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HORIZONTALLY OCCURRING QUANTITATIVE PHYTOPLANKTON INVESTIGATIONS IN LAKE BALATON, 1974

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As a follow up to the earlier publications on the quantitative and qualitative data of the horizontal phytoplankton of Lake Balaton on the basis of water sample series taken in the sixties, this study summarizes the quantitative and qualitative changes of phytoplankton in space and time in the year 1974. When examining the water samples taken at the transversal sections of the lake in July 1962 it was established that, compared to earlier data, qualitative and quantitative change had occurred in the phytoplankton (TAMÁS, 1965). On the basis of data on the horizontal phytoplankton collected for three years (from spring till autumn) after the great fish kill in 1965 the trend and rate of the change were made known in details (TAMÁS, 1967; 1969; 1972). The local variation in the phytoplankton of the sixties (TAMÁS, 1974) was obtained by multiplying the individual numbers with the mean volume of every single species.

The aim of these studies is to document the qualitative and quantitative changes of phytoplankton that proceed in space and time.

Dates of collecting and methods

Samples were taken fortnightly along section Balatonfüred–Zamárdi from February and in the Keszthely Bay from March. This study presents the mean values of the three deep-water sampling stations. Data on the two nearshore points will be published later *(Fig. 1)*.

The samples were fixed and analysed as described earlier (TAMÁS, 1972; 1974). The identification of algae was carried out on the basis of taxonomic works listed in detail previously (DESIKACHARY, 1959; PRESCOTT, 1962; TAMÁS, 1969; BURRELLY, 1966–1970). The year-long course of the water temperature given in *Fig. 2* is based on the data measured in the Kis-öböl Bay – a small bay on the east shore of the Tihany peninsula. The monthly mean values of the water level given in *Table I* were furnished by the Research Institute for Water Resources Development (Budapest, VITUKI). Data on the temperature, depth and transparency of water and the dates of sampling are summarized in *Table II*.

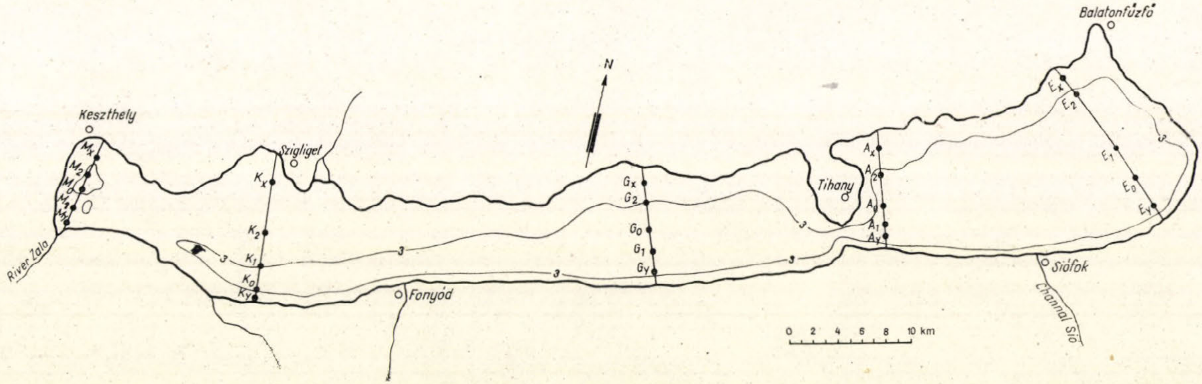

Fig. 1. Map of transversal sections with the sampling stations

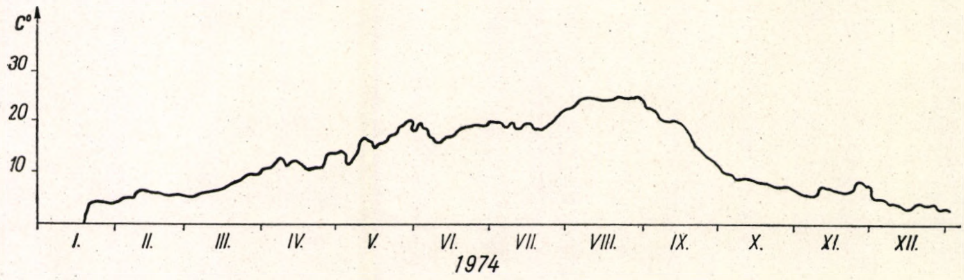

Fig. 2. Fluctuation in the water temperature measured in the Kis-öböl Bay at Tihany throughout the year

TABLE I

Monthly mean values of water level based on the data of Research Institute for Water Resources Development (VITUKI, Budapest)

I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.
77	84	95	94	98	97	93	86	94	103	108	101

Results

177 lifted samples and 100 net-filtrates were analysed, taken at 15 deep water stations of the five transversal sections from February till mid-December 1974. The identified microorganisms were found to belong to the following six taxonomic phyla:

Cyanophyta	22	—
Euglenophyta	11	—
Pyrrophyta	12	—
Chrysophyta	64	2
Chlorophyta	50	4
Caulobacteriales	1	
Together:	160	6

The Cyanophyta phylum was represented by 22 species. *Table III* shows that the filamentous algae of the order Hormogonales were of higher frequency in the Keszthely Bay. The *Anabaena* species made up 61.7 per cent of the individual number of Cyanophyta phylum in early September, 30 per cent on September 18, 44 per cent in early October and 69 per cent at the end of October. The *Aphanizomenon* species contributed 14 per cent of the individual number of the phylum in early September, 29 per cent on September 18, 28 per cent in early October and 12 per cent at the end of the month. Their number gradually decreased in the direction to the north-eastern basin of the lake. In the Keszthely Bay the number of *Lyngbya limnetica* was 850 times higher at mid-September than it had been in 1967. Even in early October an occurrence of 325,000 individuals/litre was found here.

TABLE II

Data on collecting

Collecting place	Collecting date	Water temperature °C	Depth cm	Secchi transparency cm	Notes
M	III. 26	10.7	300	33	Still water, sunshine
	VI. 9	11.4	285	41	*Chironomus* swarm, many *Synedra*
	IV. 23	10	310	49	Sunshine, breeze
	V. 7	12.1	290	47	*Chironomus* swarm, still water
	V. 24	15.8	320	46	
	VI. 4	19	312	45	Few clouds at times, sunshine
	VI. 26	20	295	38	
	VII. 10	20	290	40	
	VII. 25	20	300	50	Many *Melosira-Closterium*
	VIII. 7	22	296	38	Many *Microcystis*
	IX. 3	24	290	31	Algal bloom of *Anabaena spiroides*
	.IX. 18	20	295	35	Masses of *Anabaena-Aphanizomenon*
	X. 8	11	300	46	Masses of *Anabaena-Aphanizomenon*
	X. 24	8	308	28	Masses of *Cryptomonas-Cyclotella*
	XI. 13	6.3	310	42	Masses of *Nitzschia acicularis*
	XII. 12	4	305	48	Masses of *Nitzschia-Stephanodiscus*
K	III. 26	10.4	398	40	Many *Cyclotella-Synedra-Ankistrodes.*
	IV. 23	10	410	42	Gloomy weather, breeze
	V. 24	14.7	420	42	Many *Romeria-Cryptomonas*
	VI. 25	18.5	385	57	
	VII. 25	20	412	35	Many *Melosira-Closterium*
	IX. 3	24	410	44	
	X. 9	10	418	67	Masses of *Anabaena-Aphanizomenon*
	X. 24	8	425	54	Many *Cryptomonas-Cyclotella*
	XI. 14	6.3	390	40	Masses of *Nitzschia acicularis*
	XII. 12	4	410	45	Masses of *Nitzschia acicularis*
G	III. 27	10.2	400	48	Many *Synedra-Ankistrodesmus*
	IV. 24	11.1	396	45	Many *Cyclotella-Synedra-Ankistrodes.*
	V. 22	14.7	418	57	Overcast, moderate wind
	VI. 26	19.8	380	56	
	VII. 29	21	415	130	Many *Aphanizomenon-Ceratium-Closter.*
	IX. 6	24	435	50	Many *Cryptomonas*
	X. 10	10	428	108	Many *Lyngbya-Microcystis*
	X. 25	8	430	62	Many *Cyclotella-*
	XI. 15	6.3	440	55	Many *Nitzschia acicularis*
A	II. 20	4	354	58	Many *Nitzschia acicularis*
	III. 27	10	395	43	Many *Cyclotella-Synedra-Ankistrodes.*
	IV. 10	11.9	399	48	Sunshine, breeze
	IV. 24	11.2	390	56	Sunshine, breeze
	V. 8	12	428	50	
	V. 21	15.6	416	59	Overcast
	VI. 24	18.5	420	57	
	VII. 11	19.2	406	45	Many *Aphanizomenon-Lyngbya-Cryptom.*
	VII. 24	18.3	380	33	Many *Ceratium-Closterium*
	VIII. a8	22	370	50	Dead calm, sunshine, many *Closterium*
	IX. 2	24	380	70	
	X. 7	11.2	420	91	Many *Cyclotella-Cryptomonas*
	X. 28	7	430	76	Many *Cryptomonas*
	XI. 19	6	390	65	Many *Cryptomonas-Cyclotella*
	XII. 13	3.5	410	70	Many *Cryptomonas-Cyclotella*
E	III. 28	10.4	470	91	Many *Cyclotella-Synedra*
	IV. 25	10.9	420	52	Overcast, many *Cyclotella*
	V. 22	15.4	434	54	Northeastern, raining, stormy waves
	VI. 27	19.7	426	60	Many *Lyngbya*
	VII. 24	19.5	450	40	Many *Aphanizomenon-Aphanocapsa*
	IX. 2	23	400	83	Many *Cryptomonas-Cyclotella*
	X. 10	11	480	70	Gloomy weather, many *Cyclotella*
	X. 18	7.5	465	82	Many *Stephanodiscus-Cyclotella*
	XI. 20	5	445	64	

Among the filamentous blue-greens, *Romeria elegans* was most abundant from April till June in the Keszthely Bay. The representatives of Cyanophyta phylum made up 13.3 per cent of total algae. Their number varied between 10,000 and 2.5 million (0.2 – 52.9 per cent) along the sections.

11 species of Euglenophyta phylum (Colaciales 1, Euglenales 10) were noticed in the samples. Species belonging to genera *Euglena* and *Phacus* were several times as numerous as they had been in the sixties in the phytoplankton association. In August and September *Euglena klebsii* was represented in a frequency of 17,000 – 18,000 individuals/litre in the Keszthely Bay, while in early September 8,000 individuals/litre were noted along the transversal section Szigliget—Balatonmária. It is seen from *Table III* that *Phacus acuminatus*, *Ph. pyrum* and *Trachelomonas volvocina* sometimes produced an abundance of 5,000 individuals/litre. Euglenophyta phylum made up 6.6 per cent of total algae. From June till November, along the two south-western transversal sections (M and K) the samples showed an abundance of 200 – 52,000 individuals/litre (0.1—1.0 per cent), between Ságpuszta and Balatonszemes (section G) 200 – 5,400 individuals/litre, while along the two sections of then north-eastern basin (A and E) 200 – 15,000 individuals/litre. The total mean number of the phylum varied between 0.1 and 2.2 per cent in space and times.

12 species of Pyrrophyta phylum (Cryptophycea 6, Dinophyceae 6) were identified in the samples. Among the Cryptophyceae species of nannoplanktonic size, in addition *Chroomonas*, *Cryptomonas* and *Rhodomonas* were found. The species of these genera were several times as abundant in 1974 as they had been in the sixties. In the samples taken in the Keszthely Bay in late October *Cryptomonas erosa* showed an occurrence of 1 million individuals/litre, *Cryptomonas ovata* 210,000 individuals/litre, while *Cryptomonas caudata*, which is of the smallest size, 2 million indivuduals/litre. Till mid-October the numbers somewhat decreased. At the Szigliget section (K) *Cryptomonas caudata* peaked with 775,000 individuals/litre in mid-October. Simultaneously, also *Cryptomonas erosa* had a maximum of 725,000 individuals/litre. *Ceratium hirundinella* and the other Dinophyceae genera given in *Table III* belong to the algae of large body size. The *Ceratium* population increased along each transversal sections from spring till autumn with maximum numbers of 120,000 individuals/litre at section K in early September and 101,000 individuals/litre at section M in mid-September. At transversal section Ságpuszta—Balatonszemes (G) it had an abundance of 73,000 individuals/litre at the end of July, between Balatonfüred and Zamárdi (7) 19,000 individuals per litre in early September. Simultaneously, a maximum of 22,000 individuals/litre occurred between Balatonalmádi and Balatonvilágos. *Diplopsalis acuta* reached a maximum of 6,000 individuals/litre in the Keszthely Bay at the end of July. *Glenodinium*, *Gonyaulax* and *Peridinium* species also showed July maximum here. The members of this latter genera were as numerous as they had been in the sixties. Pyrrophyta phylum made up 7.2 per cent of total algae. During the sampling period the individual numbers varied between 1,000 and 3.4 million at the transversal sections. The species of this phylum constituted 0.1—43.5 per cent of total algae.

During the investigations 66 species of Chrysophyta phylum (Xantophyceae 2, Crysophyceae 9, Bacillariophyceae 55) were noted in the samples. The species marked with in *Table III* appeared the first time in the series of open water samples taken from Lake Balaton in the seventies (Hortobágyi).

Quantitative data on the phytoplankton of Lake Balaton in 1974 (i/l = 1000 individual per litre; N = net-filtrate (No. 25); D = cell size; o = oligosaprobic; α—m. = α-mesosaprobic; β—m. = β-mesosaprobic)

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
Cyanophyte Chroococcales											
1. *Aphanocapsa delicatissima*	II. 20								+		
W. et G. S. West	III. 26—28		+	10.0	+		+	10.0	+		+
D: 0.5—0.75 μ	IV. 9—10		+						+		
	IV. 23—25	10.0	+	5.0	+	5.0	+	15.0	+		+
	V. 7—8		+					10.0	+		
	V. 21—24	35.0	+	15.0	+	5.0	+	20.0	+	400.0	+
	VI. 4	35.0	+								
	VI. 24—27	20.0	+	5.0	+	10.0	+		+	10.0	+
	VII. 10—11	20.0	+						+		
	VII. 24—25, 29	10.0	+	25.0	+	25.0	+	5.0	+	5.0	+
	VIII. 7—8	15.0	+						+		
	IX. 2—3, 6	10.0	+	5.0	+	10.0	+		+	10.0	+
	IX. 18	10.0	+								
	X. 7—10	25.0	+	5.0	+	100.0	+	40.0	+	20.0	+
	X. 24—25, 28	10.0	+	15.0	+	25.0	+	15.0	+	20.0	+
	XI. 13—15, 19—20	5.0	+	15.0	+		+	5.0	+	5.0	+
	XII. 12—13	5.0	+	20.0	+			10.0	+		
2. *Aphanocapsa grevillei*	VI. 25—26		+		+						
(Hassall) Rabenhorst	VII. 10		+								
D: 3.5—5 μ, β—m.	VII. 25	5.0	+	10.0	+						
	VIII. 7	5.0	+								
	IX. 3		+		+						
3. *Chroococcus limneticus*	II. 20								+		
Lemm.	III. 26—28	40.0	+				+	40.0	+		+
D: 7—10 μ —o, β—m.	IV. 9—10	160.0	+						+		
	IV. 23—25	0.8	+				+		+		+
	V. 7—8		+						+		
	V. 21—24		+			2.0	+		+		+

	VI. 4		+								
	VI. 24—26		+			2.0	+		+		
	VII. 10—11		+						+		
	VII. 24—25, 29	40.0	+				+	4.8	+		+
	VIII. 7—8		+						+		
	IX. 2—3, 6	1.6	+				+		+	3.2	+
	IX. 18		+								
	X. 7—10		+			80.0	+		+		+
	X. 25						+				
4. *Chroococcus minutus*	X. 7								+		
(KÜTZING) NÄGELI	X. 28							40.0	+		
D: 6—8 μ—o, β—m.	XI. 19								+		
5. *Coelosphaerium kuetzingianum*	II. 20								+		
NÄGELI	III. 26—28	10.0	+	10.0	+		+		+		+
D: 3×4 μ	IV. 9—10	5.0	+						+		
	IV. 23—25		+	10.0	+	10.0	+		+		+
	V. 7—8	5.0	+						+		
	V. 21—24	0.2	+	5.0	+	7.0	+		+		+
	VI. 4		+								
	VI. 24—27	10.0	+	1.0	+		+	0.8	+	1.4	+
	VII. 10—11	5.0	+					10.0	+		
	VII. 24—25, 29	5.0	+	10.0	+	5.0	+		+	0.6	+
	VIII. 7—8	5.0	+					5.0	+		
	IX. 2—3, 6		9		+	5.1	+		+	0.2	+
	IX. 18		+								
	X. 7—10	5.0	+	0.4	+	10.0	+	10.0	+	10.0	+
	X. 24—25, 28		+	10.0	+		+	5.0	+	5.0	+
	XI. 13—15, 19—20		+		+		+		+	5.0	+
	XII. 12—13		+	10.0	+			10.0	+		
6. *Gomphosphaeria lacustris*	III. 26—28		+		+		+		+		+
CHODAT	IV. 9—10	15.0	+						+		
D: 4×2 μ—o, β—m.	IV. 23—25		+	5.0	+		+		+		+
	V. 7—8		+						+		
	V. 21—24		+	5.0	+	2.0	+		+		+
	VI. 4		+								
	VI. 24—27	5.0	+	5.0	+		+	0.4	+	1.4	+
	VII. 10—11	5.0	+					10.0—	+		

TABLE III *(continued)*

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
	VII. 24—25, 29	5.0	+	10.0	+	5.0	+		+	1.0	+
	VIII. 7—8		+						+		
	IX. 2—3, 6		+		+		+		+		+
	IX. 18		+								
	X. 7—10		+		+	5.0	+		+	5.0	+
	X. 24—25, 28		+		+		+		+		+
	XI. 13—15, 19—20	5.0	+		+	15.0	+	5.0	+		+
	XII. 12—13		+		+				+		
7. *Merismopedia glauca* (Ehr.) Näg. D: 3—6μ —0, β—m.	III. 26		+		+						
	IV. 9		+								
	IV. 23		+	20.0	+						
	V. 7	40.0	+								
	V. 24		+		+						
	IX. 3		+								
	IX. 18	10.0	+								
	X. 8		+								
8. *Merismopedia tenuissima* Lemm. D: 1.3—2 μ β—, α—m.	III. 26	80.0	+								
	IV. 8	240.0	+			4.0	+				
	VII. 29					12.8	+				
	IX. 3			320.0	+						
	X. 7							60.0	+		
	X. 28							19.2	+		
9. *Microcystis aeruginosa* Kütz. f. *flos-aquae* (Wittr.) Elenkin [= M. *flosaquae* (Wittr.) Kirchn.] D: 3—6 μ β—m.	II. 20								+		
	III. 26—28		+		+		+		+		+
	IV. 9—10		+						+		
	IV. 23—25		+		+		+		+		+
	V. 7—8		+						+		
	V. 21—24		+		+	10.0	+		+		+
	VI. 4		+								
	VI. 24—27		+	5.0	+	20.0	+	40.0	+	15.0	+

	VII. 10—11	150.0	+						+		
	VII. 24—25, 29		+	20.0	+		+		+		+
	VIII. 7—8	300.0	+						+		
	IX. 2—3, 6	200.0	+	200.0	+	93.0	+	160.0	+	32.0	+
	IX. 18	6.0	+								
	X. 7—10		+	300.0	+	250.0	+		+	150.0	+
	X. 24—25, 28		+	100.0	+	38.0	+	18.0	+		+
	XI. 13—15, 19—20		+	20.0	+		+		+	12.0	+
	XII. 12—13		+		+				+		
Hormogonales											
10. *Anabaena constricta* (SZAFER) GEITL. D: 4—6×6—8 μ α—m.	VII. 25		+	25.0	+						
	VIII. 7	10.0	+		+						
	IX. 3	50.0	+	15.0	+						
11. *Anabaena flos-aquae* (LYNGB.) BRÉB. D: 6—7μ β—m.	VI. 26	0.8	+								
	VII. 10	7.0	+								
	VII. 25	15.0	+								
	VIII. 7	10.0	+								
	IX. 3, 18	15.0	+								
	X. 8		+								
12. *Anabaena scheremetievi* ELENKIN D: 7—7.5×9—10 μ	V. 22—24		+	0.3	+						
	VI. 4	0.5	+								
	VI. 25—26	2.0	+	0.3	+		+				
	VII. 10	28.0	+								
	VII. 25, 29	35.0	+	15.0	+		+				
	VIII. 7	10.0	+								
	IX. 3, 6	50.0	+	30.0	+	5.0	+				
	IX. 18	60.0	+								
	X. 8—9	15.0	+		+		+				
	X. 24—25	80.0	+		+		+				
	XI. 13—15		+		+		+				
13. *Anabaena spiroides* KLEB. D: 6.5—8μ —o, β—m.	IV. 9	0.3	+		+		+				
	IV. 23—24		+		+		+				
	V. 7		+								
	V. 22—24		+		+		+				
	VI. 4	0.1	+								
	VI. 25—26	2.6	+	5.0	+		+				

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
	VII. 10	28.5	+								
	VII. 25, 29	35.0	+	30.0	+		+				
	VIII. 7	30.0	+								
	IX. 3i 6	500.0	+	25.0	+	2.7	+				
	IX. 18	700.0	+								
	X. 8—9	700.0	+	200.0	+	0.4	+				
	X. 24—25	200.0	+	35.0	+	0.2	+				
	XI. 12—13	25.0	+	20.1	+		+				
	XII. 12		+	4.8	+						
14. *Aphanizomenon flos-aquae*	III. 26—28		+		+		+		+		+
(L.) RALFS	IV. 9—10	0.8	+								
D: 4—6×6—12 μ β—,	IV. 23—25	0.1	+	0.2	+		+	0.4	+		+
α—m.	V. 7—8		+						+		
	V. 21—24		+		+	2.0	+	1.6	+	0.4	+
	VI. 4		+								
	VI. 24—27	1.4	+	5.0	+	3.0	+	7.3	+	25.0	+
	VII. 10—11	52.5	+					75.0	+		
	VII. 24—25, 29	75.0	+	135.0	+	130.0	+	130.0	+	235.0	+
	VIII. 7—8	40.0	+					50.0	+		
	IX. 2—3, 6	65.0	+	40.0	+	50.0	+	60.0	+	105.0	+
	IX. 18	425.0	+								
	X. 7—10	375.0	+	80.0	+	5.4	+	100.0	+	10.0	+
	X. 24—25, 28	35.0	+	40.7	+	2.8	+	5.4	+	3.0	+
	XI. 13—15, 19—20	0.4	+	0.8	+		+	0.6	+	0.2	+
	XII. 12—13	5.0	+	1.6	+		+	0.4	+		
15. *Aphanizomenon issatschenkoi*	VI. 4	0.2	+								
(USSACZEW)	VI. 24—27	0.6	+	5.0	+		+	1.0	+	0.7	+
PROSCHKINA—LAVRENKO	VII. 10—11	1.2	+					5.0	+		
D: 7.5—9×3.2—5.4 μ	VII. 24—25, 29	75.0	+	10.0	+		+		+		+
	VIII. 7—8	10.0	+						+		
	IX. 2—3, 6	75.0	+	50.0	+	1.4	+		+		+

	IX. 18	300.0	+								
	X. 7—10	75.0	+	40.0	+	0.4	+		+		+
	X. 24—25, 28	15.0	+	8.0	+	0.2	+	5.0	+		
	XI. 12—15, 19		+		+		+				
	XII. 12—13		+		+		+				
16. *Lyngbya circumcreta* G. S. WEST D: 1.8—2×1—2 μ	II. 20								+		
	III. 26—28	20.0	+	7.6	+		+	5.0	+		+
	IV. 9—10	5.1	+						+		
	IV. 23—25	0.1	+		+	5.0	+	2.6	+	0.2	+
	V. 7—8		+					12.6	+		
	V. 21—24	2.8	+	0.3	+	4.0	+	1.6	+	0.4	+
	VI. 4	0.1	+								
	VI. 24—27		+	0.1	+	3.0	+	0.6	+	1.2	+
	VII. 10—11		+					3.2	+		
	VII. 24—25, 29		+		+	2.8	+	6.0	+	7.2	+
	VIII. 7—8		+					2.9	+		
	IX. 2—3, 6		+	1.0	+	2.0	+	1.2	+	1.2	+
	IX. 18	0.2	+								
	X. 7—10	0.4	+		+		+	10.0	+	5.1	+
	X. 24—25, 28		+		+	0.2	+		+	3.4	+
	— XI. 13—15, 19—20		+		+	0.6	+	0.4	+	0.6	+
	XII. 12—13		+	0.4	+			0.2	+		
17. *Lyngbya limnetica* LEMM. D: 1—1.5×3—5 μ	II. 20							20.0	+		
	III. 26—28	10.0	+	30.0	+	25.0	+	75.0	+	165.0	+
	IV. 9—10	60.0	+					90.0	+		
	IV. 23—25	25.0	+	5.0	+	75.0	+	65.0	+	60.0	+
	V. 7—8	25.0	+					275.0	+		
	V. 21—24	20.0	+	5.0	+	50.0	+	105.0	+	160.0	+
	VI. 4	35.0	+								
	VI. 24—27	26.0	+	5.0	+	26.1	+	22.0	+	150.0	+
	VII. 10—11	8.0	+					60.0	+		
	VII. 24—25, 29		+	5.0	+	135.0	+	150.0	+	285.0	+
	VIII. 7—8	10.0	+					250.0	+		
	IX. 2—3, 6	40.0	+	20.0	+	55.0	+	25.0	+	150.0	+
	IX. 18	850.0	+								
	X. 7—10	325.0	+	115.0	+	225.0	+	190.0	+	120.0	+
	X. 24—25, 28	65.0	+	50.0	+	85.0	+	115.0	+	60.0	+
	XI. 13—15, 19—20	35.0	+	50.0	+	85.0	+	130.0	+	35.0	+
	XII. 12—13	40.0	+	20.0	+		+	100.0	+		

TABLE III *(continued)*

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
18. *Oscillatoria tenuis*	IX. 18		+								
AGARDH	X. 8	10.0	+								
D: 5—8×2.6—5 μ α—m.	X. 24		+								
19. *Pseudanabaena catenata*	IV. 23		+								
LAUTERBORN	V. 7		+								
D: 2×3 μ	V. 22—24		+	0.1	+	2.0	+				
	IV. 25—26		+		+		+				
	VII. 25, 29		+		+	5.0	+				
	IX. 18		+								
	X. 8	10.0	+								
	X. 24		+								
20. *Rhaphidiopsis mediterranea*	VI. 25—26		+		+						
SKUJA	VII. 10		+								
D: 8—9×2.5—3 μ	VII. 25	10.0	+		+						
	VIII. 7	10.0	+								
	IX. 3	5.0	+		+						
	IX. 18	125.0	+								
	X. 8—9	60.0	+	45.0	+						
	X. 24		+	20.0	+						
	XI. 13—14		+		+						
21. *Romeria elegans*	II. 20								+		
(WOLOSZYŃSKA) KOCZWARA	III. 26—28		+		+		+	0.6	+		
[= *Raciborskia elegans*	IV. 9—10	310.0	+						+		
WOLOSZYŃSKA]	IV. 23—25	130.0	+		+	20.0	+		+		
D: 4—9×1.3—1.5 μ	V. 7—8	300.0	+								
	V. 22, 24		+	145.0	+	20.0	+				
	VI. 4	540.0	+								
	VI. 25—26	80.0	+		+	20.0	+				
	VII. 10		+								
	VII. 25, 29		+		+		+				

	IX. 3, 6		+		+		+				
	IX. 18		+								
	X. 8	15.0	+								
	X. 24		+								
22. *Spirulina laxissima*	IX. 3				+						
G. S. West	X. 9			0.6	+						
D: 0.7—0.8 μ	X. 24				+						
23. Colaciales Euglenophyta											
Colacium vesiculosum	VIII. 7—8		+						+		
Ehr.	IX. 2—3		+					5.0	+		
D: 10—14×8—10 μ β—m.	IX. 18	25.0	+								
	X. 7—8		+						+		
Euglenales											
24. *Euglena acus* Ehr.	III. 27					0.2	+				
D: 100—180×10—14 μ	IV. 23—25		+		+		+		+		+
β—α—m.	V. 7—8		+						+		
	V. 21—24		+		+	0.1	+		+	0.4	+
	VI. 4	0.2	+								
	VI. 24—27		+	0.1	+	0.4	+		+		+
	VII. 10—11		+					0.4	+		
	VII. 24—25, 29	0.6	+	0.2	+		+	0.2	+	3.2	+
	VIII. 7—8	1.0	+					0.6	+		
	IX. 2—3, 6		+	0.3	+		+	0.2	+	1.0	+
	IX. 18		+								
	X. 7—10	0.4	+	0.2	+		+	0.4	+		+
	X. 24—25, 28		+		+		+		+		+
	XI. 13—14, 19—20		+		+				+		+
	XII. 12—13		+		+				+		
25. *Euglena ehrenbergii*	II. 20								+		
Klebs	III. 26—28				+	5.0	+	2.5	+		+
D: 150—200×25—30 μ	IV. 10								+		
	IV. 23—25		+		+		+		+		+
β—m.	V. 21—24		+		+	2.0	+		+		+
	VI. 4	0.1	+								
	VI. 24—27	0.2	+	0.1	+	0.2	+		+	0.4	+
	VII. 10		+								
	VII. 24—25, 29	0.4	+	0.2	+		+	0.4	+	1.2	+

TABLE III *(continued)*

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
	VIII. 7—8	1.2	+						+		
	IX. 2—3, 6	0.2	+	0.4	+		+		+	0.2	+
	IX. 18		+								
	X. 7—10		+	0.4	+	2.6	+	5.0	+	2.6	+
	X. 24—25, 28				+		+		+	0.2	+
	XII. 13								+		
26. *Euglena klebsii*	III. 26—28		+	0.2	+	0.2	+		+		+
(Lemm.) Mainx	IV. 9—10		+					0.2	+		
D: 70—100×6—8 μ	IV. 23—25		+		+	0.1	+		+		+
	V. 7—8		+						+		
	V. 21—24		+	0.2	+	0.4	+	0.4	+		+
	VI. 4	2.5		+							
	VI. 24—27	0.4	+	0.1	+	1.2	+		+	0.3	+
	VII. 10—11		+						+		
	VII. 24—25, 29	3.0	+		+	0.4	+		+	0.4	+
	VIII. 7—8	17.2	+						+		
	IX. 2—3, 6		+	8.4	+		+		+		+
	IX. 18	18.7	+								
	X. 7—10	3.3	+		+	0.4	+		+		+
	X. 24—25, 28	0.2	+	0.2	+		+	0.2	+		+
	XI. 13—14, 19—20		+	0.2	+				+		+
	XII. 12—13		+	0.6	+		+		+		
27. *Euglena limnophila* Lemm.	III. 26—27		+		+		+	5.0	+		+
var. *minor* Drez.	IV. 9—10		+					0.2	+		
D: 28—50×6—12 μ	IV. 23—25		+	0.1	+	0.1	+		+		+
	V. 21—24		+		+	0.1	+	0.8	+		+
	VI. 24—27		+	0.1	+		+	0.6	+	0.2	+
	VII. 10—11	0.4	+						+		
	VII. 24—25, 29	0.4	+	0.2	+		+	0.2	+	0.2	+
	VIII. 7—8	5.0	+					0.4	+		
	IX. 2—3, 6	0.8	+	0.8	+		+	0.2	+	0.2	+

	X. 7—10		+		+		+		+	0 6	+
	X. 24—25		+	0.2	+	0.8	+	0.2	+	0.4	+
	XI. 13—14, 19—20	0.2	+		+		+		+		
	XII. 13							0.2	+		
28. *Euglena oxyuris* SCHMARDA	V. 21—24		+	0.1	+	0.1	+		+		+
D: 130—240×20—40 μ	VI. 4		+								
β—α—m.	VI. 24—27	2.8	+	0.2	+		+	0.2	+	0.2	+
	VII. 10—11	0.2	+					0.4	+		
	VII. 24—25, 29	2.0	+	0.4	+		+		+	2.4	+
	VIII. 7—8	1.4	+					1.2	+		
	IX. 2—3, 6		+	1.6	+		+	1.2	+	2.8	+
	IX. 18	0.6	+								
	X. 9—10					0.2	+			0.2	+
	XI. 14			0.2	+	0.2	+				
29. *Phacus acuminatus* STOKES	IV. 23			0.1	+						
D: 20—25×20—27 μ	V. 21—24		+		+						+
β—α—m.	VI. 4	0.3	+								
	VI. 24—27	0.2	+	0.2	+						+
	VII. 24—25, 29		+	0.2	+				+	0.6	+
	VIII. 7—8	5.1	+						+		
	IX. 2—3, 6	2.6	+	2.8	+			0.2	+	0.2	+
	IX. 18	2.7	+								
	X. 9—10		+	0.2	+				+		+
	X. 24		+		+				+	0.4	+
	XI. 14, 20				+					0.2	+
	XII. 12—13			0.4	+						
30. *Phacus hamelii* ALL. et LEF.	III. 27						+				
D: 25—30×15—20 μ	IV. 24					5.0	+				
	V. 22					2.0	+				
31. *Phacus longicauda*	V. 22, 24		+		+					0.2	+
(EHR.) DUJ.	VI. 4	0.2	+								
D: 150—190×50—70 μ	VI. 24—27	0.2	+	0.2	+						+
β—α—m.	VII. 25		+	0.4	+						
	VIII. 7		+								
	IX. 3		+	0.2	+						
	IX. 18	0.4	+								
	X. 8		+		+						

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
32. *Phacus pyrum*	VII. 24—25		+						+		
(Ehr.) Stein	VIII. 7—8		+					5.0	+		
D: 30—50×10—20 μ	IX. 2—3		+								
	IX. 18	0.2	+								
	X. 8	5.0	+								
	X. 24		+								
	XI. 13	5.0	+								
	XII. 12		+								
33. *Trachelomonas volvocina*	VII. 25		+								
Ehr.	VIII. 7	5.0	+								
D: 15—18 μ β—m.	IX. 3, 18	5.0	+								
	X. 8		+								
Pyrrophyta											
Cryptophyceae											
34. *Chroomonas nordstedtii*	III. 26				+						
Hansg. f. *minor* Nygaard	IV. 23			10.0	+						
D: 8—10×3.5—5 μ	V. 24			75.0	+						
	VI. 25			5.0	+						
	VII. 25				+						
	IX. 3			10.0	+						
	X. 9				+						
35. *Cryptomonas caudata*	II. 20							25.0	+		
Schiller	III. 26—28	175.0	+	25.0	+	75.0	+	35.0	+	125.0	+
D: 14—17×8 μ	IV. 9—10	175.0	+					50.0	+		
	IV. 23—25	65.0	+	75.0	+	10.0	+	50.0	+	80.0	+
	V. 7—8	225.0	+						+		
	V. 21—24	190.0	+	325.0	+	30.0	+	75.0	+	75.0	+
	VI. 4	475.0	+								
	VI. 24—27	75.0	+	300.0	+	50.0	+	50.0	+	50.0	+
	VII. 10—11	425.0	+					45.0	+		

	VII. 24—25, 29	280.0	+	200.0	+	70.0	+	225.0	+	125.0	+
	VIII. 7—8	250.0	+					175.0	+		
	IX. 2—3, 6	400.0	+	350.0	+	275.0	+	100.0	+	275.0	+
	IX. 18	200.0	+								
	X. 7—10	275.0	+	275.0	+	60.0	+	80.0	+	100.0	+
	X. 24—25, 28	1850.0	+	450.0	+	100.0	+	100.0		75.0	+
	XI. 13—15, 19—20	1000.0	+	775.0	+	25.0	+	45.0	+	35.0	+
	XII. 12—13	875.0	+	280.0	+			225.0	+		
36. *Cryptomonas erosa* EHR.	II. 20							5.0	+		
D: 30—34×18—20 μ	III. 26—27	35.0	+		+	10.0	+		+		
	IV. 9—10	125.0	+						+		
β—α—m	IV. 23—25		+	5.0	+		+		+		+
	V. 7—8	50.0	+						+		
	V. 21—24	15.0	+		+	5.0	+	5.0	+		+
	VI. 4	75.0	+								
	VI. 24—27	60.0	+	10.0	+		+		+		+
	VII. 10—11	60.0	+						+		⑯
	VII. 24—25, 29	30.0	+	65.0	+		+		+		+
	VIII. 7—8	75.0	+						+		
	IX. 2—3, 6	165.0	+	50.0	+	10.0	+	15.0	+	5.0	+
	IX. 18	375.0	+								
	X. 7—10	100.0	+	275.0	+	5.0	+	5.0	+	5.0	+
	X. 24—25, 28	1150.0	+	100.0	+	5.0	+	5.0	+	5.0	+
	XI. 13—15, 19—20	775.0	+	725.0	+	55.0	+	45.0	+	45.0	+
	XII. 12—13	210.0	+	275.0	+			35.0	+		
37. *Cryptomonas ovata* EHR.	IV. 23—25		+		+		+				
	V. 7		+								
D: 30—70×8—20 μ	V. 21—24		+		+	1.0	+				
	VI. 4	10.0	+								
	VI. 24—27		+	5.0	+		+				
	VII. 10—11		+						+		
	VII. 24—25, 29		+		+		+		+		
	VIII. 7—8		+						+		
	IX. 2—3, 6	10.0	+		+		+	10.0	+		
	IX. 18	25.0	+								
	X. 7—10	35.0	+		+	5.0	+	5.0	+		
	X. 24—25, 28	210.0	+	20.0	+		+	10.0	+		
	XI. 13—15, 19—20	50.0	+	60.0	+		+		+		
	XII. 12—13	25.0	+	65.0	+				+		

Species	Date of collection	M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
38. *Cryptomonas pusilla* BACHM.	II. 20							5.0	+		
D: 7×5 μ	III. 26—27		+						+		
	VII. 25		+								
	VIII. 7	5.0	+								
	IX. 3		+								
	X. 8		+								
	X. 24	50.0	+								
	XI. 13		+								
	XII. 12	100.0	+								
39. *Rhodomonas lacustris*	III. 26—28	25.0	+				+			5.0	+
PASCHER et RUTTNER	IV. 9		+								
D: 10—12×5—7 μ	IV. 23—25		+				+				+
	V. 7—8	10.0	+						+		
	V. 21—24	20.0	+			10.0	+		+		
	VI. 4	15.0	+								
	VI. 24—27	10.0	+			15.0	+		+		+
	VII. 10—11		+			10.0	+				
	VII. 24—25, 28		+			25.0	+	25.0	+		+
	VIII. 7—8		+						+		
	IX. 2—3, 6	75.0	+		+	25.0	+	50.0	+		+
	IX. 18	50.0	+								
	X. 7—10	60.0	+		+	60.0	+		+	15.0	+
	X. 24—25, 28	150.0	+	25.0	+		+	10.0	+		+
	XI. 13—15, 19—20	100.0	+		+	20.0	+	10.0	+	10.0	+
	XII. 12—13	100.0	+	100.0	+				+		
Dinophyceae											
40. *Ceratium hirundinella*	II. 20								+		
(O. F. MÜLLER) SCHRANK	III. 26—28		+	0.4	+	0.6	+	0.1	+	0.4	+
D: 150—190×22—24 μ	IV. 9—10	15.0	+					0.2	+		
β—m.	IV. 23—25	0.6	+	1.4	+	0.6	+	1.2	+	0.6	+
	V. 7—8	2.0	+					1.0	+		

	V. 21—24	2.0	+	6.4	+	1.0	+	2.4	+	2.6	+
	VI. 4	2.7	+								
	VI. 24—27	17.0	+	10.0	+	12.0	+	6.0	+	13.0	+
	VII. 10—11	31.4	+					6.2	+		
	VII. 24—25, 28	86.0	+	46.0	+	73.0	+	13.0	+	15.4	+
	VIII. 7—8	88.0	+					6.6	+		
	IX. 2—3, 6	86.0	+	120.0	+	34.0	+	19.0	+	22.0	+
	IX. 18	101.0	+								
	X. 7—10	0.4	+	3.6	+	0.2	+	0.8	+	2.2	+
	X. 24—25, 28	0.2	+	0.5	+	0.2	+	0.8	+	0.2	+
	XI. 13—15, 19—20		+		+		+		+		+
41. *Diplopsalis acuta* ENTZ	V. 21—24		+		+	0.2	+		+		+
[= *Entzia acuta* (APST.)	VI. 4		+								
LEBOUR., *Glenodinium*	VI. 24—27	0.4	+	0.4	+	0.4	+	0.2	+	0.1	+
acutum APST., *Peridinium*	VII. 10—11	1.4	+					0.2	+		
latum PAULSEN]	VII. 24—25, 28	6.0	+	2.0	+	2.0	+	0.8	+	0.8	+
D: 30—50×26—40 μ	VIII. 7—8	0.6	+					0.6	+		
	IX. 2—3, 6	2.4	+	0.4	+	0.2	+	0.4	+	0.1	+
	IX. 18	2.6	+								
	X. 7—10		+	0.4	+		+		+	0.2	+
	X. 24—25, 28		+	0.1	+		+		+		+
	XI. 13—15, 19—20		+	0.5	+						
42. *Glenodinium gymnodinium*	VI. 24—27		+	0.2	+				+		+
PENARD	VII. 10—11		+						+		
D: 40×35 μ	VII. 24—25, 28	2.0	+	0.4	+			0.2	+	0.4	+
	VIII. 7—8		+						+		
	IX. 2—3, 6		+	0.2	+				+	0.1	+
	IX. 18	0.8	+								
	X. 8—10		+		+				+		+
	X. 28										+
43. *Gonyaulax apiculata*	V. 21—24		+		+	0.5	+		+		+
(PENARD) ENTZ fil.	VI. 4		+								
D: 30—60×30—50 μ	VI. 24—27		+	0.2	+		+		+		+
	VII. 10—11		+						+		
	VII. 24—25, 28	4.0	+	0.6	+		+	0.2	+		+
	VIII. 7—8	0.2	+						+		
	IX. 2—3, 6	1.6	+	0.2	+	0.2	+	0.6	+	0.1	+
	IX. 18	1.4	+								
	X. 7—10		+	0.2	+		+		+	0.2	+

TABLE III *(continued)*

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
44. *Peridinium inconspicuum*	VI. 24							3.0	+		
LEMM.	VII. 10—11		+						+		
D: 18—28×12—20 μ	VII. 24—25		+						+		
	VIII. 7	2.8	+								
	IX. 3, 18	0.4	+								
	X. 24	0.1	+								
45. *Peridinium penardii*	X. 24	0.1	+								
LEMM. [= *Glenodinium*	XI. 13	0.2	+								
penardii LEMM.,											
LINDEM., *P. andrzejowskii*											
WOL.] D: 28—30×26—28 μ											
Chrysophyta											
Xantophyceae	II. 20							5.0	+		
46. *Planctonema lauterborni*	III. 26—28	1.2	+	10.0	+	1.0	+	5.0	+	6.4	+
SCHMIDLE	IV. 9—10	2.5	+					1.6	+		
D: 10—14×2.5—3.5 μ	IV. 23—25	25.0		3.0	+	5.0	+	10.0	+	5.0	+
	V. 7—8	5.0	+					10.0	+		
	V. 21—24	8.6	+	20.0	+	5.0	+	15.0	+	0.2	+
	VI. 4	10.0									
	VI. 24—27	5.0	+	10.0	+	10.0	+	3.4	+	5.0	+
	VII. 10—11	1.7	+					3.6	+		
	VII. 24—25, 29	5.0	+	10.0	+	5.0	+	1.6	+	10.0	+
	VIII. 7—8	0.8	+					5.0	+		
	IX. 2—3, 6		+	5.0	+	30.0	+	0.2	+	15.0	+
	IX. 18	2.6	+								
	X. 7—10	5.0	+	2.4	+	7.5	+	10.0	+	10.0	+
	X. 24—25, 28	5.0	+	3.0	+	5.2	+	8.1	+	1.8	+
	XI. 13—14, 19—20	0.2	+	1.6	+	10.0	+	5.0	+	1.0	+
	XII. 12—13	10.0	+	50.0				2.4	+		
47. *Rhizochrysis limnetica*	VI. 4		+								
G. M. SMITH	VI. 25—26	10.0	+	0.5	+						

D: 35—45 μ	VII. 25				+						
	XI. 3		+		+						
	IX. 18	20.0	+								
	X. 7—10	5.0	+	5.0	+			5.0	+		
	X. 24, 28		+	5.0	+				+		
Chrysophyceae											
48. *Amphichrysis compressa*	VIII. 7		+								
KORSCH.	IX. 3	5.0	+	15.0	+						
D: 27—30×15—18 μ	IX. 18		+								
	X. 9				+						
49. *Chrysococcus rufescens*	III. 26—28				+	10.0	+				+
KLEBS	IV. 23—25				+		+				+
D: 8—12 μ	V. 21—24		+	25.0	+	5.0	+				+
	VI. 4	50.0	+								
	VI. 24—27		+	20.0	+		+			10.0	+
	VII. 10—11		+						+		
	VII. 24—25, 29	25.0	+	50.0	+	15.0	+		+	50.0	+
	VIII. 7—8	15.0	+					25.0	+		
	IX. 2—3, 6		+	15.0	+	15.0	+		+	90.0	+
	IX. 18	15.0	+								
	X. 7—10		+		+	15.0	+				+
	X. 24—25, 28		+				+				
	XI. 13—15	25.0	+			5.0	+				
50. *Chrysoglenz verrucosa* WISL.	VI. 26		+								
D: 30—32×20—25 μ	VII. 10	40.0	+								
	VII. 25		+								
51. *Dinobryon divergens* IMH.	III. 26—28			10.0	+	35.0	+			10.0	+
D: 40—46×6—9 μ	IV. 23—25			10.0	+	10.0	+				+
—o, β—m.	V. 22, 25				+	7.0	+				
	VI. 25, 26				+	6.0	+				
	VII. 25, 29		+	1.0	+						
	VIII. 7	640.0	+								
	IX. 3, 6		+		+		+				
	X. 25						+				
	XI. 15					25.0	+				

TABLE III *(continued)*

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
52. *Dinobryon sertularia* EHR.	VII. 25		+								
D: 30—40×10—14 μ	VIII. 7	670.0	+								
β—m.	IX. 3		+								
53. *Dinobryon sociale* EHR.	III. 27						+				
D: 33—36×8—9 μ	IV. 24					5.0	+				
β—m.	V. 22					3.0	+				
	VI. 26						+				
	VII. 25		+								
	VIII. 7	570.0	+								
	IX. 3		+								
54. *Mallomonas acaroides*	V. 24		+		+						
PERTY	VI. 4	5.0	+								
D: 25—40×10—16 μ	VI. 25—26		+	1.0	+						
	VII. 25		+								
	IX. 3			5.0	+						
	X. 9			5.0	+						
	X. 24				+						
55. *Salpingoeca frequentissima*	III. 28		+		+				+	15.0	+
(ZACH.) LEMM.	IV. 23—25		+		+			20.0	+		
D: 10—12×3.8—4.5 μ	V. 7—8		+						+		
	V. 24	10.0	+	50.0	+						
	VI. 4		+								
	VI. 25			20.0	+						
	VII. 25				+						
	IX. 3			25.0	+						
	X. 9				+						
56. *Synura uvella* EHR.	IV. 23		+								
D: 25—35×10—15 μ	V. 7	10.0	+								
—o, β—m.	V. 24		+								

Bacillariophyceae											
57. *Amphora ovalis* KÜTZ.	II. 20							5.0	+		
D: 40—80×20—40 μ	III. 26—28	40.0	+		+		+		+		+
—0, β—m.	IV. 9—10	10.2	+						+		
	IV. 23—25	10.0	+	20.0	+	15.0	+	2.6	+	5.0	+
	V. 7—8		+					10.0	+		
	V. 21—24		+		+	0.4	+	1.2	+	0.2	+
	VI. 4		+								
	VI. 24—27	0.2	+	1.0	+		+	0.2	+		+
	VII. 10—11	10.0	+						+		
	VII. 24—25, 29	5.0	+	5.0	+						
	VIII. 7—8		+						+		
	IX. 2—3		+	0.2	+			0.5	+		+
	IX. 18		+								
	X. 7—10	10.0	+		+			0.4	+	5.0	+
	X. 24—25, 28	2.2	+		+		+		+	0.4	+
	XI. 13—15, 19—20		+		+	0.2	+	5.0	+	0.6	+
	XII. 12—13			1.6	+				+		
58. *Amphora ovalis* var. *pediculus*	II. 20							30.0	+		
KÜTZ.	III. 26—28	20.0	+	15.0	+		+		+		
D: 10—30×10—20 μ	IV. 9—10		+					5.0	+		
	IV. 23—25		+		+	15.0	+		+		
	V. 7—8	10.0	+					10.0	+		
	V. 21—24		+		+	5.0	+		+		
	VI. 24—26			1.0	+		+		+		
	VII. 10—11		+					5.0	+		
	VII. 24—25	10.0	+	5.0	+				+		
	VIII. 7—8		+					5.0	+		
	IX. 2—3		+	10.0	+				+		
	IX. 18	10.0	+								
	X. 7—10		+	5.0	+				+		
	X. 24—25, 28			2.9	+			0.4	+	0.2	+
59. *Asterionella formosa* HASSAL	III. 26—28	6.4	+	0.8	+	2.4	+	1.6	+		
D: 60—100×1—2 μ	IV. 9—10	3.1	+						+		
β—m.	IV. 23—25	1.3	+	0.8	+	0.4	+				
	V. 7	2.4	+								
	V. 21—24	1.8	+	0.6	+	1.0	+				+
	VI. 4	8.8	+								
	VI. 24—26		+		+	6.4	+			0.4	+
	VII. 10		+								
	VII. 24—25, 29	1.6	+		+					1.6	+

TABLE III (*continued*)

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
60. *Attheya zachariasii* J. BRUN.	VI. 24—26			0.5	+			5.0	+		
D: 52—56×14—16 μ	VII. 25				+						
—o, β—m.	IX. 3			25.0	+						
61. *Caloneis schumanniana* (GRUN.) CLEVE var. *biconstricta* GRUN.	VII. 10	0.2	+								
D: 50—70×10—14 μ	X. 10									0.2	+
62. *Cocconeis placentula* EHR. D: 50×30μ —0, β—m.	VII. 10	5.0	+								
63. *Cyclotella bodanica*	II. 20							50.0	+		
EULENST.	III. 26—28	375.0	+	375.0	+	375.0	+	150.0	+	110.0	+
D: 30—40 μ	IV. 9—10	400.0	+					100.0	+		
	IV. 23—25	190.0	+	200.0	+	375.0	+	135.0	+	135.0	+
	V. 7—8	400.0	+					150.0	+		
	V. 21—24	60.0	+	110.0	+	80.0	+	25.0	+	50.0	+
	VI. 4	175.0	+								
	VI. 24—27	120.0	+	70.0	+	35.0	+	50.0	+	50.0	+
	VII. 10—11	90.0	+					40.0	+		
	VII. 24—25, 29	50.0	+	35.0	+	10.0	+	35.0	+	20.0	+
	VIII. 7—8	10.0	+					5.0	+		
	IX. 2—3, 6	25.0	+	35.0	+	5.0	+	15.0	+	10.0	+
	IX. 18	10.0	+								
	X. 7—10	250.0	+	25.0	+	25.0	+	20.0	+	20.0	+
	X. 24—25, 28	30.0	+	35.0	+	40.0	+	50.0	+	20.0	+
	XI. 13—15		+	5.0	+	25.0	+	35.0	+	15.0	+
	XII. 12—13	175.0	+	60.0	+			140.0	+		
64. *Cyclotella glomerata* BACHM.	II. 20							25.0	+		
D: 4—10 μ	III. 26—28	550.0	+	300.0	+	300.0	+	75.0	+	225.0	+
	IV. 9—10	600.0	+					90.0	+		

	IV. 23—25	35.0	+	150 0	+	225.0	+	25.0	+	50.0	+
	V. 7—8	475.0	+						+		
	V. 21—24	20.0	+		+	30.0	+		+	30.0	+
	VI. 4	50.0	+								
	VI. 24—27	40.0	+	80.0	+	10.0	+	20.0	+	20.0	+
	VII. 10—11		+					15.0	+		
	VII. 24—25, 29	25.0	+	100.0	+	10.0	+	25.0	+	55.0	+
	VIII. 7—8	25.0						25.0	+		
	IX. 2—3, 6	230.0	+	75.0	+	35.0	+	60.0	+		+
	IX. 18	175.0	+								
	X. 7—10	2600.0	+	350.0	+	150.0	+	410.0	+	250.0	+
	X. 24—25, 28	650.0	+	225.0	+	125.0	+	25.0	+	70.0	+
	XI. 13—15, 19—20	350.0	+	475.0	+	110.0	+	275.0	+	60.0	+
	XII. 12—13	1250.0	+	675.0	+			175.0	+		
65. *Cyclotella ocellata* PANT.	II. 20							60.0	+		
[= *C. kützingiana* (THWAIT.)	III. 26—28	375.0	+	225.0	+	350.0	+	375.0	+	165.0	+
Chauvin var. *planetophora*	IV. 9—10	575.0	+					200.0	+		
FRICKE]	IV. 23—25	320.0	+	200.0	+	350.0	+	350.0	+	300.0	+
D: 6—20 μ	V. 7—8	475.0	+					125.0	+		
	V. 21—24	190.0	+	150.0	+	100.0	+	60.0	+	40.0	+
	VI. 4	320.0	+								
	VI. 24—27	250.0	+	50.0	+	75.0	+	50.0	+	50.0	+
	VII. 10—11	215.0	+					35.0	+		
	VII. 24—25, 29	275.0	+	25.0	+	25.0	+	65.0	+	75.0	+
	VIII. 7—8	225.0	+					20.0	+		
	IX. 2—3, 6	65.0	+	50.0	+	25.0	+	10.0	+	50.0	+
	IX. 18	100.0	+								
	X. 7—10	325.0	+	125.0	+	20.0	+	225.0	+	110.0	+
	X. 24—25, 28	245.0	+	175.0	+	25.0	+	150.0	+	75.0	+
	XI. 13—15, 19—20	25.0	+	100.0	+	40.0	+	135.0	+	150.0	+
	XII. 12—13	250.0	+		+			200.0	+		
66. *Cyclotella quadriiuncta*	IV. 23—25							10.0	+	10.0	+
SCHRÖTER	V. 8							0.4	+		
D: 20—40 μ	VI. 27									15.0	+
	X. 7—10		+			75.0	+	235.0	+	95.0	+
	X. 24—25, 28	30.0	+			25.0	+	20.0	+	21.5	+
	XI. 15, 19					90.0	+	10.0	+	40.0	+
	XII. 13							35.0	+		

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
67. *Cymatopleura elliptica*	III. 26—28		+	0.6	+	0.6	+	0.1	+		+
(Bréb.) W. Smith	IV. 9—10	0.2	+					0.2	+		
D: 75—160×40—70 μ	IV. 23—25	0.1	+	0.2	+		+	0.2	+	0.2	+
—o, β—m.	V. 7—8		+					0.4	+		
	V. 21—24	0.2	+	0.2	+	0.2	+	1.6	+	0.2	+
	VI. 4		+								
	VI. 24—27	2.8	+	0.4	+	0.8	+	0.8	+		+
	VII. 10—11	3.0	+					0.2	+		
	VII. 24—25, 29	0.4	+	0.8	+	0.2	+	0.6	+		+
	VIII. 7—8	1.4	+						+		
	IX. 2—3, 6	1.4	+	0.4	+	0.2	+			0.2	+
	IX. 18	0.4	+								
	X. 7—10	3.2	+	0.4	+		+		+	0.5	+
	X. 24—25, 28	0.4	+	0.4	+		+	0.1	+	0.4	+
	XI. 14—15, 19—20			0.2	+	0.4	+	0.1	+		+
	XII. 12—13	0.2	+					0.2	+		
68. *Cymatopleura solea* (Bréb.)	III. 26—28			0.1	+						+
W. Smith	IV. 23—25				+				+	0.2	+
D: 120—140×20—24 μ	V. 21—24				+				+	1.0	+
β—α—m.	VI. 24—27				+			0.2	+		+
	VII. 11							0.6	+		
	VII. 24—25			0.2	+				+	0.2	+
	VIII. 7—8		+					0.2	+		
	IX. 2—3, 6	0.6	+						+	0.2	+
	IX. 18	0.2	+								
	X. 8	0.4	+								
	X. 24, 28	0.2	+					0.1	+		
	XI. 13		+			0.2	+				
	XII. 13							0.4	+		
69. *Cymbella cymbiformis*	IX. 3			5.0	+						
(Kütz.) V. Heurck											
D: 60—100×10—14 μ											

70. *Cymbella lanceolata* (Ehr.) V. Heurck D: 100—200×24—34 μ —o, β—m.	VII. 25			0.2	+						
71. *Cymbella prostrata* (Berk.) Cleve D: 20—26×9—13 μ β—m.	V. 22, 24	5.0	+							5.0	+
72. *Diatoma elongatum* Ag. var. *tenuis* (Ag.) Kütz. D: 58—78×3—4 μ —o, β—m.	IV. 9—10	15.0	+						+		
	IV. 24							15.0	+		
	V. 8							20.0	+		
	V. 24	5.0	+								
73. *Diatoma vulgare* Bory var. *brevis* Grun. D: 30—40×10—13 μ —o, β—m.	IX. 2									1.2	+
74. *Diploneis domblittensis* (Grun.) Cleve D: 30—45×15—20 μ	IX. 2							5.0	+		
75. *Diploneis elliptica* D: 20—60×10—30 μ	V. 8							10.0	+		
	VII. 24							5.0	+		
	XI. 19							5.0	+		
76. *Diploneis puella* (Schum.) Cleve D: 20—24×11—12 μ	XI. 19							5.0	+		
77. *Epithemia sorex* Kütz. D: 20—40×8—12 μ	IV. 24							5.0	+		
78. *Fragilaria construens* (Ehr.) Grun. D: 10—25×5—12 μ	II. 20							10.0	+		
	IV. 23	1.6	+								
	V. 22					2.0	+				
	VI. 4	20.0	+								

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
	VI. 25			0.1	+						
—o, β—m.	VII. 10	75.0	+								
	VIII. 7—8	50.0	+					25.0	+		
	IX. 3	5.0	+	29.0	+						
	IX. 18	2.0	+								
	X. 8—10	26.0	+	10.0	+	5.0	+			5.0	+
	XI. 14			75.0	+						
	XII. 12			4.0	+						
79. *Fragilaria crotonensis* Kitton	V. 7	50.0	+								
D: 40—50×3—4 μ	X. 24	50.0	+								
—o, β—m.											
80. *Gomphonema olivaceum* (Lyngb.) Kütz.	VII. 10	10.0	+								
β—, α—m											
D: 10—30×5—10 μ											
81. *Gyrosigma acuminatum*	III. 28									0.4	+
(Kütz.) Rabh.	IV. 24	0.1	+								
o: 100—120×15—18 μ											
—o, β—m.										3	
82. *Gyrosigma distortum*	II. 20							5.0	+		
(W. Smith) Cleve var.	IX. 3	0.3	+								
parkeri Harris.	IX. 18	0.4	+								
D: 70—100×15—17 μ	X. 7—8	0.8	+					0.2	+		
	XII. 12—13	0.2	+					0.2	+		
83. *Gyrosigma kuetzingii* (Grun.)	IV. 24							0.3	+		
Cleve	V. 21—22					1.0	+	0.8	+	0.2	+
D: 80—100×12—15 μ	VII. 24									0.2	+

D: 80—100×12—15 μ	IX. 3			0.2	+						
	X. 9					5.0	+				
	X. 28							.01	+	0.4	+
	XI. 19							0.2	+		
	XII. 13							0.2	+		
84. *Gyrosigma prolongatum*	IX. 18	1.0	+								
(W. Smith) Cleve											
D: 120—200×5—10 μ											
85. *Melosira granulata* (Ehr.)	IV. 9	0.5	+								
Ralfs	IV. 23—25	3.0	+	6.0	+		+		+		+
D: 5—20 μ	V. 7—8		+					7.0	+		
β—m.	V. 21—24		+	6.0	+	5.0	+		+	5.0	+
	VI. 4	2.0	+								
	VI. 24—27	17.5	+	10.0	+	21.5	+	1.0	+	11.5	+
	VII. 10—11	10.0	+					58.0	+		
	VII. 24—25, 29	16.0	+	60.0	+	4.0	+	20.0	+	29.0	+
	VIII. 7—8	14.5						79.0	+		
	IX. 2—3, 6	17.0	+	23.0	+	1.0	+	30.5	+	28.0	+
	IX. 18	55.0	+								
	X. 7—10	150.0	+	16.0	+	0.4	+	5.5	+	0.6	+
	X. 24—25, 18		+	2.0	+		+		+		+
	XI. 14—15, 19—20		+		+			3.0	+	10.0	+
	XII. 12—13	0.6	+	2.0	+				+		
86. *Melosira granulata* var.	IV. 9	3.0	+								
angustissima O. Müll.	IV. 23—24		+	4.0	+		+				
D: 3—5 μ	V. 22—24		+	5.0	+	2.0	+				
—o, β—m.	VI. 4	9.8	+								
	VI. 25, 26	9.0	+	10.0	+	6.0	+				
	VII. 10—11	10.0	+						+		
	VII. 24—25, 29	131.0	+	34.0	+		+	16.0	+	34.0	+
	VIII. 7—8	35.5	+					4.0	+		
	IX. 2—3, 6	58.0	+	46.0	+	3.0	+	12.0	+	8.0	+
	IX. 18	64.0	+								
	X. 7—10	25.0	+		+		+		+		+
	X. 24—25	4.0	+					4.0	+		
	XI. 13, 15		+						+		
	XII. 12	10.0	+								

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
87. *Navicula costulata* GRUN.	II. 20							5.0	+		
D: 20×6 μ	III. 26	10.0	+								
	IV. 23	10.0	+								
	IX. 3	5.0	+								
	IX. 18	10.0	+								
	X. 8	10.0	+								
88. *Navicula cryptocephala*	II. 20							20.0	+		
KÜTZ.	III. 27—28					25.0	+	35.0	+	5.0	+
D: 25×6 μ	IV. 9—10	15.0	+						+		
β—, α—m.	IV. 23—25	15.0	+	10.0	+		+	20.0	+	15.0	+
	V. 7—8	50.0	+					10.0	+		
	V. 21—24	20.0	+		+	10.0	+	15.0	+		+
	VI. 4	10.0	+								
	VI. 24—27		+		+	5.0	+	5.0	+		+
	VII. 10—11	5.0	+					5.0	+		
	VII. 24—25, 29		+	15.0	+	5.0	+	60.0	+	20.0	+
	VIII. 7—8	5.0	+					5.0	+		
	IX. 2—3, 6	10 0	+		+		+	25.0	+	10.0	+
	X. 7—10	25.0	+	10.0	+		+		+	5.0	+
	X. 24—25, 28		+	20.0	+	15.0	+			5.0	+
	XI. 14—15, 19				+	15.0	+		+		+
	XII. 12—13	5.0	+	10.0	+			10.0	+		
89. *Navicula dicephala* (EHR.)	III. 28									5.0	+
W, SMITH	IV. 25									5.0	+
D: 30×10 μ	V. 24	5.0	+								
90. *Navicula gracilis* EHR.	II. 20							10.0	+		
D: 50×10 μ	III. 26	5.0	+								
—o, β—m.	IV. 9	5.0	+								
	IV. 23	5.0	+								
	VI. 26	5.0	+								

	IX. 3	5.0	+								
	X. 28	5.0	+								
91. *Navicula hungarica* var.	IV. 10							5.0	+		
capitata (EHR.) CLEV	V. 23			5.0	+						
D:20×6 μ	VII. 10	5.0	+								
	X. 24	5.0	+								
92. *Navicula placentula* (EHR.)	IV. 9	5.0	+								
GRUN.	VI. 23—25	10.0	+	5.0	+			5.0	+		+
D: 60×20 μ	V. 7—8	15.0	+						+		
	V. 21—24		+		+		+	5.0	+	0.5	+
	VI. 24—27	10.0	+	5.0	+	5.0	+		+		+
	VII. 24—25, 29	5.0	+	10.0	+		+		+		
	VIII. 8							5.0	+		
	IX. 3	10.0	+		+				+		
	X. 8	5.0	+								
	X. 24, 28	5.0	+					5.0	+		
93. *Navicula pupula* KÜTZ.	III. 27							5.0	+		
D: 30×8 μ	IV. 23			5.0	+						
	VI. 24					5.0	+				
	VII. 25			5.0	+						
	X. 28									0.5	+
94. *Navicula scutelloides*	VII. 24							0.5	+		
. SMITH											
D: 20×10 μ											
95. *Navicula tuscula* (EHR.)	IV. 9	0.1	+								
GRUN.											
D: 50×20 μ											
96. *Nitzschia acicularis*	II. 20							150.0	+		
W. SMITH	III. 26—28	15.0	+	50.0	+	35.0	+	25.0	+		+
D: 50—80×3 μ	IV. 9—10	75.0	+						+		
β—, α—m.	IV. 23—25	25.0	+	175.0	+	65.0	+	10.0	+	5.0	+
	V. 7—8	85.0	+					25.0	+		
	V. 21—24	30.0	+		+	35.0	+	20.0	+	15.0	+
	VI. 4	10.0	+								
	VI. 24—27		+	30.0	+	25.0	+		+		+

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
	VII. 10—11	25.0	+					25.0	+		
	VII. 24—25, 29	105.0	+	25.0	+		+	10.0	+	10.0	+
	VIII. 7—8	35.0	+						+		
	IX. 2—3, 6	20.0	+	20.0	+	5.0	+		+	10.[1]	+
	IX. 18	325.0	+								
	X. 7—10	7050.0	+	525.0	+	10.0	+	45.0	+	10.0	+
	X. 24—25, 28	9800.0	+	1 550.0	+	4.0	+	4.0	+	20.0	+
	XI. 14—15, 19—20	7150.0	+	16,000.0	+	200.0	+	45.0	+	10.0	+
	XII. 12—13	15,800.0		17,850.0				60.0	+		
97. *Nitzschia amphibia* GRUN. D: 20—40×3—5 μ	III. 26—28	60.0	+	10.0	+		+	25.0	+		+
	IV. 9—10	125.0	+						+		
	IV. 23—25	45.0	+	85.0	+	85.0	+	10.0	+	20.0	+
	V. 7—8	150.0	+					60.0	+		
	V. 21—24	20.0	+	15.0	+	25.0	+	15.0	+	20.0	+
	VI. 4	40.0	+								
	VI. 24—27	30.0	+	20.0	+	50.0	+	5.0	+	25.0	+
	VII. 10—11	60.0	+					25.0	+		
	ÅII. 24—25, 29	50.0	+	55.0	+	5.0	+	35.0	+	15.0	+
	VIII. 7—8	100.0	+					15.0	+		
	IX. 3—3, 6	150.0	+	25.0	+		+		+	15.0	+
	IX. 18	150.0	+								
	X. 7—10	100.0	+	70.0	+	5.0	+	10.0	+		+
	X. 24—25, 28	75.0	+	15.0	+	10.0	+		+		+
	XI. 14—15, 19—20	5.0	+	20.0	+	10.0	+	30.0	+	15.0	+
	XII. 12—13	15.0	+	25.0	+			10.0	+		
98. *Nitzschia hungarica* GRUN. D: 20—80×6—9 μ	IV. 25									5.0	+
	VII. 25	5.0	+	10.0	+						
	IX. 18	75.0	+								
	X. 8	5.0	+								
99. *Nitzschia sigmoidea* (EHR.) W. SMITH	III. 26—27			1.8	+			0.1	+		
	IV. 9—10	1.0	+						+		

D: 160—500×8—10 μ	IV. 23—25	0.2	+	0.2	+	0.3	+	0.6	+	0.5	+
	V. 7—8		+					1.0	+		
	V. 21—24	0.2	+	0.3	+	0.2	+	6.0	+	1.6	+
	VI. 24—27	1.0	+	0.1	+	2.4	+	1.4	+	0.2	+
	VII. 10—11	2.9	+					0.4	+		
	VII. 24—25, 29	1.0	+	5.0	+		+	0.2	+	0.2	+
	VIII. 7—8	0.2	+					5.0	+		
	IX. 2—3, 6	45.0	+	1.0	+	0.2	+		+	0.2	+
	IX. 18	0.8	+								
	X. 7—10	22.7	+	1.4	+		+			1.2	+
	X. 24, 28	3.0	+	0.8	+					1.3	+
	XI. 14, 20			0.6	+					1.4	+
	XII. 12—13	2.6	+	4.8	+			0.2	+		
100. *Nitzschia subrostrata* HUST. D: 38—45×3 μ	II. 20										
	III. 26—28	70.0	+	60.0	+	65.0	+	25.0	+		+
	IV. 9—10	125.0	+					25.0	+		
	IV. 23—25	115.0	+	105.0	+	50.0	+	20.0	+	25.0	+
	V. 7—8	850.0	+					150.0	+		
	V. 21—24		+	25.0	+	10.0	+	35.0	+	40.0	+
	VI. 4	125.0	+								
	VI. 24—27	100.0	+		+	10.0	+	10.0	+		+
	VII. 10—11	75.0	+					25.0	+		+
	VII. 24—25, 29	110.0	+	100.0	+	10.0	+	20.0	+	15.0	
	VIII. 7—8	50.0	+						+		
	IX. 2—3, 6	80.0	+	110.0	+	5.0	+	10.0	+	10.0	
	IX. 18	25.0	+								
	X. 7—10	135.0	+	190.0	+	5.0	+		+		+
	X. 24—25, 28	10.0	+	60.0	+		+		+		
	XI. 14—15, 19				+	5.0	+	15.0	+		+
	XII. 12—13			50.0	+			50.0	+		
101. *Nitzschia tryblionella* HANTZSCH. var. *debilis* (ARNOTT) A. MAYER D: 15—20×7—8 μ	VII. 24									5.0	
	IX. 18	15.0	+								
102. *Opephora martyi* HÉRIBAUD D: 20×6 μ	III. 26	10.0									

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
103. *Rhoicosphenia curvata* (KÜTZ.) GRUN. D: 20—30×6 μ	XII. 12	5.0	+								
104. *Stenopterobia pelagica* HUST.	II. 20								+		
D: 100—200×5—6 μ	III. 26—28		+	0.2	+			0.1	+	490.0	+
	IV. 9—10	0.1	+					0.2	+		
	IV. 23—25		+		+			0.2	+	3.5	+
	V. 8							0.4	+		
	V. 21—23						+	1.6	+	0.4	+
	VI. 24—27				+	0.2	+	0.4	+	0.1	+
	VII. 10—11	1.0	+					0.2	+		
	VII. 24—25, 29	2.0	+	0.8	+		+	0.2	+	0.4	+
	VIII. 7—8		+						+		
	IX. 2—3	1.0	+	0.8	+						+
	IX. 18	1.4	+								
	X. 8—9	2.4	+		+						
	X. 24—25	1.4	+	1.0	+		+				
	XI. 13—15		+		+	0.2	+				
	XII. 12—13	0.6	+	0.6	+						
105. *Stephanodiscus binderanus* (KÜTZ.) KRIEGER [= *Melosira binderana* KG.]	VIII. 7		+								
D: 4—20×3 μ	IX. 3, 6	20.0	+			10.0	+				
	IX. 18	85.0	+								
	X. 8		+								
106. *Stephanodiscus dubius* (FRICKE) HUST.	VI. 4	25.0	+								
D: 15—20 μ	VI. 24—26		+		+			5.0	+		
	VII. 10—11		+						+		
	VII. 24—25	65.0	+	10.0	+				+		
	VIII. 7	20.0	+								
	IX. 3	10.0	+	15.0	+						
	IX. 18	5.0	+								

	X. 7—9	75.0	+	50.0	+				+		
	X. 24, 28	550.0		50.0	+			30.0	+		
	XI. 13—14, 19	40.0	+	250.0	+				+		
	XII. 12—13	35.0	+	725.0	+				+		
107. *Stephanodiscus hantzschii* GRUN D: 8—12 μ β—, α—m.	IX. 2—3	20.0	+								+
	X. 7—10		+		+		+		+	30.0	+
	X. 24—28		+		+		+		+	125.0	+
	XI. 14—15, 19	475.0	+	2050.0	+	35.0	+		+		+
	XII. 12—13	950.0	+	2300.0	+			150.0	+		
108. *Surirella biseriata* BRÉB. D: 150—300×40—70 μ	X. 10									0.2	+
109. *Surirella robusta* EHR. var. *splendida* (EHR.) V. HEURCK D: 80—200×40—60 μ	IV. 24—25						+	5.0	+	0.1	+
	V. 8							0.2	+		
	V. 21—24		+		+	0.1	+	0.4	+		
	VI. 4		+								
	VI. 24—26	0.2	+		+	0.2	+		+		
	VII. 10—11		+						+		
	VII. 24—25, 29	1.2	+	1.0	+	0.4	+	0.2	+		
	VIII. 7—8		+						+		
	IX. 3—6		+	1.8	+		+				
	X. 8—9	0.4	+		+						
110. *Surirella turgida* W. SMITH D: 50—60×40 μ	VI. 27									0.1	+
	VII. 10—11	0.5	+					0.2	+		
	IX. 18	0.4	+								
111. *Synedra acus* KÜTZ. var. *angustissima* GRUN. D: 200—400×3 μ	II. 20							10.0	+		
	III. 26—28	587.5	+	712.5	+	927.5	+	925.0	+	980.0	+
	IV. 9—10	725.0	+					160.0	+		
	IV. 23—25	425.0	+	30.2	+	175.0	+	5.0	+	10.0	+
	V. 7—8	60.0	+					15.0	+		
	V. 21—24	20.0	+		+	30.0	+	15.0	+	15.0	+
	VI. 4	2.5	+								
	VI. 24—27	110.6	+		+	13.5	+	2.7	+	13.0	+
	VII. 10—11	5.0	+						+		
	VII. 24—25, 29	5.0	+		+		+	20.0	+		+
	VIII. 7—8		+						+		

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
	IX. 2—3, 6	10.0	+	3.4	+	0.8	+		+	1.0	+
	IX. 18	150.0	+								
	X. 7—10	25.0	+		+		+	0.6	+	5.0	+
	X. 24—25, 28	300.0	+	3.0	+	6.2	+	3.0	+	1.4	+
	XI. 13—15, 19—20		+		+	2.6	+	25.0	+	5.5	+
Chlorophyta	XII. 12—13	15.0	+		+			15.4	+		
Volvocales											
112. *Chlamydomonas dangeardii*	IV. 24							5.0	+		
CHMIEL.	V. 22					1.0	+				
D: 14—20×8—14 μ	VI. 4	10.0	+								
	VI. 24, 26							15.0	+		
	VII. 24, 29					10.0	+			5.0	+
	VII. 11							5.0	+		
	IX. 3	50.0	+	5.0	+						
	IX. 18	15.0	+								
	X. 24	15.0	+								
	XI. 13	5.0	+								
113. *Chlamydomonas media*	III. 28							40.0	+		
KLEBS. var. *minor* PASCH.	V. 22					1.0	+				
D: 12—14 μ	VI. 4	10.0	+								
	VII. 24—25, 29	10.0	+							10.0	+
	IX. 3	50.0	+				+				
	X. 7—9	5.0	+			5.0	+		+		
	X. 24,28		+				+	5.0	+		
114. *Chlamydomonas sp.*	X. 24							5.0	+		
D: 18—22×14—16 μ	XI. 14							5.0	+		
115. *Phacotus lenticularis*	VIII. 7		+								
(EHR.) STEIN	IX. 3	10.0	+								
D: 13—20 μ	IX. 18		+								

Tetrasporales											
116. *Elakatothrix lacustris*	III. 27					20.0	+				
KORSCH.	IV. 9—10	0.6	+					0.4	+		
D: 20—22×4.4—4.8 μ	IV. 23—25	10.0	+	15.0	+	50.0	+		+	5.0	+
β—m.	V. 7—8	10.0	+					15.0	+		
	V. 22—24	1.6	+	0.5	+	30.0	+	5.0	+		+
	VI. 4	15.0	+								
	VI. 24—27	15.0	+	1.0	+	15.0	+	3.1	+	10.0	+
	VII. 24—25, 29	10.0	+		+		+		+		+
	VIII. 7—8		+						+		
	IX. 2—3, 6	10.0	+	2.9	+	5.0	+		+		+
	X. 7—8		+					3.2	+		+
	X. 24—25, 28	15.0	+	5.0	+	0.8	+	5.4	+	6.1	+
	XI. 15, 19—20					10.0	+		+	10.0	+
	XII. 12—13							1.0	+		
117. *Gloeococcus schroeteri* LEMM.	III. 26—28		+		+		+		+		
D: 6—10 μ	IV. 9—10	20.0	+					5.0	+		
	IV. 23—25		+		+	7.5	+		+		+
	V. 7—8	40.0	+						+		
	V. 22—24	15.0	+	20.0	+	1.0	+			5.0	+
	VI. 4	50.0	+								
	VI. 24—27	20.0	+	30.0	+		+		+		+
	VII. 10—11	25.0	+					5.0	+		
	VII. 24—25, 29	10.0	+	50.0	+	1.6	+		+		+
	VIII. 7—8		+					5.0	+		
	IX. 2—3, 6, 18		+		+		+		+		
	X. 7—10	15.0	+	5.0	+		+				
	X. 24—25, 28		+		+	20.0	+				
	XI. 15						+				
118. *Stylosphaeridium stipitatum*	III. 27								+		
GEITLER et GIMESI (BACHM.)	IV. 10							30.0	+		
	VI. 24								+		
D: 8—10×5—8 μ	X. 8		+								
	X. 24	0.5	+								
	XI. 13		+								
Chlorococcales											
119. *Actinastrum hantzschii*	X. 24	0.8	+								
LAGERH.											
D: 12—20×3—5 μ											

Species	Date of collection	Localit'es									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
120. *Actinastrum hantzschii* var. *fluviatile* SCHROED. D: 40—43×3 μ —o, β—m.	X. 8	40.0	+								
121. *Ankistrodesmus braunii* BRUNNTHALER D: 20—40×8—10 μ	V. 22									5.0	+
	VI. 4	5.0	+								
	VI. 26	10.0	+								
	IX. 3	5.0	+								
122. *Ankistrodesmus convolutus* CORDA D: 8—10×2—3 μ	III. 26—27	25.0	+					30.0	+		
	IV. 10, 24							5.0	+		
	V. 22					10.0	+				
	VI. 26					15.0	+				
	VII. 24							5.0	+		
	X. 25					5.0	+				
123. *Ankistrodesmus falcatus* (CORDA) RALFS D: 25—80×2—4 μ	II. 20							15.0	+		
	III. 26—28	15.0	+	10.0	+		+		+	15.0	+
	IV. 9—10	30.0	+						+		
	IV. 23—25	5.0	+	5.0	+	20.0	+				+
	V. 7	60.0	+								
	V. 22, 24	5.0	+	10.0	+	10.0	+				
	VI. 4	5.0	+								
	VI. 24—27	7.9	+				+				+
	VII. 24—25, 29	5.0	+		+	15.0	+	5.0	+	5.0	+
	VIII. 7—8	15.0	+					3.3	+		
	IX, 2—3, 6	20.0	+	10.0	+		+	10.0	+	5.0	+
	IX. 18	.50	+								
	X. 7—10	20.0	+	10.0	+		+	2.0	+		+
	X. 24—25, 28	10.0	+	5.0	+	1.0	+	5.0	+	0.6	+
	XI. 13—15, 19—20	5.0	+	50.0	+	25.0	+		+	5.0	+
	XII. 12—13			25.0	+			0.2	+		

17

124. *Ankistrodesmus falcatus* var.	V. 7	5.0	+								
mirabilis (West et West)	V. 22—24	5.0	+			1.0	+				+
G. S. West	VI. 24—27	5.0	+					3.0	+	10.0	+
D: 100—150×2—3 μ	VII. 24									5.0	+
	XI. 15					0.5	+				
125. *Ankistrodesmus falcatus* var.	II. 20							150.0	+		
spirilliformis G. S. West	III. 26—28	675.0	+	675.0	+	800.0	+	350.0	+	400.0	+
D: 25—35×2—3 μ	IV. 9—10	140.0	+					90.0	+		
β—, α—m.	IV. 23—25	20.0	+	10.0	+	150.0	+	60.0	+	60.0	+
	V. 7—8	200.0	+					225.0	+		
	V. 22—24		+		+	100.0	+	5.0	+	50.0	+
	VI. 4		+								
	VI. 24—27	15.0	+	5.0	+	10.0	+	3.0	+		+
	VII. 24—25, 29	15.0	+	5.0	+		+	5.0	+		
	VIII. 7—8	5.0	+					5.0	+		
	IX. 2—3, 6		+		+		+		+		+
	X. 7—10	150.0	+	90.0	+				+	15.0	+
	X. 24—25, 28	110.0	+	35.0	+	35.0	+	35.0	+	17.6	+
	XI. 13—15, 19—20	50.0	+	110.0	+	30.0	+	35.0	+	10.0	+
	XII. 12—13	90.0	+	400.0	+			65.0	+		
126. *Botryococcus breunii* Kütz.	IX. 2—3, 6			1.0	+	4.2	+	3.2	+	6.0	+
D: 6—12×3—6 μ	X. 7, 9					30.0	+	1.6	+		
127. *Chodatella balatonica*	V. 22					1.0	+			10.0	+
Scherffel	VII. 24									5.0	+
D: 6×3 μ	IX. 26					5.0	+	5.0	+		
	VIII. 8							10.0	+		
	IX. 2, 6					5.0	+	5.0	+		
	X. 7—10					10.0	+		+		+
	X. 24—25, 28	5.0	+	5.0	+		+		+	5.0	+
	XI. 13—15, 19—20	5.0	+		+	5.0	+	5.0	+		
128. *Coelastrum microporum*	IX. 2—3	5.0	+		+					.02	+
Naeg.	IX. 18	5.0	+								
D: 8—16 μ	X. 8—10	5.0	+	2.5	+						+
	X. 24—25, 28		+		+						+
	XI. 19—20								+	2.5	+
	XII. 13							5.0	+		

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
129. *Crucigenia quadrata* MORREN D: 3—4 μ β—m.	V. 7—8	10.0	+						+		
	V. 22—24		+		+		+		+		+
	VI. 4	5.0	+								
	VI. 24—27		+		+		+		+		+
	VII. 10	5.0	+								
130. *Crucigenia tetrapedia* (KIRCH.) W. et G. S. WEST D: 6—7×3—5 μ β—m.	II. 20								+		
	III. 26—28		+	4.1	+	14.4	+	1.6	+	8.0	+
	IV. 9—10	20.0	+					2.4	+		
	IV. 23—25	3.6	+	2.8	+	20.0	+		+	20.0	+
	V. 7—8	40.0	+					0.4	+		
	V. 22—24		+	35.0	+	10.0	+		+	20.0	+
	VI. 4	15.0	+								
	VI. 24—27	5.4	+	10.0	+	5.8	+	15.0	+	0.4	+
	VII. 10—11	20.4	+					40.0	+		
	VII. 24—25, 29	1.6	+	5.0	+	20.0	+	20.0	+	20.0	+
	VIII. 7—8	30.0	+						+		
	IX. 2—3, 6		+		+		+	0.8	+	1.6	+
	IX. 18	20.0	+	16.4	+	1.6	+	5.8	+	40.0	+
	X. 7—10		+								
	X. 24—25, 28	20.4	+		+		+	8.7	+	2.4	+
	XI. 13—15, 19—20		+	22.9	+	1.6	+	20.0	+	2.0	+
	XII. 12—13		+		+			1.6	+		
131. *Dictyosphaerium pulchellum* WOOD D: 3—10 μ	II. 20								+		
	III. 26—28	390.0	+	100.0	+	160.0	+	140.0	+	60.0	+
	IV. 9—10	100.0	+					20.0	+		
	IV. 23—25	400.0	+	40.0	+	40.0	+	20.0	+	60.0	+
	V. 7—8	160.0	+					80.0	+		
	V. 22—24	40.0	+	40.0	+	30.0	+	20.0	+	30.0	+
	VI. 4	20.0	+								
	VI. 24—27	210.0	+	80.0	+	25.0	+			90.0	+
	VII. 10—11	30.0	+					100.0	+		

	VII. 24—25, 29	75.0	+	140.0	+	20.0	+	80.0	+	60.0	+
	VIII. 7—8	20.0	+					60.0	+		
	IX. 2—3, 6	20.0	+	20.0	+		+	20.0	+	20.0	+
	IX. 18	100.0	+								
	X. 7—10	860.0	+	120.0	+	40.0	+	145.0	+	120.0	+
	X. 24—25, 28	420.0	+	320.0	+	60.0	+	70.8	+		+
	XI. 13—15, 19—20	80.0	+	170.0	+	130.0	+	100.0	+	10.0	+
	XII. 12—13	265.0	+	245.0	+			60.0	+		
132. *Gloeoactinium limneticum* G. M. SMITH D: 4—4.3×2—2.6 μ	II. 20							80.0	+		
	III. 26—28		+	120.0	+	20.0	+	140.0	+		
	IV. 9—10	380.0	+						+		
	IV. 23—24	20.0	+				+		+		
	IX. 2—3, 6	30.0	+				+		+		
	IX. 18	38.0	+								
	X. 7—10	160.0	+			40.0	+	30.0	+		
	X. 24—25, 28		+			20.0	+	70.0	+		
	XI. 13—15, 19—20		+				+		+		
	XII. 13							100.0	+		
133. *Kirchneriella lunaris* (KIRCHN.) MOEBIUS D: 7—13×3—8 μ	VI. 24							5.0	+		
	VII. 11								+		
	VIII. 8								+		
	IX. 2							5.0	+		
	X. 7—8		+						+		
	X. 24, 28	3.2	+						+		
134. *Kirchneriella obesa* (W. WEST) SCHMIDLE D: 10—14×4—6 μ	V. 8								+		
	V. 21—24		+					5.0	+		+
	VI 4		+								
	VI. 24—27	5.0	+						+	5.0	+
	VII. 10—11		+						+		
	VII. 24—25, 28	5.0	+								+
	VIII. 7		+								
	IX. 3		+								
	IX. 18	0.8	+								
	X. 7—10	10.0	+								+
	X. 24, 28		+						+	10.0	+
	XI. 19—20								+		+
	XII. 13							10.0	+		

Species	Date of collection	M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
135. *Lagerheimia genevensis* CHOD.	IV. 9	25.0	+								
D: 5—6×3—3.5 μ	IV. 23		+		+						
	V. 7		+								
	V. 24		+		+						
	VI. 4	10.0	+								
	VI. 24—27		+	3.0	+						
	VII. 10		+								
	V. 25		+	5.0	+						
	VIII. 7	10.0	+								
	IX. 3		+		+						
	IX. 18		+								
	X. 8—9	10.0	+		+						
	X. 24	30.0	+	10.0	+						
	XI. 13—14	5.0	+		+						
	XII. 12		+	75.0	+						
136. *Lagerheimia wratislaviensis*	VI. 4		+								
* SCHROED.	VI. 26	5.0	+								
D: 7.8—9×4—7 μ	VII. 10	5.0	+								
	VII. 25	2.5	+								
	VIII. 7	2.0	+								
	IX. 3, 18	5.0	+								
	X. 8	5.0	+								
	X. 24	10.0	+								
	XI. 13		+								
137. *Oocystis solitaria* WITTR.	III. 26—28			20.0	+	20.0	+				
D: 7—18×3—8 μ	IV. 23—25		+		+	30.0	+				
	V. 7	20.0	+								
	V. 21—24		+	20.0	+	20.0	+		+		+
	VI. 4		+								
	VI. 24—27	10,4	+	20.0	+	20.0	+	0.8	+	20.0	+
	VII. 10—11		+						+		

	VII. 24—25, 29	20.0	+	30.0	+		+	20.0	+	10.0	+
	VIII. 7—8	40.0	+					5.0	+		
	IX. 2—3		+		+			10.0	+		+
	X. 7—10		+		+		+	10.0	+	10.0	+
	X. 24—25, 28	20.0	+	20.0	+	20.0	+		+		+
	XI. 13—15, 19—20		+		+		+	20.0	+		+
	XII. 12—13		+	40.0	+				+		
138. *Oocystis submarina* LAGERH.	III. 26—28		+	20.0	+	80.0	+				+
D: 7—18×3—8 μ	IV. 9	40.0	+								
	IV. 23—25		+		+	20.0	+			40.0	+
	V. 7		+								
	V. 21—24	10.0	+		+	20.0	+			40.0	+
	VI. 24—27	20.0	+	10.0	+		+				+
	VII. 10		+								
	VII. 24—25, 29		+		+	20.0	+				
	VIII. 7—8		+						+		
	IX. 2—3, 6		+	20.0	+		+	10.0	+		
	IX. 18	40.0	+								
	X. 7—10		+		+	10.0	+		+		
	X. 24—25	10.0	+				+				
	XI. 13		+								
139. *Pediastrum boryanum*	III. 26			0.4	+						
(TURP.) MENEGH.	IV. 23—24			0.2	+		+				
D: 5—20 μ	V. 22—24		+		+	0.1	+				
β—, α—m.	VI. 4	0.2	+								
	VI. 25—26		+	0.1	+		+				
	VII. 25	0.2	+		+						
	VIII. 7		+								
	IX. 3, 18	5.0	+	0.2	+						
	X. 8—9	6.4	+	0.2	+						
β—, α—m.	X. 24—25	0.8	+		+		+				
	XI. 13, 20	0.1	+			0.2	+				
	XII. 12	0.1	+								
140. *Pediastrum duplex* MEYEN	IV. 23—24		+		+		+				
var. *reticulatum* LAGERH.	V. 7—8	0.8	+				+				
D: 14—16 μ	V. 21—24		+	0.7	+	0.2	+		+		+
	VI. 4	1.3	+								

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
	VI. 24—27	0.4	+	0.6	+		+	0.4	+	0.2	+
	VII. 10—11		+						+		
	VII. 24—25, 29	1.4	+		+	0.6	+				+
	VIII. 7—8		+						+		
	IX. 2—3, 6		+	0.2	+	0.6	+	0.8	+		
	X. 7—9	6.4	+		+		+		+		
	X. 24—25, 28	0.4	+		+	0.4	+				
	XI. 13, 20			0.2	+		+			0.4	+
41. *Pediastrum simplex* (MEYEN)	V. 22					0.1	+				
LEMM. (f. *clathratum*)	VI. 26—27					0.2	+				+
D: 12—18 μ	VII. 10—11		+						+		
	VII. 24—25, 29	0.6	+			0.2	+		+	0.4	+
	VIII. 7—8							0.8	+		
	IX. 2—3, 6	0.2	+				+		+	0.8	+
	IX. 18	0.7	+								
	X. 8—10	0.1	+							0.4	+
	X. 24, 28	0.2	+							0.4	+
	XI. 13, 20		+								+
142. *Scenedesmus acuminatus*	V. 22					0.2	+				
(LAGERH.) CHOD.	X. 24—25	10.0	+				+				
D: 10—30×3—6 μ	XI. 13, 20		+			0.8	+				
143. *Scenedesmus arcuatus*	IV. 23	0.4	+								
LEMM. forma UHERKOV.	V. 7		+								
D: 8—15×3—8 μ	V. 24	1.6	+		+						
	VI. 4	40.0	+								
	VI. 24—27			15.0	+						+
	VII. 10		+								
	VII. 24—25, 29	20.0	+	20.0	+					1.6	+
	VIII. 7		+								
	IX. 2—3, 6		+		+						

	IX. 18		+								
	X. 8	20.0	+								
	X. 24		+								
144. *Scenedesmus balatonicus* Hortob. D: 12—30×3—9 μ	III. 26—28		+		+		+				
	IV. 9	1.6	+								
	IV. 23—25		+	1.6	+		+				+
	V. 21—24		+		+	1.0	+				+
	VI. 4	0.8	+								
	VI. 24—27		+	2.0	+		+		+	1.6	+
	VII. 10—11		+					3.2	+		
	VII. 24—25, 29				+		+		+		+
	VIII. 7—8		+						+		
	IX. 2—3, 6		+	3.2	+	3.2	+	3.2	+	6.4	+
	IX. 18	1.6	+								
	X. 7—10		+	3.2	+		+	5.6	+		+
	X. 24—28	3.2	+	1.2	+				+		
	XI. 13—14		+		+						
145. *Scenedesmus ecornis* (Ralfs) Chod. D: 8—16×3—6 μ	III. 26—28		+	10.0	+		+			30.0	+
	IV. 9	30.0	+								
	IV. 23—25	30.0	+		+	10.0	+		+		+
	V. 7—8		+						+		
	V. 21—24		+		+	15.0	+	10.0	+		+
	VI. 4	20.0	+								
	VI. 24—27	60.0	+	30.0	+	20.0	+		+	10.0	+
	VII. 10—11	90.0	+					30.0	+		
	VII. 24—25, 29	20.0	+	50.0	+	90.0	+	30.0	+	10.0	+
	VII. 7—8	40.0	+					10.0	+		
	IX. 2—3, 6	90.0	+	10.0	+	60.0	+	40.0	+	10.0	+
	IX. 18	40.0	+								
	X. 7—10	80.0	+	60.0	+	30.0	+	10.0	+		+
	X. 24—25, 28	40.0	+	30.0	+	35.0	+	10.0	+		+
	XI. 13—14, 19—20	10.0	+	20.0	+	30.0	+	10.0	+	100	+
	XII. 12—13		+	10.0	+			40.0	+		
146. *Scenedesmus granulatus* W. * et G. S. West f. *disciformis* Hortob. D: 6.5—10×4—7 μ	VIII. 7		+								
	IX. 3	20.0	+								
	IX. 18		+								

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N	i/l	N	i/l	N	i/l	N	i/l	N
147. *Scenedesmus intermedius* Chod.	III. 26	10.0									
D: 6—12×3—7 μ	IV. 9		+								
	IV. 23—25	10.0	+		+		+		+		
	V. 7—8	20.0	+					10.0	+		
	V. 21—24		+		+	10.0	+		+		+
	VI. 4		+								
	VI. 24—27	20.0	+	30.0	+	20.0	+		+		+
	VII. 10—11	20.0	+						+		
	VII. 24—25, 29	50.0	+	60.0	+		+	20.0	+	10.0	+
	VIII. 7—8	40.0	+					30.0	+		
	IX. 2—3, 6		+		+		+		+		+
	IX. 18	30.0	+								
	X. 7—10	10.0	+	30.0	+	20.0	+		+		
	X. 24—25, 28	40.0	+	20.0	+		+		+		
	XI. 13—14, 19—20		+		+	30.0	+	20.0	+		
	XII. 13								+		
148. *Scenedesmus quadricauda* (Turp.) Bréb.	IX. 10								+		
	III. 26—28	100.0	+	20.0	+	5.4	+	10.0	+		+
	IV. 9—10	220.0	+						+		
D: 8—25×3—10 μ	IV. 23—25	60.0	+	5.2	+		+	10.0	+		+
	V. 7—8	170.0	+					20.0	+		
	V. 21—24	20.0	+	40.0	+	20.0	+	10.0	+	30.0	+
	VI. 4	160.0	+								
	VI. 24—27	10.0	+	20.0	+	25.0	+	20.0	+		+
	VII. 10—11	60.0	+					20.0	+		
	VII. 24—25, 29	30.0	+	10.0	+	20.0	+	20.0	+	20.0	+
	VIII. 7—8	130.0	+					20.0	+		
	IX. 2—3, 6	90.0	+		+		+	10.0	+		+
	IX. 18	10.0	+								
	X. 7—10	230.0	+	50.0	+	10.4	+	5.0	+	20.0	+
	X. 24—25, 28	180.0	+	40.0	+	20.0	+	5.4	+		+
	XI. 13—14, 19	10.0	+	90.0	+		+	10.0	+		
	XII. 12	10.0	+	70.0	+			40.0	+		

149. *Scenedesmus longispina*	IX. 18		+								
CHOD.	X. 8	40.0	+								
D: 8—22×3—6 μ	X. 24	60.0	+								
	XI. 13		+								
150. *Scenedesmus spinosus*	V. 24		+		+						
CHOD.	VI. 4	30.0	+								
D: 6—12×3—4 μ	VI. 25—26		+	5.0	+						
	VII. 10		+								
	VII. 25	20.0	+	10.0	+						
	VIII. 7		+								
	IX. 3	20.0	+		+						
	IX. 18		+								
	X. 8—9		+		+						
	X. 24	90.0	+	20.0	+						
	XI. 13—14	10.0	+		+						
	XII. 12	10.0	+	30.0	+						
151. *Schroederia setigera*	III. 27—28		+					20.0	+	10.0	+
(SCHROED.) LEMM.	IV. 9—10		+						+		
D: 17—52×2.8—6 μ	IV. 23—24		+		+				+		
β—m.	V. 7—8	20.0	+						+		
	V. 21—24	5.0	+		+	0.5	+	5.0	+		+
	VI. 4	5.0	+								
	VI. 24—27		+	5.0	+		+		+		+
	VII. 10—11	20.0	+					15.0	+		
	VII. 24—25, 29	30.0	+	10.0	+		+	25.0	+	15.0	+
	VIII. 7—8	5.0	+					5.0	+		
	IX. 2—3, 6		+	10.0	+	5.0	+	5.0	+	5.0	+
	IX. 18		+								
	X. 7—10	10.0	+	10.0	+		+		+		+
	X. 24	10.0	+	10.0	+						
	XI. 13		+								
152. *Selenastrum gracile* REINSCH	II. 20							5.0	+		
D: 20—26×4—5 μ	III. 27								+		
	VII. 25		+								
	VIII. 7	5.0	+								
	IX. 3		+								
	IX. 18	10.0	+								
	X. 8	10.0	+								
	X. 24		+								

Species	Date of collection	Localities M i/l	M N	K i/l	K N	G i/l	G N	A i/l	A N	E i/l	E N
153. *Tetraëdron caudatum* CORDA	VI. 25			1.0	+						
(HANSG.) var. *incisum*	IX. 3		+								
LAGERH.	IX. 18	15.0	+								
D: 12—15 μ	X. 9				+						
	X. 24		+	5.0	+						
	XI. 13	5.0	+								
	XII. 12		+		+						
154. *Tetraëdron regulare* KÜTZ.	VI. 4		+								
D: 16—30 μ	VI. 26	5.0	+								
	VII. 10	0.5	+								
	VII. 25		+								
155. *Tetrastrum hastiferum*	III. 26	5.0	+								
* (ARN.) KORSCHIK	IV. 9, 23		+								
D: 6—10 μ	V. 7	20.0	+								
	V. 24		+								
	V. 24		+								
	VI. 16		+								
	VII. 10	0.5	+								
	X. 24		+								
	XI. 13	120.0	+								
	XII. 12		+								
156. *Tetrastrum heteracanthum*	XI. 13		+								
(NORDST.) CHOD.	XII. 12	5.0	+								
D: 4—8 μ											
157. *Tetrastrum staurogeniaeforme*	III. 26—28		+		+		+		+		
(SCHROED.) LEMM.	IV. 9	20.0	+								
D: 5—6 μ	IV. 23—25	5.0	+	5.0	+	5.0	+				
	V. 7	20.0	+								
	V. 21—24		+	5.0	+	1.0	+				

	VI. 4	140.0	+								
	VI. 24—27		+	10.0	+		+				
	VII. 10—11	15.0	+						+		
	VII. 24—25, 29	20.0	+	20.0	+				+		
	VIII. 7—8	10.0	+					5.0	+		
	IX. 2—3, 6	40.0	+		+				+		
	IX. 18		+								
	X. 8—9	10.0	+	40.0	+						
	X. 24	40.0	+	20.0	+						
	XI. 13—14		+		+						
	XII. 12			5.0	+						
Zygnematales											
158. *Closterium acerosum* (SCHRANK.) EHR. D: 300—500×40—60 μ	VI. 24—27					0.2	+	0.4	+	0.3	+
	VII. 10—11		+						+		
	VII. 24—25, 29	0.2	+				+				+
	VIII. 7		+								
	IX. 2, 6					0.4	+				+
	X. 9					5.0	+				
	X. 25						+				
159. *Closterium aciculare* T. WEST D: 400—700×4—8 μ	II. 20								+		
	III. 26—28			0.8	+	0.4	+	0.4	+		+
	IV. 10							0.4	+		
	IV. 23—25			0.3	+	0.3	+	0.7	+	0.8	+
	V. 7—8		+					0.1	+		
	V. 22—24	0.2	+		+	6.0	+	0.4	+	1.2	+
	VI. 4		+								
	VI. 24—27	1.0	+	60.0	+	12.0	+	14.0	+	22.5	+
	VII. 10—11	7.0	+					79.0	+		
	VII. 24—25, 29	184.0	+	132.0	+	158.0	+	65.0	+	113.0	+
	VIII. 7—8	21.0	+					125.0	+		
	IX. 2—3, 6	3.4	+	2.0	+	2.0	+	12.4	+	20.6	+
	IX. 18	2.8	+								
	X. 7—10	0.8	+	2.2	+	2.6	+	4.2	+	4.0	+
	X. 24—25, 28	6.0	+	1.6	+	1.2	+	6.2	+	7.0	+
	XI. 13—15, 19—20	0.8	+	1.6	+	1.2	+	1.0	+	1.2	+
	XII. 12—13	1.2	+	3.4	+			0.2	+		
160. *Closterium acutum* BRÉB. var. *variabile* (LEMM.) KRIEGER	III. 26—28			0.2	+			0.2	+		
	IV. 9		+					0.4	+		
	IV. 23—25	5.0	+	0.2	+		+	0.1	+	0.6	+

Species	Date of collection	Localities									
		M		K		G		A		E	
		i/l	N		N		N		N		N
D: 50—140×2.5—5 μ	V. 7—8		+					0.2	+		
	V. 22—24	0.6	+	0.6	+	6.0	+		+	0.6	+
	VI. 4	3.0	+								
	VI. 24—27	13.5	+	3.0	+	8.4	+	4.7	+	8.5	+
	VII. 10—11	2.0	+					14.0	+		
	VII. 24—25, 29	2.8	+	5.5	+	4.0	+	4.0	+	8.0	+
	VIII. 7—8	0.2	+					6.1	+		
	IX. 2—3, 6	0.4	+	5.0	+	2.8	+	5.0	+	10.2	+
	IX. 18	0.4	+								
	X. 7—10	0.2	+	3.4	+	5.5	+	10.0	+	8.5	+
	X. 24—25, 28	1.4	+	1.2	+	11.1	+	7.2	+	7.3	+
	XI. 13—15, 19—20	3.2	+	1.6	+	7.3	+	7.0	+	1.4	+
	XII. 12—13	0.6	+	3.0	+			2.6	+		
161. *Closterium parvulum* NAEG.	III. 26			0.2	+						
	IV. 10								+		
D: 100—130×10—15 μ	IV. 23—25				+		+	0.1	+		+
	V. 7—8		+						+		
	V. 22—24		+	0.6	+	1.0	+		+	0.6	+
	VI. 4	0.4	+								
	VI. 24—27		+	0.8	+	2.0	+	0.4	+	0.6	+
	VII. 10—11	1.0	+					1.0	+		
	VII. 24—25, 29	1.0	+	1.0	+		+	0.2	+	0.6	+
	VIII. 7—8		+						+		
	IX. 2—3, 6		+	0.6	+		+		+		+
	IX. 18	0.2	+								
	X. 7—10	0.4	+	0.2	+	1.0	+		+		+
	X. 24—25, 28	0.8	+	0.2	+	0.4	+	0.2	+		+
	XI. 13—15, 19—20	0.2	+	0.6	+	0.4	+		+	0.4	+
	XII. 12	1.0	+	1.2	+						
162. *Closterium polystictum* NYGAARD	VI. 24								+		
	VII. 10—11		+					0.4	+		
D: 450—580×9—11 μ	VII. 24—25, 29	0.2	+		+			0.2	+		+

	VIII. 7		+								
	IX. 2—3		+	0.6	+					0.2	+
	IX. 18	0.4	+								
	X. 24	0.4	+								
163. *Closterium pronum* Bréb. D: 260—400×5—12 μ	V. 22									0.2	+
164. *Staurastrum gracile* Reinsch D: 60×30 μ	III. 27					0.2	+				
	IV. 23—24		+		+	0.1	+				
	V. 7—8	0.2	+						+		
	V. 21—24	0.2	+	0.2	+	0.2	+	0.4	+		+
	VI. 4		+								
	VI. 24—27	0.5	+	0.1	+	0.4	+	0.6	+	1.0	+
	VII. 10—11		+					1.0	+		
	VIII. 7—8		+						+		
	IX. 2—3, 6		+		+		+		+	0.1	+
	IX. 18	0.2	+								
	X. 7—10	0.3	+	0.2	+	0.8	+	0.4	+	1.0	+
	X. 24—25, 28		+		+	0.2	+	0.8	+	0.2	+
	XI. 19—20					0.2	+		+		+
165. *Staurastrum paradoxum* Meyen D: 45×20 μ	V. 21—24				+	0.4	+		+		+
	VI. 4		+								
	VI. 24—27	0.4	+	0.1	+	0.6	+	1.0	+	0.3	+
	VII. 10—11	0.2	+					1.0	+		
	VII. 24—25, 29	0.2	+	0.2	+	0.2	+	0.2	+	0.2	+
	VIII. 7—8		+					2.6	+		
	IX. 2—3, 6		+		+		+	0.4	+		+
	IX. 18	2.7	+								
	X. 7—10	2.5	+				+	0.8	+		+
	X. 24—25, 28		+			0.6	+		+		
	XII. 12			0.2	+						
Caulobacteriales											
166. *Planctomyces bekefii* Gimesi D: 1—1.2 μ	VII. 10	40.0	+								
	X. 8—9	40.0	+	600.0	+						
	XII. 12—13		+	220.0	+			0.2	+		

* = The occurrence of this species in Lake Balaton is new to the flora
** = The occurrence of this species is new to the flora of Hungary

TABLE IV

Number of species and individuals of phytoplankton along the transversal sections of the phyla

Phyla	Date of collection	Localities M sp	M i/l	M %	K	K i/l	K %
Cyanophyta (22)	II. 20						
	III. 26—28	5	160.0	4.3	4	57.6	2.0
	IV. 9—10	9	796.2	16.5			
	IV. 23—25	6	166.0	8.2	6	45.2	3.7
	V. 7—8	4	370.0	9.0			
	V. 21—24	4	58.0	7.4	8	175.7	15.1
	VI. 4	7	610.9	23.4			
	VI. 24—27	10	148.4	10.1	10	36.4	3.5
	VII. 10—11	10	305.2	16.8			
	VII. 24—25, 29	10	305.0	14.2	11	295.0	17.1
	VIII. 7—8	12	455.0	12.1			
	IX. 2—3, 6	10	996.6	33.2	10	706.0	37.6
	IX. 18	11	2 501.2	49.1			
	X. 7—10	12	1 615.4	11.0	9	786.0	21.0
	X. 24—25, 28	6	405.0	2.4	8	278.7	8.0
	XI. 13—15, 19—20	5	70.4	0.7	6	106.3	0.5
	XII. 12—13	3	65.0	0.3	7	61.9	0.2
Euglenophyta (11)	II. 20						
	III. 26—28				1	0.2	0.0
	IV. 9—10						
	IV. 23—25				2	0.2	0.0
	V. 21—24				2	0.3	0.0
	VI. 4	5	3.3	0.1			
	VI. 24—27	4	3.6	0.2	7	1.0	0.1
	VII. 10—11	2	0.6	0.1			
	VII. 24—25, 29	5	6.4	0.3	6	1.6	0.1
	VIII. 7—8	7	35.9	1.0			
	IX. 2—3, 6	3	3.6	0.1	7	15.0	0.7
	IX. 18	7	52.6	1.0			
	X. 7—10	3	8.7	0.0	3	0.8	0.0
	X. 24—25, 28	1	0.2	0.0	2	0.2	0.0
	XI. 13—15, 19—20	2	5.2	0.1	2	0.4	0.0
	XII. 12—13	1	0.6	0.0	2	1.0	0.0
Pyrrophyta (12)	II. 20						
	III. 26—28	3	235.0	6.3	2	25.4	0.9
	IV. 9—10	3	315.0	6.5			
	IV. 23—25	2	65.0	3.2	4	91.4	7.4
	V. 7—8	4	287.0	7.0			
	V. 21—24	4	227.0	28.9	3	406.4	35.0
	VI. 4	5	577.7	22.1			
	VI. 24—27	5	162.4	11.0	8	330.8	31.6
	VII. 10—11	4	517.8	28.5			
	VII. 24—25, 29	6	408.0	18.9	6	314.0	18.2
	VIII. 7—8	7	421.6	11.2			
	IX. 2—3, 6	8	740.4	24.7	7	530.8	28.2
	IX. 18	9	711.2	14.0			
	9. 7—10	5	470.4	3.2	5	554.2	14.0
	X. 24—25, 28	8	3 410.4	20.4	6	595.6	16.6
	XI. 13—15, 19—20	5	1 927.0	18.5	4	1 560.5	7.4
	XII. 12—13	5	1 310.0	6.5	4	720.0	3.0

in 1974 = i/l-1000 individuls per litre % = individuals expressed in per cent of total algae

G			A			E		
sp	i/l	%	sp		%	sp	i/l	%
			1	10.0	1.4			
1	25.0	0.7	5	130.6	5.2	1	165.0	5.8
5	115.0	6.2	4	83.0	9.4	2	60.2	6.6
			3	297.6	23.7			
11	108.0	13.3	4	128.2	25.7	4	560.8	52.9
7	84.1	13.3	7	72.1	19.0	8	204.7	31.5
			6	163.2	20.9			
8	320.6	33.2	5	295.8	32.3	6	533.8	40.3
			4	307.9	30.3			
9	224.2	28.3	4	246.2	32.4	7	301.6	32.0
9	676.2	50.2	6	410.0	24.0	7	320.1	26.4
7	151.4	21.3	8	222.0	25.3	5	91.4	16.0
3	100.6	9.6	5	141.0	13.3	6	57.8	11.2
			5	120.6	7.8			
			1	15.0	2.2			
3	5.4	0.2	2	7.5	0.3			
			2	0.4	0.0			
3	5.2	0.3						
6	4.7	0.6	2	1.2	0.2	2	0.6	0.1
3	1.8	0.3	2	0.8	0.2	4	1.1	0.2
			2	0.8	0.1			
1	0.4	0.0	3	0.8	0.1	6	8.0	0.6
			4	7.2	0.7			
			5	7.0	0.9	5	4.4	0.5
3	3.2	0.2	2	5.4	0.3	3	3.4	0.3
1	0.8	0.1	2	0.4	0.1	3	1.0	0.2
1	0.2	0.0				1	0.2	0.1
			1	0.2	0.0			
			1	90.0	10.4			
			3	35.0	5.0			
3	87.6	2.6	2	35.1	1.4	3	130.4	4.5
			2	50.2	6.0			
2	10.6	0.5	2	51.2	5.8	2	80.6	8.8
			1	1.0	0.1			
7	47.7	5.9	3	82.4	16.5	2	77.6	7.3
4	77.4	12.3	4	59.2	15.5	3	63.1	9.7
			4	61.4	7.9			
4	170.0	17.6	6	4.2	0.5	4	141.6	10.7
			3	182.2	18.0			
6	344.4	43.5	7	195.0	25.7	6	302.3	32.0
5	130.2	9.6	4	95.8	5.6	7	122.6	10.1
3	105.2	14 7	5	125.8	14.3	3	80.2	14.0
3	100.0	9.6	3	100.0	9.4	3	90.0	17.5
			2	260.0	16.6			

TABLE IV *(continued)*

Phyla	Date of collection	Localities M sp	M i/l	M %	K sp	K i/l	K %
Chrysophyta (66)	II. 20						
	III. 26—28	14	2 125.1	56.8	15	1 771.0	62.5
	IV. 9—10	20	2 685.7	55.7			
	IV. 23—25	18	1 236.2	60.7	19	1 014.4	82.0
	V. 7—8	15	2 657.4	64.6			
	V. 21—24	15	395.8	50.4	12	407.1	35.0
	VI. 4	16	863.1	33.1			
	VII. 24—27	16	710.7	48.2	21	330.6	31.6
	VII. 10—11	21	649.3	35.7			
	VII. 24—25, 29	23	898.4	41.7	23	562.0	32.5
	VIII. 7—8	18	2 467.4	65.7			
	IX. 2—3, 6	22	788.2	26.2	25	540.8	28.8
	IX. 18	27	1 470.4	28.9			
	X. 7—10	24	10 855.9	73.8	16	1 390.2	37.0
	X. 24—25, 28	19	11 766.2	70.3	16	2 148.1	60.0
	XI. 13—15, 19—20	8	8 070.2	77.8	11	18 977.4	89.9
	XII. 12—13	17	18 524.2	91.3	14	21 758.0	91.8
Chlorophyta (54)	II. 20						
	III. 26—28	7	1 220.0	32.6	13	980.7	34.6
	IV. 9—10	13	1 027.2	21.3			
	IV. 23—25	12	569.0	27.9	11	85.3	6.9
	V. 7—8	16	796.0	19.4			
	V. 21—24	12	104.2	13.3	12	172.6	14.9
	VI. 4	21	555.7	21.3			
	VI. 24—27	20	449.5	30.5	25	346.7	33.2
	VII. 10—11	16	306.1	16.8			
	VII. 24—25, 29	27	535.1	24.9	17	553.7	32.1
	VIII. 7—8	15	373.2	10.0			
	IX. 2—3, 6	19	474.0	15.8	14	87.8	4.7
	IX. 18	25	354.8	7.0			
	X. 7—10	28	1 722.1	11.7	18	446.2	12.0
	X. 24—25, 28	30	1 157.6	6.9	19	554.2	15.4
	XI. 13—15, 19—20	14	304.3	2.9	11	471.9	2.2
	XII. 12—13	9	382.9	1.9	14	930.7	4.0
Caulobacteriales (1)	VII. 10	1	40.0	2.1			
	X. 8	1	40.0	0.3	1	600.0	16.0
	XII. 12—13				1	220.0	1.0
Total algae (166)	II. 20						
	III. 26—28	29	3 740.1	100	35	2 834.7	100
	IV. 9—10	45	4 824.1	100			
	IV. 23—25	38	2 036.8	100	42	1 236.5	100
	V. 7—8	39	4 110.4	100.			
	V. 21—24	35	785.0	100	37	1 162.1	100
	VI. 4	54	2 610.7	100			
	VI. 24—27	55	1 474.6	100	71	1 045.5	100
	VII. 10—11	54	1 819.0	100			
	VII. 24—25, 29	71	2 152.9	100	63	1 701.3	100
	VIII. 7—8	59	3 753.1	100			
	IX. 2—3, 6	62	3 002.8	100	63	1 880.4	100
	IX. 18	79	5 090.2	100			
	X. 7—10	73	14 712.5	100	52	3 747.4	100
	X. 24—25, 28	64	16 739.4	100	51	3 577.0	100
	XI. 13—15, 19—20	34	10 377.1	100	34	21 226.5	100
	XII. 12—13	35	20 282.7	100	42	23 691.6	100.
	Average	52	6 094.4		49	6 199.3	

G			A			E		
sp	i/l	%	sp	i/l	%	sp	i/l	%
			13	385.0	55.4			
12	2 126.5	63.2	14	1 646.9	65.6	11	2 011.8	70.1
			10	572.0	66.0			
14	1 375.7	74.0	21	649.0	73.2	17	584.4	64.1
			19	604.7	48.2			
22	356.9	43.8	15	226.6	45.4	17	228.8	21.6
18	282.0	44.8	17	163.1	42.7	13	200.3	30.8
			15	238.2	30.6			
11	89.6	9.3	17	314.3	34.4	17	340.6	25.8
			14	223.2	22.0			
13	135.2	17.0	10	168.2	22.2	15	248.8	26.4
12	322.9	24.0	12	966.7	56.6	17	548.0	45.1
10	260.4	36.5	14	300.8	34.2	15	342.9	59.9
17	573.6	54.8	15	593.3	55.8	12	313.5	60.9
			16	849.0	54.6			
			4	250.0	36.0			
10	1 120.4	33.3	9	692.2	27.5	7	563.0	19.6
			9	153.6	17.6			
12	352.9	19.0	10	103.4	11.6	7	186.4	20.5
			8	350.7	28.0			
28	296.7	36.4	9	60.8	12.2	12	192.6	18.1
17	184.6	29.3	15	86.4	22.6	15	180.8	27.8
			14	315.0	40.5			
15	384.7	39.9	16	299.8	32.7	19	298.9	22.6
			15	292.8	29.0			
11	88.6	11.2	17	142.8	18.8	14	86.3	9.1
16.0	215.3	16.0	14	233.6	13.6	10	220.1	18.1
15	195.7	27.4	13	229.7	26.1	10	56.6	9.9
16	272.3	26.0	10	228.0	21.5	11	52.9	10.3
			12	325.6	21.0			
			1	0.2	0.0			
			22	695.0	100			
29	3 364.9	100	32	2 512.3	100	22	2 870.2	100
			24	866.2	100			
36	1 859.4	100	37	866.6	100	28	911.6	100
			31	1 254.0	100			
74	814.0	100	33	499.2	100	37	1 060.4	100
49	629.9	100	45	381.6	100	43	650.0	100
			41	778.6	100			
39	965.3	100	47	914.9	100	52	1 322.9	100
			40	1 013.3	100			
39	792.4	100	43	759.2	100	47	943.4	100
45	1 347.8	100	38	1 711.5	100	44	1 214.2	100
36	713.5	100	42	879.3	100	36	572.1	100
40	1 046.7	100	33	1 062.3	100	33	514.4	100
			37	1 555.6	100			
43	1 281.5		36	1 050.0		38	1 117.7	

In August the species of genus *Dinobryon* were found in an abundance of 600,000 individuals/litre in the Keszthely Bay. Of the diatoms the *Cyclotella* species were most common in the cold-water periods, i.e. in March-April and October December. Consequently, in the Keszthely Bay the total number of *Cyclotella* made up 61 per cent of the phylum in March, 58.6 per cent in early April, 50.8 per cent in early May, 21 per cent in early October and 9 per cent in December. Like in the sixties, *Melosira granulata* and its variety had a population of 100,000 individuals/litre here. At this section the cell number of *Nitzschia acicularis* ranged from 7 million to 15.8 million from early October till mid-December. In that month this diatom had the same abundance between Szigliget and Balatonmária reaching its maximum of 17.8 million cells/litre in mid-December. At the south-western transversal sections (M and K) the frequency of *Nitzschia amphibia* species was found to be 100,000—150,000 individuals/litre. In early May *Nitzschia subrostrata* reached a maximum population of 850,000 individuals/litre. In the Keszthely Bay the *Stephanodiscus* species altogether were found to be more than 1 million individuals/litre in the period of October-December. The population of almost 1 million individuals/litre of *Synedra acus* var. *angustissima* was conspicuous in the March samples taken from each of the sections. Even at the end of October it was represented by 300,000 individuals/litre, with its individual number varying between 89,000 and 21.7 million individuals/litre. Chrysophyta phylum contributed 39.8 per cent of total algae. In terms of percentage it ranged from 9.3 to 91.8 per cent.

Chlorophyta phylum was represented by 54 species in the samples (Volvocales 4, Tetrasporales 3, Chlorococcales 39, Zygnematales 8). In the April samples it was conspicuous that *Ankistrodesmus falcatus* var. *spirilliformis*, *Dictyosphaerium pulchellum*, *Gloeoactinium limneticum* and *Scenedesmus quadricauda* varied between 100,000 and 800,000 individuals/litre. In the Keszthely Bay *Closterium aciculare* peaked with 184,000 individuals/litre at the end of July, i.e. a 76 times higher value than in the sixties. This time its abundance exceeded 100,000 individuals/litre at the other sections, too. Chlorophyta phylum made up 32.5 per cent of total algae. Its individual number varied between 52,000 and 1.7 million in the period investigated and contributed 1.9—40.5 per cent of total species number. *Planctomyces* belonging to order *Caulobacteriales* occurred sporadically in the samples. Along transversal section K (Szigliget—Balatonmária) it had a higher population density of 600,000 individuals/litre early in October, while in mid-October this value was 220,000 individuals/litre. *Planctomyces* formed 0.6 per cent of total algae species.

It is seen from *Table IV* that the highest number of species (79) occurred in the sample taken in the Keszthely Bay on September 18. Along the other sections of the south-western basin a May (section G, 74) and a June peak of species (section K, 71) occurred. In the north-eastern basin much lower peaks were noted (section A, 47; section E, 52). A minimum of species (22) was observed also here in February and March.

The highest individual numbers (20 million and 23 million) as well as the number of species, were found along the south-western sections in December. The lowest number of individuals (381,600 individuals/litre) was noted at the end of June along the transversal section Balatonfüred—Zamárdi. In that month this value was found to be twice as high between Ságpuszta and Balatonszemes and three times as high between Szigliget and Balatonmária. A minimum of individuals/litre was noted in the sample taken at the end of May (785,000 individuals/litre) along the south-westernmost section, while another minimum of 514,400 individuals/litre occurred in the northeastern basin between Balatonalmádi and Balatonvilágos in November.

Table V gives the biomass of phytoplankton expressed in 10^6 μ^3 at the dates of sampling (Willén, 1970; Kristiansen, 1971). The highest biomass value of 13.5 mg/litre was noted in the sample taken in the Keszthely Bay on September 18. Both in early and late October total biomasses of 10 mg were found at this section. This high number includes the biomass values of *Anabaena*, *Aphanizomenon* and *Ceratium*, too. The dates of biomass maxima sectionally varied. The December value at section Szigliget—Balatonmária was found to be 9.4 mg/litre including both the mass of *Nitzschia acicularis* and the biomass values of *Stephanodiscus* and *Cyclotella* species. The diatoms made up 75 per cent of the weight of biomass. Between Ságpuszta and Balatonszemes the total biomass was 6 mg/litre in the sample taken on July 29, of which *Ceratium hirundinella* itself constituted 3.8 mg/litre and *Closterium aciculare* 1.4 mg/litre. At transversal section Balatonfüred—Zamárdi (A) the highest biomass value was 2.5 mg/litre in early August comprising *Closterium aciculare* of 1.1 mg/litre. Between Balatonalmádi and Balatonvilágos the total biomass was noted to be 6.4 mg/litre, of which phylum Chrysophyta constituted 6.1 mg/litre, *Stenopterobia* 4.8 mg/litre and *Synedra acus* var. *angustissima* 0.5 mg/litre.

The lowest values of total biomass ranged from 0.5 to 1.4 mg/litre at the sections in the different months *(Table V)*.

TABLE V

Biomass values of phytoplankton in Lake Balaton in 1974
($10^6\mu^3$ = wet weight per litre)

Date of collection	M	K	G	A	E
	$10^6\mu^3$/l	$10^6\mu^3$/l	$10^6\mu^3$/l	$10^6\mu^3$/l	$10^6\mu^3$/l
II. 20				615.0	
III. 26—28	3 213.3	3 641.3	3 523.4	1 957.9	6 471.5
IV. 9—10	4 801.4			949.2	
IV. 23—25	1 904.2	1 760.3	2 843.6	1 871.5	1 274.4
V. 7—8	4 407.6			1 689.0	
V. 21—24	876.5	1 451.9	1 094.4	1 623.6	1 110.4
VI. 4	2 226.0				
VI. 24—27	3 208.8	2 103.7	1 531.7	1 162.4	1 620.1
VII. 10—11	4 381.9			2 027.4	
VII. 24—25, 29	9 108.3	5 795.3	6 003.2	2 431.0	3 368.8
VIII. 7—8	7 224.4			2 578.7	
IX. 2—3, 6	9 531.4	8 364.2	2 355.5	1 932.0	2 481.8
IX. 18	13 514.8				
X. 7κ10	10 299.7	3 059.7	1 084.4	1 316.3	1 040.8
X. 24—25, 28	11 252.8	2 097.0	529.1	934.5	516.5
XI. 13—15, 19—20	5 251.4	8 593.9	739.4	807.7	1 133.6
XII. 12—13	7 022.1	9 495.5		870.5	
Average	6 151.5	4 636.2	2 189.4	1 517.8	2 113.1

Discussion

The qualitative and quantitative changes of phytoplankton continued in the seventies. Species, new to the flora of Lake Balaton, are marked in *Table III*. Data on their size and occurrence in Hungary will be published later. In the Keszthely Bay the number of alga species coming from River Zala and other inlets was higher than it had been in the sixties. Of the diatoms the *Nitzschia acicularis*, *Cyclotella*, *Stephanodiscus* and *Cryptomonas* species were of very frequent occurrence in the whole lake turning the colour of the water into brownish-green in the Keszthely Bay and along transversal section Szigliget—Balatonmária from October till December. In the north-eastern basin along the transversal section Balatonalmádi—Balatonvilágos the appearance of *Synedra acus* var. *angustissima* and *Stenopterobia pelagica* in great quantities caused an opalescent water coloration. At this time the latter phenomenon was observed to be present in an increased degree in the ports and nearshore shallow waters of the southern shore. Making a comparison with the data of the sixties it may be established that some species that had occurred earlier in great quantities (e.g. *Coelosphaerium kuetzingianum*, *Gomphosphaeria lacustris*, *Lyngbya circumcreta*, *Attheya zachariasi*, *Asterionella formosa*, *Melosira granulata* and its variety, the *Dinobryon*, *Closterium* and *Staurastrum* species) decreased in numbers in the seventies.

The quantitative change is similarly confirmed by the data on the seventies (Herodek and Tamás, 1973; 1974; 1975) which are several times as high, especially in the south-western basin of the lake, as those of the biomass of the sixties. In the Keszthely Bay the population density was found to be 4.2 million individuals/litre in August 1965 and 1.3 million individuals per litre in 1966. From early October till mid-December 1974 these values varied between 10 and 20 million individuals/litre. Between Szigliget and Balatonmária the population maximum was found to be 1.1 million individuals/litre in August 1965, 1.7 million individuals/litre in 1967 and 1 million individuals/litre in September 1967. In 1974 this latter value (1 million individuals/litre) was noted as minimum here with a maximum of 23.6 million individuals/litre in December (population density in November 21.1 million individuals/litre). Along the other sections the highest values of the sixties correspond to the lowest ones of the seventies. At sections M and K the frequency of 6 million individuals/litre is a several times higher value than those of the sixties.

The same can be stated about the biomass. The qualitative and quantitative changes of phytoplankton are significantly influenced by physiological as well as environmental factors (Sebestyén, 1963; Dussart, 1966). As a result of River Zala several brooks, channels domestic and other sewage-waters flowing into the lake, the qualitative distribution showed changes in space and in time. The intensive sunshine in early spring (March) and the calm period favourably affected the population density of *Synedra acus* var. *angustissima* which likes water temperature around 10°C. The cold, windy and rainy summer and the permanently rippling water prevented the populations of *Dinobryon* — *Asterionella* and *Attheya* — *Melosira* from becoming abundant. At the end of the summer and in autumn the *Anabaena-Aphanizomenon* population reached high density in the barely 20°C water only for a short time. Significant water blooms were noted in the nearshore bays (especially in the south-western basin). The nutriments getting into the lake in the rainy period from mid-September (washed into the lake by rain, etc.) were favourable to the *Cryptomonas*, *Stephanodiscus* and *Nitzschia acicularis* species. In the south-western basin of the lake the water was coloured brownish-green by *Nitzschia acicularis* of a population density of several million cells/litre. This phenomenon developed gradually from the end of September and spread over to the north-eastern region of the lake by December.

To determine the degree of trophyty, the primary production was examined between Balatonfüred and Zamárdi at the beginning of the seventies (Herodek and Tamás, 1973; 1974; 1975). The annual phytoplankton production was determined with ^{14}C-method and was found to be as high as 114 g C/m^2. The biomass value ranged from 1.0 to 19.5 g/m^2 throughout the year. These values are characteristics of the production of moderately eutrophic waters. In the south-western region of the lake investigations on primary production were carried out from June 1973 till June 1974. At the deepest point of the Keszthely Bay the annual production was noted to be 831 g C/m^2. Compared to that of the data of the sixties the phytoplankton density increased significantly (13 g/m^2). The south-western basin of the lake is highly hypertrophic.

During the investigations carried out in the fifties on the weed-detritus in the littoral zone (Gellért and Tamás, 1958; 1959; 1960) and on the alga periphyton of the coastal stones (Tamás and Gellért, 1958; 1959; 1960) the β-mesosaprobic organisms were found in large numbers. In sixties α- and β-mesosaprobic organisms occurred more and more frequently in the open water too (water bloom, discoloration).

Summary

The author examined 177 lifted samples and 100 netfiltrates taken from 15 stations along the 5 transversal sections of Lake Balaton in the period of February December 1974. It was established that the 160 species and 6 varieties belong to the following six taxonomic phyla: Cyanophyta 22, Euglenophyta 11, Pyrrophyta 12, Chrysophyta 66, Chlorophyta 54, Caulobacteriales 1.

The highest number of species (79) was found in the Keszthely Bay on September 18 and the lowest ones (22) at section Balatonfüred–Zamárdi in late June and at section Balatoalmádi–Balatonvilágos in March.

Maxima of individuals were noted in December at transversal sections M (20 million) and K (23 million). Minimum of individuals (381,600) was found between Balatonfüred and Zamárdi at the end of June.

In the Keszthely Bay the number of filamentous blue-greens (*Anabaena* and *Aphanizomenon* species) increased from mid-September till the end of October. On September 18, in addition to the filamentous blue-greens the biomass value of 13.5 mg/litre was significantly contributed by the *Ceratium hirundinella* population too. The lowest biomass values of the sections varied between 0.5 and 1.4 mg/litre.

The great quantity of *Synedra acus* var. *angustissima* produced an opalescent water coloration in March, while in the period of September October a water bloom of blue-greens *(Anabaena, Aphanizomenon)* occurred at the

south-western region of the lake. Just here a frequency of 7.0 – 15.8 million individuals/litre of *Nitzschia acicularis* with the *Cryptomonas* species made the water brownish-green from October till December.

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HORIZONTÁLIS MENNYISÉGI FITOPLANKTON VIZSGÁLATOK A BALATONBAN 1974. ÉVBEN

Tamás Gizella

Összefoglalás

1974. évben februártól decemberig a tó 5 harántszelvényének 15 pontjáról 177 merített és 100 hálószüredék mintát vizsgált. Ennek eredményeként a 160 faj és 6 változat rendszertani törzsbe sorolható: Cyanophyta 22, Euglenophyta 11, Pyrrophyta 12, Chrysophyta 66, Chlorophyta 54, Caulobacteriales 1.

A harántszelvények gyűjtőhelyei közül fajszámban a leggazdagabb (79) a Keszthelyi-öböl szeptember 18-i mintája, a legalacsonyabb (22) pedig a Balatonfüred—Zamárdi februári és Balatonalmádi—Balatonvilágos márciusi mintája volt.

Egyedszám maximumot a tó legdélnyugatibb szelvényein (*M* és *K*) decemberben 20 és 23 milliós értékkel jegyzett fel. Az egyedszám minimum Balatonfüred —Zamárdi szelvényen június végén 381 600 egyed volt literenként.

A Keszthelyi-öbölben szeptember közepétől a fonalas kékalgák (*Anabaena, Aphanizomenon* fajok) száma október végéig emelkedett. A szeptember 18-i 13,5 mg/l biomassza maximum kialakulásában a fonalas kékalgák mellett a *Ceratium hirundinella* tömegnek is jelentős szerep jutott. A legalacsonyabb biomassza értékeket a tó különböző szelvényein 0,5—1,4 mg/l között találta.

A víz színét márciusban opálossá tette a *Synedra acus* var. *angustissima* tömeg, szeptember—októberben pedig a fonalas kékalgák *(Anabaena, Aphanizomenon)* vízvirágzása következett be a tó délnyugati részén. Októbertől decemberig ugyanitt a *Nitzschia acicularis* 7—15,8 milliós egyedszáma a *Cryptomonas* fajokkal együttesen barnászöldre színezte a vizet.