Reinsch) Korsch.	+	+	+	+
<i>Botryococcus braunii</i> Kütz.	+	+	+	+
<i>Coelastrum asteroideum</i> De Not.	.	+	.	.
<i>C. cambricum</i> Arch.	.	.	.	+
<i>C. cambricum</i> v. <i>intermedium</i> (Bohlin) G.S. West	+	+	.	+
<i>C. microporum</i> Näg.	+	+	.	.
<i>C. reticulatum</i> (Dang.) Senn	+	.	.	.
<i>Crucigeniella rectangularis</i> (Näg.) Kom.	+	.	.	.
<i>Dicellula</i> sp.	.	.	.	+
<i>Dictyosphaerium ehrenbergianum</i> Näg.	+	.	.	.
<i>D. pulchellum</i> Wood	+	+	.	+

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
Monoraphidium griffithii (Berkel) Kom.-Legn.	.	.	.	+
M. irregulare (G.M. Smith) Kom.-Legn.	+	.	.	+
Nephrocytium agardhianum Näg.
Oocystis lacustris Chod.	+	.	.	.
Pediastrum angulosum (Ehr.) Menegh.	.	+	.	+
P. biradiatum Meyen	+	.	.	.
P. boryanum (Turp.) Menegh.	+	+	+	+
P. duplex Meyen	+	.	+	.
P. simplex Meyen	+	.	.	.
P. tetras (Ehr.) Ralfs	+	+	.	.
Quadrigula pfitzeri (Schröd.) G.M. Smith	+	.	.	.
Scenedesmus acuminatus (Lagerh.) Chod.	.	.	.	+
S. bicaudatus (Hansg.) Chod.	.	+	.	.
S. brasiliensis Bohlin	+	.	.	.
S. carinatus (Lemm.) Chod.	+	+	.	.
S. carinatus f. granulatus Hortob.	.	.	.	+
S. denticulatus v. linearis f. costato-granulatus (Hortob.) Uherk.	.	.	.	+
S. denticulatus v. linearis f. granulatus Hortob.	.	+	.	.
S. ecornis (Ralfs) Chod.	+	+	+	+
S. granulatus f. verruco-costatus Hortob.	.	+	.	.
S. quadricauda Chod.	.	.	+	+
S. quadricauda v. longispina (Chod.) G.M. Smith	.	+	.	.
S. quadricauda v. quadrispina (Chod.) G.M. Smith	+	.	.	.
S. spinosus Chod.	.	+	.	.
Tetradesmus wisconsinensis G.M. Smith	.	.	.	+
Tetraedron caudatum (Corda) Hansg.	+	.	.	.
T. incus (Teil.) G.M. Smith	+	.	.	.
Ulotrichales				
Elakatothrix biplex (Nyg.) Hind.	+	.	.	.
E. genevensis (Rev.) Hind.	.	.	.	+
Chaetophorales				
Aphanochaete repens A. Br.	.	.	.	+
Zygnematales				
Actinotaenium cucurbitinum (Biss.) Teil.	.	.	+	.
A. cucurbitinum f. minus (W. & W.) Croasd.	+	.	.	.
A. diplosporium v. americanum (W. & W.) Teil.	+	.	.	.
A. subtile (W. & W.) Teil.	+	.	.	.
Arthrodesmus octocornis Ehr.	+	+	+	+
Bambusina brebissonii Kütz.	+	+	+	+
Closterium abruptum W. West	.	.	.	+
C. acutum v. linea (Perty) W. & W.	+	.	.	.
C. angustatum Kütz.	+	.	.	.
C. costatum Corda	.	+	.	.

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
<i>Closterium cynthia</i> De Not.	+	.	.	.
<i>C. diana</i> e Ehr.	.	+	.	+
<i>C. diana</i> e v. <i>pseudodiana</i> e (Roy) Krieg.	+	.	.	.
<i>C. didymotocum</i> Ralfs	+	+	+	.
<i>C. ehrenbergii</i> Menegh.	.	+	.	.
<i>C. gracile</i> Bréb.	+	+	.	.
<i>C. intermedium</i> Ralfs	.	.	.	+
<i>C. jenneri</i> Ralfs	.	+	.	.
<i>C. kuetzingii</i> Bréb.	+	+	+	+
<i>C. lineatum</i> Ehr.	+	.	.	.
<i>C. lunula</i> (O.F. Müll.) Nitzsch.	+	.	.	.
<i>C. ralfsii</i> v. <i>hybridum</i> Rab.	+	.	.	.
<i>C. setaceum</i> Ehr.	+	+	.	+
<i>C. toxon</i> W. West	.	.	.	+
<i>C. ulna</i> Focke	+	+	.	.
<i>Cosmarium abbreviatum</i> v. <i>latereprotractum</i> (Playf.) Krieg. & Gerl.	+	.	.	.
<i>C. amoenum</i> Bréb.	.	+	.	.
<i>C. boeckii</i> Wille	+	+	.	.
<i>C. contractum</i> Kirchn.	+	.	.	.
<i>C. contractum</i> v. <i>ellipsoideum</i> (Elfv.) W. & W.	+	+	+	+
<i>C. debaryi</i> Arch.	+	+	.	+
<i>C. difficile</i> v. <i>sublaeve</i> Lütke.	+	.	.	.
<i>C. formosulum</i> Hoff	+	.	.	.
<i>C. lundellii</i> v. <i>corruptum</i> (Turn.) W. & W.	+	+	.	.
<i>C. margaritatum</i> Roy & Biss.	+	+	.	+
<i>C. margaritifera</i> Menegh.	+	.	.	+
<i>C. obtusatum</i> Schmidle	.	.	.	+
<i>C. perforatum</i> Lund.	.	+	.	.
<i>C. perforatum</i> v. <i>skujae</i> Grönbl.	.	.	.	+
<i>C. polygonum</i> v. <i>depressum</i> Messik.	.	+	.	.
<i>C. portianum</i> Arch.	+	+	+	+
<i>C. praemorsum</i> Bréb.	.	+	.	.
<i>C. pseudamoenum</i> v. <i>basilare</i> Nordst.	+	.	.	.
<i>C. punctulatum</i> v. <i>subpunctulatum</i> (Nordst.) Børg.	.	+	.	+
<i>C. pyramidatum</i> v. <i>convexum</i> Krieg. & Gerl.	+	.	.	.
<i>C. quadratum</i> (Gay) De Toni	+	.	.	.
<i>C. quadrifarium</i> f. <i>hexastichum</i> (Lund.) Nordst.	+	.	.	.
<i>C. quadrum</i> Lund.	.	.	.	+
<i>C. refringens</i> v. <i>subcoliferum</i> (Grönbl.) Krieg. & Gerl.	.	+	.	.
<i>C. regnellii</i> v. <i>pseudoregnellii</i> (Messik.) Krieg. & Gerl.	+	.	.	.
<i>C. regnesii</i> v. <i>montanum</i> Schmidle	.	.	.	+
<i>C. reniforme</i> Arch.	+	.	.	.
<i>C. subcrenatum</i> Hantzsch.	.	.	.	+
<i>C. subtumidum</i> Nordst.	+	.	.	.
<i>C. tumidum</i> Lund.	+	.	.	.
<i>C. varsoviense</i> Racib.	+	.	.	.

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
Desmidium swartzii Ag.	+	+	+	+
Euastrum affine Ralfs	+	.	.	.
E. ansatum Ehr.	+	.	.	.
E. ansatum v. dideltiforme Ducei.	+	+	.	+
E. bidentatum v. speciosum (Boldt) Schmidle	+	+	+	+
E. binale (Turp.) Ehr.	.	.	+	+
E. binale v. hians W. West	.	+	.	+
E. denticulatum (Kirchn.) Gay formae	+	.	+	.
E. elegans (Bréb.) Kütz.	+	.	.	.
E. inerme (Ralfs) Lund.	+	.	.	.
E. oblongum (Grev.) Ralfs	+	+	.	.
E. pectinatum Bréb.	+	+	.	+
E. pectinatum v. brachylobum Wittr.	+	.	.	.
E. pulchellum Bréb.	+	+	.	+
E. sibiricum v. exsectum Grönbl.	+	.	.	.
E. turneri W. West	+	+	.	.
E. verrucosum Ehr.	+	+	.	+
Gonatozygon aculeatum Hastings	+	.	.	.
G. brebissonii De Bary	+	.	.	+
G. monotaenium De Bary	+	+	.	.
Hyalotheca dissiliens (J.E. Smith) Bréb.	+	+	+	+
Mesotaenium greyi Turn.	+	.	.	.
Microasterias denticulata Bréb.	+	.	.	.
M. papillifera Bréb.	+	+	.	.
M. pinnatifida (Kütz.) Ralfs	.	.	.	+
M. rotata (Grev.) Ralfs	+	.	.	.
M. thomasiana Arch.	.	.	.	+
M. thomasiana v. notata (Nordst.) Grönbl.	+	+	+	.
M. truncata (Corda) Bréb.	+	+	.	+
Netrium digitus (Ehr.) Itz. & Rothe	+	.	.	.
N. digitus v. naegelii (Bréb.) Krieg.	.	+	.	.
Penium spirostriolatum Barker	.	.	.	+
Pleurotaenium baculoides (Roy & Biss.) Playf.	+	.	.	.
P. ehrenbergii (Bréb.) De Bary	+	+	+	+
P. trabecula (Ehr.) Näg.	+	+	+	+
P. trabecula v. rectum (Delp.) W. & W.	+	.	.	.
Staurastrum anatinum f. denticulatum (G.M. Smith) Brook	.	.	.	+
S. anatinum f. glabrum Brook	+	.	.	.
S. anatinum f. vestitum (Ralfs) Brook	+	+	+	+
S. arachne Ralfs	+	+	.	+
S. arcuatum Nordst.	+	+	.	+
S. armigerum v. furcigerum (Bréb.) Teil.	.	+	.	.
S. avicula Bréb.	+	+	.	+
S. bineanum v. ellipticum Wille	.	+	+	+
S. brasiliense v. lundellii W. & W.	.	.	.	+
S. cingulum v. obesum G.M. Smith	+	+	.	.

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
<i>Staurastrum furcatum</i> (Ehr.) Bréb.	.	.	.	+
<i>S. gladiusum</i> Turn.	.	+	.	+
<i>S. granulatum</i> (Ehr.) Ralfs	+	.	.	.
<i>S. heimerlianum</i> Lütke.	+	.	.	.
<i>S. inconspicuum</i> Nordst.	+	.	.	.
<i>S. inflexum</i> Bréb.	+	.	.	.
<i>S. ionatum</i> Wolle	+	.	.	.
<i>S. lapponicum</i> (Schmidle) Grönbl.	+	.	.	.
<i>S. leptocladum</i> v. <i>cornutum</i> Wille	+	.	.	.
<i>S. lunatum</i> v. <i>planctonicum</i> W. & W.	.	+	.	.
<i>S. margaritaceum</i> (Ehr.) Menegh.	+	+	.	+
<i>S. micron</i> W. & W.	.	.	+	.
<i>S. orbiculare</i> v. <i>ralfsii</i> W. & W.	.	+	.	.
<i>S. pelagicum</i> W. & W.	.	.	.	+
<i>S. pilosellum</i> W. & W.	.	+	.	.
<i>S. polymorphum</i> Bréb.	.	.	.	+
<i>S. polymorphum</i> v. <i>divergens</i> Nyg.	+	.	.	.
<i>S. punctulatum</i> Bréb.	+	+	.	+
<i>S. sebaldi</i> v. <i>ornatum</i> f. <i>planctonica</i> Teil.	+	.	.	.
<i>S. sexangulare</i> (Bulnh.) Lund	+	.	.	.
<i>S. simonyi</i> Heimerl.	.	.	.	+
<i>S. smithii</i> (G.M. Smith) Teil.	+	.	.	.
<i>S. subcruciatum</i> Cooke & Wills	+	.	.	.
<i>S. teliferum</i> Ralfs	+	+	.	.
<i>S. tetracerum</i> Ralfs	+	.	.	+
<i>S. turgescens</i> De Not.	+	.	.	.
<i>Staurodesmus convergens</i> (Ehr.) Teil.	+	.	.	.
<i>S. convergens</i> v. <i>laportei</i> Teil.	.	+	+	+
<i>S. cuspidatus</i> (Bréb.) Teil.	.	+	.	.
<i>S. cuspidatus</i> v. <i>divergens</i> Nordst.	+	.	.	.
<i>S. dejectus</i> (Bréb.) Teil.	+	.	.	.
<i>S. dickiei</i> (Ralfs) Lillier.	.	.	.	+
<i>S. dickiei</i> v. <i>maximus</i> (W. & W.) Thom.	+	+	.	.
<i>S. dickiei</i> v. <i>rhomboides</i> (W. & W.) Lillier.	+	+	+	+
<i>S. extensus</i> (Borge) Teil.	+	+	+	+
<i>S. extensus</i> v. <i>joshuae</i> (Gutw.) Teil.	+	.	.	.
<i>S. glaber</i> (Ehr.) Teil.	+	.	.	+
<i>S. glaber</i> (Ehr.) Teil. fac. 2	.	+	.	.
<i>S. glaber</i> v. <i>debaryanus</i> (Nordst.) Teil.	.	.	.	+
<i>S. glaber</i> f. <i>norvegicus</i> Printz	.	+	.	.
<i>S. incus</i> v. <i>ralfsii</i> (W. West) Teil.	.	.	.	+
<i>S. indentatus</i> (W. & W.) Teil.	+	+	+	.
<i>S. isthmus</i> (Heimerl.) Croasd.	+	.	.	.
<i>S. megacanthus</i> v. <i>orientalis</i> (Scott & Presc.) Teil. fac. 3	.	.	.	+
<i>S. patens</i> (Nordst.) Croasd.	+	.	.	.

cont.

Table 1. cont.

	13.08.1975	15.09.1975	07.10.1975	13.07.1976
<i>Teilingia granulata</i> (Roy & Biss.) Bourr.	+	+	.	+
<i>Tetmemorus granulatus</i> (Bréb.) Ralfs	+	.	.	.
<i>Xanthidium antilopaeum</i> (Bréb.) Kütz.	+	+	.	.
<i>X. antilopaeum</i> v. <i>polymazum</i> Nordst.	+	+	.	+
<i>X. armatum</i> (Bréb.) Rab.	+	.	.	.
<i>X. cristatum</i> Bréb.	+	+	+	+
MYCOPHYTA				
<i>Tetrachaetum elegans</i> Ingold	.	.	.	+
<i>Tetracladium setigerum</i> (Grove) Ingold	.	.	.	+

It is obvious from Table 1 that the phytoplankton in this pool is rich in taxa. Although Wetzel (1975 p. 293) has condemned the use of plankton nets for sampling, it would seem from the analyses that net samples nevertheless often yield a more comprehensive picture than obtainable by other sampling methods. For the studies of algal flora and vegetation, at least, the net-samples despite some shortcomings, are still useful. Even samples collected with a coarse-meshed net may yield excellent information about the composition of the phytoplankton, cf. Thomasson (1977). Much depends on the quality of the subsequent microscope study and of course on the type of microscope used. Determinations made using only an inverted microscope are not always reliable from a phycological point of view. The algae are often classified on their superficial appearance alone.

For gaining some idea of the structure of the biocoenosis, the following faunal records are included, viz.:

RHIZOPODA. *Amoeba* sp., *Arcella conica* Defl., *A. costata* Ehr.,
A. gibbosa Pen., *A. vulgaris* Ehr., *Astramoeba radiosa* (Ehr.), *Diffflugia*
limnetica Lev., *Euglypha acanthophora* Ehr., *E. filifera* Pen.
CILIATA. *Ophrydium* sp., *Tintinnopsis lacustris* (Entz).
ROTIFERA. *Anuraeopsis fissa* (Gosse), *Cephalodella* sp., *Collotheca*
mutabilis (Hudson), *Colurella anodonta* Carlin, *C. obtusa* (Gosse),

C. paludosa Carlin, *C. tessellata* (Glasscott), *C. uncinata* (O.F. Müll.), *Conochilus unicornis* Rouss., *Conochilus* sp., *Euchlanis dilatata* Ehr., *E. incisa* Carlin, *Eudactylota eudactylota* (Gosse), *Filina limnetica* (Zach.), *F. longiseta* (Ehr.), *Gastropus hyptopus* (Ehr.), *Kellicottia longispina* (Kellic.), *Keratella cochlearis cochlearis* (Gosse), *K. c. tecta* (Gosse), *K. irregularis* (Lauterb.), *K. quadrata* (O.F. Müll.), *K. serrulata* (Ehr.), *K. testudo* (Ehr.), *Lecane bulla* (Gosse), *L. constricta* (Murray), *L. glypta* Harring & Myers, *L. lunata* (O.F. Müll.), *L. lunaris* (Ehr.), *L. mira* (Murray), *L. stichea* Harring, *L. tenuiseta punctata* Carlin, *Lepadella acuminata* (Ehr.), *L. patella* (O.F. Müll.), *Metadiaschiza trigona* (Rouss.), *Monommata longiseta* (O.F. Müll.), *Monommata* sp., *Mytilina* sp., *Philodina roseola* Ehr., *Philodina* sp., *Platylas quadricornis* (Ehr.), *Polyarthra remota* Skorik., *P. vulgaris* Carlin, *Pompholyx sulcata* Hudson, *Rotaria rotatoria* (Pallas), *Searidium longicaudum* (O.F. Müll.), *Squatinella rostrum myersi* Voigt, *Sychaeta pectinata* Ehr., *Synchaeta* sp., *Testudinella patina* (Herm.), *Trichocerca capucina* (Wierz. & Zach.), *T. elongata* (Gosse), *T. insignis* (Herrick), *T. longiseta* (Schrank), *T. myersi* (Hauer), *T. parvula* Carlin, *T. porcellus porcellus* (Gosse), *T. p. maior* (Harring 1913, Fig. 38:1, it resembles also *T. weberi*), *T. weberi* (Jennings), *Trichocerca* sp., *Trichotria similis* (Stenroos), *T. tetractis* (Ehr.).

CLADOCERA. *Alona guttata* Sars, *Alona* sp., *Alonella nana* (Baird), *Bosmina* sp., *Graptoleberis testudinaria* (Fischer), *Holopedium gibberum* Zadd., *Peracantha truncata* (O.F. Müll.), *Streblocerus serricaudatus* (Fischer).

Like such features as the abundance of Euglenophyta, the large number of *Trichocerca* species found indicates the heleoplanktic character of this biocoenosis. Needless to say these lists do not provide a true reflection of the pool conditions, since well-diversified limnoplanktic communities also occur. However, due to inadequate sampling and analyses they are seldom recorded.

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LEGENDS TO FIGURES

- Fig. 1. *Phacus longicauda*.
Fig. 2. *Euastrum oblongum*.
Fig. 3. *Phacus lismorensis* - *P. elegans* is similar but stouter.
Fig. 4. *Cosmarium debaryi* - Length 108-110 μm , breadth 36 μm .
Fig. 5. *Cosmarium margaritifera* - Length 56 μm , breadth 48 μm .
Fig. 6. *Euastrum bidentatum* v. *speciosum*.
Fig. 7. *Staurodesmus indentatus* - Length 36 μm .
Fig. 8. *Staurastrum avicula*.
Fig. 9. *Euglena charkowiensis* - Length 160 μm .
Fig. 10. *Cosmarium portianum* - Length 36 μm .
Fig. 11. *Cosmarium varsoviense* - Length 44 μm , resembles some forms of *C. tumidum*.
Fig. 12. *Cosmarium lundellii* v. *corruptum* - Length 64 μm , breadth 62-64 μm .
Fig. 13. *Staurastrum lapponicum* - Length 36 μm .
Fig. 14. *Euastrum denticulatum* forma - The frontal ornamentation is of *lapponicum*-type.
Fig. 15. *Euastrum denticulatum* forma - Length 24 μm , the frontal ornamentation is of *octogibbosum*-type. A similar specimen has been depicted by Croasdale (1955, Fig. 13:12).
Fig. 16. *Trachelomonas* sp. - Length 26 μm , breadth 24 μm .
Fig. 17. *Euastrum inerme* - Length 55 μm . Some forms of *E. sinuosum* are similar, but the ornamentation is different.
Fig. 18. *Staurodesmus indentatus*.
Fig. 19. *Staurodesmus dickiei* v. *rhomboides*.
Fig. 20. *Phacus orbicularis* - Length 42 μm , breadth 36 μm .

