PLANKTON DIATOM ASSEMBLAGES IN LAKE MICHIGAN

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TABLE OF CONTENTS

INTRODUCTION.	1
PREVIOUS INVESTIGATIONS	2
SAMPLING.	3
PREPARATION AND ANALYSIS PROCEDURES	4
SYSTEMATIC RESULTS.	5
CONCLUSIONS	208
SUMMARY	214
ACKNOWLEDGMENTS	215
LITERATURE CITED.	216
APPENDIX A.	221

INTRODUCTION

The flora of the Laurentian Great Lakes has lain before the scientific public as an unaccepted challenge for nearly 300 years. Until relatively recent times the very size of these bodies of water has discouraged their investigation, as the average investigator lacked the necessary physical resources to mount an effective attack upon the problem. As a result, what knowledge we now have at hand has largely been gathered either through short-term studies of the nearshore flora, often conducted by interested amateurs, or as an adjunct to practically oriented research in fisheries and water quality. With the increasingly apparent necessity to deal with the ecology of the lakes if they are to be preserved in a condition useful to man, this lack of orderly progress, if compared to such thoroughly investigated areas as the terrestrial flora, begins to bear bitter fruit.

The dominant organisms in all of the Great Lakes, at least in their pristine condition, are the diatoms. The investigation reported here is an attempt to more fully document the plankton diatom flora of one of the Great Lakes, Lake Michigan. Over the past three years about 1000 collections, both of the modern flora and of preserved collections dating back to about 1880, have been examined. Although the primary emphasis has been the determination of the species present, considerable effort has been devoted to determining the relative abundance of the various elements of the flora, their seasonal cycles, and the history of the changes in the flora during the period of record. Patently none of these objectives will be fulfilled by any single investigation. It is hoped, however, that the results of this research will stimulate others to carry on this general area of research to fruitful conclusions and that the conclusions reached will prove useful to researchers in other ancillary fields.

PREVIOUS INVESTIGATIONS

Probably the earliest traceable collections from the Great Lakes area that have been preserved to the present day are those of Ehrenberg (1854-56). The earliest reports dealing with Lake Michigan phytoplankton are the lists published by Briggs (1872) and Thomas and Chase (1887). All of these persons were more or less amateur diatomists although they published extensively in the finest tradition of the gentleman amateur scientist of that day.

Further records of the Lake Michigan flora are contained in the volubly reported results of the fisheries investigations of Forbes (1882a, 1882b, 1882c, 1883), Ward (1896) and Thompson (1896).

In 1904 Chase published a list of Michigan diatoms including many from Lake Michigan. Some records of the flora of the extreme southern end of Lake Michigan are included in the reports of the water quality investigations of Leighton (1907) and Baylis and Gerstein (1929). Although containing no records of the algal flora, the report of a similar investigation by Crohurst and Veldee (1927) gives an excellent account of the general conditions in the Chicago area at the time.

In 1927 Eddy published his investigations of the plankton of Lake Michigan, and further records are contained in his later general work (1934). Ahlstrom's (1936) report contains the first account of systematic collections of the offshore plankton. On the other hand, Skvortzow's (1937) never-completed account of the Lake Michigan diatoms is entirely based on material from the water supply of the city of Chicago. In 1944 Lackey published an account of the phytoplankton of the southern end of Lake Michigan.

A number of reports (Daily 1938; Damann 1941; Griffith 1955) have emanated from the botanical laboratories of Northwestern University. The work of Daily and Damann are of particular interest in that their collections are carefully preserved and available for study. Damann later (1945, 1960) published reports based on the plankton collections of the Chicago filtration plant. Although not effectively published, numerous records are available from this installation. Of particular interest to this investigation are the reports of Vaughn (1961, 1962).

Records of the Lake Michigan plankton at two locations have been gathered by the National Water Quality Network (1960, 1961, 1962) and are reported in publications by Williams (1962, 1964) and Williams and Scott (1962). Other recent publications include those of Stoermer and Kopczyńska (1967), Stoermer (1967, 1968), and Holland (1968, 1969).

Patrick and Reimer's treatise on the diatoms of the United States (1966) also contains numerous records from Lake Michigan, although their practice of recording distributions from broad geographic areas makes it difficult to determine the exact distribution of the species in question.

SAMPLING

The majority of samples reported in this study were taken by means of a 1/2 meter #20 plankton net. Where water depths permitted, the sampling procedure was a vertical haul from approximately 2 m off the bottom to the surface. In nearshore areas and channels it was necessary to resort to oblique tows. While the limitations of this sampling method are well known and recognized, it is the only method that allows direct comparison between modern samples with the previously gathered samples available from Lake Michigan. It is perhaps important to emphasize that, even in this limited context, complete uniformity was not achieved. The samples of Thomas and Chase were, in most instances, taken directly from the water supply of the city of Chicago by placing several layers of muslin directly over a water tap and thus straining out sufficient quantities of algae for the preparation of permanent slides. The absolute efficiency of this sampling method remains unknown and is not amenable to modern testing. The samples of Daily, Damann and Ford were apparently taken nearshore by means of a horizontal tow of a small diameter, hand cast net.

All material examined is listed in appendix "A." The modern collections, presently housed in the author's collection at the Great Lakes Research Division, University of Michigan, consist of a preserved sample of uncleaned material, a sample of cleaned material, and duplicate prepared slides. In most instances similar material of the historic collections is available at the Academy of Natural Sciences, Philadelphia. In some cases, particularly with the older samples, only prepared slides exist, the older material having been lost or not preserved by the original investigator.

PREPARATION AND ANALYSIS PROCEDURES

All material gathered in the present investigation was preserved in the field, immediately after collection, in buffered formalin. After being received in the laboratory the samples were split and one subsample was set aside, without further treatment as a reference collection. The other subsample was cleaned, by standard methods for diatom taxonomy (Patrick and Reimer 1966). Duplicate prepared slides were made from each cleaned subsample and the remaining material was preserved in ethanol and set aside as a reference collection of cleaned material. The prepared slides are strewn mounts, care being taken that the specimens are evenly distributed and present in appropriate density to facilitate subsequent identification and counting.

After preparation, all slides were examined to determine that processing had been satisfactory and to determine the species present. All entities reported are represented by at least one specimen, marked by a circle engraved on the cover of the appropriate permanent slide, included in the author's concept of the taxon. In order to facilitate systematic treatment, photographic illustrations were made of each entity discovered in the course of the investigation and these illustrations, together with a short description of the taxon and the slide number and location coordinates of voucher specimens, are maintained in a permanent file. In all instances optical equipment used for examination of the slides and for taxonomic determinations consisted of a Leitz Ortholux microscope fitted with a full oil immersion system giving a N. A. of at least 1.30.

In the case of slides selected for detailed population analysis, counts were made, using the same optical equipment, either of the entire slide, in the case of the offshore samples, or of 1/2 of the slide, in the case of harbor or nearshore samples. The distribution information given in the systematic results are based on these counts, except in the case of entities which did not occur on the slides counted, in which case the number of a slide known to contain the entity in question is given.

Computer generated listing of the absolute frequency, the relative frequency and the contribution to diversity of each taxon in the slides counted, which cost considerations prohibit reproducing in this report, are available. The calculated diversity estimates for each assemblage investigated are given in Appendix "A."

SYSTEMATIC RESULTS

In the following section a tabulation of the entities encountered in the investigation is given. The genera are listed in alphabetical order and the species of each genus are listed in alphabetical order following. Short descriptions are given for the species of the major plankton genera, including the morphological measurements of specimens in populations from Lake Michigan. Similar description of the range of variation of other populations awaits thorough investigation of the benthic flora.

Because of the time limitations on the completion of this project, it was necessary to proceed with population analyses before reasonably complete systematic treatment of the assemblages could be completed. For this reason a large number of morphologically distinct entities which could not be identified with a recognized taxon were set aside and given a numerical designation. Further research during the course of the investigation has allowed us to determine the relationships of the majority of these, but there remains a significant number which we have not been able to identify. These entities are treated as species *incertae sedis* and are listed at the end of each genus. In some instances further research will show these entities to belong to recognized taxa. Some of them undoubtedly belong to undescribed species. These eventually will be described in the appropriate literature. In many instances determinations await investigation of the benthic flora in order that sufficient specimens be obtained to allow determination of the range of variation of the taxon. Finally a certain number probably are abnormal specimens which can never be satisfactorily determined.

Following the systematic information, a list of occurrences of the species in question in the populations counted is given. This information is presented in the following format: 1) the collection number, 2) the station designation, 3) the date of collection, 4) the proportion of the entity in question in the collection. In cases where a particular entity did not occur in the collections subjected to detailed population analysis, the number of a voucher slide known to contain the entity is given.

Genus *Achnanthes* Bory
Bory, Dict. Class. Hist. Nat., 1:79-80. 1822.

The majority of species of the genus *Achnanthes* find their primary habitat in periphyton communities. Most of the specimens observed in plankton collections from Lake Michigan are probably derived from such communities and their occurrence in the plankton is accidental. Certain species are, however, secondarily planktonic in that they regularly grow attached to some of the larger species of euplanktonic algae. A notable example of this tendency is *A. clevei*, which is regularly noted in plankton collections. It is probable that many of the smaller members of the genus adopt this habit of growth under certain conditions.

Achnanthes affinis Grun.

Achnanthes affinis Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Förl., 17(2):20. 1880.

1 ACCESSION TIME NO CF STATIONS 101													
146073	CH	18726	0.02162	146510	CH	051545	0.00109	146913	CH	12481544	C.00055		
146914	CH	19491496	0.00107	146523	CH	22201944	0.00219	146909	CH	RR194	C.00045		
146916	CH	49741247	0.02698	146519	CH	51941947	15.00082	146907	CH	3119457	C.002049		
146917	CH	1841127	0.00107	146518	CH	21181947	0.00107	146906	CH	21001947	C.00045		
146720	EV	9411337	0.00596	146764	EV	17411537	0.00806	146757	EV	25191337	C.01444		
146747	EV	1841337	0.00596	146763	EV	23401337	0.00598	146760	EV	22581337	C.00642		
146748	EV	2451337	0.00596	146762	EV	01351337	0.00596	146759	EV	21001337	C.00642		
146749	EV	12901337	0.01214	146768	EV	16081338	0.05880	146762	EV	18081338	C.08882		
146766	EV	1461338	0.01214	146766	C	7	18971338	0.1552	146760	0	11001338	C.00153	
146767	EV	01351338	0.01214	146765	C	7	14611338	0.01214	146759	0	11001338	C.00153	
146768	EV	1541338	0.01214	146767	C	7	611338	0.16518	146759	0	611338	C.00859	
12250	F	611338	0.00764	14643	B	16041338	0.00198	146760	0	18401338	C.00216		
12260	F	12941338	0.01214	14642	B	01041338	0.00198	146759	0	12941338	C.00216		
12278	F	1651338	0.03334	12280	E	2	16511338	0.00681	12285	F	1551338	1.22229	
12288	F	1551338	0.00681	12287	F	3	15511338	0.00101	13302	E	13001338	C.00405	
13002	E	13001338	0.00405	13001	F	2	1161338	0.01717	13005	F	11001338	C.00933	
13006	F	31161338	0.03190	13008	C	7	8011338	0.00608	13322	E	7401338	C.00333	
13344	C	7	8011338	0.00608	13346	C	7	20511337	0.00332	1536	6	24511337	C.00859
15312	C	153167	0.00393	15355	C	7	20511337	0.00332	1536	6	24511337	C.01091	
1537	E	3	24511337	0.00493	15338	E	5	23511337	0.01657	1540	C	401337	0.00496
1538	E	5	23511337	0.01657	15339	E	5	00911337	0.00093	1540	C	401337	0.00496
1381	GS	10911337	0.00239	13804	GS	8	10911337	0.00370	13387	GS11	12911337	0.03169	
13388	GS13	12911337	0.03169	13390	GS14	4	30211337	0.00587	13391	GS15	12911337	0.00478	
13391	GS16	12911337	0.00478	13392	GS17	4	3911337	0.00516	13393	GS18	12911337	0.00478	
13355	GS	2	30C11337	0.01766	13557	GS	6	12911337	0.00216	13599	GS	4011337	0.00350
13560	GS	8	40C11337	0.00945	13562	GS10	50	50C11337	0.00247	13565	GS13	50C11337	0.01521
13562	GS15	50C11337	0.01521	13569	GS17	50	50C11337	0.00927	13571	GS19	50C11337	0.00247	
13573	GS21	50C11337	0.00927	13574	GS22	6	6C11337	0.14094	13575	GS28	66C1337	C.00516	
13575	GS28	66C1337	C.00516	13576	GS29	6	6C11337	0.00093	13577	GS31	66C1337	C.00517	
13524	MP	20511337	0.00216	13526	MP	1	20511337	0.01707	13530	MP	1	24511337	C.00661
13528	MP	1	0.01845	13529	MP	1	40C11337	0.02741	13532	MP	1	66C1337	C.00660
13550	MP	1	0.00187	13551	MP	2	24511337	0.00216	13552	MP	2	109C1337	C.00287
14602	TR	14602	0.01087	13552	KW	2	24511337	0.00859	1403	CA	2	109C1337	1.42540
14034	PO	2	109Y1337	0.02541	14035	ES	2	129Y11337	0.01290				

Achnanthes biasoletiana (Kütz.) Grun.

Synedra bioeletiana Klützing, Bacill., p. 63, pl. 3, fig. 22. 1844.
Achnanthes bioeletiana (Kütz.) Grunow in: Cleve and Grunow, K. Svenska
Vet.-Akad. Handl., Ny Följd, 17(2):22. 1880.

2 ACBIASOL TCT NO OF STATIONS 8											
(46743	EV	20JN1937	0.00428	(46762	EV	18MR1938	0.04411	(1285	F 1	15SE1964	G.01165
(1389	G513	12MY1567	0.00258	(1565	G513	50C196	0.04056	(1574	G522	60C1967	G.00863
(1405	ES 2	12MY1567	0.01200	(14C7	SM 2	14PY1567	0.00597	(			

Achnanthes calcar Cleve

Achnanthes calcar Cleve, Acta Fauna Fl. Fennica, 8(2):51, pl. 3, fig. 8. 1891.

3 ACCALCAR TOT NO OF STATIONS												4	
(1560	GS 8	40C1967	0.00472	(1565	GS13	50C1967	0.00507	(1527	TR 1	20C1967	C.00626		
(1550	FR 1	50C1967	0.01235	(									

Achnanthes clevei Grun.

Achnanthes clevei Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

This species is quite common in plankton collections from Lake Michigan. As previously noted, it is often observed growing attached to some of the larger euplanktonic algae.

4 ACCLEVEI TOT AC CF STATIONS											
(3540	CH	11M1875	0.00466	(46776	EV	9JL1937	0.00556	(46750	EV	24S1937	C.00471
(46762	EV	18M1938	0.00206	(1240	O 6	10J1964	0.00153	(1258	F 1	6JL1964	C.00236
(1268	E 2	15A1964	0.00274	(1216	F 1	10A1964	0.00272	(1270	E 1	16S1964	C.00393
(1285	F 1	15S1964	0.00469	(1300	E 3	13C1964	0.00358	(1306	F 1	11C1964	C.00277
(1316	O 6	5N1964	0.00378	(1320	E 4	7N1964	0.00207	(1323	F 1	4N1964	C.00139
(1340	C 7	28M1967	0.00145	(1343	A 4	10A1967	0.00069	(1346	C 7	21A1967	C.00134
(1435	C 7	19M1967	0.00316	(1512	E 3	15E1967	0.00353	(1536	E 2	24S1967	C.00273
(1542	E 3	11C1967	0.00509	(1388	GS12	12M1967	0.00403	(1389	GS13	12M1967	C.00258
(1392	GS16	12M1967	0.00308	(1394	GS18	13M1967	0.00212	(1395	GS19	13M1967	C.00117
(1554	GS 1	30C1967	0.00712	(1555	GS 2	30C1967	0.00353	(1557	GS 4	30C1967	C.01465
(1565	GS13	50C1967	0.00592	(1566	GS14	50C1967	0.00183	(1567	GS15	50C1967	C.00593
(1569	GS17	50C1967	0.00149	(1571	GS18	60C1967	0.00059	(1572	GS20	60C1967	C.00910
(1573	GS21	60C1967	0.00224	(1574	GS22	60C1967	0.00573	(1575	GS28	60C1967	C.00125
(1544	MU 1	20C1967	0.00208	(1546	LU 1	20C1967	0.00502	(1526	PO 1	20S1967	C.01138
(1527	TR 1	24S1967	0.01121	(1528	SE 1	20S1967	0.00288	(1529	RM 1	20S1967	C.00394
(1530	FR 1	24S1967	0.00701	(1545	WL 1	20C1967	0.04730	(1548	CA 1	30C1967	C.01272
(1551	ES 1	50C1967	0.00236	(1550	MR 1	50C1967	1.58592	(1553	SG 1	60C1967	C.02203
(1426	MS 2	28M1967	0.01678	(1417	HQ 2	28M1967	0.00748	(1350	BH 2	19A1967	C.07528
(1399	PH 2	5M1967	0.00686	(1354	GH 2	25A1967	0.00173	(1454	MC 2	10M1967	C.05081
(1407	SH 2	14M1967	0.00557	(							

Achnanthes clevei var. *rostrata* Hust.

Achnanthes clevei var. *rostrata* Hustedt in: Pascher, Süsw.-Fl. Mittel-europas, Heft 10, Aufl. 2, p. 204, fig. 295. 1930.

This entity has the same growth habit as the nominate variety. Specimens from Lake Michigan are usually in the upper size range according to descriptions given by most authors (see Patrick and Reimer 1966).

5 ACCLEVRH TOT AC CF STATIONS											
66573	CH	1876	0.04724	(1356C	CH	11M1875	0.00466	(3541	CH	11E1881	C.00978
46801	CH	23N1924	0.00565	(46917	CH	12J1964	0.00083	(46915	CH	20F1964	0.01138
46914	CH	19A1964	0.00107	(46924	CH	10M1964	0.00071	(46923	CH	22C1964	C.00437
46920	CH	20E1964	0.00052	(46925	CH	15J1967	0.00245	(46920	CH	HR1967	C.02132
46908	CH	W1967	0.00358	(46919	CH	5J1957	0.00503	(46907	CH	JL1947	C.00099
46922	CH	21A1967	C.00097	(46758	EV	5J1957	0.00713	(46757	EV	25J1937	C.00481
46747	EV	14U1937	0.00249	(46763	EV	23A1937	C.00209	(46752	EV	15S1937	C.04530
46750	EV	22S1537	0.00492	(46744	EV	60C1937	0.00975	(46748	EV	19C1937	C.00405
46767	EV	27C1937	0.00387	(46745	EV	12M1938	0.01214	(46768	EV	16M1938	0.02940
46862	EV	0.08612	0.00123	(1246	F 1	11J1964	0.00193	(1245	F 2	11M1964	C.00346
1246	F 3	11J1964	0.00598	(1258	F 1	6JL1964	0.00708	(1268	E 2	15A1964	C.00547
1270	F 1	10A1964	0.00272	(1265	F 1	15S1964	0.01165	(1303	E 6	19C1964	C.00560
1305	F 2	11C1964	0.00173	(1511	E 2	10C1967	0.00107	(1512	E 3	20F1967	C.00785
1536	E 2	24S1967	0.00273	(1541	E 2	11C1967	0.00532	(1542	E 3	11C1967	C.01526
1385	GS 9	10M1967	0.00235	(1387	GS11	12M1967	0.00792	(1388	GS12	12M1967	C.01810
1385	GS13	10M1967	0.00516	(1390	GS16	12M1967	0.01174	(1392	GS16	12M1967	C.00308
1393	GS17	13M1967	0.00548	(1394	GS18	13M1967	0.00516	(1396	GS20	13M1967	C.00074
1554	GS 1	30C1967	0.00356	(1557	GS 4	30C1967	0.00374	(1565	GS13	50C1967	C.00789
1567	GS15	12C1967	0.01270	(1568	GS16	50C1967	0.00144	(1569	GS17	50C1967	C.00297
1570	GS18	50C1967	0.00992	(1571	GS19	60C1967	0.00170	(1572	GS20	60C1967	C.00690
1574	GS22	60C1967	0.00755	(1575	MC 1	15C1967	0.01238	(1576	MC 1	20C1967	C.06502
1527	TR 1	20S1967	0.03774	(1529	KM 1	20S1967	0.01149	(1530	FR 1	24S1967	C.03000
1545	WL 1	20C1967	0.05406	(1550	MR 1	50C1967	0.04956	(1553	SG 1	60C1967	C.02938
1426	MS 2	28M1967	0.01050	(1462	TR 2	4M1967	0.00541	(1354	GH 2	25A1967	C.00345
1404	PH 2	10M1967	0.01270	(1405	ES 2	12M1967	0.00645	(			

Achnanthes conspicua A. Mayer

Achnanthes conspicua A. Mayer, Bayrisch Kryptog. Forsch., 1:198, pl. 6, fig. 9, 10. 1919.

6 ACCONSPI TOT NO OF STATIONS 14									
(46971	CH	23NO1945	0.00065	(46768	EV	16ME1938	0.01470	(1279	E 1
(1511	E 2	15E1947	0.00307	(1565	GS13	50C1967	0.00507	(1569	GS17
(1574	GS22	60C1967	0.00288	(1447	MS 1	20C1967	0.00798	(1526	MD 1
(1527	TR 1	20S1967	0.00629	(1530	FR 1	24S1967	0.01000	(1550	MR 1
(1426	MS 2	29MY1967	0.01050	(1350	BM 2	19AP1967	0.02863	(	
									50C1967 C.23541

Achnanthes conspicua var. *brevistriata* Hust.

Achnanthes conspicua var. *brevistriata* Hustedt in: Pascher, Süßw.-Fl. Mitteleuropas, Heft 10, Aufl. 10, p. 202, fig. 292. 1930.

Coll: 983

Achnanthes deflexa Reim.

Achnanthes deflexa Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:256, pl. 16, figs. 16-20. 1966.

7 ACDEFLEX TOT NO OF STATIONS 29									
(46758	EV	5JUN1937	0.04993	(46743	EV	20JUN1937	0.00428	(46764	EV
(46757	EV	25JUL1937	0.02407	(46763	EV	23AUG1937	0.08117	(46767	EV
(46766	EV	18APR1938	0.01470	(46762	EV	18APR1938	0.02205	(1246	F 1
(1245	F 2	11JUN1944	0.00346	(1258	F 1	6JUL1944	0.00472	(1260	F 3
(1285	F 1	15SE1964	0.00582	(1387	GS11	12MY1967	0.01188	(1398	GS22
(1562	GS13	50C1967	0.00247	(1527	TR 1	20S1967	0.01887	(1530	FR 1
(1545	WL 1	20C1567	0.01351	(1550	MR 1	50C1967	0.14868	(1553	SG 1
(1428	MU 2	29MY1967	0.00301	(1426	MS 2	29MY1967	0.04190	(1350	SH 2
(1401	MO 2	18MY1967	0.00588	(1463	CA 2	10MY1967	0.02615	(1404	PQ 2
(1405	ES 2	12MY1967	0.01935	(1407	SP 2	14MY1967	0.00597	(	
									60C1967 C.00734
									19AP1967 C.00881
									10MY1967 C.03811

Achnanthes delicatula (Kütz.) Grun.

Achnanthidium delicatulum Kützting, Bacill., p. 75, pl. 3, fig. 21. 1844.
Achnanthes delicatula Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny F81jd, 17(2):22. 1880.

8 ACDELICAT TOT NO OF STATIONS 1									
(1550	MR 1	50C1967	0.02717	(					

Achnanthes detha Hohn and Hellerm.

Achnanthes detha Hohn and Hellerman, Trans. Amer. Micr. Soc., 82(3):274, pl. 2, figs. 7-8. 1963.

9 ACDETHAQ TOT NO OF STATIONS 2									
(1550	MR 1	50C1967	0.02478	(1464	MS 2	10MY1967	0.01270	(	

Achnanthes dispar Cleve

Achnanthes dispar Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):52, pl. 3, figs. 2-3. 1891.

10 ACDISPAR TOT NO OF STATIONS 3
(1388 GS12 12MY1967 0.066C3)

Achnanthes exigua Grun.

Achnanthes exigua Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

11 ACXIGUA TOT NO OF STATIONS 23
(46767 EV 20C1967 0.00287) (46762 EV 18MP1938 0.02206) (1228 F 1 6JL1964 C.00236)
(1268 E 2 15M1964 0.00274) (1341 A 3 19AP1967 C.00108) (1541 E 2 11OC1967 C.01084)
(1392 GS10 12MY1967 0.00308) (1357 GS21 13MY1967 C.00065) (1555 GS 2 30C1967 C.00353)
(1565 GS13 50C1967 0.01521) (1571 GS19 60C1967 C.00059) (1573 GS21 60C1967 C.00112)
(1525 GS28 60C1967 0.00129) (1546 U 1 20C1967 C.00500) (1528 M 1 25SE1967 C.03598)
(1551 ES 1 50C1967 0.02396) (1550 MR 1 50C1967 C.07434) (1553 SG 1 60C1967 C.02203)
(1351 PI 2 21AP1967 0.00310) (1417 HO 2 22MY1967 0.00374) (1350 BH 2 19AP1967 C.00441)
(1404 PG 2 10MY1967 0.06352) (1407 SP 2 14MY1967 0.00597)

Achnanthes exigua var. *heterovalva* Krasske

Achnanthes exigua var. *heterovalva* Krasske, Bot. Arch., 3(4):193, figs. 9a-b. 1923.

12 ACXIGVH TOT NO OF STATIONS 8
(1544 MU 1 20C1967 0.00238) (1522 BH 1 18SE1967 C.00365) (1545 WL 1 20C1967 C.00676)
(1549 MU 1 40C1967 0.01370) (1550 MR 1 50C1967 1.35951) (1350 BH 2 19AP1967 0.02863)

Achnanthes exigua var. *heterovalva* fo. *semiaperta* Guer.

Achnanthes exigua var. *heterovalva* fo. *semiaperta* Guermeur, Cat. Inst. Français d'Afrique Noire, 12:32, pl. 2, figs. 3c, 3i, 3j. 1954.

13 ACXVHFS TOT NO OF STATIONS 3
(4690E CH 19Y1967 0.00066) (1571 GS19 60C1967 0.00117) (1575 GS28 60C1967 C.00129)

Achnanthes haukiana Grun.

Achnanthes haukiana Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

14 ACHAUCKI TOT NO OF STATIONS 5
(1376 E 5 6MY1967 0.00281) (1544 MU 1 20C1967 0.00477) (1417 HO 2 22MY1967 C.00374)
(1350 BH 2 19AP1967 0.01101) (1354 GH 2 25AP1967 0.00345)

15 ACHAUCKO TOT NO OF STATIONS 1
(1305 F 2 11OC1964 0.00173)

Achnanthes haukiana var. *rostrata* Schulz

Achnanthes haukiana var. *rostrata* Schulz, Bot. Arch., 13:191, fig. 40. 1926.

16 ACHAUCKR TOT NO OF STATIONS 7
(1377 GS 1 9MY1967 0.00396) (1544 MU 1 20C1967 0.00238) (1547 PS 1 20C1967 C.00798)
(1520 HO 1 18SE1967 0.00471) (1545 WL 1 20C1967 0.00676) (1426 PS 2 29MY1967 C.00210)
(1350 BH 2 19AP1967 C.02263)

Achnanthes hungarica (Grun.) Grun.

Achnanthidium hungaricum Grunow, Verh. Zool.-Bot. Ges. Wien, 13:146, pl. 4, figs. 8a-c. 1863.

Achnanthes hungarica (Grun.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):20. 1880.

18 ACHUNGAR TOT NO OF STATIONS 4									
(1342	A 4	19AP1967	0.00180	(1417	HO 2	22MY1967	0.00374	(1350	8H 2
1400	GB 2	13PY1967	0.00270	(				19AP1967	C.01322

Achnanthes lanceolata (Bréb.) Grun.

Achnanthidium lanceolatum de Brébisson ex Kützinger, Sp. Alg. p. 54. 1849.

Achnanthes lanceolata (Bréb. ex Kütz.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):23. 1880.

19 ACLANCEO TOT NO OF STATIONS 41									
(146905	CH	JA1547	0.00122	(146764	EV	17JL1937	0.01612	(146757	EV
(13117	E 1	6ND1564	0.00191	(14608	A 3	23MY1967	0.00447	(1410	A 6
(14116		28JUL1967	0.00522	(1552	E 2	16JL1967	0.00213	(1542	E 3
(1555	GS 2	20C1967	0.00353	(1559	GS 7	40C1967	0.00350	(1571	GS19
(1372	GS20	60C1567	0.00096	(1574	GS22	60C1967	0.00288	(1575	GS28
(1544	MU 1	20C1967	0.00238	(1546	LU 1	26C1967	0.01501	(1521	SH 1
(1522	BH 1	18SL1967	0.00365	(1526	MO 1	20SE1967	0.01138	(1527	TR 1
(1529	KW 1	20SE1967	0.01196	(1530	FR 1	24SE1967	0.01000	(1545	ML 1
(15452	MG 1	40C1567	0.01370	(1551	RS 1	80C1967	0.00795	(1550	MR 1
(1426	MS 2	29MY1967	0.00399	(1427	LU 2	29MY1967	0.02421	(1417	HO 2
(1418	SH 2	22MY1967	0.01555	(1350	BH 2	19AP1967	0.17621	(1402	TR 2
(1400	SB 2	6MY1967	0.01191	(1352	HW 2	21AP1967	0.00859	(1354	GH 2
(1403	CA 2	10MY1967	0.01308	(1404	MG 2	10MY1967	0.02541	(1405	ES 2
(1464	GE 2	13MY1967	0.00539	(1423	WA 2	25MY1967	0.00428	(	

Achnanthes lanceolata var. *dubia* Grun.

Achnanthes lanceolata var. *dubia* Grunow in: Cleve and Grunow, K. Sven Vet.-Akad. Handl., Ny Följd, 17(2):23. 1880.

21 ACLANCEVO TOT NO OF STATIONS 34									
(1272	C* 1	10SE1964	0.00410	(1274	O 1	17SE1964	0.00469	(1279	E 1
(1341	A 3	19AP1967	0.00325	(1342	A 4	19AP1967	0.00361	(1348	E 5
(1449	C 3	16JL1967	0.00382	(1352	A 3	18SE1967	0.00329	(1538	E 5
(1540	C 5	40C1967	0.00993	(1541	E 2	110C1967	0.01094	(1542	E 3
(1398	GS22	14MY1967	0.00304	(1354	GS 1	10C1967	0.01779	(1558	GS 5
(1552	GS 7	40C1567	0.00350	(1571	GS19	60C1967	0.00223	(1574	GS22
(1544	MU 1	20C1967	0.00477	(1547	MS 1	20C1967	0.03194	(1546	LU 1
(1522	BH 1	18SE1967	0.00367	(1526	MO 1	20SE1967	0.00565	(1527	TR 1
(1529	KW 1	20SE1967	0.02398	(1530	FR 1	24SE1967	0.02000	(1545	ML 1
(1550	MR 1	40C1967	0.01385	(1553	SG 1	60C1567	0.00734	(1426	PS 2
(1417	HO 2	22MY1967	0.02243	(1350	BH 2	19AP1967	0.38766	(1354	GH 2
(1404	MG 2	10MY1967	0.01013	(					

25 ACLANCEVR TOT NO OF STATIONS 4									
(1264	C* 1	10AU1964	0.00193	(1301	E 4	130C1964	0.00442	(1306	F 3
(1404	MG 2	10MY1967	0.02541	(				110C1964	C.00277

Achnanthes lanceolata var. *elliptica* Cleve

Achnanthes lanceolata var. *elliptica* Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):51, pl. 3, figs. 10, 11. 1891.

22 ACLANCEVRI TOT NO OF STATIONS 10									
(1342	A 4	19AP1967	0.00180	(1449	C 3	16JL1967	0.00764	(1452	E 2
(1533	A 4	19SE1967	0.00444	(1538	E 5	23SE1967	0.00552	(1384	GS 8
(1554	GS 1	30C1567	0.00712	(1571	GS15	40C1967	0.00599	(1573	GS21
(1404	MG 2	10MY1967	0.01276	(				40C1967	C.00112

Achnanthes lanceolata var. *haynaldii* (Schaarsch.) Cleve

Achnanthes haynaldii Schaarschmidt, Magyar Növénytani Lapok, 5(50):20. 1881.

Achnanthes lanceolata var. *haynaldii* (Schaarsch.) Cleve, Diatomiste, 2(17): 99, pl. 7, figs. 14a-b. 1894.

23 AGLANCVH TOT NO OF STATIONS 1
(1565 GS13 50C1967 0.00507) (

Achnanthes lanceolata var. *omissa* Reim.

Achnanthes lanceolata var. *omissa* Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:272, pl. 18, figs. 16, 17. 1966.

24 AGLANCVC TOT NO OF STATIONS 20
(1305 F 2 110C1964 0.00173) (1565 GS13 50C1967 0.44620) (1566 GS14 50C1967 0.00367)
(1567 GS15 50C1967 0.00159) (1565 GS17 50C1967 0.00149) (1573 GS21 60C1967 0.00112)
(1574 GS22 60C1967 0.00575) (1575 GS28 60C1967 0.00129) (1544 MU 1 20C1967 0.00238)
(1547 MS 1 50C1967 0.01557) (1524 MU 1 20SE1967 0.00189) (1521 SH 1 10SE1967 0.00577)
(1550 MR 1 50C1967 0.79296) (1553 SG 1 60C1967 0.00734) (1428 MU 2 29MY1967 0.00301)
(1527 LU 2 29MY1967 0.01411) (1350 MS 2 10AP1967 0.01764) (1402 TR 2 6MY1967 0.00291)
(1354 GH 2 29AP1967 0.00113) (1404 MU 2 10MY1967 0.00291) (

Achnanthes lanceolata var. *robusta* Hust.

Achnanthes lanceolata var. *robusta* Hustedt, Arch. Hydrobiol., Suppl. 15:202, pl. 13, figs. 47-49. 1938.

20 AGLANCVB TOT NO OF STATIONS 2
(1550 MR 1 50C1967 0.30975) (1426 MS 2 29MY1967 0.03150) (

Achnanthes lanceolatoides Sov.

Achnanthes lanceolatoides Sovereign, Trans. American Micr. Soc., 77(2): 115, pl. 2, figs. 18, 19. 1958.

26 AGLANTE TOT NO OF STATIONS 1
(1567 GS15 50C1967 0.00159) (

Achnanthes laterostrata Hust.

Achnanthes laterostrata Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2):3:392, fig. 840. 1933.

28 AGLATER TOT NO OF STATIONS 1
(1574 GS22 60C1967 0.00575) (

Achnanthes lauenburgiana Hust.

Achnanthes lauenburgiana Hustedt, Abh. Naturw. Ver. Bremen, 33(3):451, figs. 1-6. 1944.

29 AGLAUB TOT NO OF STATIONS 9
(1268 E 2 15AU1964 0.00274) (1355 F 2 110C1964 0.00173) (1383 GS 7 10MY1967 0.00267)
(1572 GS20 60C1967 0.00990) (1574 GS22 60C1967 0.00288) (1544 MU 1 20C1967 0.00238)
(1544 LU 1 20C1967 0.00500) (1527 TR 1 20SE1967 0.00629) (1530 FR 1 24SE1967 0.01000)

Achnanthes lemmermanni Hust.

Achnanthes lemmermanni Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)3:390, fig. 837. 1933.

30. ACLEMMER ICT NO OF STATIONS 2
(1426 MS 2 20MY1967 0.07349) (1350 SH 2 19AP1967 0.00220) ()
31. ACLEMMER ICT NO OF STATIONS 1
(1547 MS 1 20CI1967 0.00798) ()

Achnanthes linearis (Wm. Smith) Grun.

Achnanthidium lineare Wm. Smith, Ann. Mag. Nat. Hist., Ser. 2, 15:8, pl. 1, fig. 9. 1855.

Achnanthes linearis (Wm. Smith) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):23. 1880.

32. ACCLINEAR ICT NO OF STATIONS 55
(46905 CH 18J1947 0.00455) (46506 CH 19J1947 0.00199) (46919 CH 5JN1947 C.02428)
(46907 CH 1JL1947 0.00045) (46922 CH 21AU1947 0.00194) (46743 EV 20JN1937 0.00428)
(46770 EV 19J1937 C.00096) (46766 EV 17JL1937 0.02617) (46757 EV 25JL1937 C.01444)
(46747 EV 1AU1947 0.00248) (46763 EV 23AU1937 0.14205) (46765 EV 30AU1937 C.00558)
(46752 EV 15SE1937 0.26121) (46767 EV 27OC1937 C.01934) (46768 EV 16MR1938 C.01290)
(46762 EV 18MR1938 C.00002) (46751 EV 30MR1938 0.02233) (1243 F 6 13JN1964 C.00626)
(1258 F 1 6JL1964 0.00236) (1260 F 3 6JL1964 C.00191) (1285 F 1 15SE1964 C.02912)
(1304 F 1 11OC1964 C.00494) (1343 A 6 19AP1967 C.00069) (1512 F 3 15E1967 C.00393)
(1336 F 2 26SE1967 0.00273) (1352 G 3 12MY1967 C.00308) (1554 G 1 30E1967 C.00358)
(1555 G 2 30CI1967 0.00353) (1558 G 5 40CI1967 0.00396) (1561 G 9 40CI1967 C.00587)
(1565 G 13 50CI1967 C.01014) (1569 G 17 50CI1967 0.00149) (1570 G 18 50CI1967 C.03967)
(1571 G 19 60CI1967 0.00056) (1573 G 21 60CI1967 0.00112) (1574 G 22 60CI1967 C.00288)
(1575 G 28 60CI1967 0.00125) (1544 MU 1 20CI1967 0.00238) (1546 LU 1 20CI1967 C.01000)
(1521 SH 1 18SE1967 0.00577) (1523 RA 1 19SE1967 C.00923) (1527 TR 1 20SE1967 C.03774)
(1528 SB 1 20SE1967 0.01444) (1529 KW 1 20SE1967 C.02398) (1548 CA 1 30CI1967 C.01272)
(1531 ES 1 50CI1967 0.04793) (1552 SP 1 60CI1967 0.01981) (1550 PR 1 50CI1967 C.04560)
(1553 SG 1 60CI1967 0.00736) (1426 MS 2 29MY1967 0.01050) (1350 SH 2 19AP1967 C.17621)
(1352 KW 2 21AP1967 0.00855) (1464 MG 2 10MY1967 C.03811) (1405 ES 2 12MY1967 C.00645)
(1349 C 1 21AP1967 0.00395) ()

Achnanthes linearis fo. *curta* H. L. Smith

Achnanthes linearis fo. *curta* H. L. Smith in: Boyer, Diat. Philadelphia, p. 59, figs. 16-17. 1916.

33. ACCLINEAR ICT NO OF STATIONS 3
(46915 CH 5JN1947 0.00303) (46758 EV 5JN1937 0.01426) (1365 F 2 11OC1964 C.00518)

Achnanthes marginulata Grun.

Achnanthidium marginulata Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):21. 1880.

34. ACMARGIN ICT NO OF STATIONS 2
(1565 G 13 50CI1967 0.01014) (1553 SG 1 60CI1967 C.01469) ()

Achnanthes microcephala (Kütz.) Grun.

Achnanthidium microcephalum Kützting, Bacill., p. 75, pl. 3, figs. 13, 19. 1844.

Achnanthes microcephala (Kütz.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):22. 1880.

35. ACMICROC ICT NO OF STATIONS 2
(1244 F 1 11JN1964 0.00656) (1403 CA 2 10MY1967 C.34000) ()
50. ACSPECOL TOT NO OF STATIONS 7
(1258 F 1 6JL1964 0.03364) (1260 F 3 6JL1964 0.00382) (1270 F 1 10AU1964 0.03812)
(1304 F 1 11OC1964 0.00045) (1365 F 2 11OC1964 C.00173) (1306 F 3 11OC1964 C.00277)
(1381 G 5 5 10MY1967 0.00477) ()

Achnanthes minutissima Kütz.

Achnanthes minutissima Kützinger, Linnaea, 8:578, pl. 16, fig. 54. 1833.

36. ACHNANTHES TOT. NO. OF STATIONS 59

(46924 CH 16MY1966 0.00141) (46523 CH 22NO1946 0.00219) (46920 CH 26OE1946 0.00154)	(46908 CH 18E1967 0.00055) (46516 CH 4MY1947 0.00034) (46919 CH 5NO1947 1.87969)
(46913 CH 6AU1947 0.03138) (46758 EV 5JN1937 6.14264) (46770 EV 5JL1937 6.15546)	(46764 EV 17JL1937 6.82192) (46757 EV 25JL1937 6.22146) (46747 EV 1AU1937 6.22228)
(46763 EV 23AU1937 7.27273) (46752 EV 15SE1937 6.26121) (46760 EV 22SE1937 6.21477)	(46748 EV 13OC1937 0.04270) (46767 EV 27OC1937 0.05774) (46749 EV 12MR1938 6.02427)
(46768 EV 14MR1938 0.07385) (46762 EV 18MR1938 0.17642) (46756 EV 27AP1938 6.01168)	(46766 EV 14E1938 0.03165) (12844 F 1 11JN1964 6.00219) (1256 E 2 14JL1964 6.01183)
(12558 F 1 6JL1964 0.00708) (1262 B 3 17AU1964 6.00210) (1322 E 6 7NO1964 6.00333)	(1323 F 1 6NO1964 6.00279) (1341 F 3 15AP1967 6.00108) (1354 ES 1 3EC1967 6.00112)
(1355 GS 2 3OC1967 0.00353) (1570 GS18 5OC1967 0.01983) (1574 OS22 6OC1967 6.00575)	(1575 GS20 4EC1967 0.00125) (1546 LU 1 2OC1967 0.00903) (1523 RA 1 15SE1967 6.00923)
(1575 PM 1 26E1967 0.00362) (1526 MO 1 2OSE1967 0.00565) (1527 TR 1 2OSE1967 6.05091)	(1528 SB 1 2OSE1967 0.02888) (1529 KW 1 2OSE1967 6.57561) (1530 FR 1 24SE1967 6.20002)
(1545 WL 1 2OC1967 0.02406) (1549 MS 1 4OC1967 0.12334) (1551 ES 1 5OC1967 6.01598)	(1552 SM 1 4EC1967 0.00540) (1550 HR 1 5OC1967 1.09032) (1553 SG 1 4OC1967 6.22203)
(1426 MS 2 2MY1967 0.05249) (1427 LU 2 2MY1967 0.01211) (1350 BM 2 19AP1967 6.11674)	(1352 KW 2 21AP1967 0.01718) (1354 GR 2 25AP1967 0.00345) (1403 CA 2 10MY1967 6.01514)
(1404 MG 2 10MY1967 0.00561) (1405 ES 2 12MY1967 0.00845) (1407 SP 2 14MY1967 6.00997)	(1406 GB 2 13MY1967 0.00270) (1423 MA 2 25MY1967 0.00426) (

Achnanthes minutissima var. *cryptocephala* Grun.

Achnanthes minutissima var. *cryptocephala* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 27, figs. 41-44. 1880.

37. ACHNANTHES TOT. NO. OF STATIONS 13

(46758 EV 5JN1937 0.00357) (46757 EV 25JL1937 0.00963) (46763 EV 23AU1937 0.02029)	(12600 F 3 6OC1967 0.00181) (1542 E 3 11EC1967 0.01017) (1387 GS11 12MY1967 6.00396)
(1389 GS13 12MY1967 6.00258) (1394 GS18 13MY1967 0.00172) (1568 GS16 5EC1967 6.00144)	(1569 MQ 1 4EC1967 0.00261) (1551 ES 1 5EC1967 6.01598) (1403 CA 2 10MY1967 6.00539)
(1404 MG 2 10MY1967 0.00311) (	

Achnanthes nollii Bock

Achnanthes nollii Bock, Nachr. Naturw. Mus. Aschaffenburg, 38:54, pl. 2, figs. 1-2; pl. 5, figs. 7-9. 1953.

38. ACHNANTHES TOT. NO. OF STATIONS 4

(1540 MQ 1 4EC1967 0.01370) (1403 CA 2 10MY1967 6.03923) (1404 PQ 2 10MY1967 6.01270)	(1405 ES 2 12MY1967 0.00645) (
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47. ACESPECI TOT. NO. OF STATIONS 3

(1258 F 1 6JL1964 6.00236) (1285 F 1 15SE1964 0.10483) (1287 F 3 15SE1964 6.00500)

Achnanthes oestrupii (A. Cl.) Hust.

Achnanthes lanceolata var. *Oestrupii* A. Cleve-Euler, Acta Forest. Fennica, 22:53, pl. 1, fig. 1. 1922.

Achnanthes oestrupii (A. Cl.) Husted in: Pascher, Süsw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 207, fig. 301. 1930.

39. ACCESTRU TOT. NO. OF STATIONS 4

(1388 GS12 12MY1967 0.01207) (1389 GS13 12MY1967 6.00258) (1558 GS 5 4OC1967 6.00396)	(1404 MQ 2 10MY1967 0.00541) (
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Achnanthes peragalli Brun

Achnanthes peragalli Brun in: Héribaud, Diat. Auvergne, p. 50, pl. 1, fig. 4. 1893.

40. ACPERAGA TOT. NO. OF STATIONS 2

(1550 MR 1 5OC1967 0.02478) (1404 MQ 2 10MY1967 0.01270) (
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Achnanthes peragalli var. *fossilis* Temp. and Perag.

Achnanthes peragalli var. *fossilis* Tempere and Peragallo, Diat. Monde
Entier, 2nd. ed., p. 113. 1909.

Coll: 982.

Achnanthes pinnata Hust.

Achnanthes pinnata Hustedt in: Hedin, Southern Tibet, vol. 6, pt. 3,
p. 123, pl. 9, figs. 15-18. 1922.

41 ACPINNAT TOT NO OF STATIONS 7

(146752	EV	155E1937	0.02177)	(1439	B 6	5JN1964	C.00200)	(1270	E 1	165E1964	C.00393)
(1285	F 1	155E1964	0.00582)	(1533	A 4	195E1967	0.00464)	(1550	ME 1	90C1967	C.01239)
(1350	BH 2	19AP1967	0.00220)								

Achnanthes ploenensis Hust.

Achnanthes ploenensis Hustedt in: Pascher, Süsw.-Fl. Mitteleuropas,
Heft 10, Aufl. 2, p. 199, fig. 280. 1930.

42 ACPLONEC TCT AC CF STATIONS 1

(1550	MR 1	50C1967	C.16107)	(
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Achnanthes sublaevis Hust.

Achnanthes sublaevis Hustedt, Bot. Archiv. 38:180, figs. 15-16. 1937.

49 ACSPECK TCT NO OF STATIONS 3

(1565	GS13	50C1967	0.00507)	(1549	MC 1	40C1967	0.01370)	(1405	ES 2	12MY1967	C.00645)
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Species incertae sedis

Achnanthes sp. #1.

43 ACSPECA TCT NO OF STATIONS 1

(1547	MS 1	20C1967	0.00798)	(
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Achnanthes sp. #6.

44 ACSPECOF TCT AC CF STATIONS 2

(1265	C 2	10AU1964	0.00224)	(135C	BH 2	19AP1967	0.00441)	(
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Achnanthes sp. #7.

45 ACSPECCG TCT NO OF STATIONS 4

(1259	F 2	6JL1964	0.00310)	(1260	F 3	6JL1964	0.00191)	(1270	F 1	10AU1964	0.00272)
(1403	CA 2	10PY1967	0.02615)	(							

Achnanthes sp. #10.

48 ACSPECCJ TCT NO OF STATIONS 2

(1285	F 1	155E1964	0.00582)	(1565	GS13	50C1967	0.00507)	(
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Achnanthes sp. #13.

51 ACSPECCP TCT NO CF STATIONS 2									
(46915	CH	20FE1946	0.00565	)	(46514	CH	19AP1946	0.00107	)

Achnanthes sp. #14.

52 ACSPECOT TCT NO CF STATIONS 1									
(1380	GS 4	9MY1967	0.00168	)					

Achnanthes sp. #15.

53 ACSPECCO TCT NO CF STATIONS 2									
(1394	GS18	13MY1967	0.00172	)	(1397	GS21	13MY1967	0.00665	)

Achnanthes sp. #16.

54 ACSPECCP TCT NO CF STATIONS 2									
(1571	GS19	60C1967	0.00117	)	(1550	MR 1	50C1967	0.08673	)

Achnanthes sp. #17.

55 ACSPECCQ TCT NO CF STATIONS 1									
(1550	MR 1	50C1967	0.16107	)					

Achnanthes sp. #18.

56 ACSPECCR TCT NO CF STATIONS 1									
(1350	BH 2	16AP1967	0.00220	)					

Genus *Amphipleura* Kütz.
Kützing, Bacill., p. 103. 1844.

Most freshwater species of the genus *Amphipleura* find their primary habitat in periphyton communities. The two members of the genus that occur in our collections usually grow enclosed in gelatinous tubes. In eutrophied portions of Lake Michigan sizable populations of *A. pellucida* are often taken in plankton collections and these cells seem to be entirely free-living.

Amphipleura artica Patr. and Freese

Amphipleura artica Patrick and Freese, Proc. Acad. Nat. Sci. Philadelphia, 112:170, pl. 1, fig. 14. 1960.

57 APARTICA TCT NO CF STATIONS 5									
(46921	CH	23NO1945	0.00065	)	(46515	CH	20FE1946	0.38	)
(46515	CH	5JN1947	0.00910	)	(46768	EV	16MR1938	0.00080	)

Amphipleura pellucida (Kütz.) Kütz.

Frustulia pellucida Kütz., Linnaea, 8:543, pl. 13, fig. 11. 1833.

Amphipleura pellucida (Kütz.) Kütz., Bacill., p. 103, pl. 3, fig. 52. 1844.

78 APPELLUX TCT AL CF STATICS 209

146073	CH	1876	0.09447 J	146521	CH	23NO1945	C.00388 J	146968	CH	0E1945	C.01007 J
146015	CH	20FE1946	0.01707 J	146914	CH	19AP1946	0.00107 J	146923	CH	22NO1946	0.01930 J
146020	CH	20CE1946	0.00031 J	146512	CH	5.01.1947	0.01150 J	146919	CH	5.01.1947	0.00919 J
146922	CH	21AU1947	0.00048 J	146764	CH	14JL1937	0.01612 J	146747	EV	17JL1937	0.00495 J
146752	EV	15SE1937	0.02177 J	146762	EV	18MR1938	0.02206 J	146766	EV	14OE1938	0.03169 J
14223	B.3	18MY1964	0.0250 J	14224	B.4	18MY1964	0.01372 J	14225	C.6	18MY1964	0.01658 J
14226	C.7	16MY1964	0.00381 J	14227	C.2	13PY1964	0.00548 J	14228	D.2	14MY1964	0.00973 J
14229	D.5	14MY1964	0.13322 J	14230	E.2	16PY1964	0.02271 J	14231	E.3	16PY1964	0.03180 J
14232	E.5	16MY1964	0.03131 J	14233	B.3	5.01.1964	0.02143 J	14234	B.3	18JN1964	0.00812 J
14235	C.7	16JN1964	0.00847 J	14235	B.6	5.01.1964	0.01399 J	14236	C.1	8.01.1964	0.02825 J
14237	C.2	8JN1964	0.05672 J	14238	D.3	11JN1964	0.01200 J	14239	D.4	11JN1964	0.01741 J
14240	D.6	10JN1964	0.04265 J	14241	E.2	13JN1964	0.01181 J	14242	E.3	13JN1964	0.00450 J
14243	E.6	13JN1964	0.03550 J	14244	F.1	11JN1964	0.02193 J	14245	F.2	11JN1964	0.00915 J
14246	F.3	11JN1964	0.17550 J	14247	B.3	14JL1964	0.00254 J	14248	B.6	11JL1964	0.00269 J
1441	B.6	24JL1964	0.0044 J	14250	B.6	10JL1964	0.01644 J	14251	C.7	16JL1964	0.00270 J
14253	C.2	16JL1964	0.01558 J	14254	C.2	15JL1964	0.01724 J	14255	D.5	15JL1964	0.03850 J
14256	F.2	12FE1964	0.00601 J	14257	F.5	16SE1964	0.01129 J	14258	F.6	17SE1964	0.00766 J
14255	F.2	6JL1964	0.00516 J	14260	F.3	6JL1964	0.07449 J	14264	C.1	10JL1964	0.00193 J
14266	D.3	18AU1964	0.01754 J	14267	D.6	18AU1964	0.00216 J	14268	E.2	15AU1964	0.02462 J
14269	E.5	0.00882 J	14271	E.3	20SE1964	0.00053 J	14272	E.3	19SE1964	0.00410 J	
14274	O.1	17SE1964	0.01408 J	14275	D.2	17SE1964	0.00645 J	14276	D.3	18SE1964	0.01110 J
14277	D.4	18SE1964	0.00620 J	14278	C.6	18SE1964	0.00384 J	14279	E.1	16SE1964	0.01571 J
14280	E.2	16SE1964	0.00601 J	14283	F.5	16SE1964	0.01724 J	14284	E.6	17SE1964	0.00466 J
14285	F.1	15SE1964	0.04659 J	14286	F.2	15SE1964	0.01059 J	14287	F.3	15SE1964	0.02502 J
14445	B.6	14OC1964	0.02283 J	14289	C.7	14OC1964	0.00879 J	14290	C.1	16OC1964	0.00379 J
14293	D.2	15OC1964	0.00472 J	14294	D.3	15OC1964	0.01978 J	14295	D.4	15OC1964	0.00909 J
14296	O.5	14OC1964	0.00393 J	14297	O.6	14OC1964	0.00952 J	14298	E.1	12OC1964	0.00539 J
14299	L.2	12OC1964	0.00314 J	14301	E.4	13OC1964	0.02208 J	14302	E.5	13OC1964	0.00932 J
14303	E.6	13OC1964	0.02799 J	14304	F.1	14OC1964	0.00988 J	14305	F.2	14OC1964	0.00345 J
14306	F.3	14OC1964	0.01663 J	14307	B.6	0.01564	0.01082 J	14308	C.7	6NO1964	0.01825 J
14316	O.6	5NO1964	0.00378 J	14317	E.1	6NO1964	0.00191 J	14318	E.2	7NO1964	0.00196 J
14315	F.3	7NO1964	0.01309 J	14320	A.4	7NO1964	0.00207 J	14321	E.5	7NO1964	0.00319 J
14322	E.6	7NO1964	0.02999 J	14323	F.1	6NO1964	0.00418 J	14324	F.2	6NO1964	0.00466 J
14325	F.3	6NO1964	0.00252 J	14326	C.3	27JL1967	0.00578 J	14327	C.3	28MY1967	0.01511 J
14328	C.3	28MY1967	0.01951 J	14329	E.5	28MY1967	0.02494 J	14340	C.7	28MY1967	0.00509 J
14341	A.3	19AP1967	0.01193 J	14342	A.4	19AP1967	0.02346 J	14343	A.6	10AP1967	0.00139 J
14344	C.3	25AP1967	0.00331 J	14345	C.5	25AP1967	0.00717 J	14346	C.7	21AP1967	0.00534 J
14347	F.2	23AP1967	0.01301 J	14348	E.5	23AP1967	0.02056 J	14368	A.3	4PY1967	0.00543 J
14369	A.4	4PY1967	0.00373 J	14370	A.6	3PY1967	0.01611 J	14372	C.5	5MY1967	0.01773 J
14374	E.2	7MY1967	0.00599 J	14375	E.3	7MY1967	0.02062 J	14376	E.5	6PY1967	0.01124 J
14410	A.6	24MY1967	0.00564 J	14411	C.3	31MY1967	0.00821 J	14412	C.5	31MY1967	0.04209 J
14414	E.2	28MY1967	0.01344 J	14415	E.3	28MY1967	0.00222 J	14416	E.5	28MY1967	0.00419 J
14431	A.3	12JN1967	0.01030 J	14432	A.4	13JN1967	0.00376 J	14433	C.3	17JN1967	0.00167 J
14434	C.5	17JN1967	0.00504 J	14435	C.7	13JN1967	0.00947 J	14436	E.2	15JN1967	0.00362 J
14437	E.3	15JN1967	0.00269 J	14438	E.5	14JN1967	0.01452 J	14446	A.3	11JL1967	0.01712 J
14442	A.6	11JL1967	0.02275 J	14448	A.6	10JL1967	0.00354 J	14469	C.3	16JL1967	0.01911 J
14450	C.5	16JL1967	0.19424 J	14452	E.2	14JL1967	0.01277 J	14453	E.3	15JL1967	0.01517 J
14465	C.5	25SE1967	0.00505 J	14451	E.2	15E1967	0.01228 J	14452	E.3	15E1967	0.00785 J
14513	E.5	31AU1967	0.00507 J	14516	E.2	24SE1967	0.00818 J	14542	E.3	11OC1967	0.00509 J
14378	G.5.2	9MY1967	0.00421 J	14379	G.5.3	9MY1967	0.00928 J	14380	G.5.4	9MY1967	0.00336 J
14381	G.5.5	10MY1967	0.00477 J	14383	G.5.7	10MY1967	0.00267 J	14384	G.5.8	10MY1967	0.00576 J
14385	G.5.9	10MY1967	0.01177 J	14386	G.5.10	12MY1967	0.00862 J	14387	G.5.11	12MY1967	0.00549 J
14388	G.5.12	12MY1967	0.00603 J	14389	G.5.13	12MY1967	0.01547 J	14390	G.5.14	12MY1967	0.00587 J
14391	G.5.15	12MY1967	0.04295 J	14392	G.5.16	12MY1967	0.00516 J	14393	G.5.17	12MY1967	0.01518 J
14394	G.5.18	13MY1967	0.19578 J	14395	G.5.19	13MY1967	0.04932 J	14396	G.5.20	13MY1967	0.00148 J
14397	G.5.21	13MY1967	0.00458 J	14398	G.5.22	14AP1967	0.00347 J	14399	G.5.1	3OC1967	0.02846 J
14395	G.5.2	3OC1967	0.00158 J	14397	G.5.4	3OC1967	0.00537 J	14398	G.5.7	6OC1967	0.00884 J
14396	G.5.10	5OC1967	0.01234 J	14393	G.5.11	5OC1967	0.00921 J	14394	G.5.14	5OC1967	0.00183 J
14397	G.5.15	5OC1967	0.00635 J	14398	G.5.16	5OC1967	0.11255 J	14399	G.5.17	5OC1967	0.00478 J
14398	G.5.18	5OC1967	0.00742 J	14399	G.5.19	6OC1967	0.00974 J	14400	G.5.22	6OC1967	0.00884 J
14399	G.5.21	6OC1967	0.00459 J	14400	G.5.22	6OC1967	0.00974 J	14401	G.5.23	6OC1967	0.00459 J
14401	G.5.24	6OC1967	0.00459 J	14402	G.5.25	6OC1967	0.00974 J	14403	G.5.26	6OC1967	0.00459 J
14404	G.5.27	6OC1967	0.00459 J	14405	G.5.28	6OC1967	0.00974 J	14406	G.5.29	6OC1967	0.00459 J
14407	G.5.30	6OC1967	0.00459 J	14408	G.5.31	6OC1967	0.00974 J	14409	G.5.32	6OC1967	0.00459 J
14410	G.5.33	6OC1967	0.00459 J	14411	G.5.34	6OC1967	0.00974 J	14412	G.5.35	6OC1967	0.00459 J
14413	G.5.36	6OC1967	0.00459 J	14414	G.5.37	6OC1967	0.00974 J	14415	G.5.38	6OC1967	0.00459 J
14416	G.5.39	6OC1967	0.00459 J	14417	G.5.40	6OC1967	0.00974 J	14418	G.5.41	6OC1967	0.00459 J
14419	G.5.42	6OC1967	0.00459 J	14420	G.5.43	6OC1967	0.00974 J	14421	G.5.44	6OC1967	0.00459 J
14422	G.5.45	6OC1967	0.00459 J	14423	G.5.46	6OC1967	0.00974 J	14424	G.5.47	6OC1967	0.00459 J
14425	G.5.48	6OC1967	0.00459 J	14426	G.5.49	6OC1967	0.00974 J	14427	G.5.50	6OC1967	0.00459 J
14428	G.5.51	6OC1967	0.00459 J	14429	G.5.52	6OC1967	0.00974 J	14430	G.5.53	6OC1967	0.00459 J
14431	G.5.54	6OC1967	0.00459 J	14432	G.5.55	6OC1967	0.00974 J	14433	G.5.56	6OC1967	0.00459 J
14434	G.5.57	6OC1967	0.00459 J	14435	G.5.58	6OC1967	0.00974 J	14436	G.5.59	6OC1967	0.00459 J
14437	G.5.60	6OC1967	0.00459 J	14438	G.5.61	6OC1967	0.00974 J	14439	G.5.62	6OC1967	0.00459 J
14440	G.5.63	6OC1967	0.00459 J	14441	G.5.64	6OC1967	0.00974 J	14442	G.5.65	6OC1967	0.00459 J
14443	G.5.66	6OC1967	0.00459 J	14444	G.5.67	6OC1967	0.00974 J	14445	G.5.68	6OC1967	0.00459 J
14446	G.5.69	6OC1967	0.00459 J	14447	G.5.70	6OC1967	0.00974 J	14448	G.5.71	6OC1967	0.00459 J
14449	G.5.72	6OC1967	0.00459 J	14450	G.5.73	6OC1967	0.00974 J	14451	G.5.74	6OC1967	0.00459 J
14452	G.5.75	6OC1967	0.00459 J	14453	G.5.76	6OC1967	0.00974 J	14454	G.5.77	6OC1967	0.00459 J
14455	G.5.78	6OC1967	0.00459 J	14456	G.5.79	6OC1967	0.00974 J	14457	G.5.80	6OC1967	0.00459 J
14458	G.5.81	6OC1967	0.00459 J	14459	G.5.82	6OC1967	0.00974 J	14460	G.5.83	6OC1967	0.00459 J
14461	G.5.84	6OC1967	0.00459 J	14462	G.5.85	6OC1967	0.00974 J	14463	G.5.86	6OC1967	0.00459 J
14464	G.5.87	6OC1967	0.00459 J	14465	G.5.88	6OC1967	0.00974 J	14466	G.5.89	6OC1967	0.00459 J
14468	G.5.90	6OC1967	0.00459 J	14469	G.5.91	6OC1967	0.00974 J	14470	G.5.92	6OC1967	0.00459 J
14471	G.5.93	6OC1967	0.00459 J	14472	G.5.94	6OC1967	0.00974 J	14473	G.5.95	6OC1967	0.00459 J
14474	G.5.96	6OC1967	0.00459 J	14475	G.5.97	6OC1967	0.00974 J	14476	G.5.98	6OC1967	0.00459 J
14478	G.5.99	6OC1967	0.00459 J	14479	G.5.100	6OC1967	0.00974 J	14480	G.5.101	6OC1967	0.00459 J
14481	G.5.102	6OC1967	0.00459 J	14482	G.5.103	6OC1967	0.00974 J	14483	G.5.104	6OC1967	0.00459 J
14485	G.5.105	6OC1967	0.00459 J	14486	G.5.106	6OC1967	0.00974 J				

Genus *Amphiprora* Ehr.
Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:10. 1841.

The single species of the genus *Amphiprora* that occurs in our collections finds its primary habitat in the epipelagic community. It is, however, a successful facultative plankton and a few specimens can be found in many plankton collections from the Great Lakes. Because of its striking morphology it is easily identified and is more widely reported than many more abundant euplanktonic species.

Amphiprora ornata Bailey

Amphiprora ornata Bailey, Smithsonian. Cont. Knowl., 2:38, pl. 2, figs. 15, 23. 1851.

75. ARCNATA TOT. NO. OF STATIONS 115														
160973	CH	1876	0.07085	1	3540	CP	11PY1875	0.02330	1	3541	CH	1FE1881	0.10760	1
160910	CH	001945	0.00109	1	46521	CH	23NO1945	0.02975	1	46508	CH	0E1945	0.00214	1
160912	CH	12JUL1937	0.005638	1	46513	CH	19AP1946	0.04377	1	46524	CH	10PY1946	0.00340	1
160923	CH	22NO1946	0.26236	1	46520	CH	20CE1946	0.01356	1	46505	CH	JA1947	0.02696	1
160905	CH	MR1947	0.03642	1	46512	CH	8PI947	0.01150	1	46516	CH	4MY1947	0.00505	1
160906	CH	PY1947	0.01460	1	46515	CH	5JUN1947	0.00455	1	46507	CH	31JUL57	0.02219	1
160922	CH	21AU1947	0.00872	1	46758	EV	5JUN1937	0.02496	1	46771	EV	11JUN1937	0.00551	1
160763	EV	20JUN1937	0.02141	1	46745	EV	3JUL1937	0.08359	1	46770	EV	9JUL1937	0.02578	1
160768	EV	12JUL1937	0.012852	1	46757	EV	16JUL1937	0.00766	1	46767	EV	13JUL1937	0.02971	1
160763	EV	23AU1937	0.02025	1	46765	EV	30AU1937	0.08366	1	46752	EV	15SE1937	0.02177	1
160760	EV	22SE1937	0.01070	1	46750	EV	24SE1937	0.05471	1	46754	EV	6EC1937	0.01463	1
160748	EV	13OC1937	0.02135	1	46707	EV	21OC1937	0.01936	1	46748	EV	16MR1938	0.01476	1
160756	EV	27AP1938	0.00336	1	46755	EV	19MY1938	0.00335	1	46761	EV	27MY1938	0.01635	1
1225	C 6	15MY1964	0.00392	1	1228	C 2	14MY1964	0.00105	1	1229	O 5	14MY1964	0.00211	1
1230	E 2	14JUL1964	0.00533	1	1231	E 3	16PY1964	0.00245	1	1232	E 5	16MY1964	0.00548	1
1234	B 3	18JUN1964	0.00843	1	1240	O 6	10JUN1964	0.00193	1	1244	F 1	11JUN1964	0.00219	1
1248	B 3	25JUL1964	0.00197	1	1240	E 6	11JUL1964	0.00363	1	1249	C 3	8JUL1964	0.00272	1
1254	O 2	15JUL1964	0.00383	1	1256	E 2	14JUL1964	0.00365	1	1257	E 3	14JUL1964	0.00236	1
1258	F 1	6JUL1964	0.00946	1	1260	F 3	6JUL1964	0.00382	1	1285	F 1	15SE1964	0.01165	1
1297	D 6	14OC1964	0.00381	1	1306	F 3	11OC1964	0.00277	1	1310	C 2	10NOV1964	0.00227	1
1313	D 3	9NOV1964	0.00193	1	1318	E 2	7NOV1964	0.00190	1	1320	E 4	7NOV1964	0.00207	1
1321	E 5	7NOV1964	0.00315	1	1339	C 5	28PR1967	0.00312	1	1344	C 3	25AP1967	0.00165	1
1371	C 1	4MY1967	0.00211	1	1376	E 5	6MY1967	0.00281	1	1405	A 4	3JUN1967	0.00298	1
1410	A 6	24MY1967	0.00564	1	1412	C 5	31MY1967	0.00421	1	1413	C 7	25MY1967	0.00632	1
1432	A 4	13JUN1967	0.00255	1	1436	E 2	15JUN1967	0.00362	1	1446	A 2	11JUL1967	0.00245	1
1447	A 4	11JUL1967	0.00214	1	1450	C 5	16JUL1967	0.00762	1	1379	GS 3	9MY1967	0.00305	1
1382	GS 6	10MY1967	0.00228	1	1383	GS 7	10MY1967	0.00267	1	1387	GS 11	12MY1967	0.00188	1
1388	GS 12	12MY1967	0.00258	1	1389	GS 13	12MY1967	0.00258	1	1390	GS 14	12MY1967	0.00174	1
1391	GS 15	12MY1967	0.00352	1	1392	GS 16	12MY1967	0.00184	1	1393	GS 17	12MY1967	0.00361	1
1394	GS 18	13MY1967	0.00741	1	1395	GS 19	13MY1967	0.00196	1	1396	GS 20	13MY1967	0.00222	1
1397	GS 21	13MY1967	0.00352	1	1398	GS 22	14MY1967	0.00607	1	1397	GS 23	14MY1967	0.00552	1
1568	GS 24	5OC1967	0.00433	1	1569	GS 17	5OC1967	0.02230	1	1570	GS 18	5OC1967	0.00967	1
1571	GS 19	6OC1967	0.00559	1	1572	GS 20	6OC1967	0.00290	1	1573	GS 21	6OC1967	0.00112	1
1574	GS 22	6OC1967	0.00863	1	1575	GS 28	6OC1967	0.00516	1	1576	MD 1	20SE1967	0.00546	1
1550	MR 1	5OC1967	0.01235	1	1553	SE 1	6EC1967	0.02938	1	1417	HO 2	22MY1967	0.00748	1
1350	HR 2	16AP1967	0.00661	1	1400	SE 2	6PY1967	0.01191	1	1352	NW 2	21AP1967	0.00859	1
1403	CA 2	10MY1967	0.01308	1	1404	MC 2	10PY1967	0.02561	1	1405	ES 2	12MY1967	0.01935	1
1407	SM 2	14MY1967	0.00583	1	1349	CI 2	19AP1967	0.00359	1	1406	ER 2	13MY1967	0.00270	1
1422	GA 2	23MY1967	0.00511	1										

Genus *Amphora* Ehr.
Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:205. 1841.

Most members of the genus *Amphora* find their primary habitat in periphyton communities where they grow attached to filamentous algae or to aquatic vascular plants. Some species grow attached to the larger forms of euplanktonic algae and are occasionally found in abundance in plankton collections. Although attached growth is usual in the genus it is not obligate and many, particularly the larger, species are found in abundance in epipelagic communities. A number of unusual and apparently undescribed forms occur in our collections. This highly diverse flora appears to have its closest counterpart in the Siberian flora, particularly that associated with ancient Lake Baikal. It is suspected that this apparent disjunct distribution is more the result of lack of sufficient collection stations from large boreal lakes than from a truly disjunct distribution.

Amphora calumetia (Thomas) Per.

Amphiprora calumetia Thomas, Notarisia, 2:328. 1887.

Amphora calumetia (Thomas) Peragallo, Cat. Gen. Diat. 1897. (fide Mills, 1933; original reference not available).

58 AMCALUPE TCT NC CF STATIONS 36

146921	CH	23ND1945	0.00120	146517	CH	12JA1946	0.00028	146920	CH	20DE1946	0.00031
146905	CH	JAI947	0.00123	146516	CH	4MY1947	0.00048	146906	CH	MY1947	0.00133
146912	CH	5JN1947	0.00152	146507	CH	JLI947	0.00099	146922	CH	21AU1947	0.00145
146758	EV	5JN1937	0.00345	146771	EV	11JN1937	0.00238	146770	EV	9JL1937	0.00596
146764	EV	17JL1937	0.12893	146757	EV	25JL1937	0.02407	146767	EV	18U1937	0.02228
146750	EV	30AU1937	0.00558	146752	EV	15SE1937	0.02177	146760	EV	23SE1937	0.01477
146756	EV	23SE1937	0.00071	146768	EV	13OC1937	0.05470	146767	EV	27OC1937	0.00387
146749	EV	12MR1938	0.00427	146768	EV	14MR1938	0.01470	146762	EV	19MR1938	0.11028
146756	EV	27AP1938	0.00504	146759	EV	19MY1938	0.00675	146756	EV	16SE1938	0.00393
1341	E 3	19AP1967	0.00108	1342	E 3	11OC1967	0.00504	1374	GS22	60C1967	0.00575
1326	MD 1	20SE1967	0.00369	1327	TR 1	20SE1967	0.01887	1330	FR 1	25SE1967	0.01000
1345	ML 1	20C1967	0.00676	1426	MS 2	29MY1967	0.01050	1423	WA 2	25MY1967	0.00428

Amphora crucifera A. Cleve

Amphora crucifera A. Cleve, Acta Forest. Fennica, 22:53. 1922.

59 AMCRUCIO TCT NC CF STATIONS 4

1320	HO 1	18SE1967	0.00471	1401	MD 2	6MY1967	0.00588	1402	TR 2	6MY1967	0.00541
1400	SR 2	6MY1967	0.00596								

Amphora montana Krasske

Amphora montana Krasske, Hedwigia, 72(3):119, pl. 2, fig. 27. 1932.

60 AMMONTAN TCT NC CF STATIONS 4

1522	BH 1	18SE1967	0.00182	1523	RA 1	19SE1967	0.00923	1550	MR 1	50C1967	0.01239
1350	BH 2	19AP1967	0.01762								

Amphora normani Rabh.

Amphora normani Rabenhorst, Fl. Europaea Alg., p. 88. 1864.

61 AMNORMAN TCT NC CF STATIONS 1

1350	BH 2	19AP1967	0.00220								
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Amphora ovalis (Kütz.) Kütz.

Frustulia ovalis Klitzing, Linnaea, 8:539, pl. 13, fig. 5. 1833.

Amphora ovalis (Kütz.) Kützing, Bacill., p. 107, pl. 5, figs. 35, 39. 1844.

62 AMOVALIS TOT NO OF STATIONS 37

160973	CH	1E76	0.004724	13541	CH	1FE1881	0.01956	146921	CH	23ND1945	0.00045
146917	CH	12JA1946	0.00028	146524	CH	10MY1946	0.00141	146920	CH	20DE1946	0.00185
146909	CH	PR1947	0.000455	146516	CH	4MY1947	0.00034	146906	CH	MY1947	0.00066
146919	CH	5JN1947	0.00152	146502	CH	21AU1947	0.00145	146767	EV	18U1937	0.02228
146752	EV	15SE1937	0.02177	146762	EV	18MR1938	0.02206	146756	EV	27AP1938	0.00168
1326	D 6	10JL1964	0.00307	1327	F 1	10AU1964	0.00672	1374	E 1	16SE1964	0.00393
1324	E 6	17SE1964	0.00318	1327	O 6	14OC1964	0.00190	1305	F 2	11OC1964	0.00173
1346	C 7	21AP1967	0.00134	1388	GS12	12MY1967	0.00603	1389	GS13	12MY1967	0.00258
1392	GS16	12MY1967	0.00174	1393	GS17	13MY1967	0.00174	1395	GS13	50C1967	0.00507
1367	GS15	50C1967	0.00035	1368	GS16	50C1967	0.00146	1373	GS21	60C1967	0.00112
1374	GS22	60C1967	0.00213	1346	LU 1	20C1967	0.00500	1320	MD 1	18SE1967	0.00943
1327	TR 1	20C1967	0.00681	1345	ML 1	20C1967	0.00681	1350	BH 2	19AP1967	0.00220
1402	TR 2	6MY1967	0.00541								

Amphora ovalis var. *gracilis* (Ehr.) V. H.

Amphora gracilis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:410, pl. 3 (I), fig. 43. 1843.

Amphora ovalis var. *gracilis* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 59. 1885.

Coll: 1193.

Amphora ovalis var. *libyca* (Ehr.) Cleve

Amphora libyca Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:205. 1841.

Amphora ovalis var. *libyca* (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ser. 2, 27(3):104. 1895.

63 ANOVAVAL TCI NC CF STATICS 107									
1	3540	CH	11MY1874	0.00466 J	1	3541	CH	1FE1881	0.00859 J
2	46910	CH	0C1245	0.00946 J	1	46521	CH	23NO1945	0.03363 J
3	46915	CH	20FE1946	0.01707 J	1	46514	CH	19AP1946	0.01708 J
4	46923	CH	22FE1946	0.01891 J	1	46520	CH	20DE1946	0.01541 J
5	46909	CH	PM1947	0.04098 J	1	46516	CH	4MY1947	0.00407 J
6	46919	CH	5JUN1947	0.01214 J	1	46527	CH	4JUL1947	0.02296 J
7	46758	EV	9JUN1937	0.12481 J	1	46771	EV	11JUN1937	0.01426 J
8	46764	EV	17JUL1937	0.13095 J	1	46727	EV	25JUL1937	0.03892 J
9	46763	EV	23AUG1937	0.05618 J	1	46765	EV	30AUG1937	0.00558 J
10	46752	EV	19SEP1937	0.34828 J	1	46760	EV	22SE1937	0.00492 J
11	46744	EV	6OCT1937	0.02339 J	1	46768	EV	13OCT1937	0.02135 J
12	46745	EV	12OCT1938	0.02527 J	1	46768	EV	14MR1938	0.11019 J
13	46751	EV	13MR1938	0.02233 J	1	46756	EV	27AP1938	0.00336 J
14	46761	EV	27MY1938	0.02186 J	1	46766	EV	14OCT1938	0.07921 J
15	1258	F 1	6JUL1964	0.00472 J	1	1259	F 2	6JUL1964	0.00620 J
16	1270	F 1	10AUG1964	0.00945 J	1	1275	O 2	17SEP1964	0.01290 J
17	1279	F 1	16SEP1964	0.02356 J	1	1285	F 1	15SEP1964	0.01165 J
18	1306	F 3	11OCT1964	0.00277 J	1	1337	C 3	29MR1967	0.00147 J
19	1341	A 3	15APR1967	0.01008 J	1	1343	A 6	19APR1967	0.00069 J
20	1341	E 2	11OCT1967	0.00932 J	1	1382	GS 6	10MY1967	0.00278 J
21	1387	GS11	12MY1967	0.03961 J	1	1388	GS12	12MY1967	0.07843 J
22	1390	GS14	12MY1967	0.03523 J	1	1391	GS15	12MY1967	0.00979 J
23	1394	GS16	13MY1967	0.00860 J	1	1397	GS21	13MY1967	0.00131 J
24	1354	GS 1	3OCT1967	0.01067 J	1	1357	GS 4	3OCT1967	0.00747 J
25	1560	GS 8	4OCT1967	0.00472 J	1	1564	GS12	9OCT1967	0.00944 J
26	1566	GS14	5OCT1967	0.00367 J	1	1567	GS15	5OCT1967	0.08891 J
27	1572	GS20	6OCT1967	0.00180 J	1	1573	GS21	6OCT1967	0.00112 J
28	1544	MU 1	20C1967	0.00477 J	1	1547	PS 1	20C1967	0.01597 J
29	1546	LU 1	20C1967	0.00502 J	1	1520	MO 1	18SEP1967	0.00943 J
30	1527	TR 1	20C1967	0.13208 J	1	1528	AB 1	20SEP1967	0.02888 J
31	1530	FR 1	24SEP1967	0.05001 J	1	1545	WL 1	20C1967	0.07433 J
32	1552	SP 1	8OCT1967	0.00686 J	1	1553	SG 1	8OCT1967	0.00203 J
33	1351	PI 2	21APR1967	0.00110 J	1	1411	MG 2	22MY1967	0.01122 J
34	1359	PK 2	5MY1967	0.00686 J	1	1401	MG 2	6MY1967	0.02940 J
35	1400	SB 2	6MY1967	0.01191 J	1	1354	GR 2	25APR1967	0.00173 J
36	1349	CI 2	19APR1967	0.00259 J	1	1308	GR 2	13MY1967	0.00270 J
37	19FE1881	CH	0.00859 J	1	3507	CH	19FE1881	0.00859 J	
38	12JUL1946	CH	0.00999 J	1	12JUL1946	CH	0.00999 J	1	
39	10MY1946	CH	0.00423 J	1	10MY1946	CH	0.00423 J	1	
40	4JUL1947	CH	0.02135 J	1	4JUL1947	CH	0.02135 J	1	
41	MY1947	CH	0.0106 J	1	MY1947	CH	0.0106 J	1	
42	21AUG1547	CH	0.04993 J	1	21AUG1547	CH	0.04993 J	1	
43	20JUN1937	EV	0.02141 J	1	20JUN1937	EV	0.02141 J	1	
44	1AUG1937	EV	0.07674 J	1	1AUG1937	EV	0.07674 J	1	
45	7SE1937	EV	0.02171 J	1	7SE1937	EV	0.02171 J	1	
46	24SE1937	EV	0.03299 J	1	24SE1937	EV	0.03299 J	1	
47	27OCT1937	EV	0.03481 J	1	27OCT1937	EV	0.03481 J	1	
48	18MR1938	EV	0.26467 J	1	18MR1938	EV	0.26467 J	1	
49	19MY1938	EV	0.00360 J	1	19MY1938	EV	0.00360 J	1	
50	10JUN1964	EV	0.00660 J	1	10JUN1964	EV	0.00660 J	1	
51	6JUL1964	EV	0.00194 J	1	6JUL1964	EV	0.00194 J	1	
52	15SEP1964	EV	0.00384 J	1	15SEP1964	EV	0.00384 J	1	
53	15SEP1964	EV	0.01095 J	1	15SEP1964	EV	0.01095 J	1	
54	28MR1967	EV	0.00073 J	1	28MR1967	EV	0.00073 J	1	
55	24SEP1967	EV	0.00818 J	1	24SEP1967	EV	0.00818 J	1	
56	10MY1967	EV	0.00235 J	1	10MY1967	EV	0.00235 J	1	

Amphora ovalis var. *pediculus* (Kütz.) V. H.

Cymbella ? *pediculus* Kützling, Bacill., p. 80, pl. 5, fig. 8; pl. 6, fig. 7. 1844.

Amphora ovalis var. *pediculus* (Kütz.) Van Heurck, Syn. Diat. Belgique, p. 59. 1885.

146923	CH	1876	0.18895	1	1394	CP	1FE1881	0.01556	1	46610	CH	DC1945	C.06328
146921	CH	23NO1945	0.00119	1	46611	CH	12JAN1946	0.00083	1	46615	CH	20F E1946	0.02276
146914	CH	15AF1546	0.00107	1	46524	CH	10MY1946	0.00282	1	46523	CH	22NO1946	0.01093
146905	CH	JA1947	0.00490	1	46509	CP	MR1947	0.02277	1	46516	CH	4MY1947	0.00068
146906	CH	MY1947	0.00332	1	46515	CH	5JUN1947	0.00759	1	46507	CH	LL1947	C.00049
146922	CH	21AU1947	0.00194	1	46758	EV	5JUN1937	C.00602	1	46770	EV	9UL1937	C.00596
146764	EV	17JUL1937	0.14504	1	46757	EV	25JUL1937	C.00372	1	46747	EV	1AU1937	C.03713
146743	EV	23AU1937	0.59789	1	46765	EV	7SE1937	0.02711	1	46752	EV	15SE1937	C.34028
146740	EV	22SE1537	0.00492	1	46750	EV	24SE1537	C.02357	1	46744	EV	6OC1937	C.00975
146749	EV	13CC1937	C.04493	1	46767	EV	27CC1937	0.01547	1	46749	EV	12MR1938	C.04855
146758	EV	1AMU1538	0.22519	1	46762	EV	18MU1538	C.32700	1	46751	EV	30SE1938	C.02233
146755	EV	19MY1538	0.00675	1	1241	E 2	13JUN1964	0.00148	1	1243	E 6	13JUN1964	C.00410
1246	F 1	11JUN1964	0.01349	1	1245	E 2	11JUN1964	0.00346	1	1258	F 1	6JUL1964	C.01416
1240	F 3	6JUL1964	0.00121	1	1245	C 2	10AUL1964	0.00224	1	1260	E 6	15AUL1964	C.02188
1270	F 1	10AUL1964	0.01634	1	1272	C 1	10SE1564	0.00410	1	1274	O 1	17SE1564	C.00938
1278	O 2	17SE1564	0.00645	1	1276	E 1	16SE1564	0.02749	1	1282	E 4	16SE1564	C.01108
1284	E 6	17SE1564	0.00645	1	1285	F 1	19SE1564	0.30203	1	1297	O 6	14OC1964	C.00190
1300	E 3	13OC1964	0.00398	1	1303	E 6	13OC1964	0.00560	1	1304	F 1	11OC1964	C.00457
1305	E 2	11OC1964	0.01305	1	1306	F 3	11OC1964	0.01169	1	1317	E 1	26DU1964	C.00191
1323	F 1	26DU1964	0.01319	1	1346	C 7	21APR1967	C.00134	1	1400	C 5	14JUL1967	C.00190
1452	E 2	14JUL1967	0.00426	1	1511	E 2	1SE1967	0.00307	1	1512	E 3	1SE1967	C.00393
1537	E 3	24SE1967	0.00431	1	1539	E 5	23SE1967	0.02762	1	1541	E 2	11OC1967	C.00532
1542	E 3	11OC1967	C.00509	1	1543	E 5	10CC1967	0.00718	1	1380	GS 4	9MY1967	C.00169
1383	GS 7	10MY1967	C.00267	1	1384	GS 8	10MY1967	C.00185	1	1386	CS10	12MY1967	C.00575
1388	GS12	12MY1967	0.00827	1	1389	GS13	12MY1967	C.01289	1	1390	GS14	12MY1967	C.00174
1392	GS16	12MY1967	0.00616	1	1393	GS17	13MY1967	0.00548	1	1394	GS18	13MY1967	C.00516
1395	GS19	13MY1967	0.00235	1	1396	GS20	13MY1967	0.00592	1	1357	GS21	13MY1967	C.00106
1398	GS22	14MY1967	0.00249	1	1554	GS 1	3OC1967	0.00712	1	1555	GS 2	3OC1967	C.00412
1556	GS 3	3OC1967	C.00143	1	1557	GS 4	3OC1967	0.00747	1	1558	GS 5	4OC1967	C.01508
1559	GS 7	4OC1967	0.00390	1	1560	GS 8	4OC1967	0.00945	1	1562	GS10	5OC1967	C.00247
1565	GS13	5OC1967	0.02400	1	1566	GS14	5OC1967	0.00367	1	1567	GS15	5OC1967	C.01161
1568	GS16	5OC1967	0.00344	1	1571	GS19	6OC1967	0.00293	1	1572	GS20	6OC1967	C.01262
1573	GS21	6OC1967	0.01404	1	1574	GS22	6OC1967	0.00787	1	1575	GS28	6OC1967	C.00774
1544	M 1	2OC1967	0.00336	1	1547	MS 1	2OC1967	0.03194	1	1546	LU 1	2OC1967	C.00518
1520	HD 1	1SE1967	0.01416	1	1521	SH 1	1SE1967	0.01462	1	1522	PH 1	1SE1967	C.00365
1523	RA 1	1SE1967	0.01845	1	1526	MD 1	2OSE1967	0.03249	1	1527	TR 1	2OSE1967	1.00629
1528	SE 1	2SE1967	0.07219	1	1529	KK 1	2OSE1967	1.00731	1	1530	PR 1	2SE1967	C.21002
1545	ML 1	1B3796	1	1548	CA 1	3OC1967	0.01272	1	1549	MD 1	4OC1967	0.00452	
1551	ES 1	1SE1967	0.01915	1	1552	SP 1	4OC1967	0.00528	1	1550	PR 1	5OC1967	1.00241
1553	SE 1	1B3796	1	1554	MS 2	29MY1967	0.00301	1	1448	PS 2	29MY1967	C.00189	
1351	MT 2	21APR1967	0.00621	1	1427	LU 2	29MY1967	C.00121	1	1407	HD 2	22SE1967	C.01869
1350	HR 2	1APR1967	C.00876	1	1399	PW 2	5MY1967	0.00680	1	1401	MD 2	6MY1967	C.00592
1402	TR 2	6MY1967	0.02245	1	1400	SR 2	6MY1967	0.00599	1	1352	PM 2	21APR1967	C.00285
1353	FR 2	25APR1967	0.02110	1	1354	GN 2	25APR1967	C.01381	1	1429	ML 2	12MY1967	C.01064
1403	CA 2	1OCY1967	0.02615	1	1404	MC 2	10MY1967	0.02677	1	1405	ES 2	12MY1967	C.00645
1407	SH 2	22JUL1967	1	1345	CI 2	19AF1567	0.01437	1	1422	CA 2	23MY1967	C.00511	
1423	WA 2	23MY1967	0.00428	1									

Amphora rotunda Skv.

Amphora rotunda Skvortzow, Phillipine J. Sci., 62(3):342, pl. 12, fig. 18. 1937.

14520	HD 1	1SE1967	0.00471	1									
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Amphora siberica Skv. and Meyer

Amphora siberica Skvortzow and Meyer, Proc. Sngaree River Biol. Sta., 1(5):36, pl. 3, fig. 168. 1928.

146758	EV	5JUN1937	0.01426	1	46743	EV	20JUL1937	0.00856	1	46747	EV	1AU1937	C.00695
146752	EV	15SE1937	0.00107	1	46748	EV	20JUL1937	0.00856	1	46746	EV	19MR1938	C.00202
1258	F 1	6JUL1964	0.00236	1	1546	LU 1	2OC1967	0.01201	1	1545	ML 1	2SE1967	0.02703
1427	LU 2	29MY1967	0.01211	1	1422	TR 2	6MY1967	0.01083	1	1400	SH 2	6MY1967	C.00596
1354	GN 2	25APR1967	0.00173	1									

Amphora veneta Kütz.

Amphora veneta Kützing, Bacill., p. 108, pl. 3, fig. 24. 1844.

146916	CH	4MY1947	0.00136	1	1240	O 6	10JUN1964	0.00153	1	1350	RM 2	19APR1967	C.00441
1406	GB 2	13MY1967	0.00270	1									

Species incertae sedis

Amphora "veneta var. angularis" (not published)

68 AMVENEVA TCT NO OF STATIONS 6											
(46170	EV	9JL1987	0.00596	(1254	G 2	15JL1964	0.00192	(1268	E 2	15AU1964	0.00274
(1557	GS 4	30C1967	0.00374	(1565	GS13	30C1967	0.00507	(1574	GS22	60C1967	C.00288

Amphora sp. #1.

69 AMSPECUA TCT NO OF STATIONS 4											
(1258	F 1	6JL1964	0.00236	(1285	F 1	15SE1964	0.00582	(1353	GS17	13MY1967	C.00274
(1574	GS22	60C1967	0.00288	(							

Amphora sp. #3.

70 AMSPECOC TCT NO OF STATIONS 10											
(1258	F 1	6JL1964	0.00236	(1279	E 1	16SE1964	0.00393	(1543	E 5	10CC1967	C.00718
(1353	GS17	13MY1967	0.00274	(1559	GS 1	30C1967	0.00356	(1565	GS13	30C1967	C.05578
(1546	LU 1	2CC1967	0.00500	(1526	MC 1	20SE1967	0.00569	(1545	WL 1	2CC1967	C.07433
(1550	MR 1	5CC1967	C.01239	(							

Amphora sp. #4.

71 AMSPECOC TCT NO OF STATIONS 12											
(46517	CH	12J61946	0.00028	(46514	CH	19AP1946	0.00107	(46919	CH	5JN1947	C.00152
(46747	EV	18U1937	0.00248	(46752	EV	15SE1937	0.00177	(46748	EV	13OC1937	C.04270
(46767	EV	27CC1937	0.00774	(1285	F 1	15SE1964	C.02330	(1511	C 3	31MY1967	C.00410
(1388	GS12	12MY1967	0.00603	(1566	GS14	30C1967	0.00193	(1573	GS21	6CC1967	C.00112

Amphora sp. #6.

72 AMSPECOC TCT NO OF STATIONS 8											
(1346	C 7	21AP1967	0.00134	(1521	SH 1	18SE1967	C.00577	(1527	IR 1	20SE1967	C.04403
(1545	WL 1	20C1967	0.08109	(1417	MG 2	22MY1967	0.00374	(1350	SH 2	19AP1967	C.00220
(1400	SB 2	6MY1967	0.01787	(1421	CH 2	23PY1967	C.01135	(			

Amphora sp. #7.

73 AMSPECOC TCT NO OF STATIONS 1											
(1285	F 1	15SE1964	C.02330	(							

Amphora sp. #8.

74 AMSPECOC TCT NO OF STATIONS 3											
(1389	GS13	12MY1967	0.00258	(1565	GS13	30C1967	C.00507	(1350	SH 2	19AP1967	C.00220

Amphora sp. #9.

75 AMSPEC01 TCT NO OF STATIONS				1
(1565	GS13	50C1967	0.00907	(

Amphora sp. #10.

76 AMSPEC02 TCT NO OF STATIONS				2
(1574	GS22	60C1967	0.00863	(
(1404	PC 2	10PY1967	0.01270	(

Amphora sp. #11.

77 AMSPEC03 TCT NO OF STATIONS				1
(1520	HO 1	18SE1967	0.00471	(

Genus *Anomoeoneis* Pfitz.

Pfitzer, Bot. Abh. Geb. Morph. Physiol., 1(2):77. 1871.

Members of the genus *Anomoeoneis* find their primary habitat in periphyton and epipelagic communities. The few specimens that we have taken in plankton collections from Lake Michigan are most likely accidental occurrences being derived from other habitats.

Anomoeoneis serians var. *brachysira* (Bréb. ex Kütz.) Hust.

Navicula aponina var. *brachysira* de Brébisson ex Kütz., Sp. Alg., p. 69. 1849.

Anomoeoneis serians var. *brachysira* (Bréb. ex Kütz.) Hustedt in: Pascher, Südschw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 264, fig. 427. 1930.

80 ANSERV02 TCT NO OF STATIONS				1
1285	F 1	15SE1964	0.00582	(

Anomoeoneis vitrea (Grun.) Ross

Gomphonema vitreum Grunow in: Schneider, Naturw. Beitr. Kenntn. Kaukasusländer, p. 110. 1878.

Anomoeoneis vitrea (Grun.) Ross ex Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:380, pl. 33, figs. 12-13. 1966.

81 ANVITREA TCT NO OF STATIONS				33
(46924	CH	10MY1966	0.00071	(
(46919	CH	5JUL1967	0.24582	(
(46764	EV	17JUL1937	0.03223	(
(46763	EV	23AUG1937	0.00088	(
(46768	EV	10MAY1938	0.01470	(
(1245	F 2	11JUN1964	0.00346	(
(1268	F 2	15AUG1964	0.00275	(
(1452	E 2	14JUL1967	0.00454	(
(1554	GS 1	30C1967	0.00396	(
(1545	ML 1	20C1967	0.00816	(
(1550	MR 1	50C1967	0.02478	(
(46565	CH	14JUL1967	0.00123	(
(46513	CH	6AUG1967	0.03138	(
(46757	EV	25JUL1937	0.02889	(
(46752	EV	15SE1937	0.04354	(
(46762	EV	18MAY1938	0.02506	(
(1258	F 1	6JUL1964	0.00944	(
(1210	F 1	10AUG1964	0.01908	(
(1380	GS 4	9PY1967	0.00168	(
(1585	GS13	50C1967	0.00507	(
(1549	PQ 1	40C1967	0.01370	(
(1403	CA 2	10PY1967	0.06939	(
(46916	CH	4MY1967	0.00170	(
(46922	CH	21AUG1967	0.00046	(
(46747	EV	1AUG1937	0.00495	(
(46750	EV	24SE1937	0.00471	(
(46751	EV	30MAY1938	0.01117	(
(1260	F 3	6JUL1964	0.00191	(
(1285	F 1	15SE1964	0.00582	(
(1394	GS18	13MY1967	0.00172	(
(1546	LU 1	20C1967	0.00500	(
(1551	ES 1	50C1967	0.00799	(
(1404	PQ 2	10PY1967	0.02541	(

Species incertae sedis

Anomoeoneis vitrea var. 1.

82 ANHYVVA TCT AC CE STATIONS 5									
146913	CH	6801587	0.01066	1	1285	F 1	13561984	0.02912	1
1463	CA 2	1091587	0.01308	1	1404	MC 2	1091587	0.01270	1
								13575	6528
								6061587	0.06129

Genus *Asterionella* Hass.

Hassall, Micr. Exam. Water, p. 10, pl. 2(2), fig. 5. 1850.

Asterionella bleakeleyi Wm. Smith

Asterionella bleakeleyi Wm. Smith, Syn. British Diat., vol. 2, p. 82. 1856.

Cells asymmetric to the transverse axis, in life attached by the broader end to 4-16 other cells, forming a stellate colony. Valves of specimens from Lake Michigan 35-67 μ long, 4-5 μ broad at widest extremity. In this taxon the valves taper slightly from the much expanded, often asymmetric, "headpole" to the less expanded "footpole." The width of the midpoint of the valve is always greater than one-half the width of the widest extremity. The margins of the valve are usually slightly convex near middle and are suddenly and sharply constricted just before the capitate "footpole." Striae fine and inconspicuous, without visible substructure, 26-30 in 10 μ . Axial area narrow, central area lacking.

This entity is common in some polluted harbors bordering Lake Michigan. We have not, as yet, found it in appreciable quantities in the plankton of the open lake. It is difficult to distinguish from *A. formosa* in the living condition, although its broader, blunter valves which are somewhat expanded in the middle allow it to be recognized if populations of the two entities are compared. Cleaned preparations are required for certain identification.

84 ASBLEAKL TCT AC OF STATIONS 3									
1522	BN 1	18561967	11.25629	1					

Asterionella formosa Hass.

Asterionella formosa Hassall, Micr. Exam. Water, p. 10, pl. 2(2), fig. 21. 1850.

Cells asymmetric to the transverse axis, in life attached by the broader end to 4-16 other cells, forming a stellate colony. Valves of specimens from Lake Michigan 42-120 μ long, 4-5 μ broad at the widest extremity. In this taxon the ends of the valve are suddenly and sharply expanded and the body of the valve is very narrow (1.5-2 μ) with parallel sides in the large individuals and a slight taper towards the smaller end in smaller individuals. The width of the midpoint of the valve is always less than one-half that of the widest extremity. Striae fine and inconspicuous, without visible substructure, 24-28 in 10 μ . The axial area is very narrow and filiform, central area entirely lacking. In specimens from Lake Michigan very small spines often occur on the margins of the valves.

This species is abundant in collections from all areas of Lake Michigan. Populations from the open are usually composed mostly of individuals with less robust structure and apparently lighter silicification than nearshore populations. Although it is tempting to separate these, our observations indicate that they represent a growth form and cannot be distinguished on the basis of morphology. In areas of the lake that have been eutrophied, both the relative abundance and the seasonal dominance of this species are increased.

84 ASFCRMS TCT AC OF STATICS 316

160973	CH	1876	1.84585	1.66616	CH	001455	2.87499	1.64921	CH	23NC1945	6.01116	J
160978	CH	001245	7.53273	1.66517	CH	12JA1946	4.63331	1.64915	CH	20FE1946	5.54828	J
146914	CH	19AP1946	2.48588	1.66524	CH	10MY1946	0.68782	1.64923	CH	22NO1946	3.33741	J
146920	CH	15OC1946	1.98263	1.66508	CH	14JL1947	0.59811	1.64909	CH	16JL1947	3.16783	J
146912	CH	AP1947	9.71599	1.66516	CH	4RY1947	26.39847	1.64906	CH	PIY1947	16.72278	J
146913	CH	5JUN1947	20.26691	1.66507	CH	3JL1947	18.12059	1.64913	CH	8AUL1947	4.42683	J
146922	CH	21AUL1947	1.57505	1.64758	EV	5JUN1937	6.79681	1.64771	EV	11JUN1937	12.76113	J
146763	EV	20AUL1937	21.11330	1.66745	EV	3JL1937	2.52281	1.66770	EV	9JUL1937	1.83683	J
146764	EV	17JL1937	3.45999	1.64757	EV	25JL1937	1.34803	1.64747	EV	18JUL1937	2.46463	J
146763	EV	23AUL1937	1.7821	1.64765	EV	30AUL1937	0.52426	1.64765	EV	75E1937	0.26244	J
146752	EV	15SE1937	0.32600	1.64760	EV	22SE1937	1.10296	1.64750	EV	24SE1937	2.11151	J
146764	EV	02E1937	1.50215	1.64748	EV	13OC1937	0.57096	1.64767	EV	27OC1937	11.04793	J
146745	EV	12PR1938	12.25403	1.64768	EV	16MR1938	11.11274	1.64762	EV	12PR1938	5.33745	J
146751	EV	30MR1938	2.05255	1.64772	EV	18AP1938	16.92576	1.64756	EV	27AP1938	22.00244	J
146759	EV	01MY1938	1.71924	1.64764	EV	2JY1938	0.74919	1.64764	EV	14OC1938	5.51837	J
11223	B3	18MY1964	0.55938	1.1224	E4	18MY1964	0.04313	1.1225	C6	15MY1964	0.75657	J
11226	C7	18MY1964	0.53272	1.1227	C2	23JY1964	0.01045	1.1228	C2	14MY1964	0.66617	J
11229	D5	18MY1964	0.48133	1.1230	E6	16MY1964	0.05336	1.1231	F1	16JY1964	0.31953	J
11232	E	18MY1964	0.14087	1.1233	B3	5JUN1964	0.01197	1.1234	B3	18JUN1964	0.14901	J
11235	F	18JUL1964	0.22376	1.1236	C4	18JUL1964	2.23376	1.1236	C4	18JUN1964	0.13478	J
11237	C*	18JUL1964	0.74233	1.1239	D3	11JUN1964	1.1800	1.1239	D3	11JUN1964	0.13741	J
11240	D6	16JUN1964	0.33688	1.1241	E2	13JUN1964	0.59924	1.1242	E3	13JUN1964	0.60894	J
11243	E	13JUN1964	0.33688	1.1244	F2	11JUN1964	2.38376	1.1245	F2	11JUN1964	0.60724	J
11246	F3	11JUN1964	0.25100	1.1247	B3	15JUL1964	0.99885	1.1248	B3	24JUL1964	0.37656	J
11440	B6	11JUL1964	3.35335	1.1441	B6	24JUL1964	2.46701	1.1249	C3	8JUL1964	0.34221	J
11250	C6	10JUL1964	0.52210	1.1251	C7	16JUL1964	0.76166	1.1252	C*	16JUL1964	0.90536	J
11253	C*	16JUL1964	0.33405	1.1254	D2	15JUL1964	1.27370	1.1255	D5	15JUL1964	3.95324	J
11256	E	16JUL1964	0.50095	1.1257	E3	16JUL1964	0.27336	1.1258	F1	6JUL1964	4.70533	J
11259	F2	6JUL1964	1.12122	1.1260	F3	6JUL1964	4.94681	1.1261	B3	24JUL1964	2.00600	J
11262	B3	17AUL1964	0.87882	1.1262	E4	28AUL1964	2.86109	1.1263	B6	16AUL1964	0.45585	J
11263	C	01AUL1964	0.50095	1.1264	C*	18JUL1964	0.87882	1.1264	C*	18JUL1964	0.45585	J
11266	D3	18AUL1964	2.36325	1.1267	D6	18AUL1964	0.65274	1.1268	E2	15AUL1964	0.61056	J
11269	E	15AUL1964	0.61056	1.1269	E4	18AUL1964	15.05786	1.1269	E4	15AUL1964	0.61056	J
11271	C7	15AUL1964	0.51404	1.1272	C*	10JSE1964	7.76891	1.1273	C*	10JSE1964	14.30184	J
11274	D1	17SE1964	3.61282	1.1275	D2	17SE1964	13.09593	1.1276	D3	18SE1964	2.61911	J
11277	E4	17SE1964	2.61911	1.1278	E3	17SE1964	2.61911	1.1279	E4	18SE1964	2.61911	J
11280	E	16SE1964	2.80274	1.1281	E3	16SE1964	2.74653	1.1282	E4	16SE1964	3.87812	J
11283	E5	16SE1964	2.80274	1.1286	E6	17SE1964	11.34306	1.1285	F1	15SE1964	0.62262	J
11286	F2	15SE1964	0.63100	1.1287	F3	15SE1964	0.00645	1.1288	B3	15OC1964	11.73520	J
11445	B6	14EC1964	10.27357	1.1289	C7	14EC1964	5.84847	1.1290	C*	16CUL1964	11.53860	J
11291	C*	16CUL1964	5.13673	1.1292	D1	16CUL1964	8.34824	1.1293	D2	15OC1964	10.85520	J
11294	D3	15OC1964	6.72463	1.1295	E3	15OC1964	8.74633	1.1296	E5	14OC1964	5.78193	J
11297	D6	14OC1964	5.97665	1.1298	E1	12CUL1964	13.57174	1.1299	E2	12OC1964	5.01665	J
11300	E3	13OC1964	5.72265	1.1301	F4	13OC1964	6.59121	1.1302	E5	13OC1964	11.32659	J
11303	F	13OC1964	9.71924	1.1304	F1	14OC1964	4.32184	1.1305	F2	14OC1964	4.34738	J
11306	F3	11OC1964	3.10438	1.1307	E6	10JUL1964	10.60755	1.1308	C7	6NOV1964	6.81286	J
11309	C*	10NOV1964	17.44567	1.1310	C2	10NOV1964	18.09523	1.1311	D1	6NOV1964	16.75478	J
11312	D2	8NOV1964	17.48135	1.1313	E3	9NOV1964	16.50594	1.1314	E4	9NOV1964	6.84245	J
11315	E5	9NOV1964	6.05092	1.1316	E6	9NOV1964	8.46117	1.1317	E1	6NOV1964	14.69092	J
11318	F	9NOV1964	12.26215	1.1319	E4	7NOV1964	15.74555	1.1320	D4	7NOV1964	15.74555	J
11321	E6	7NOV1964	16.98270	1.1322	E4	7NOV1964	13.53018	1.1323	F1	6NOV1964	11.12195	J
11324	F2	6NOV1964	3.15128	1.1325	F3	6NOV1964	2.46858	1.1326	C3	27JUL1967	1.48260	J
11337	E	7JUL1967	1.48260	1.1328	E4	7JUL1967	7.73862	1.1329	E5	28JUL1967	2.37575	J
11340	C7	28JUL1967	11.30026	1.1341	A3	19AP1967	1.74653	1.1342	A4	19AP1967	2.73383	J
11343	A6	19AP1967	2.74774	1.1344	C3	25AP1967	2.20035	1.1345	C5	25AP1967	2.18311	J
11346	E2	24SE1967	0.00645	1.1347	E3	24SE1967	0.90095	1.1348	E5	24SE1967	0.90095	J
11348	A3	4PY1967	0.04713	1.1365	A4	4PY1967	0.20282	1.1370	A6	3JY1967	0.16112	J
11371	C3	4PY1967	0.06693	1.1372	C5	9MY1967	0.00709	1.1373	C7	9MY1967	0.01426	J
11374	E	11JY1967	0.25273	1.1376	F1	11JY1967	0.03609	1.1376	F1	11JY1967	0.03609	J
11408	A3	23MY1967	0.37115	1.1405	A4	23MY1967	1.14563	1.1410	A6	23MY1967	0.11840	J
11411	C3	31MY1967	0.14850	1.1412	C3	31MY1967	1.62051	1.1413	C3	25PY1967	0.44422	J
11416	E	08MY1967	0.00709	1.1415	E3	28MY1967	0.34319	1.1416	E3	28MY1967	0.34319	J
11431	A3	12JUN1967	1.98265	1.1432	A4	13JUN1967	0.93845	1.1433	C3	17JUN1967	4.52136	J
11434	C5	13JUN1967	0.52522	1.1435	E3	13JUN1967	0.19851	1.1436	E2	13JUN1967	0.19851	J
11437	E	13JUN1967	0.42983	1.1438	E5	14JUN1967	0.40668	1.1446	A3	11JUL1967	6.84899	J
11447	A4	11JUL1967	18.33832	1.1448	A6	10JUL1967	0.59416	1.1449	C3	16JUL1967	5.61733	J
11450	E2	16JUL1967	0.59416	1.1451	C7	16JUL1967	5.7380	1.1452	E2	16JUL1967	2.26326	J
11453	E3	15JUL1967	0.77721	1.1454	E5	15JUL1967	21.02042	1.1504	A3	28AUL1967	1.72818	J
11505	A4	28AUL1967	24.88221	1.1506	A6	29AUL1967	5.49249	1.1508	C3	25E1967	15.52726	J
11509	E2	25E1967	15.52726	1.1511	E3	25E1967	0.27853	1.1511	E3	25E1967	0.27853	J
11512	E3	18E1967	10.44448	1.1513	E5	31AUL1967	4.25661	1.1532	A3	18E1967	4.82001	J
11533	A4	19SE1967	12.02302	1.1534	A6	19SE1967	7.16657	1.1535	C7	25E1967	3.37575	J
11536	E2	24SE1967	15.08708	1.1537	E3	24SE1967	0.43813	1.1538	C3	23E1967	1.26073	J
11539	C3	43C1967	16.35299	1.1540	C5	43C1967	5.59314	1.1541	E2	11OC1967	16.35299	J
11542	E	11OC1967	13.17128	1.1543	E3	11OC1967	7.03022	1.1377	E5	11OC1967	0.00645	J
11578	GS2	04JUN1967	0.03609	1.1379	GS3	9MY1967	0.01547	1.1380	C5	9MY1967	0.15806	J
1181	GS5	10PY1967	0.19797	1.1382	GS6	10PY1967	0.00278	1.1383	GS3	10MY1967	0.00428	J
11884	GS5	10PY1967	0.19797	1.1386	GS6	10PY1967	0.00278	1.1387	GS3	10MY1967	0.00428	J
11887	CS11	12MY1967	0.11090	1.1390	CS14	12PY1967	0.01762	1.1391	CS15	12PY1967	0.06225	J
11902	GS16	12MY1967	0.04315	1.1353	CS17	18MY1967	0.25751	1.1394	CS18	13MY1967	0.84828	J
11995	CS19	13MY1967	0.84828	1.1396	CS20	13MY1967	0.84828	1.1397	CS21	13MY1967	0.84828	J
11998	GS22	14MY1967	0.13662	1.1555	GS1	30C1967	8.67974	1.1555	GS2	30C1967	8.67974	J
11556	GS3	30C1967	7.46543	1.1557	GS4	30C1967	8.67974	1.1558	GS5	30C1967	8.67974	J
11559	GS7	6JUN1967	0.12016	1.1560	GS8	6JUN1967	0.12016	1.1561	GS9	6JUN1967	0.12016	J
11562	CS10	53C1967	12.06700	1.1563	CS11	53C1967	6.71094	1.1564	CS12	50C1967	4.55429	J

(1565	GS13	50C1967	10.44801	(	1566	GS14	50C1967	3.21042	(	1567	GS15	50C1967	1.22225	)
(1568	GS10	50C1967	15.55533	(	1569	GS17	50C1967	3.53782	(	1570	GS18	50C1967	3.81793	)
(1571	GS19	60C1967	2.43175	(	1572	GS20	60C1967	2.39743	(	1573	GS21	60C1967	8.76163	)
(1574	GS22	60C1967	10.47000	(	1575	GS28	60C1967	3.97378	(	1544	PU 1	20C1967	1.84813	)
(1547	PS 1	20C1967	1.02784	(	1524	PI 1	20SE1967	0.10946	(	1546	LU 1	20C1967	C.31511	)
(1520	HG 1	18SE1967	0.43649	(	1521	SH 1	18SE1967	1.93861	(	1523	RA 1	19SE1967	5.33345	)
(1525	PH 1	20SE1967	2.11335	(	1526	MC 1	20SE1967	6.46951	(	1527	TR 1	20SE1967	1.16692	)
(1528	SB 1	20SE1967	4.45128	(	1529	NW 1	20SE1967	6.52336	(	1530	FR 1	24SE1967	3.20032	)
(1531	CH 1	25SE1967	0.02346	(	1545	WL 1	20C1967	0.21761	(	1548	CA 1	30C1967	1.28482	)
(1545	HQ 1	40C1967	14.25243	(	1551	ES 1	50C1967	24.15527	(	1552	SP 1	60C1967	32.32750	)
(1550	PR 1	50C1967	9.91203	(	1553	SC 1	60C1967	39.37015	(	1428	PU 2	29PV1967	1.06059	)
(1426	PS 2	29PV1967	0.19947	(	1351	PI 2	21AP1967	13.15749	(	1427	LU 2	29PV1967	C.65007	)
(1317	HQ 2	22PV1967	2.43070	(	1418	GH 2	22MV1967	0.01555	(	1350	EH 2	19AP1967	C.59511	)
(1425	RA 2	25PV1967	0.02652	(	1399	PH 2	5PV1967	1.41458	(	1401	PO 2	6PV1967	C.45389	)
(1462	TR 2	6PV1967	0.47548	(	1352	GH 2	25AP1967	2.08674	(	1352	HE 2	21AP1967	15.42998	)
(1353	FR 2	23AP1967	2.26287	(	1354	GH 2	25AP1967	2.95504	(	1429	WL 2	25PV1967	1.69869	)
(1403	GA 2	10PV1967	0.28769	(	1454	HQ 2	10PV1967	0.19055	(	1405	ES 2	12PV1967	1.34159	)
(1407	SH 2	23PV1967	2.77065	(	1349	CI 2	15AP1967	0.45551	(	1406	CH 2	31PV1967	C.43132	)
(1414	BU 2	23PV1967	0.46278	(	1420	IH 2	23PV1967	0.13595	(	1421	CH 2	23PV1967	C.10409	)
(1422	GA 2	23PV1967	0.04087	(	1423	NA 2	25PV1967	C.14987	(	1424	NA 2	23PV1967	C.29310	)
(1430	MC 2	12HJ1967	0.45935	(										)

Asterionella gracillima (Hantz.) Heib.

Diatoma gracillimum Hantzsch in: Rabenhorst, Alg. Sachsen resp. Mittel-europas, No. 1104. 1861.

Asterionella gracillima (Hantz.) Heiberg, Consp. Crit. Diat. Danicarum, p. 68, pl. 6, fig. 19. 1863.

Cells nearly symmetric, in life attached at one end to form stellate colonies of 4-16 cells. Valves of specimens from Lake Michigan 35-60μ long, 3-4μ broad at the widest extremity. In this taxon the valves are sub-linear with capitate ends of nearly equal size. Striae fine and inconspicuous, 24-28 in 10μ, without visible substructure. Axial area very narrow and filiform, central area entirely lacking. Specimens from Lake Michigan often have very delicate spines on the margins of the valves.

Numerous authors have commented on the difficulty of establishing the identity and range of morphologic variation in this taxon. Contrary to some previous reports we have found it to be relatively rare in Lake Michigan. It is tempting to treat it as a growth form or variety of *A. formosa*, but our observations lead us to believe that the two taxa are distinct.

85 ASECBPVIG ICT AG GE STATIONS 19														
(46612	CH	12J1946	2.25229	(	46615	CH	20FE1946	C.01138	(	46914	CH	19AP1946	C.06247	)
(46624	CH	10PV1946	0.00353	(	46616	CH	14PV1947	1.43350	(	46919	CH	5JH1947	C.74050	)
(46743	EV	20J1937	0.00428	(	46749	EV	12PV1938	C.03641	(	46751	EV	30PF1938	C.01117	)
(46756	EV	27AP1938	0.00336	(	1225	C 6	15PV1964	0.00392	(	1341	A 3	19AP1967	C.11716	)
(1362	A 4	19AP1967	0.02066	(	1343	A 6	18AP1967	0.01251	(	1344	A 3	23AP1967	C.00496	)
(1372	C 5	5PV1967	0.00355	(	1453	E 3	15J1967	0.00758	(	1513	E 5	31AU1967	C.01520	)
(1522	HR 1	18SE1967	0.26258	(										)

Genus *Bacillaria* Gmel.

Gmelin in: Linnaeus, Syst. Nat., ed. 13, Vol. 1, Part 6, p. 3903. 1788.

The only commonly recognized member of this genus occurs in periphyton communities and occasionally in the plankton of brackish and nearshore marine habitats. It is also found in saline springs and lakes and other waters containing high levels of total dissolved solids in inland regions. The few specimens noted in our collections were undoubtedly derived from such habitats.

Bacillaria paxillifer (O. F. Müll.) Hendy

Vibrio paxillifer O. F. Müller, Animal. Infus., p. 54. 1786.

Bacillaria paxillifer (O. F. Müll.) Hendy, Fish. Invest. (London), Ser. 4, Part 5, p. 274, pl. 21, fig. 5. 1964.

Coll: 1366.

Genus *Caloneis* Cleve

Cleve, K. Svenska Vet.-Akad. Handl., Ny Förljd, 26(2):46. 1894.

Members of the genus *Caloneis* find their primary habitats in periphyton or epipelagic communities. The occasional representatives of the genus taken in plankton collections from Lake Michigan are undoubtedly derived from such habitats.

Caloneis alpestris (Grun.) Cleve

Navicula alpestris Grunow, Verh. Zool.-Bot. Ges. Wien, 10:545, pl. 5, fig. 4. 1860.

Caloneis alpestris (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Förljd, 26(2):53. 1894.

87 CAALPESTR TCT NO OF STATIONS 4											
146917	CH	12JAI1946	0.00228	1	1504	A 3	28AUI1967	0.00247	1	1388	GS12
1552	SP 1	6CC1967	0.00660	1						12MY1967	C.CC603 1

Caloneis amphisbaena (Bory) Cleve

Navicula amphisbaena Bory, Encyclop. Method., p. 565. 1824.

Caloneis amphisbaena (Bory) Cleve, K. Svenska Vet.-Akad. Handl., Ny Förljd, 26(2):58. 1894.

88 CAAMPHIS TCT NO OF STATIONS 3											
1520	HO 1	18SE1967	C.CC471	1	1417	HO 2	22MY1967	0.00374	1	1350	BH 2
										19AP1967	C.CC222 1

Caloneis bacillaris var. *thermalis* (Grun.) A. Cleve

Navicula bacillaris var. *thermalis* Grunow in: Van Heurck, Syn. Diat.

Belgique, pl. 12, fig. 27. 1880.

Caloneis bacillaris var. *thermalis* (Grun.) A. Cleve, Bih. K. Svenska Vet.-Akad. Handl., 21, Afd. 3(2):16. 1895.

91 CABACIVT TCT NO OF STATIONS 8											
146915	CH	5JN1947	0.00152	1	146758	EV	5JN1937	0.00357	1	146764	EV
146757	EV	25JLI1937	0.00481	1	146747	EV	1AUI1937	0.00248	1	146760	EV
1527	GS15	50C1967	0.00159	1	1574	GS22	40C1567	0.00298	1	22SE1937	C.CC492 1

Caloneis bacillum (Grun.) Cleve

Stauroneis bacillum Grunow, Verh. Zool.-Bot. Ges. Wien, 13:155, pl. 4, figs. 16a-b. 1880.

Caloneis bacillum (Grunow) Cleve, Diatomiste, 2(17):99. 1894.

89 CABACILL TCT NO OF STATIONS 17											
146921	CH	23NO1945	0.00065	1	146520	CH	20DE1946	0.00031	1	146916	CH
146747	EV	1AUI1937	0.00495	1	146768	EV	10MR1938	C.01470	1	1245	F 2
1258	F 1	6JLI1964	0.00236	1	1284	E 6	17SE1964	0.00318	1	1285	F 1
1304	F 1	11C1964	0.00247	1	1389	GS13	12MY1967	C.00258	1	1565	GS13
1567	GS15	50C1967	0.00159	1	1574	GS22	40C1567	0.01438	1	1546	LU 1
1550	NR 1	50C1567	0.01235	1	1350	BH 2	19AP1567	0.00441	1	20C1967	C.00500 1

Caloneis bacillum var. *lancettula* (Schulz) Hust.

Caloneis bacillum var. *lancettula* (Schulz) Hustedt in: Pascher, "Süssw.-Fl. Mitteleuropas. Heft 10, Aufl. 2, p. 236, fig. 361. 1930.

90 CARACIVA TOT NO OF STATIONS 13									
146764	EV	17JUL1937	0.00806	146767	EV	18JUL1937	0.00248	146763	EV
146768	EV	16MAY1938	0.02940	147272	C ¹ 1	105E1964	0.00410	147285	F 1
147286	F 3	11CIC1964	0.00277	147387	GS11	12MAY1967	0.00396	147388	GS12
147394	LU 1	20C1967	0.00500	147526	MO 1	20SE1967	0.00569	147529	KM 1
147530	FR 1	24SE1967	0.02000						

Caloneis clevei (Lagerst.) Cleve

Navicula clevei Lagerstedt, Bih. K. Svenska Vet.-Akad. Handl., 1:34, pl. 1, fig. 10. 1873.

Caloneis clevei (Lagerst.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Förlj., 26(2):51. 1894.

92 CALLEVEI TOT NO OF STATIONS 1									
147564	GS12	50C1967	0.00165						

Caloneis lewisii Patr.

Caloneis lewisii Patrick, Farlowia, 2(2):172. 1945.

93 CALLEWISI TOT NO OF STATIONS 2									
160973	CH	1876	0.02362	147565	GS13	50C1967	0.00507		

Caloneis limosa (Kütz.) Patr.

Navicula limosa Kützing, Bacill., p. 101, pl. 3, fig. 50. 1844.

Caloneis limosa (Kütz.) Patrick in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:587, pl. 54, fig. 10. 1966.

94 CALIMOSA TOT NO OF STATIONS 1									
147541	CH	1FE1881	0.00578						

Caloneis ventricosa (Ehr.) Meist.

Navicula ventricosa Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1838:130, pl. 4, fig. 10i. 1839.

Caloneis ventricosa (Ehr.) Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):116, pl. 17, fig. 4. 1912.

Coll: 1157

Caloneis ventricosa var. *minuta* (Grun.) Patr.

Navicula ventricosa var. *minuta* Grunow in: Van Heurck, Syn. Diat. Belgique, p. 103. 1885.

Caloneis ventricosa var. *minuta* (Grun.) Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:584, pl. 54, fig. 2. 1966.

95 CAVENTUM TOT NO OF STATIONS 1									
147521	SH 1	18SE1967	0.00577						

Caloneis ventricosa var. *truncatula* (Grun.) Meist.

Navicula ventricosa var. *truncatula* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 12, fig. 25. 1880.

Caloneis ventricosa var. *truncatula* (Grun.) Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):116, pl. 17, fig. 5. 1912.

96 CAVENTRY TCT NO OF STATIONS 30

13540	CH	11MY1879	0.00932	1	13541	CH	1FE1881	0.01956	1	146921	CH	23NO1445	C.00129	1
144923	CH	22NO1946	0.00437	1	144920	CH	20GE1944	0.00031	1	146905	CH	3A1947	C.00123	1
146916	CH	4MY1947	0.00102	1	146907	CH	3L1947	0.00049	1	146922	CH	21AU1547	C.00194	1
146758	EV	5JN1937	0.03209	1	146771	EV	11JN1937	0.00238	1	146743	EV	20JN1937	C.02161	1
146770	EV	9JL1937	0.01785	1	146766	EV	17JL1937	0.04395	1	146757	EV	25JL1937	C.02407	1
146747	EV	1AU1937	0.01405	1	146763	EV	23AU1937	0.06008	1	146752	EV	15SE1937	C.04354	1
146760	EV	22SE1937	0.00492	1	146750	EV	24SE1937	0.00471	1	146748	EV	13OC1937	C.02135	1
146767	EV	27OC1937	0.00387	1	146749	EV	12NO1938	0.01214	1	1270	F 1	10AU1944	C.00272	1
13388	GS12	12MY1967	0.00603	1	1392	GS16	12MY1967	0.00308	1	1365	GS13	30C1967	C.01521	1
13566	GS14	30C1967	0.00183	1	1574	GS22	60C1967	0.00575	1	1545	ML 1	20C1967	C.00676	1

Species incertae sedis

Caloneis sp. #2.

97 CASPECOR TCT NO OF STATIONS 1

146919	CH	5JN1947	0.00152	1
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Caloneis sp. #3.

98 CASPECOR TCT NO OF STATIONS 10

146916	CH	0C1945	0.00105	1	146758	EV	5JN1937	C.01070	1	146751	EV	11JN1937	C.00238	1
146770	EV	9JL1937	0.00598	1	146766	EV	17JL1937	C.01075	1	146757	EV	25JL1937	C.03370	1
146747	EV	1AU1937	0.01733	1	146765	EV	30AU1937	C.00558	1	146752	EV	15SE1937	C.04354	1
13388	GS12	12MY1967	0.01207	1										

Genus *Campylodiscus* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:207. 1841.

The single species of *Campylodiscus* that occurs in our collections reaches its maximum abundance in epipelagic communities in hardwater lakes. In such localities it is occasionally noted in the plankton and is apparently a successful facultative plankton.

Campylodiscus noricus var. *hibernica* (Ehr.) Grun.

Campylodiscus hibernicus Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:154. 1845.

Campylodiscus noricus var. *hibernica* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:439. 1862.

99 CAPARTOGRAMMA TCT NO OF STATIONS 1

146973	CH	1ET6	0.02362	1
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Genus *Capartogramma* Kuff.

Kufferath, Expl. Hydrobiol. Lake Tanganyika (1946-1947)

Res. Sci. 4(3):27. 1956.

Only a single species of *Capartogramma* occurs in our collections. Previous reports of its distribution indicate that it reaches its maximum abundance in brackish water habitats although it is also found in limited abundance in strictly fresh water. In Lake Michigan its distribution appears to be restricted to shallow, eutrophied bays where it probably grows in epipelagic or periphyton communities.

Capartogramma cruciula (Grun. ex Cleve) Ross

Schizostauron cruciula Grunow ex Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 18(5):16, pl. 3, fig. 44. 1881.

Capartogramma cruciula (Grun. ex Cleve) Ross, Bull. British Mus. (Nat. His.), 3(2):59, figs. 8-11. 1963.

100 CPSPECA TCT NO OF STATIONS 3
(1955 GS15 13MY1967 C.00117) (1971 GS15 6DC1967 C.00059) (1950 PR 1 5CC1967 C.03717)

Genus *Coccoeisis* Ehr.

Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1835:173. 1837.

Members of the genus *Coccoeisis* are particularly adapted to epiphytic growth on larger algae or on aquatic vascular plants. Plankton collections from Lake Michigan often contain at least a few representatives of the genus. Most of these are probably derived from communities other than the plankton but it appears that at least some of the smaller species are secondarily planktonic in that they attach to larger euplanktonic algae.

Coccoeisis diminuta Pant.

Coccoeisis diminuta Pantocsek, Res. Wiss. Erforsch. Balatonsees, Vol. 2. Pt. 2, Sec. 1, p. 67, pl. 7, fig. 181. 1902.

101 CCOIMINU TCT NO OF STATIONS 63
146766 EV 14DE1538 C.01584 J (1244 F 1 11JH1966 0.00110 J (1258 F 1 6JL1964 C.CC236 J
(1268 E 2 15AU1964 0.00274 J (127C F 1 10AU1964 0.00272 J (1279 E 1 16SE1964 C.CC393 J
(1300 E 3 13OC1964 0.00398 J (1491 A 3 12JH1967 0.00297 J (1937 E 3 24SE1967 C.CC031 J
(1541 E 2 11OC1967 C.01215 J (1542 E 3 11OC1967 C.01526 J (1383 GS 7 10MY1967 C.CC267 J
(1386 GS10 12MY1967 0.00428 J (1387 GS11 12MY1967 C.01188 J (1388 GS12 12MY1967 C.CC603 J
(1391 GS15 12MY1967 0.00476 J (1392 GS16 12MY1967 0.01233 J (1393 GS17 13MY1967 C.CC548 J
(1394 GS18 13MY1967 0.00516 J (1395 GS19 13MY1967 C.00117 J (1396 GS20 13MY1967 C.CC0074 J
(1398 GS22 14MY1967 0.00304 J (1554 GS 1 30C1967 0.01067 J (1556 GS 3 30C1967 C.CC1564 J
(1557 GS 4 30C1967 0.00374 J (1558 GS 9 40C1967 0.00793 J (1559 GS 7 40C1967 C.CC0699 J
(1394 GS 8 40C1967 0.00472 J (1561 GS 9 40C1967 0.00587 J (1565 GS13 50C1967 C.24845 J
(1566 GS14 50C1967 0.00183 J (1567 GS15 50C1967 0.00318 J (1571 GS19 60C1967 0.00234 J
(1572 GS2C 60C1967 0.0018C J (1573 GS21 60C1967 0.00112 J (1574 GS22 60C1967 C.CC0113 J
(1575 GS28 60C1967 0.00125 J (1594 MU 1 20C1967 0.00238 J (1547 MS 1 20C1967 C.CC0798 J
(1546 LU 1 2C1967 0.03001 J (1522 BH 1 18SE1967 0.00182 J (1523 RA 1 15SE1967 C.CC0623 J
(1525 PM 1 20SE1967 0.04178 J (1526 MQ 1 20SE1967 0.00505 J (1527 TR 1 20SE1967 C.CC2516 J
(1529 KM 1 2CSE1967 0.03598 J (1530 PR 1 24SE1967 0.06001 J (1545 ML 1 20C1967 C.CC0810 J
(1548 CA 1 30C1967 0.02172 J (1549 PC 1 40C1967 0.02261 J (1551 ES 1 50C1967 C.CC2398 J
(1550 PR 1 50C1967 1.84612 J (1553 SG 1 40C1967 0.03672 J (1426 PS 2 29MY1967 C.CC1898 J
(1427 LU 2 29MY1967 0.07264 J (1417 HC 2 22MY1967 0.00748 J (1350 SM 2 15AP1967 C.CC0415 J
(1401 MQ 2 4MY1967 C.CC0548 J (1354 GH 2 25AP1967 0.00690 J (1429 ML 2 29AP1967 C.CC0162 J
(1404 MQ 2 10MY1967 0.00254 J (1405 ES 2 12MY1967 0.01290 J (1407 SH 2 14MY1967 C.CC1791 J

Coccoeisis disculus (Schum.) Cleve

Navicula disculus Schumann, Schrift. Phys.-Ökon. Ges. Königsburg, 5:21, pl. 2, fig. 23. 1864.

Coccoeisis disculus (Schum.) Cleve in: Cleve and Jentzsch, Schrift. Phys.-Ökon. Ges. Königsburg, 22:129. 1882.

102 CCOISICUL TCT NO OF STATIONS 18
160973 GH 1876 0.02262 J (3541 GH 1FE1881 0.00978 J (1279 E 1 16SE1964 C.CC393 J
(1541 E 2 11OC1967 0.00592 J (1294 GS18 13MY1967 0.00172 J (1396 GS20 13MY1967 C.CC0074 J
(1554 GS 1 30C1967 0.00356 J (1527 GS 4 30C1967 0.00274 J (1559 GS 7 40C1967 C.CC350 J
(1561 GS 9 40C1967 0.00319 J (1567 GS15 50C1967 0.00199 J (1573 GS21 40C1967 C.CC0112 J
(1574 GS22 60C1967 0.00288 J (1545 ML 1 20C1967 0.01351 J (1550 PR 1 50C1967 C.CC2478 J
(1553 SG 1 60C1967 0.00734 J (1426 MS 2 29MY1967 0.01350 J (1354 GH 2 25AP1967 C.CC0173 J

Coccoeisis pediculus Ehr.

Coccoeisis pediculus Ehrenberg, Infusionsthierehen, p. 194, pl. 21, fig. 11. 1838.

103 COPECIDU TOT NO OF STATIONS 100

13540	CH	11M19879	0.03261	13507	CH	19F81881	0.01132	146617	CH	12JAI1546	0.00083
146014	CH	14AP1966	0.00107	146023	CH	22NO1946	0.00056	146020	CH	20M1946	0.00062
146016	CH	4M1947	0.00008	146019	CH	5JN1947	0.00303	146007	CH	JL1947	0.00099
146022	CH	21AU1967	0.00194	146758	EV	5JN1937	0.02140	146770	EV	9JL1937	0.00056
146764	EV	17JL1967	0.02417	146759	EV	25JL1937	0.02907	146747	EV	1AU1937	0.17328
146763	EV	23AU1937	1.77635	146765	EV	30AU1937	0.02231	146752	EV	15E1937	0.00476
146760	EV	22E1537	0.07878	146750	EV	24E1537	0.07070	146744	EV	60C1937	0.03414
146768	EV	13OC1937	0.14722	146767	EV	27OC1937	0.03095	146749	EV	12M1937	0.07710
146765	EV	16M1938	0.10290	146762	EV	10M1938	3.28899	146751	EV	30M1938	0.05583
146766	EV	14E1538	0.00659	14727	C ¹	10E1564	0.00410	14728	C ¹	18E1564	0.00340
14729	E	1279	E	1298	E	17E1564	0.00318	14730	E	13OC1967	0.00358
14316	D	9N01964	0.00378	1452	E	14JL1967	0.00213	14533	A	15E1967	0.00404
14534	A	25E1967	0.02599	14536	E	24E1967	0.02999	14537	E	24E1967	0.01725
14538	E	23E1967	1.41413	14540	C	40C1967	0.00496	14542	E	31OC1967	0.01526
14543	E	10C1967	0.00718	14588	GS12	12M1967	0.00603	14595	GS19	13M1967	0.00117
14521	GS22	10C1967	0.00717	14589	GS12	14M1967	0.00904	14557	GS	30C1967	0.00747
14559	GS	74C1967	0.00699	14561	GS	40C1967	0.01174	14563	GS11	50C1967	0.00935
14564	GS12	50C1967	0.00165	14565	GS13	50C1967	0.01016	14566	GS14	50C1967	0.00590
14567	GS15	50C1967	0.00668	14568	GS16	50C1967	0.00413	14565	GS17	50C1967	0.00531
14570	GS18	50C1967	0.002975	14571	GS19	60C1967	0.00585	14572	GS20	60C1967	0.00180
14573	GS21	60C1967	0.01232	14574	GS22	60C1967	0.00475	14575	GS28	60C1967	0.00387
14587	MS	10C1967	0.01597	14528	M	20E1967	0.13135	14546	LU	20C1967	0.10504
14520	HO	18E1967	0.00588	14521	SM	18E1967	0.00416	14522	HM	1E1E1967	0.00182
14523	RA	15E1567	0.13655	14525	PM	20E1967	0.18992	14526	MG	20E1967	2.73004
14527	TR	14E1567	0.12570	14528	SM	20E1967	0.00304	14529	MM	24E1567	0.01556
14530	FR	14E1567	0.18004	14531	GM	25E1967	0.00845	14545	ML	20C1967	0.12173
14544	FR	13C1967	0.28714	14552	SM	60C1967	0.00361	14550	PM	50C1967	0.22541
14553	SG	60C1967	0.00734	14567	MS	20M1967	0.01050	14551	ML	21M1967	0.00310
14527	LU	29M1967	0.02421	14517	HO	22M1967	0.00374	14530	HM	19M1967	0.00748
14501	HO	6M1967	0.14659	14502	R	24E1967	0.00566	14500	RE	0.00283	
14503	FR	23M1967	0.01075	14504	GM	25M1967	0.00345	14429	MM	29M1967	0.00622
14504	MS	12M1967	0.01270	14507	SM	24M1967	0.00597	14509	GL	19M1967	0.00178
14506	GS	2		14519	SM	23M1967	0.01831	14520	LM	23M1967	0.01011
14523	MA	25M1967	0.00528								

Cocconeis placentula Ehr.*Cocconeis placentula* Ehrenberg, Infusionsthierehen, p. 194. 1838.

104 COPLACEN TOT NO OF STATIONS 27

146171	F	30M1938	0.02232	14244	F	11JN1964	0.00110	14278	O	18E1964	0.00384
146021	F	10C1964	0.00065	146017	F	14E1964	0.00022	14508	A	28AU1967	0.00247
14537	E	24E1567	0.00883	14538	E	23E1567	0.00552	14539	C	40C1967	0.00503
14540	C	40C1967	0.01985	14541	E	11OC1967	0.00592	14542	E	31OC1967	0.01526
14555	GS	30C1967	0.01070	14560	GS	40C1967	0.00390	14562	GS	50C1967	0.00358
14567	GS15	50C1967	0.00635	14569	GS17	50C1967	0.00149	14572	GS20	60C1967	0.00090
14574	GS22	60C1967	0.01151	14546	MM	20E1967	0.00715	14522	HM	1E1E1967	0.00182
14531	CH	25E1567	0.00845	14545	ML	10C1967	0.02027	14528	MM	20M1967	0.00004
14550	HM	15M1967	0.01322	14504	MC	10M1967	0.01270	14507	SM	24M1967	0.00597

Cocconeis placentula var. *euglypta* (Ehr.) Cleve*Cocconeis euglypta* Ehrenberg, Mikrogeol., pl. 34(6A), fig. 2. 1854.*Cocconeis placentula* var. *euglypta* (Ehr.) Cleve, K. Svenska Vet.-Akad.

Handl., Ny Följd, 27(3):170. 1896.

105 COPLACEN TOT NO OF STATIONS 127

146073	CH	1476	0.02362	14591	CH	1FE1881	0.01956	146010	CH	0C1945	0.00109
146021	CH	23N01964	0.00065	146017	CH	12JAI1964	0.00028	146023	CH	22N01964	0.00046
146070	CH	JL1947	0.00099	146022	CH	21AU1967	0.00048	146743	EV	20JN1937	0.00428
146747	EV	18U1937	0.00248	146752	EV	15E1937	0.00434	146760	EV	22E1537	0.00492
146768	EV	0.00120	146764	EV	25JL1937	0.02907	146747	EV	24M1967	0.17328	
14236	C ¹	8JN1964	0.00175	14240	D	10JN1964	0.00193	14243	E	13JN1964	0.00209
14264	F	11JN1964	0.00219	14245	F	14JN1964	0.00022	14248	A	28AU1967	0.00247
14259	F	6JL1964	0.01395	14260	F	6JL1964	0.00191	14264	C ¹	10AU1564	0.00579
14267	D	18AU1964	0.00216	14268	E	15AU1964	0.01094	14270	F	10AU1564	0.01089
14279	F	14E1964	0.01176	14280	E	16E1964	0.00566	14284	E	15E1964	0.00384
14285	F	15E1564	0.11648	14288	F	15E1564	0.01095	14287	F	15E1564	0.00090
14289	C	14C1964	0.00440	14291	C ¹	16C1964	0.00245	14297	O	14C1964	0.00190
14299	E	10C1964	0.00269	14296	E	10C1964	0.00205	14303	E	10C1967	0.00245
14304	F	11OC1964	0.00247	14305	F	11OC1964	0.00173	14306	F	11OC1964	0.00277
14341	A	37M1967	0.01416	14370	A	38M1967	0.00230	14373	C	37M1967	0.00285
14374	E	7M1967	0.00787	14368	E	5M1967	0.01093	14446	A	31JL1964	0.01416
14448	A	10JL1967	0.00354	14351	E	15E1967	0.00014	14533	A	10E1567	0.00464
14536	E	24E1567	0.00545	14538	E	23E1567	0.01157	14540	C	40C1967	0.00596
14542	E	14E1567	0.00022	14543	F	10C1967	0.01337	14577	GS	10C1967	0.00358
14380	GS	9M1967	0.00168	14383	GS	7M1967	0.00595	14385	GS	10M1967	0.00235
14386	GS10	12M1967	0.00275	14387	GS11	12M1967	0.00272	14388	GS12	13M1967	0.00274
14390	GS14	14M1967	0.01176	14397	GS16	16M1967	0.00219	14393	GS17	13M1967	0.00274
14394	GS18	13M1967	0.00172	14395	GS19	12M1967	0.00470	14398	GS22	14M1967	0.00204
14394	GS	30C1967	0.01070	14560	GS	40C1967	0.00390	14562	GS	50C1967	0.00358
14557	GS	30C1967	0.00747	14558	GS	40C1967	0.00549	14559	GS	74C1967	0.16087
14560	GS	40C1967	0.00140	14561	GS	40C1967	0.01174	14562	GS10	50C1967	0.00740
14563	GS11	50C1967	0.01871	14565	GS12	50C1967	0.00329	14565	GS13	50C1967	0.00578
14566	GS14	50C1967	0.01101	14567	GS15	50C1967	0.00487	14568	GS16	50C1967	0.00577
14569	GS17	50C1967	0.00297	14570	GS18	50C1967	0.00367	14571	GS19	60C1967	0.00195

1 1512	GS20	60C1967	C.00361	1	1573	GS21	60C1967	C.00896	1	1574	GS22	60C1967	C.36530	1
1 1575	GS28	60C1967	C.01677	1	1544	MU 1	20C1967	C.01430	1	1547	PS 1	20C1967	C.06887	1
1 1524	PI 1	20S1967	C.76620	1	1546	LU 1	20C1967	C.00003	1	1520	HO 1	18S1967	C.05943	1
1 1521	SH 1	18S1967	C.02885	1	1522	SH 1	18S1967	C.03100	1	1526	PO 1	20S1967	C.49591	1
1 1527	TR 1	20S1967	C.01121	1	1529	KW 1	20S1967	C.04797	1	1530	FR 1	24S1967	C.11001	1
1 1531	SH 1	25S1967	C.02836	1	1545	ML 1	25C1967	C.09732	1	1548	CA 1	30C1967	C.01272	1
1 1549	MQ 1	40C1967	C.04524	1	1551	ES 1	50C1967	C.27957	1	1552	SM 1	40C1967	C.03962	1
1 1550	MR 1	50C1967	C.1585925	1	1553	SG 1	60C1967	C.08079	1	1528	MU 2	29M1967	C.02109	1
1 1426	PS 2	29M1967	C.02100	1	1427	LU 2	29M1967	C.02621	1	1417	HO 2	29M1967	C.02263	1
1 1418	SH 2	22M1967	C.01555	1	1350	SH 2	19AP1967	C.13918	1	1401	MO 2	40M1967	C.04116	1
1 1402	TR 2	40M1967	C.02707	1	1400	SB 2	40M1967	C.01787	1	1352	KW 2	21AP1967	C.01718	1
1 1354	GH 2	25AP1967	C.00345	1	1450	CA 2	10M1967	C.01308	1	1405	MQ 2	10M1967	C.01163	1
1 1405	ES 2	12M1967	C.03225	1	1407	SM 2	14M1967	C.04777	1	1406	GB 2	13M1967	C.01348	1
1 1422	CA 2	23M1967	C.00511	1										

Cocconeis placentula var. *lineata* (Ehr.) V. H.

Cocconeis lineata Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1847, pl.

5(1), fig. 10. 1849.

Cocconeis placentula var. *lineata* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 133. 1885.

106 CCPLACVL TCT NO OF STATIONS 49														
1 1396	GS20	13M1967	C.00074	1	1397	GS21	13M1967	C.00065	1	1554	GS 1	30C1967	C.00712	1
1 1555	GS 2	30C1967	C.04987	1	1556	GS 3	30C1967	C.05736	1	1557	GS 4	30C1967	C.00374	1
1 1558	GS 5	40C1967	C.01185	1	1559	GS 7	40C1967	C.02028	1	1561	GS 9	40C1967	C.00587	1
1 1563	GS11	50C1967	C.00468	1	1565	GS13	50C1967	C.02028	1	1566	GS14	50C1967	C.00183	1
1 1567	GS15	50C1967	C.01744	1	1569	GS17	50C1967	C.02046	1	1570	GS18	50C1967	C.02662	1
1 1571	GS19	60C1967	C.00995	1	1573	GS21	60C1967	C.00524	1	1575	GS28	60C1967	C.01032	1
1 1544	MU 1	20C1967	C.01868	1	1547	MS 1	20C1967	C.02784	1	1524	PI 1	20S1967	C.04729	1
1 1546	LU 1	20C1967	C.05902	1	1520	HO 1	20C1967	C.02157	1	1521	SH 1	20S1967	C.01154	1
1 1522	BE 1	18S1967	C.01276	1	1527	TR 1	20S1967	C.05860	1	1529	KW 1	20S1967	C.04797	1
1 1530	FR 1	24S1967	C.02000	1	1531	GH 1	25S1967	C.00845	1	1545	ML 1	20C1967	C.02932	1
1 1548	CA 1	30C1967	C.08905	1	1549	MQ 1	40C1967	C.01234	1	1551	ES 1	50C1967	C.03994	1
1 1552	SM 1	40C1967	C.01321	1	1550	MR 1	50C1967	C.35683	1	1553	SG 1	60C1967	C.22203	1
1 1428	MU 2	29M1967	C.01808	1	1426	MS 2	29M1967	C.03045	1	1351	PI 2	21AP1967	C.00621	1
1 1427	LU 2	29M1967	C.07264	1	1417	HO 2	29M1967	C.01122	1	1350	SH 2	29M1967	C.29330	1
1 1354	GH 2	25AP1967	C.03452	1	1423	ML 2	29M1967	C.05308	1	1404	MC 2	10M1967	C.12703	1
1 1405	ES 2	12M1967	C.02580	1	1407	SM 2	14M1967	C.04777	1	1349	CL 2	19AP1967	C.00718	1
1 1406	GB 2	13M1967	C.04217	1										

Cocconeis thumensis A. Mayer

Cocconeis thumensis A. Mayer, Bayerisch Kryptog. Forsch., 1:199, pl. 6, fig. 24. 1919.

107 CETHUMEN TCT NO OF STATIONS 21														
(60973)	CH	1876	C.02362	1	46516	CH	4M1967	C.00034	1	1255	O 5	15JL1964	C.00257	1
1 1256	E 2	14JL1964	C.00183	1	1259	F 2	6JL1964	C.00310	1	1268	E 2	15AL1964	C.00274	1
1 1279	E 1	16SE1964	C.00393	1	1285	F 1	15SE1964	C.01169	1	1251	C* 2	16OC1964	C.00245	1
1 1294	O 3	19OC1964	C.00330	1	1311	O 1	8M1964	C.00258	1	1344	C 3	25AP1967	C.00165	1
1 1347	E 2	23AP1967	C.00163	1	1370	A 6	3PY1967	C.00230	1	1375	E 3	7M1967	C.00241	1
1 1343	E 5	10OC1964	C.00718	1	1382	CS 6	10M1967	C.00278	1	1392	CS16	12M1967	C.00308	1
1 1394	GS18	13M1967	C.00172	1	1359	GS 2	30C1967	C.01209	1	1357	GS 4	30C1967	C.00374	1

Species incertae sedis

Cocconeis sp. #2.

108 CCSPECCR TCT NO OF STATIONS 17														
1 46909	CH	MR1947	C.00455	1	1258	F 1	6JL1964	C.00236	1	1279	E 1	16SE1964	C.00393	1
1 1285	F 1	15SE1964	C.01165	1	1541	E 2	11OC1967	C.00432	1	1395	GS19	13M1967	C.00117	1
1 1354	GS 1	30C1967	C.00235	1	1555	GS 2	30C1967	C.00353	1	1556	GS 3	30C1967	C.00521	1
1 1362	GS1C	40C1967	C.00247	1	1573	GS21	60C1967	C.00112	1	1574	GS22	60C1967	C.01151	1
1 1527	TR 1	20S1967	C.0125E	1	1530	FR 1	24S1967	C.01000	1	1545	ML 1	20C1967	C.00676	1
1 1550	MR 1	50C1967	C.02478	1	1350	SH 2	19AP1967	C.00441	1					

Cocconeis sp. #3.

109 CCSPECCR TCT NO OF STATIONS 9													
(3540	CH	11MY1879	0.00466)	(1268	E 2	15AU1964	0.00274)	(1270	F 1	10AU1964	C.C1685)		
(1303	E 6	13OC1964	0.00560)	(1304	F 1	11OC1964	0.00247)	(1313	O 3	9M1964	C.C0193)		
(1345	C 5	25AP1967	C.C0195)	(1541	E 2	11CC1967	C.01064)	(1543	E 5	10CC1967	C.C0718)		

Cocconeis sp. #4.

110. COSPECED TCT NO OF STATIONS 11												
(46768	EV	16MR1958	0.01470)	(1305	F 2	110C1966	0.00173)	(1452	E 2	14JL1967	C.00213)	
(1392	GS16	12MY1967	0.00308)	(1356	GS20	13MY1967	0.00074)	(1398	GS22	14MY1967	C.00304)	
(1558	GS 5	40C1967	0.00396)	(1565	GS13	50C1967	0.02535)	(1526	PO 1	20SE1967	0.00569)	
(1527	TR 1	20SE1967	0.00625)	(1350	BH 2	15AP1967	0.00861)	(				

Cocconeis sp. #5.

111. COSPECCE TCT NO OF STATIONS 2												
(1279	E 1	16SE1964	0.00393)	(1530	FR 1	24SE1967	C.01000)	(1545	WL 1	20C1967	0.00676)	

Cocconeis sp. #6.

112. COSPECDF TCT NO OF STATIONS 2												
(1449	C 3	16JL1967	0.00382)	(1557	GS 4	30C1967	0.00374)	(				

Genus *Coscinodiscus* Ehrenberg
Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1838:128. 1840.

Coscinodiscus subsalsus Juhl.-Dannf.

Coscinodiscus subsalsus Juhlin-Dannfelt, Bih. K. Svenska Vet.-Akad. Handl., 6(21):47, pl. 3, fig. 33. 1882.

Cells circular in valve view and rectangular in girdle view. Vegetative cells occur singly or in short colonies of up to 10 cells. Valves of specimens from Lake Michigan 16-42 μ in diameter. The valve surface may be either simply concave or concave near the margins and convex in the middle. Ornamentation of the valve surface is composed of conspicuous areolae which are circular in surface focus and more or less hexagonal in deep focus. Areolae in the central portion of the valve coarse, about 10 in 10 μ , becoming much finer, about 20 in 10 μ , near the margins. Near the periphery of the valve there are several (usually 4-6) slime pores each subtended by a fungiform projection into the interior of the frustule. In living cells long, gelatinous strands extend from these pores. The ornamentation of the valve surface tends to be arranged in loose fascicles that focus on the pores giving a stellate appearance.

The systematic position of this entity is somewhat uncertain. Many authorities consider it to be a variety or form of either *C. rothii* or *C. subtilis*. Its recorded distribution indicates a preference for brackish water or waters of high total dissolved solids in inland regions. At the present time it is established in polluted harbors and nearshore waters of Lake Michigan and has become one of the dominant species in the summer plankton of Lake Erie.

113 CSPTHTVS TOT AC OF STATIONS 13											
(1230	E 2	16MY1964	0.00294	(1259	F 2	6JUL1964	0.00310	(1264	C* 1	10AU1964	C.C1545
(1265	C* 2	10AU1964	0.00224	(1272	C* 1	10SE1964	0.01231	(1279	E 1	16SE1964	0.00393
(1298	E 1	12OC1964	0.00265	(1362	E 5	13OC1964	0.00405	(1468	A 3	23MY1967	C.00447
(1416	E 5	28MY1967	0.00210	(1536	E 2	24SE1967	0.00273	(1539	C 3	40C1967	C.00503
(1568	GS16	5SC1967	0.00144								

Species *incertae sedis*

Coscinodiscus sp. (aff. *C. tuberculatus*).

114 CSTUREVQ TOT NO OF STATIONS 1											
(1264	C* 1	10AU1964	0.00386	(							

Genus *Cyclotella* Klitz.
Klitzing, Syn. Diat. p. 7. 1834.

Cyclotella antiqua Wm. Smith

Cyclotella antiqua Wm. Smith, Syn. British Diat., p. 28, pl. 5, fig. 49. 1853.

Cells cylindrical with concentrically undulate valves, either concave or convex in the center. Specimens from Lake Michigan from 12-30 μ in diameter. The marginal zone is narrow, only about one-third the radius of the valve. The marginal striae are about 16-18 in 10 μ at the margin, without visible substructure and irregular in length. Regularly spaced thickened ribs, below the plane of focus of the striae, appear as "shadow lines" near the margin of the valve, about 5-7 in 10 μ . The margin of the central area of the valve is ornamented with conspicuous conical depressions of the surface whose surface is covered with fine, irregularly arranged puncta. The base of the conical depression is toward the valve margin and the apex toward the center. The number of these depressions is variable, depending on the size of the valve, but usually 6-8 are present. The rest of the central surface of the valve may be without ornamentation or may have a greater or lesser number of randomly arranged punctae of varying sizes.

This species is very distinctive in appearance and is not easily confused with any other member of the genus occurring in Lake Michigan. It is never a numerically important part of the plankton populations of the lake but numerous examples have been found, particularly in samples from the northern portion of the lake. Previous reports of its distribution indicate that it reaches its greatest abundance in northern and alpine oligotrophic lakes.

112 CYANTIQUE TET AC CF STATIONS 13

(1270	E 1	1CAU1564	0.02812)	(1285	F 1	155E1964	0.04077)	(1291	C* 2	140C1564	C.C.245)
(1387	GS 11	12MY1567	0.00396)	(1397	GS 21	13MY1967	0.00065)	(1557	GS 4	30C1967	C.00374)
(1558	GS 5	40C1567	0.01189)	(1559	GS 7	40C1567	0.00699)	(1560	GS 8	40C1567	C.C.1517)
(1561	GS 9	40C1567	0.00587)	(1562	GS 10	50C1967	0.01727)	(1548	CA 1	30C1967	C.C.1272)
(1549	PQ 1	40C1567	0.02741)								

Cyclotella atomus Hust.

Cyclotella atomus Hust., Archiv f. Hydrobiol., Suppl. Bd. 15:143, pl. 9, figs. 1-4. 1938.

Cells cylindrical with excentrically undulate valves. Specimens from Lake Michigan 2.5-5 μ in diameter. The marginal zone is narrow, only one-quarter the radius of the valve. The marginal striae are about 16-18 in 10 μ , without visible substructure. The striae appear as thickened ribs under the light microscope and every fourth or fifth one appears to be more thickened than the others. The only visible ornamentation in the central portion of the valve is a single, rather large, puncta. This structure is usually located about one-half the distance from the center of the valve to inner edge of the marginal striae. Because of the uniformly small size of this species the undulation of the valve can only be seen from the girdle view. The cells are rectangular in girdle view with the length of the perivalvar axis being about one-half the valve diameter.

Although this species was originally described from the tropics, its distinctive morphology leaves little doubt of the correct assignment of the specimens from Lake Michigan to it. At present it is quite rare in the flora of the lake. Our records come from inshore areas that receive appreciable chloride contamination. Previous reports from Lake Michigan are lacking.

1240	D 4	10JUL1964	0.00153	(1255	O 5	15JUL1964	0.00257	(1273	C* 2	10SEI1964	C.00538	I
1446	A 3	11JUL1967	0.00245	(1451	C 7	16JUL1967	0.00394	(1520	H* 1	18SEI1967	C.00943	I
1521	SH 1	18SEI1967	0.01154	(1356	BH 2	15APR1967	0.02299	(				

Cyclotella comta (Ehr.) Klütz.

Discoplea comta Ehr., Ber. Akad. Wiss. Berlin, 1842:267. 1844.

Cyclotella comta (Ehr.) Klütz., Sp. Alg., p. 20. 1849.

Cells cylindrical with concentrically undulate valves, either concave or convex in the center. Specimens from Lake Michigan 7.5-55 μ in diameter. Marginal zone about one-half the radius of the valve. Striae in the marginal zone about 13-18 in 10 μ at the valve margin, with barely visible substructure composed of two rows of fine puncta. This feature can be resolved with certainty only in the larger individuals. Most of the striae are of the same length and form an even inner margin, but numerous shortened striae of irregular length are interposed between them and there are often 1-6 more or less conspicuous slime pores at the margin of the zone that are subtended by shortened striae. At the outer margin of the valve a row of chambers occurs below the level of the striae. One of these chambers usually subtends the base of two striae and appears as a "shadow line" between the striae pairs at high focus. In the smaller individuals these chambers appear as thickenings near the margin of the valve. The ornamentation of the central area is highly irregular in this taxon. In the larger individuals the central area is ornamented with randomly arranged small puncta. In the smaller individuals the puncta become compressed and may assume a more or less regular appearance. Many authorities distinguish several varieties on the basis of the arrangement of the central punctae. While this segregation appears feasible when working with isolated populations, our observations lead us to believe that the cited variations grade into one another so that no morphologic distinction can be made.

46073	CH	1876	2.92867	(3540	CH	11MY1875	0.13578	(3541	CH	1FE1881	1.54553	I
43507	CH	19FE1881	0.05660	(46510	CH	CC1945	0.02403	(46921	CH	23NO1946	0.12611	I
46608	CH	DE1945	0.03021	(46517	CH	12JUL1946	0.00898	(46915	CH	20FE1946	0.06829	I
46914	CH	16AP1946	0.03097	(46524	CH	10MY1946	0.02611	(46923	CH	22NO1946	0.71032	I
46920	CH	20SE1946	0.24032	(46992	CH	JUL1947	0.10173	(46909	CH	MR1947	0.17303	I
46912	CH	AP1947	0.01150	(46516	CH	4AP1947	0.05441	(46906	CH	FE1947	0.01858	I
46918	CH	2JUL1947	0.01062	(46907	CH	1JUL1947	0.10551	(46913	CH	6AU1947	0.05230	I
46922	CH	21AU1947	2.58315	(46758	EV	5JN1937	0.00357	(46771	EV	11JUN1937	0.01426	I
46923	EV	26JUN1937	0.00856	(46770	EV	9JUL1937	0.01193	(46764	EV	17JUL1937	0.01612	I
46973	EV	2JUL1937	0.02559	(46747	EV	16JUL1937	0.07674	(46763	EV	23AUL1937	0.35262	I
46975	EV	30AUL1937	0.23658	(46769	EV	7SE1937	1.34607	(46752	EV	15SE1937	1.61080	I
46760	EV	22SE1937	2.44816	(46950	EV	24SE1937	0.29222	(46744	EV	6OC1937	0.12193	I
46768	EV	13OC1937	0.17079	(46767	EV	27OC1937	0.05802	(46749	EV	12MR1938	0.30641	I
46768	EV	16MR1938	0.02940	(46762	EV	18MR1938	0.30878	(46756	EV	27AP1938	0.01007	I
46755	EV	19MY1938	0.01013	(46761	EV	27MY1938	0.00273	(46766	EV	14OE1938	0.03169	I
1223	B 3	18MY1964	0.00156	(1225	C 6	15MY1964	0.00392	(1226	C 7	16MY1964	0.00381	I
1227	C* 2	12MY1964	0.00219	(1228	O 2	14MY1964	0.00594	(1229	O 5	14MY1964	0.01480	I
1230	E 2	16MY1964	0.00593	(1231	E 3	16MY1964	0.00518	(1232	E 5	16MY1964	0.00348	I
1233	B 3	5JUL1964	0.00714	(1439	B 6	5JUL1964	0.00200	(1236	C* 1	8JUL1964	0.00350	I
1237	C* 2	8JUL1964	0.00258	(1238	O 3	11JUL1964	0.01600	(1239	D 4	11JUL1964	0.00116	I
1240	D 6	10JUL1964	0.00940	(1242	E 3	13JUL1964	0.00150	(1243	E 6	13JUL1964	0.01462	I
1244	F 1	11JUL1964	0.00548	(1245	F 2	11JUL1964	0.00692	(1246	F 3	11JUL1964	0.00781	I
1247	B 3	14JUL1964	0.15209	(1248	B 3	24JUL1964	2.06905	(1240	B 6	11JUL1964	0.00528	I
1441	B 6	24JUL1964	0.10838	(1249	C 3	8JUL1964	0.00015	(1250	C 6	10JUL1964	0.14388	I
1251	C 7	16JUL1964	0.05271	(1252	C* 1	16JUL1964	0.01674	(1253	C* 2	16JUL1964	0.23279	I
1254	O 2	19JUL1964	0.01932	(1255	O 5	15JUL1964	0.01766	(1256	E 2	14JUL1964	0.01466	I
1257	E 3	19JUL1964	0.02133	(1258	F 1	9JUL1964	0.12507	(1259	F 2	6JUL1964	0.15493	I
1260	F 3	6JUL1964	0.13370	(1261	B 3	2AU1964	0.75555	(1262	B 3	17AU1964	1.02648	I
1262	B 6	2AU1964	0.12282	(1263	B 6	16AU1964	0.46258	(1263	C 7	15AU1964	1.54122	I
1264	C 1	10JUL1964	1.81094	(1267	C 6	15JUL1964	0.12577	(1268	E 3	17JUL1964	1.06637	I
1267	O 6	18JUL1964	0.15132	(1268	E 2	15AU1964	1.43615	(1269	E 7	15AU1964	1.19113	I
1270	F 1	10JUL1964	0.33566	(1274	B 6	10SE1964	2.07191	(1271	F 7	22SE1964	0.21092	I
1272	C 2	10SE1964	0.05744	(1273	C 6	10SE1964	0.06218	(1274	O 1	15SE1964	0.7858	I
1275	O 2	17SE1964	0.00317	(1276	O 3	18SE1964	0.32409	(1277	D 4	18SE1964	1.38803	I
1278	O 6	18SE1964	0.06455	(1279	E 1	14SE1964	0.20419	(1280	E 2	16SE1964	0.24500	I

1281	E 3	165E1564	0.24039	1282	E 4	165E1644	0.55402	1285	E 5	165E1964	2.78901
1282	E 6	175E1564	0.81340	1283	F 1	155E1644	3.05748	1286	F 2	140E1564	1.53244
1287	F 3	155E1564	2.73662	1288	G 3	150C1644	C01088	1445	B 6	40C1564	C.74364
1289	C 3	140C1564	0.12313	1290	C 3	140C1564	0.21877	1291	C 3	140C1564	0.24511
1292	O 1	150C1564	0.30593	1293	O 2	150C1564	C0C890	1294	G 3	150C1564	C.57685
1295	O 4	150C1564	0.60555	1296	O 5	140C1564	0.68892	1297	O 6	140C1564	0.62475
1298	E 1	120C1564	0.49524	1299	E 2	120C1564	0.24191	1300	E 3	130C1564	0.40745
1301	E 4	130C1564	0.30911	1302	E 5	130C1564	2.55081	1303	E 6	130C1564	C.49106
1304	F 1	110C1564	0.11524	1305	F 2	110C1564	0.40455	1306	F 3	110C1564	0.10533
1307	B 6	N01564	0.15514	1308	C 7	100C1564	0.02737	1309	C 8	100C1564	0.02175
1310	C 2	100N01564	0.29252	1311	E 1	80N01564	C.10577	1313	O 3	90N01564	C.06887
1314	E 2	90N01564	0.02330	1315	E 3	80N01564	0.02730	1316	E 4	70N01564	C.02161
1317	E 1	60N01564	0.20676	1318	E 2	70N01564	0.13317	1319	E 3	70N01564	C.06887
1320	E 4	70N01564	0.08687	1321	E 5	70N01564	0.03511	1322	E 6	70N01564	C.00667
1323	F 1	60N01564	0.08232	1324	F 2	60N01564	0.02008	1325	F 3	60N01564	C.00176
1326	C 3	27A01564	0.00578	1327	C 3	20R01564	0.02205	1328	C 3	20R01564	C.01454
1329	C 5	20R01564	0.02192	1330	C 7	20R01564	C.00145	1331	A 3	19A01564	C.01193
1332	A 4	19A01564	0.06136	1333	A 5	18A01564	0.05028	1334	A 6	25A01564	C.00195
1335	C 5	25A01564	0.01599	1336	C 7	21A01564	0.00267	1337	E 2	23A01564	C.02325
1338	E 5	23A01564	0.00685	1339	A 6	40Y01564	0.00628	1340	A 6	30Y01564	0.01611
1341	C 3	40Y01564	0.00231	1342	E 3	40Y01564	0.00355	1343	C 3	50Y01564	0.01626
1344	E 2	70Y01564	0.00295	1345	E 3	70Y01564	0.00722	1346	E 5	60Y01564	0.00562
1347	C 3	60Y01564	0.01128	1348	C 3	60Y01564	C.01128	1349	C 3	50Y01564	C.05334
1350	C 3	25Y01564	0.00632	1351	C 7	25Y01564	C.00632	1352	A 3	12A01564	C.00515
1353	A 4	13A01564	0.00766	1354	C 3	17N01564	C.02584	1355	C 3	17N01564	C.00598
1356	E 2	17A01564	0.00724	1357	E 3	17A01564	0.01223	1358	E 4	17A01564	C.00648
1359	C 3	16A01564	0.20253	1360	C 5	16A01564	0.08569	1361	C 7	16A01564	C.00197
1362	E 2	14A01564	0.00213	1363	E 3	15A01564	0.01769	1364	E 5	15A01564	C.04001
1365	A 3	20A01564	0.27082	1366	A 4	28A01564	1.40397	1367	A 5	20A01564	0.07846
1368	C 3	25E01564	0.27075	1369	C 5	25E01564	0.35286	1370	C 7	29A01564	C.48688
1371	E 2	15E01564	2.14876	1372	E 3	15E01564	0.62956	1373	E 5	31A01564	1.29725
1374	E 1	15E01564	0.50579	1375	E 2	15E01564	0.15783	1376	E 3	31A01564	C.00195
1377	C 7	20E01564	0.17068	1378	E 2	24E01564	C.41992	1379	E 3	24E01564	C.46100
1380	E 5	23E01564	0.14143	1381	C 5	40C01564	0.20636	1382	C 5	40C01564	0.38219
1382	E 1	10C01564	0.14524	1383	E 2	11C01564	1.21034	1384	E 3	10C01564	C.45476
1385	GS 7	09Y01564	0.00752	1386	GS 2	09Y01564	C.00421	1387	GS 3	09Y01564	C.01442
1388	GS 4	10Y01564	0.01005	1389	GS 5	10Y01564	0.01163	1390	GS 6	10Y01564	C.00717
1391	GS 7	10Y01564	0.03743	1392	GS 8	10Y01564	0.00731	1393	GS 9	10Y01564	C.04399
1394	GS10	12Y01564	0.08044	1395	GS11	12Y01564	1.06543	1396	GS12	12Y01564	C.16591
1397	GS13	12Y01564	0.04518	1398	GS14	12Y01564	0.04518	1399	GS15	12Y01564	C.11732
1400	GS16	12Y01564	C.67803	1401	GS17	13Y01564	1.24644	1402	GS18	13Y01564	C.52255
1403	GS19	13Y01564	0.12683	1404	GS20	13Y01564	0.04163	1405	GS21	13Y01564	C.01177
1406	GS22	15Y01564	0.02172	1407	GS23	15Y01564	0.14601	1408	GS24	15Y01564	C.04561
1409	GS25	30C01564	0.84032	1410	GS26	30C01564	3.13901	1411	GS27	40C01564	C.00195
1412	GS28	40C01564	4.16171	1413	GS29	40C01564	13.88561	1414	GS30	40C01564	C.54132
1415	GS31	50C01564	2.50001	1416	GS32	50C01564	0.80053	1417	GS33	50C01564	C.00195
1418	GS34	50C01564	0.21296	1419	GS35	50C01564	0.28068	1420	GS36	50C01564	C.11190
1421	GS37	50C01564	0.67243	1422	GS38	50C01564	0.41624	1423	GS39	50C01564	C.01768
1424	GS40	50C01564	0.02402	1425	GS41	50C01564	0.00523	1426	GS42	50C01564	C.00195
1427	GS43	60C01564	0.34225	1428	GS44	60C01564	0.18063	1429	GS45	60C01564	C.02621
1430	GS46	60C01564	0.19660	1431	GS47	60C01564	0.08775	1432	GS48	60C01564	C.01004
1433	GS49	60C01564	0.02074	1434	GS50	60C01564	0.00192	1435	GS51	60C01564	C.00195
1436	GS52	60C01564	0.00693	1437	GS53	60C01564	0.15930	1438	GS54	60C01564	C.07547
1439	GS55	60C01564	0.32723	1440	GS56	60C01564	0.00731	1441	GS57	60C01564	C.00195
1442	GS58	60C01564	0.01807	1443	GS59	60C01564	0.00192	1444	GS60	60C01564	C.00195
1445	GS61	60C01564	0.00192	1446	GS62	60C01564	0.00192	1447	GS63	60C01564	C.00195
1448	GS64	60C01564	0.00192	1449	GS65	60C01564	0.00192	1450	GS66	60C01564	C.00195
1451	GS67	60C01564	0.00192	1452	GS68	60C01564	0.00192	1453	GS69	60C01564	C.00195
1454	GS70	60C01564	0.00192	1455	GS71	60C01564	0.00192	1456	GS72	60C01564	C.00195
1458	GS73	60C01564	0.00192	1459	GS74	60C01564	0.00192	1460	GS75	60C01564	C.00195
1461	GS76	60C01564	0.00192	1462	GS77	60C01564	0.00192	1463	GS78	60C01564	C.00195
1465	GS79	60C01564	0.00192	1466	GS80	60C01564	0.00192	1467	GS81	60C01564	C.00195
1469	GS82	60C01564	0.00192	1470	GS83	60C01564	0.00192	1471	GS84	60C01564	C.00195
1473	GS85	60C01564	0.00192	1474	GS86	60C01564	0.00192	1475	GS87	60C01564	C.00195
1477	GS88	60C01564	0.00192	1478	GS89	60C01564	0.00192	1479	GS90	60C01564	C.00195
1481	GS91	60C01564	0.00192	1482	GS92	60C01564	0.00192	1483	GS93	60C01564	C.00195
1485	GS94	60C01564	0.00192	1486	GS95	60C01564	0.00192	1487	GS96	60C01564	C.00195
1489	GS97	60C01564	0.00192	1490	GS98	60C01564	0.00192	1491	GS99	60C01564	C.00195
1493	GS100	60C01564	0.00192	1494	GS101	60C01564	0.00192	1495	GS102	60C01564	C.00195
1497	GS103	60C01564	0.00192	1498	GS104	60C01564	0.00192	1499	GS105	60C01564	C.00195
1501	GS106	60C01564	0.00192	1502	GS107	60C01564	0.00192	1503	GS108	60C01564	C.00195
1505	GS109	60C01564	0.00192	1506	GS110	60C01564	0.00192	1507	GS111	60C01564	C.00195
1509	GS112	60C01564	0.00192	1510	GS113	60C01564	0.00192	1511	GS114	60C01564	C.00195
1513	GS115	60C01564	0.00192	1514	GS116	60C01564	0.00192	1515	GS117	60C01564	C.00195
1517	GS118	60C01564	0.00192	1518	GS119	60C01564	0.00192	1519	GS120	60C01564	C.00195
1521	GS121	60C01564	0.00192	1522	GS122	60C01564	0.00192	1523	GS123	60C01564	C.00195
1525	GS124	60C01564	0.00192	1526	GS125	60C01564	0.00192	1527	GS126	60C01564	C.00195
1529	GS127	60C01564	0.00192	1530	GS128	60C01564	0.00192	1531	GS129	60C01564	C.00195
1533	GS130	60C01564	0.00192	1534	GS131	60C01564	0.00192	1535	GS132	60C01564	C.00195
1537	GS133	60C01564	0.00192	1538	GS134	60C01564	0.00192	1539	GS135	60C01564	C.00195
1541	GS136	60C01564	0.00192	1542	GS137	60C01564	0.00192	1543	GS138	60C01564	C.00195
1545	GS139	60C01564	0.00192	1546	GS140	60C01564	0.00192	1547	GS141	60C01564	C.00195
1549	GS142	60C01564	0.00192	1550	GS143	60C01564	0.00192	1551	GS144	60C01564	C.00195
1553	GS145	60C01564	0.00192	1554	GS146	60C01564	0.00192	1555	GS147	60C01564	C.00195
1557	GS148	60C01564	0.00192	1558	GS149	60C01564	0.00192	1559	GS150	60C01564	C.00195
1561	GS151	60C01564	0.00192	1562	GS152	60C01564	0.00192	1563	GS153	60C01564	C.00195
1565	GS154	60C01564	0.00192	1566	GS155	60C01564	0.00192	1567	GS156	60C01564	C.00195
1569	GS157	60C01564	0.00192	1570	GS158	60C01564	0.00192	1571	GS159	60C01564	C.00195
1573	GS160	60C01564	0.00192	1574	GS161	60C01564	0.00192	1575	GS162	60C01564	C.00195
1577	GS163	60C01564	0.00192	1578	GS164	60C01564	0.00192	1579	GS165	60C01564	C.00195
1581	GS166	60C01564	0.00192	1582	GS167	60C01564	0.00192	1583	GS168	60C01564	C.00195
1585	GS169	60C01564	0.00192	1586	GS170	60C01564	0.00192	1587	GS171	60C01564	C.00195
1589	GS172	60C01564	0.00192	1590	GS173	60C01564	0.00192	1591	GS174	60C01564	C.00195
1593	GS175	60C01564	0.00192	1594	GS176	60C01564	0.00192	1595	GS177	60C01564	C.00195
1597	GS178	60C01564	0.00192	1598	GS179	60C01564	0.00192	1599	GS180	60C01564	C.00195
1601	GS181	60									

Cyclotella cryptica Reimann, Lewin and Guillard

Cyclotella cryptica Reimann, Lewin and Guillard, Phycologia, 3:82, figs. 4-6. 1963.

Cells cylindrical with slightly concentrically undulate, nearly flat, valves. Cells always occur singly. Specimens from Lake Michigan 8-16 μ in diameter. Ornamentation of the marginal zone consists of rather broad, chambered, striae, without substructure visible under the light microscope, separated by radiate costae. Striae and costae about 6-9 in 10 μ at the margin of the valves. A rather inconspicuous spine occurs at the marginal end of each of the costae. The chambers of the costae grade into the surface of the central area so that the central area has no well defined border. The striae are also somewhat variable in length, especially in the larger individuals. The only visible ornamentation of the central area is one or more (usually less than 5) distinct puncta. These puncta are somewhat random in arrangement, but are never central and are most often confined to one side of the central area.

This species resembles *C. meneghiniana* and several of its described varieties. Evidence begins to accumulate that entities described as *C. meneghiniana* include a number of species of superficially similar morphology that are difficult to distinguish under the light microscope.

According to our evidence *C. cryptica* is quite rare in the Lake Michigan flora and the majority of our records come from harbors and from inshore areas subject to appreciable chloride contamination. Its distribution in this respect is quite similar to that of *C. meneghiniana* and some of its described varieties. With adequate optical equipment, determination of the two entities is not especially difficult but care must be taken and previous records, especially those derived from observations of living material, should be treated with caution.

119 CYCVRPT1 TOT NO OF STATICS 18											
(1269	E 3	15AU1964	0.00274	(1273	C* 2	10SE1964	0.00538	(1274	G 1	17SE1964	C.CC465
(1282	E 4	16SE1964	0.01108	(1284	E 6	17SE1964	0.00318	(1348	E 5	23AP1967	C.CC0137
(1451	C 7	16JL1967	C.CC394	(1452	E 2	14JL1967	0.01490	(1504	A 3	28AU1967	C.CC741
(1533	A 4	19SE1967	0.03715	(1536	A 6	19SE1967	0.00310	(1536	E 2	24SE1967	C.CC7562
(1537	E 3	24SE1967	0.03450	(1538	E 5	23SE1967	C.CC0552	(1541	E 2	11OC1967	C.CC20755
(1542	E 3	11OC1967	0.07628	(1543	E 5	10OC1967	0.03591	(1575	C528	60C1967	C.CC0129

Cyclotella kuetzingiana Thwaites

Cyclotella kuetzingiana Thwaites, Ann. Mag. Nat. Hist., ser. 2, 1:169. 1848.

Cells cylindrical with slightly excentrically undulate valves. Specimens from Lake Michigan 7-32 μ in diameter, always occurring singly. Marginal zone somewhat variable in width, about one-quarter--one-half the radius of the valve. Ornamentation of the marginal zone composed of non-punctate striae, 12-14 in 10 μ at the margin of the valve. The striae are of variable length, especially in the smaller individuals. In the larger individuals the inner border of the marginal zone is regular due to the

fact that the longer striae are all of approximately the same length. In the smaller individuals the border between the two zones appears less regular due to the fewer number of striae present. The ornamentation of the central area is highly variable in this taxon. A number of distinct puncta are present in all individuals. These may be of larger or smaller size and may be either randomly arranged or disposed radially. Other structures such as chambers or thickenings of the valve surface are lacking.

A number of varieties of this species have been described on the basis of the various patterns of ornamentation of the central area. Individual specimens can be found in the collections from Lake Michigan that are identical to nearly all of these. When populations are considered, these variations grade into one another so completely that no such distinctions can be made.

120 CYKUTZIN TCT NC CF STATIONS 135

13540	CH	11MY1879	0.00592	13541	CH	1FE1881	0.00847	13547	CH	19FE1881	C.01132		
146095	CH	11MY1879	0.00592	146096	CH	1FE1881	0.00847	146097	CH	19FE1881	C.01132		
146747	EV	1AU1937	0.00248	146748	EV	20J1937	0.00488	146749	EV	21AU1947	C.00048		
14440	B	11J11964	0.00305	14441	B	24J11964	0.01762	14442	C	16J11964	C.02228		
14259	F	6J11964	0.00010	14260	F	24J11964	0.00951	14261	C	16J11964	C.01193		
14265	C*	12AU1964	0.00894	14266	C	18AU1964	0.22099	14267	E	15AU1964	C.02774		
14270	F	10AU1964	0.00817	14271	C*	10SE1964	0.00366	14272	E	16SE1964	C.00393		
14280	E	14SE1964	0.01362	14281	E	16SE1964	0.01570	14282	E	16SE1964	C.00432		
14283	E	16SE1964	0.03065	14284	E	17SE1964	0.04766	14285	F	15SE1964	0.01165		
14292	O	15GC1964	0.00745	14293	O	15GC1964	0.00472	14294	O	15GC1964	C.00655		
14295	O	15GC1964	0.03506	14296	O	14GC1964	0.00393	14297	E	12GC1964	0.00539		
14299	E	12GC1964	0.00628	14300	E	13GC1964	0.02148	14301	E	13GC1964	0.00901		
14302	E	13GC1964	0.03295	14303	E	13GC1964	0.01679	14304	F	11GC1964	0.00832		
14307	E	6C1964	0.00361	14308	C	10NO1964	0.00643	14309	E	6NC1964	C.00191		
14319	E	7NO1964	0.01833	14320	E	7NO1964	0.00620	14321	E	7NO1964	C.00638		
14322	E	7NO1964	0.00333	14323	C	28MR1967	0.00312	14324	C	28MR1967	C.00073		
14345	C	28MR1967	0.00589	14346	C	21MR1967	0.00401	14347	E	19MR1967	C.00241		
14376	E	6MY1967	0.00562	14377	A	24MY1967	0.00584	14378	C	16J11967	C.00293		
14504	A	28MR1967	0.00247	14505	C	25SE1967	0.01809	14506	C	29AU1967	C.00632		
14511	E	15SE1967	0.00719	14512	E	15SE1967	0.13927	14513	E	31AU1967	1.77389		
14532	A	18SE1967	0.00329	14533	A	10SE1967	0.00464	14534	A	19SE1967	C.00331		
14538	C	24SE1967	0.13927	14539	C	24SE1967	0.13927	14540	C	24SE1967	5.74622		
14538	E	23SE1967	0.05659	14539	C	40C1967	0.02013	14540	C	40C1967	2.00350		
14541	E	11GC1967	0.46977	14542	E	11GC1967	12.81530	14543	E	10GC1967	1.10616		
14579	GS	6MY1967	0.00305	14580	GS	6MY1967	C.00188	14581	GS	10MY1967	C.00239		
14582	GS	6MY1967	0.00278	14583	GS	10MY1967	0.01871	14584	GS	10MY1967	C.01475		
14587	GS12	12MY1967	0.10654	14588	GS12	12MY1967	0.56712	14589	GS12	12MY1967	0.10056		
14590	GS14	12MY1967	0.05285	14591	GS15	12MY1967	0.00515	14592	GS16	12MY1967	0.00548		
14593	GS17	13MY1967	0.02152	14594	GS18	13MY1967	0.03096	14595	GS19	13MY1967	C.00822		
14596	GS20	13MY1967	0.00222	14597	GS22	14MY1967	0.00607	14598	GS	10C1967	C.01310		
14595	GS	2	0.0193	14596	GS	3	0.0017	14597	GS	3	0.0017		
14598	GS	4	0.00167	14599	GS	7	0.00167	14600	GS	8	0.00167		
14603	GS	9	0.00167	14604	GS16	5GC1967	1.55425	14605	GS11	5GC1967	0.56427		
14604	GS12	5GC1967	1.18515	14605	GS16	5GC1967	0.04995	14606	GS14	5GC1967	0.49928		
14607	GS15	5GC1967	1.35887	14608	GS16	5GC1967	1.13564	14609	GS17	5GC1967	C.38054		
14610	GS18	5GC1967	0.93217	14611	GS19	6GC1967	0.00351	14612	GS21	6GC1967	C.00160		
14613	GS22	6GC1967	0.11218	14614	GS28	6GC1967	0.10332	14615	GS	1	0.00167		
14620	MD	1	1.85E1967	0.00943	14621	MD	1	1.85E1967	0.00182	14622	MD	1	1.85E1967
14624	MD	1	2.03E1967	0.00827	14625	MD	1	2.03E1967	0.01258	14626	MD	1	2.03E1967
14629	MD	1	2.03E1967	0.01183	14630	MD	1	2.03E1967	0.02000	14631	MD	1	2.03E1967
14648	CA	1	3.05E1967	0.36851	14649	MD	1	4.00E1967	0.21927	14650	MD	1	4.00E1967
14652	MD	1	4.00E1967	0.10161	14653	MD	1	5.00E1967	0.16107	14654	MD	1	5.00E1967
14658	MD	1	2.9MY1967	0.00361	14659	MD	1	2.9MY1967	0.01211	14660	MD	1	2.9MY1967
14661	MD	2	6MY1967	0.00588	14662	MD	2	6MY1967	0.01083	14663	MD	2	6MY1967

14552	KW	2	21AF1967	0.00859	14605	ES	2	12MY1967	0.00795	14607	SP	2	14MY1967	C.02583
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Cyclotella meneghiniana Kütz.

Cyclotella meneghiniana Kützinger, Bacill., p. 50, pl. 30, fig. 68. 1844.

Cells cylindrical with strongly excentrically undulate valves. Cells usually occur singly. Specimens from Lake Michigan 7-30μ in diameter. Ornamentation of the marginal zone consists of broad, chambered striae separated by radiate costae. Striae and costae 6-9 (usually 7 or 8) in 10μ at the margin of the valve. The striae are all of equal length and have no substructure visible under the light microscope. The width of the marginal

zone is about one-half the radius of the valve. The border between the two zones of the valve surface is very well marked and regular. The ornamentation of the central area consists of very fine and indistinct radiating striae occasionally with one or more larger isolated puncta. In some specimens the central area has no visible structure.

As noted in the discussion of *C. cryptica*, the reports of this species probably include several taxa of similar morphology. In Lake Michigan the nominate variety of *C. meneghiniana* is much rarer than *C. meneghiniana* var. *plana* described below. Our limited observations indicate that differences between these two taxa are great enough so that further study may prove them to be separate species. Final determination of the status of the numerous described taxa that are included in *C. meneghiniana* by most authorities awaits the patient research of the monographer.

123 CYMENEH TCT NO OF STATICS 52

(3540	CH	11MY1879	0.0C466)	(3507	CH	19FE1881	C.01132)	(46920	CH	20GE1946	C.00C31)
(46920	CH	181947	0.00388)	(46516	CH	4MY1547	C.00034)	(46922	CH	21AU1547	C.00145)
(1226	G 7	16MY1564	C.01761)	(1252	C 1	16JL1964	C.00278)	(1264	C 1	18AU1564	C.00505)
(1266	D 3	18AU1964	1.35090)	(1271	C 7	22SE1564	C.00653)	(1272	C 1	10SE1564	C.00157)
(1274	O 1	17SE1564	0.00469)	(1276	D 3	18SE1564	C.01118)	(1279	E 1	16SE1564	C.00393)
(1280	E 2	16SE1564	C.00481)	(1286	F 2	15SE1564	C.00354)	(1287	F 3	15SE1564	C.00500)
(1306	F 3	11OC1964	0.00594)	(1311	D 1	8NO1964	C.00774)	(1315	O 5	9NO1564	C.00455)
(1316	D 6	9NO1564	0.00378)	(1320	E 4	7BC1564	C.00227)	(1323	E 1	6NC1564	C.00135)
(1324	F 2	8NO1564	0.00233)	(1341	A 3	19AP1567	C.00542)	(1342	A 4	16AP1567	C.00541)
(1343	A 6	19AP1567	0.00065)	(1348	E 5	23AP1567	C.00137)	(1370	A 6	3MY1567	C.00230)
(1409	A 4	23MY1567	0.00298)	(1411	C 3	31MY1567	C.00410)	(1416	E 5	28MY1567	C.01749)
(1431	A 3	12JN1567	C.00505)	(1432	A 4	13JN1567	C.00255)	(1434	C 5	17JN1567	C.00295)
(1448	A 6	10JL1967	0.00354)	(1450	C 5	16JL1967	C.00381)	(1451	C 7	16JL1967	C.00197)
(1508	C 3	25E1567	0.00402)	(1511	E 2	15E1567	C.00921)	(1532	A 3	18SE1567	C.01971)
(1533	A 4	19SE1567	0.00464)	(1534	A 6	19SE1567	C.00620)	(1535	C 7	20SE1567	C.00966)
(1537	E 3	24SE1567	0.01474)	(1538	E 5	23SE1567	C.00867)	(1539	C 3	4OC1567	C.00503)
(1540	C 5	4OC1567	0.00456)	(1541	E 2	11OC1567	C.07983)	(1542	C 3	11OC1567	C.00560)
(1543	E 5	10CC1967	0.05746)								

Cyclotella meneghiniana var. *plana* Fricke

Cyclotella meneghiniana var. *plana* Fricke, A. Schmidt's Atlas Diat., pl. 222, fig. 32. 1900.

Cells cylindrical with slightly concentrically undulate, nearly flat, valves. Cells occur singly. Specimens from Lake Michigan 8-38 μ in diameter. Ornamentation of the marginal zone consists of rather broad chambered striae separated by rather wide and only slightly thickened radial ribs. Radial striae and costae 7-9 in 10 μ , all of the same length, forming a smooth border with the central area. The striae and costae occupy about one-half the radius of the valve. At the distal end of each of the costae there is a more or less conspicuous spine. The ornamentation of the central area consists of very fine and indistinct striae that radiate about a central point. In addition one or more large distinct, isolated puncta usually occur on one side of the central area about equidistant between the center of the valve and the outer margin of the central area.

As noted above, this taxon could be afforded specific status on the basis of our observations from Lake Michigan because of its constant unique morphology and distribution pattern. We, however, choose to retain the established usage until more evidence is available from other habitats.

124 CYMENEH TCT NO OF STATICS 163

(3540	CH	11MY1879	0.0C466)	(46524	CH	10PY1546	0.00071)	(46922	CH	21AU1547	C.00145)
(46760	EV	22SE1937	0.00492)	(46744	EV	60C1937	C.00488)	(46767	EV	27OC1937	C.00387)

1230	E 2	16MY1564	C.C.6226	1	1232	E 5	16MY1564	C.C.0348	1	1236	C* 1	8JN1564	C.1327
1237	C* 2	8JN1564	0.01289	1	1239	0 4	11JN1564	0.00116	1	1240	0 6	10JN1564	0.00307
1243	E 1	13JN1564	0.00705	1	1248	E 3	24JL1564	0.00366	1	1273	C* 2	16JL1564	C.02228
1254	0 2	15JL1564	0.00192	1	1256	E 2	14JL1564	0.00366	1	1257	E 3	14JL1564	C.C.0239
1259	F 2	6JL1564	0.00310	1	1264	C* 1	10AJL1564	0.01545	1	1265	C* 2	10AJL1564	C.11118
1266	0 3	18AJL1564	0.00351	1	1269	E 3	19AJL1564	0.00822	1	1272	C* 1	10SE1564	C.A.4330
1273	C* 2	10SE1564	0.01613	1	1274	0 1	17SE1564	0.00938	1	1275	0 2	17SE1564	C.01935
1278	0 6	16SE1564	0.00769	1	1281	E 3	16SE1564	0.00785	1	1282	E 4	16SE1564	C.11108
1283	E 5	16SE1564	0.00913	1	1285	E 1	19SE1564	0.00912	1	1286	C 3	15SE1564	C.02187
1287	F 3	15SE1564	0.01001	1	1291	C* 2	10C1564	0.00489	1	1294	0 3	15C1564	C.C.0330
1298	E 6	12C1564	0.00808	1	1299	E 6	19C1564	0.00314	1	1300	C 3	15C1564	C.00358
1301	E 4	13C1564	0.00942	1	1303	E 6	13C1564	0.00560	1	1304	F 1	11C1564	C.C.0494
1305	F 2	11C1564	0.00863	1	1311	0 1	8NO1564	0.00516	1	1313	0 3	9NO1564	C.02193
1316	0 6	9NO1564	0.00378	1	1317	E 1	6NO1564	0.00181	1	1318	E 2	7NC1564	C.00380
1321	E 5	7NO1564	0.00319	1	1341	A 3	19AP1567	C.03037	1	1342	A 4	19AP1567	C.C.0902
1343	A 6	19AP1567	0.00208	1	1346	C 7	21AP1567	C.C.0401	1	1369	A 4	4MY1567	C.11118
1370	A 6	3MY1567	0.00230	1	1371	C 3	4MY1567	0.00231	1	1374	E 2	7MY1567	C.C.0598
1376	E 5	6MY1567	0.00281	1	1405	A 4	23MY1567	0.00595	1	1411	C 3	31MY1567	C.C.0410
1416	E 5	28MY1567	0.00356	1	1432	A 4	13JL1567	0.00511	1	1446	A 3	11JL1567	C.C.0489
1447	A 4	11JL1567	0.00702	1	1448	A 4	10JL1567	0.01011	1	1449	C 3	11JL1567	C.00387
1451	C 7	16JL1567	0.00394	1	1452	E 2	14JL1567	0.01703	1	1453	E 3	15JL1567	C.11264
1454	E 5	15JL1567	0.00600	1	1504	A 3	28AU1567	0.14010	1	1505	A 4	28AU1567	C.00515
1508	C 3	25E1567	0.00400	1	1511	E 2	15E1567	0.00307	1	1512	E 3	15E1567	C.00785
1513	E 5	31AU1567	0.00507	1	1532	A 3	18SE1567	0.00870	1	1533	A 4	15SE1567	C.22228
1534	A 6	19SE1567	0.15512	1	1535	C 7	20SE1567	0.00572	1	1536	E 2	24SE1567	C.13543
1537	E 3	24SE1567	0.00607	1	1538	E 2	23SE1567	0.01718	1	1539	C 3	4C1567	C.01006
1540	C 5	4C1567	0.00496	1	1541	E 2	11C1567	C.44170	1	1542	E 3	11C1567	C.10679
1543	E 5	10C1567	0.00546	1	1577	GS 1	9MY1567	0.00792	1	1581	GS 5	10MY1567	C.00477
1582	GS 6	10MY1567	0.00278	1	1588	GS12	12MY1567	C.02413	1	1589	GS13	12MY1567	C.00516
1590	GS14	12MY1567	0.01174	1	1591	GS15	12MY1567	0.00479	1	1592	GS16	12MY1567	C.00308
1594	GS18	12MY1567	0.00355	1	1596	GS18	13MY1567	C.00518	1	1597	GS21	13MY1567	C.C.1196
1598	GS22	14MY1567	0.00304	1	1594	GS 1	3C1567	0.26329	1	1595	GS 2	3C1567	C.59322
1596	GS 3	3C1567	0.88041	1	1597	GS 4	3C1567	0.45964	1	1598	GS 5	4C1567	C.43999
1599	GS 7	4C1567	0.81355	1	1599	GS 8	4C1567	0.53370	1	1599	GS 9	4C1567	C.01957
1562	GS10	5C1567	0.00661	1	1563	GS11	5C1567	0.11692	1	1564	GS12	5C1567	C.05382
1565	GS13	5C1567	0.28395	1	1566	GS14	5C1567	0.15410	1	1567	GS15	5C1567	C.22228
1568	GS16	5C1567	0.01876	1	1569	GS17	5C1567	C.14054	1	1571	GS19	6C1567	C.09074
1572	GS20	6C1567	0.11352	1	1573	GS21	6C1567	C.00540	1	1574	GS22	6C1567	C.07191
1575	GS28	6C1567	0.11354	1	1594	MU 1	2C1567	C.26117	1	1597	MS 1	2C1567	C.C.04782
1524	MU 1	2C1567	0.13135	1	1597	MU 2	2C1567	C.09503	1	1520	MU 3	2C1567	C.04924
1521	SH 1	1E5E1567	C.05193	1	1522	SH 1	1E5E1567	1.25336	1	1523	SH 1	1E5E1567	C.36745
1525	SH 1	2E5E1567	0.01393	1	1526	MU 1	2C1567	0.04551	1	1527	MU 1	2C1567	C.10374
1525	SH 1	2E5E1567	0.00596	1	1530	FR 1	24SE1567	C.02000	1	1531	SH 1	25SE1567	C.23339
1545	WL 1	2C1567	0.07433	1	1598	CA 1	3C1567	0.08316	1	1599	MU 1	4C1567	C.11510
1551	ES 1	5C1567	0.15507	1	1552	MS 2	2C1567	0.55904	1	1553	MS 2	2C1567	C.04734
1428	MU 2	29MY1567	0.22597	1	1426	MS 2	29MY1567	0.13648	1	1351	MU 2	21AP1567	C.C.0621
1427	LU 2	29MY1567	0.07264	1	1417	HO 2	22MY1567	0.59818	1	1418	SH 2	22MY1567	C.C.1555
1350	SH 2	29MY1567	0.14225	1	1425	PA 2	2C1567	0.05326	1	1399	PA 2	5C1567	C.02040
1401	MU 2	6MY1567	0.60379	1	1402	TR 2	6MY1567	0.23284	1	1400	SH 2	6MY1567	C.8C415
1352	KW 2	21AP1567	0.00859	1	1353	FR 2	23AP1567	0.05274	1	1354	CH 2	25AP1567	C.07422
1425	ML 1	25MY1567	0.55028	1	1407	SH 2	14MY1567	0.00197	1	1406	SH 2	4C1567	C.01617
1420	SH 2	23MY1567	0.00321	1	1421	CH 2	23MY1567	0.03470	1	1422	CA 2	23MY1567	C.03576
1423	MA 2	25MY1567	0.00856	1									

Cyclotella michiganiana Skv.

Cyclotella michiganiana Skvortzow, Amer. Midland Nat., 18:658, pl. 1, figs. 3, 10, 18, 1937.

Cells cylindrical with strongly eccentrically undulate valves. Cells always occur singly. Specimens from Lake Michigan 5-22µ in diameter. Width of marginal zone variable, usually about one-half the radius of the valve. Ornamentation of the marginal zone composed of radial striae of slightly irregular length and without visible substructure. Radial striae 14-18 in 10µ at the margin of the valve. Central area of the valves strongly undulate, usually with a number of large, randomly arranged, puncta on the raised portion. The sunken portion of the central area may be without visible ornamentation or may have a few puncta similar to those on the raised portion.

This species is abundant in some collections from Lake Michigan. It apparently is cyclical in occurrence, being common or dominant in the plankton in some years and very rare or lacking in collections from the same area and season in other years. The taxonomic position of this entity is difficult to determine with certainty. Skvortzow (l.c.) has pointed out its affinities to *C. striata* (Kütz.) Grun. and *C. caspia* Grun. Both of these species find their primary habitat in brackish water and, although they resemble this species in general morphology, sufficient differences exist to separate them with little doubt.

125 CYNWICH TCT AC GE STATIONS 267

160973	CH	1876	1-5328	(354C	CH	11M1567	0-02330	(354I	CH	1FE1881	0-04891			
(3507	CH	19FE1881	0-01132	(46910	CH	0C1945	0-07100	(46921	CH	23ND1945	0-06596			
160508	CH	FE1865	0-00602	(46917	CH	12J1566	0-23427	(46915	CH	26FE1566	0-28453			
160914	CH	10AP1946	0-01002	(46924	CH	10M1946	0-01834	(46923	CH	22ND1946	0-39122			
160520	CH	200E1946	0-01303	(46950	CH	JA1947	0-11398	(46950	CH	PR1547	0-02946			
160912	CH	00	AP1947	0-01136	CH	0-001156	0-001156	(46925	CH	MY1946	0-01122			
160919	CH	5J1927	0-00807	(46957	CH	JI1927	0-00743	(46913	CH	6AU1947	0-0C1046			
160922	CH	21AU1947	2-20513	(46758	EV	5J1937	0-00414	(46764	EV	17J1937	0-24980			
160727	EV	0-2541937	0-2541937	(46763	EV	24FE1946	0-00946	(46764	EV	30AU1946	0-00946			
160769	EV	75E1937	0-00513	(46752	EV	15SE1937	0-10084	(46760	EV	22SE1937	0-11787			
160750	EV	24SE1937	0-00513	(46752	EV	06SE1937	0-10730	(46768	EV	12D1937	0-06420			
160767	EV	27C1937	0-00563	(46749	EV	12M1937	0-01214	(46768	EV	10M1937	0-22842			
160762	EV	18MR1938	1-01456	(46759	EV	19M1938	0-00338	(46761	EV	27VJ1938	0-00545			
160766	EV	14C1938	0-00338	(1291	O	5	14M1946	0-00846	(1292	O	5	14M1946	0-01482	
1231	E	3	16J1964	0-01223	(1232	E	5	16M1964	0-08000	(1233	B	5	15J264	0-00476
1234	B	3	18J1964	0-00943	(1235	C	7	16J1964	0-02682	(1439	B	5	15J1964	0-00709
1226	C	3	0J1964	0-00175	(1237	C	6	5J1964	0-00238	(1238	O	2	11J1964	0-0C400
1239	A	4	11J1964	0-00116	(1240	O	6	10J1964	0-00153	(1241	E	2	13J1964	0-00148
1244	F	1	11J1964	0-00548	(1245	F	2	11J1964	0-10027	(1246	F	3	11J1964	0-0C193
1248	B	3	24J1964	0-01182	(1441	B	6	24J1964	0-00601	(1250	C	2	10J1964	0-00822
1251	C	7	16J1964	0-00290	(1252	C	1	16J1964	0-00837	(1254	O	2	15J1964	0-0C152
1255	O	5	15J1964	0-00513	(1256	E	2	14J1964	0-00550	(1257	C	3	14J1964	0-0C479
1258	E	1	6J1964	0-03068	(1259	F	2	6J1964	0-03846	(1260	F	3	6J1964	0-02845
1261	B	3	2AU1964	0-12564	(1262	B	3	17AU1964	0-58799	(1442	B	6	2AU1964	0-0C518
1423	B	6	16AU1964	2-45081	(1263	C	7	15AU1964	1-68134	(1265	C	2	22AU1964	0-0C154
1267	O	1	18AU1964	0-03243	(1268	E	2	18AU1964	0-42177	(1269	E	2	15AU1964	0-0C917
1470	F	1	10AU1964	0-04565	(1444	B	6	10SE1964	1-37425	(1271	C	7	22SE1964	0-13C57
1272	C	1	10SE1964	0-04565	(1444	B	6	10SE1964	1-37425	(1274	O	1	17SE1964	0-12688
1275	O	2	10SE1964	0-49674	(1276	O	3	18SE1964	1-30174	(1277	C	7	18SE1964	0-12842
1278	O	6	18SE1964	0-04996	(1279	E	1	16SE1964	0-11387	(1280	E	2	16SE1964	0-0C121
1281	C	3	16SE1964	0-19621	(1282	E	4	16SE1964	0-32409	(1283	E	5	16SE1964	0-0C877
1284	E	6	17SE1964	0-66724	(1285	F	1	15SE1964	0-29963	(1286	F	7	15SE1964	0-28C10
1287	F	3	15SE1964	2-45156	(1288	B	3	15SE1964	0-03701	(1289	C	7	14CSE1964	0-06745
1290	C	1	14CSE1964	0-02404	(1291	C	2	0-03180	0-03180	(1292	C	2	14CSE1964	0-06745
1293	O	2	15CSE1964	0-11791	(1294	O	3	15CSE1964	0-35600	(1295	O	4	15CSE1964	0-14758
1296	O	5	14CSE1964	0-04917	(1297	O	6	14CSE1964	0-00952	(1298	E	1	12CSE1964	0-0C377C
1299	C	1	12CSE1964	0-21904	(1300	F	2	13CSE1964	1-29201	(1301	C	2	13CSE1964	0-0C377C
1302	E	5	13CSE1964	1-23080	(1303	E	6	13CSE1964	1-17911	(1304	F	1	11CSE1964	0-0C506
1305	F	2	11CSE1964	0-03808	(1306	F	3	11CSE1964	1-06713	(1307	B	6	10CSE1964	0-14071
1308	C	7	8CSE1964	0-02129	(1309	C	2	10N1964	0-03210	(1310	C	2	8CSE1964	0-0C506
1311	O	1	8N1964	0-03612	(1312	C	2	8N1964	0-05277	(1313	O	3	9N1964	0-0C549
1314	O	4	9N1964	0-11770	(1315	O	5	9N1964	0-06824	(1316	B	6	5N1964	0-0C756
1317	E	1	6N1964	0-28872	(1318	E	2	7N1964	0-15751	(1319	E	3	7N1964	0-06409
1320	E	4	7N1964	0-31891	(1321	E	5	7N1964	0-44691	(1322	E	6	7N1964	0-12664
1323	E	1	6N1964	0-5937	(1324	F	2	6N1964	0-25155	(1325	F	3	6N1964	0-12250
1326	C	3	27J1967	0-00943	(1337	C	3	2M1967	0-00804	(1338	B	3	28M1967	0-0C785
1339	C	5	28M1967	0-04953	(1340	C	7	28M1967	0-00364	(1341	A	3	19AP1967	0-0C976
1342	A	4	19AP1967	0-08662	(1343	A	6	19AP1967	0-00C49	(1344	C	5	25AP1967	0-0C662
1345	C	5	25AP1967	0-18323	(1346	C	7	21AP1967	0-06142	(1347	E	2	23AP1967	0-0C180
1348	E	5	23AP1967	0-00822	(1368	A	3	4M1967	0-00943	(1372	C	5	5M1967	0-0C218
1373	C	2	5M1967	0-02282	(1374	E	2	7M1967	0-00295	(1375	E	3	7M1967	0-01203
1376	E	5	6M1967	0-00562	(1408	A	3	23M1967	0-00447	(1410	A	6	24M1967	0-00564
1411	C	3	13M1967	0-02462	(1413	C	7	25M1967	0-00316	(1414	E	2	28M1967	0-00336
1416	E	5	28M1967	0-00437	(1431	C	7	10J1967	0-00257	(1433	C	3	17J1967	0-01292
1434	C	5	17J1967	0-00598	(1435	C	7	13J1967	0-00316	(1436	E	2	15J1967	0-0C724
1446	A	3	11J1967	0-00448	(1449	C	3	16J1967	0-17196	(1450	C	5	16J1967	0-01333
1451	C	3	16J1967	0-00394	(1452	E	2	18J1967	0-01277	(1453	C	3	15J1967	0-0C506
1454	E	5	15J1967	0-01000	(1504	A	3	28AU1967	0-31354	(1505	A	4	28AU1967	0-35678
1506	A	6	25AU1967	0-01094	(1509	C	3	25E1967	0-02892	(1509	C	5	25E1967	0-13274
1510	C	7	29AU1967	0-55527	(1511	E	2	18E1967	0-18182	(1612	C	3	15E1967	0-00318
1513	E	5	31AU1967	1-77359	(1532	A	3	18E1967	0-04599	(1533	A	4	15SE1967	0-00349
1534	A	6	19SE1967	0-01591	(1535	C	7	20SE1967	0-05472	(1536	E	2	24SE1967	0-14452
1537	E	3	24SE1967	1-10411	(1538	E	5	23SE1967	0-03231	(1539	C	4	40C1967	0-3170C
1540	C	5	40C1967	0-90066	(1541	E	2	11C1967	0-74504	(1542	C	6	11C1967	0-40762
1543	E	5	10C1967	1-5884C	(1375	GS	3	9M1967	0-00928	(1380	C5	4	9M1967	0-0C1513
1581	GS	3	10M1967	0-00916	(1382	GS	6	10M1967	0-00916	(1383	GS	7	10M1967	0-0164C
1584	GS	8	10M1967	0-01109	(1385	GS	6	10M1967	0-00942	(1386	C5	10	12M1967	0-00942
1387	GS11	12M1967	0-01080	(1388	GS12	12M1967	0-00427	(1389	GS13	12M1967	0-00157			
1390	GS14	0-2871567	0-2871567	(1391	GS15	12M1967	0-00429	(1392	GS16	12M1967	0-00157			
1393	GS17	12M1967	0-00548	(1394	GS18	13M1967	0-01204	(1355	GS19	13M1967	0-00157			
1396	GS20	13M1967	0-00148	(1396	GS	1	30C1967	0-00406	(1555	GS	2	30C1967	0-02867	
1556	GS	3	30C1967	0-00148	(1557	GS	4	30C1967	0-13801	(1558	GS	5	30C1967	0-00148
1559	GS	5	40C1967	1-36444	(1560	GS	8	40C1967	1-53035	(1561	GS	9	40C1967	0-12791
1562	GS1C	0-00398	0-00398	(1566	GS14	50C1967	0-02752	(1567	GS15	50C1967	0-12972			
1568	GS16	0-021196	0-021196	(1569	GS17	50C1967	0-00148	(1570	GS18	50C1967	0-00148			
1571	GS19	60C1967	0-02293	(1573	GS21	60C1967	0-00448	(1574	GS22	60C1967	0-02585			
1575	GS28	0-002196	0-002196	(1576	GS	20C1967	0-00238	(1547	PS	1	20C1967	0-00314		
1524	W1	1	20SE1967	0-02189	(1546	LU	1	20SE1967	0-00300	(1520	HD	1	18E1967	0-00314
1521	SH	1	18E1967	0-02885	(1522	HM	1	18E1967	0-00365	(1523	BA	1	15SE1967	0-00461
1526	HO	1	20SE1967	0-00362	(1527	TH	1	20SE1967	0-00362	(1528	BA	1	20SE1967	0-00461
1529	KW	1	20SE1967	0-00593	(1530	FR	1	24SE1967	0-08001	(1531	HM	1	20SE1967	0-00461
1545	WL	1	20C1967	0-4257C	(1548	CA	1	30C1967	0-47780	(1549	W	1	40C1967	0-12674
1551	GS	2	50C1967	0-00148	(1551	GS	2	60C1967	0-00148	(1552	GS	2	60C1967	0-00148
1553	GS	1	60C1967	0-03672	(1351	W	2	21AP1967	0-00310	(1417	HD	2	22M1967	0-01122
1350	HM	2	15AP1967	0-00220	(1399	PK	2	5M1967	0-00680	(1401	HD	2	6M1967	0-00680
1400	SH	2	6M1967	0-00596	(1392	K5	2	21AP1967	0-00310	(1403	HD	2	22M1967	0-01122
1403	CA	2	10M1967	0-32693	(1404	MC	2	10M1967	0-05081	(1405	ES	2	12M1967	0-0C516
1407	SH	2	14M1967	0-01791	(1349	C1	2	14AP1967	0-01437	(1420	HD	2	23M1967	0-01511
1421	CH	2	23M1967	0-05009	(1462	GA	2	23M1967	0-00511	(1463	WA	2	23M1967	0-0C856

Cyclotella ocellata Pant.

Cyclotella ocellata Pantocsek, Res. Wiss. Erforsch. Balatonsees, Sec. I., p. 104, fig. 318. 1902.

Cells cylindrical, surface of the valves flat or only slightly concave. Cells always occur singly. Specimens from Lake Michigan 6-22 μ in diameter. Marginal zone narrow, less than one-half the radius of the valve. Radial striae in the marginal zone irregular in length, without visible substructure, about 14-16 in 10 μ at the margin of the valve. Ornamentation of the marginal zone other than the striae is lacking in this species. Two types of structure are present in the central area. Several distinct puncta, either randomly or radially arranged, are present in most specimens. The most distinctive characteristic of this species is the presence of several large (about 1 μ diameter) circular silicious structures. In valve view these appear as thickenings on the valve surface. In girdle view they appear as fungiform papillae. These structures, like the puncta, may be randomly arranged or, more usually, radially disposed.

Although previous reports indicate that this species reaches its greatest abundance in littoral habitats, it is apparently also adapted to euplanktonic growth as it is quite common in offshore collections from the Great Lakes. It reaches its greatest abundance in Lake Huron but is also found in abundance in Lake Superior and in some collections from northern Lake Michigan. The morphology of this taxon is very similar to the *C. kuetsingiana* complex, but the presence of the fungiform papillae makes their separation relatively easy.

127 CYCLOTELLA TCT AC CF STATIONS 270

160973	CH	1876	0.44151	J	13540	CH	11N11875	0.23296	J	13541	CH	1FE1881	0.29346	J
160974	CH	19FE1881	0.16910	J	446510	CH	0C1945	0.00109	J	446921	CH	23N01945	0.00582	J
160975	CH	12JA1546	0.01275	J	446915	CH	20FE1546	0.02845	J	446914	CH	19N01946	0.01922	J
160976	CH	10N1946	0.01411	J	446923	CH	22N01946	0.00437	J	446920	CH	200E1946	0.00031	J
160977	CH	JA1947	0.01561	J	446555	CH	28JA1947	0.00455	J	446516	CH	4N1947	0.00780	J
160978	CH	19N1947	0.21576	J	446519	CH	5UN1947	0.05463	J	446907	CH	JA1947	0.07052	J
160979	CH	21AU1547	0.26703	J	446758	EV	5UN1937	0.01426	J	446771	EV	11N1937	0.00475	J
160980	CH	20N1937	0.01715	J	446745	EV	3JA1937	0.02090	J	446764	EV	17E1937	0.16116	J
160981	EV	25JA1537	0.18295	J	446747	EV	1AU1937	0.02723	J	446763	EV	23AU1937	0.10146	J
160982	EV	30AU1937	0.02231	J	446752	EV	15SE1937	0.02177	J	446750	EV	24SE1937	0.00471	J
160983	EV	40C1537	0.01462	J	446748	EV	130C1937	0.02135	J	446749	EV	12N01938	0.00609	J
160984	EV	18N1938	0.04411	J	446751	EV	30N1938	0.03350	J	446756	EV	27AP1938	0.00168	J
160985	EV	19N1938	0.01688	J	446761	EV	27N1938	0.01090	J	1226	C	16N1964	0.00381	J
1227	C*	13N1964	0.02129	J	1228	E	14N1964	0.00584	J	1229	C	14N1964	0.02749	J
1230	E	16N1964	0.00889	J	1231	E	16N1964	0.01223	J	1232	E	16N1964	0.01044	J
1234	B	18N1964	0.00562	J	1235	B	5N1964	0.00400	J	1237	C*	8N1964	0.00516	J
1238	D	11N1964	0.01600	J	1239	D	11N1964	0.00116	J	1240	D	10N1964	0.00767	J
1241	E	13N1964	0.00730	J	1242	E	13N1964	0.00599	J	1243	E	13N1964	0.01879	J
1244	F	11N1964	0.01077	J	1245	F	11N1964	0.01037	J	1246	F	11N1964	0.02290	J
1247	B	14L1964	0.01707	J	1248	B	24L1964	0.00591	J	1249	B	11L1964	0.05159	J
1249	B	24L1964	0.00251	J	1249	C	8L1964	0.00272	J	1250	C	10L1964	0.08222	J
1251	C	16L1964	0.01159	J	1252	C*	16L1964	0.00279	J	1253	C*	16L1964	0.03423	J
1254	D	15L1964	0.01267	J	1255	D	15L1964	0.03924	J	1256	E	14L1964	0.00244	J
1257	E	14L1964	0.07656	J	1258	F	6L1964	0.08259	J	1259	F	6L1964	0.13014	J
1260	F	6L1964	0.07831	J	1261	B	2AU1964	0.00589	J	1262	B	28AU1964	0.12306	J
1263	B	16AU1964	0.01186	J	1263	C	15AU1964	0.00400	J	1264	C*	10AU1964	0.01545	J
1265	C*	10AU1964	0.00389	J	1266	D	18AU1964	0.04109	J	1267	D	18AU1964	0.01081	J
1268	E	15AU1964	0.08297	J	1269	E	19AU1964	0.02563	J	1270	F	10AU1964	0.07451	J
1269	E	19SE1964	0.00806	J	1271	F	22SE1964	0.01306	J	1272	C*	10SE1964	0.01075	J
1275	O	17SE1964	0.01290	J	1276	O	18SE1964	0.01118	J	1278	D	18SE1964	0.00384	J
1279	E	0.00263	0.00263	J	1280	E	0.01362	0.01362	J	1281	E	16SE1964	0.03302	J
1282	E	16SE1964	0.01108	J	1283	E	16SE1964	0.00582	J	1284	E	17SE1964	0.04766	J
1285	F	15SE1964	0.11648	J	1287	F	15SE1964	0.06505	J	1288	B	140C1964	0.00652	J
1289	C	140C1964	0.00186	J	1290	C*	140C1964	0.00170	J	1293	C	140C1964	0.03302	J
1294	D	150C1964	0.04615	J	1295	D	150C1964	0.07730	J	1296	D	140C1964	0.02361	J
1297	O	140C1964	0.00571	J	1298	E	12C1964	0.00265	J	1299	E	12C1964	0.00943	J
1300	E	0.02148	0.02148	J	1301	E	130C1964	0.06674	J	1302	E	130C1964	0.17005	J
1303	E	130C1964	0.04478	J	1304	F	11C1964	0.02223	J	1305	F	11C1964	0.00518	J
1306	F	11C1964	0.06832	J	1307	B	ND1964	0.00722	J	1309	C	6N01964	0.00322	J
1311	D	1	0.00516	J	1312	D	8N01964	0.00122	J	1313	D	9N01964	0.01737	J
1314	D	9N01964	0.00287	J	1315	D	9N01964	0.00910	J	1316	D	9N01964	0.00756	J

1317	E 1	6N01964	0.00766	1318	E 2	7N01964	0.00699	1319	E 3	7N01964	0.22255
1320	E 4	7N01964	0.0371	1321	E 5	7N01964	0.02235	1322	E 6	7N01964	0.06667
1323	F 1	6N01964	0.00697	1324	F 2	6N01964	0.00699	1336	C 3	27JA1967	0.00193
1337	C 3	28M1967	0.01029	1338	C 4	28M1967	0.04496	1339	C 5	28M1967	0.02806
1340	C 7	28M1967	0.02227	1341	A 3	19A1967	0.02170	1342	A 4	19A1967	0.05233
1343	A 6	19A1967	0.00665	1344	C 3	25AP1967	0.00496	1345	C 5	25AP1967	0.07407
1346	C 7	21AP1967	0.02804	1347	E 2	23AP1967	0.02439	1348	E 5	23AP1967	0.00548
1368	A 3	4MY1967	0.00593	1369	A 4	4MY1967	0.01118	1370	A 6	3MY1967	0.00921
1371	C 3	4MY1967	0.00693	1372	C 5	5MY1967	0.01064	1373	C 7	5MY1967	0.18295
1374	E 2	7MY1967	0.01793	1375	E 5	7MY1967	0.08181	1376	E 6	8MY1967	0.03776
1409	A 4	23MY1967	0.00595	1410	A 6	24MY1967	0.01128	1411	C 3	31MY1967	0.01231
1412	C 5	31MY1967	0.00642	1413	C 7	28MY1967	0.00548	1414	E 2	28MY1967	0.06272
1415	E 3	28MY1967	0.00225	1416	E 5	28MY1967	0.00656	1431	A 3	12JA1967	0.01802
1432	A 4	13JA1967	0.01788	1433	C 3	17JA1967	0.00397	1434	C 5	17JA1967	0.02393
1435	C 7	13JA1967	0.02210	1436	E 2	15JA1967	0.03257	1437	E 5	15JA1967	0.00209
1438	E 5	15JA1967	0.01041	1448	A 4	11JA1967	0.10272	1470	A 6	1JA1967	0.01871
1448	A 6	1JA1967	0.00354	1449	C 3	12JA1967	0.10050	1450	C 5	16JA1967	0.19804
1451	C 7	16JA1967	0.00345	1452	E 2	18JA1967	0.03193	1453	E 5	15JA1967	0.13902
1454	E 5	15JA1967	0.09202	1504	A 3	28AU1967	0.00741	1505	A 4	28AU1967	0.01031
1508	C 3	25EL1967	0.00400	1509	C 5	25EL1967	0.70657	1510	C 7	29AU1967	0.02845
1511	E 2	15EL1967	2.57851	1512	E 5	15EL1967	0.27485	1513	E 6	31AU1967	0.03302
1532	A 3	18EL1967	0.00896	1533	A 4	15SE1967	0.03114	1536	E 2	24SE1967	0.26332
1537	E 3	24SE1967	1.50593	1538	E 5	23SE1967	0.09391	1540	C 5	40CL1967	0.26307
1541	E 2	11OC1967	0.28205	1542	E 5	11OC1967	0.38181	1543	E 6	10CC1967	0.00556
1378	GS 2	9P1967	0.00641	1379	GS 3	9P1967	0.05711	1380	GS 4	5P1967	0.11113
1381	GS 5	10MY1967	0.01431	1382	GS 6	10MY1967	0.09714	1383	GS 7	10MY1967	0.05444
1384	GS 8	10MY1967	0.08319	1385	GS 9	10MY1967	0.00471	1386	GS10	12MY1967	0.11204
1387	GS11	2MY1967	0.07129	1388	GS12	2MY1967	0.04223	1389	GS13	12MY1967	0.01547
1390	GS14	12MY1967	0.04110	1391	GS15	12MY1967	0.06225	1392	GS16	12MY1967	0.04623
1393	GS17	13MY1967	0.12601	1394	GS18	13MY1967	0.03356	1395	GS19	13MY1967	0.00822
1398	GS22	4MY1967	0.02125	1399	GS 1	30CL1967	0.08895	1400	GS 2	30CL1967	0.44845
1356	GS 3	3CL1967	0.23587	1357	GS 4	3CL1967	0.36248	1358	GS 5	40CL1967	0.39198
1359	GS 7	40CL1967	0.32874	1360	GS 8	40CL1967	0.41562	1361	GS 9	40CL1967	0.15565
1362	GS10	3CL1967	0.18789	1363	GS11	50CL1967	0.01169	1364	GS12	50CL1967	0.00165
1365	GS13	50CL1967	0.00507	1366	GS14	50CL1967	0.00183	1367	GS15	50CL1967	0.03969
1368	GS16	50CL1967	0.00533	1369	GS17	50CL1967	0.02676	1370	GS18	50CL1967	0.08925
1373	GS21	40CL1967	0.00112	1374	GS22	60CL1967	0.00575	1375	GS28	60CL1967	0.01219
1344	M 1	20CL1967	0.00238	1347	M 5	20CL1967	0.01597	1350	M 1	15SE1967	0.00471
1351	SH 1	18EL1967	0.00072	1352	M 2	20SE1967	0.01107	1357	FR 1	24SE1967	0.02670
1358	SH 3	25EL1967	0.04332	1359	KW 1	20SE1967	0.02398	1360	FR 1	24SE1967	0.03000
1351	GH 1	23SE1967	0.00845	1354	WL 1	20CL1967	0.10136	1348	CA 1	30CL1967	0.02544
1349	HQ 1	40CL1967	0.04111	1351	ES 1	5CL1967	0.19171	1350	PR 1	5CL1967	0.08473
1353	SE 1	40CL1967	0.01321	1351	SE 2	21AP1967	0.01243	1347	LU 2	28MY1967	0.13117
1417	HQ 2	22MY1967	0.01495	1425	RA 2	25PY1967	0.02652	1399	PW 2	5MY1967	0.04761
1401	M 2	6MY1967	0.02352	1402	FR 2	6MY1967	0.02107	1400	SH 2	6PY1967	0.02383
1392	KW 2	23AP1967	0.01777	1394	GH 2	23AP1967	0.00173	1429	NL 2	29MY1967	0.01062
1403	CA 2	10MY1967	0.10462	1404	MC 2	10MY1967	0.03811	1405	ES 2	12MY1967	0.03870
1349	CL 2	19AP1967	0.00353	1420	N 2	23MY1967	0.01513	1421	CH 2	23MY1967	0.06540
1423	MA 2	23MY1967	0.02141	1424	KN 2	23MY1967	0.01532	1430	PC 2	12MY1967	0.02467

Cyclotella operculata (Agardh) Kütz.

Frustulia operculata Agardh, Bot. Zeitschr., 1827:627. 1827.

Cyclotella operculata (Agardh) Kütz., Syn. Diat., p. 7. 1834.

Cells cylindrical with slightly excentrically undulate valves. Cells always occur singly. Specimens from Lake Michigan 8-32μ in diameter. Ornamentation of the marginal zone consists of narrow striae chambers separated by very poorly developed radial costae. Near the margin of the valve the striae chambers open to the interior of the frustule by a series of foramina that appear as a series of bright or dark spots under the light microscope, depending on the level of focus. Striae 15-18 in 10μ near the margin of the valve. The external surface of the striae chambers has a double row of very fine punctae. These are very difficult to resolve and can be seen only with ideal specimens and the best optical equipment. The central area in this species is without visible ornamentation and is usually slightly excentric. In some specimens one or more shortened striae of peculiar structure occur at the margin of the valve.

This species apparently belongs to the complex of described entities with affinities to *C. striata*. It in some respect resembles *C. michiganiana* but is easily differentiated from that taxon by the lack of ornamentation of the central area and its only slightly undulate valves. This species occurrence in Lake Michigan is highly irregular and only occasional collections have it in abundance. It appears that its primary habitat may be in the phytobenthos and that it is only opportunistically planktonic. It is also found in some inland lakes in Michigan. Specimens from these habitats tend to be larger in average size and to have more robust structure than those from Lake Michigan.

128 CYCLOSTOMY TOT NC OF STATIONS 170

146910	CH	0C1945	0.00274	146921	CH	23NC1945	0.01293	146917	CH	12JA1946	0.01275
146915	CH	20FE1946	0.01138	146914	CH	10AP1946	0.00320	146924	CH	10MY1946	0.00141
146922	CH	22NO1945	0.01148	146920	CH	20DE1946	0.00595	146908	CH	JA1947	0.05881
146923	CH	21AU1947	0.00242	146928	E	14MY1946	0.00389	146929	D	14MY1946	0.01057
146929	E	10MY1946	0.00296	146931	E	16MY1946	0.00489	146932	E	16MY1946	0.01311
146934	E	18JUN1946	0.00281	146935	F	16JUN1946	0.00282	146936	B	23JUN1946	0.05400
146937	C*	8JUN1946	0.00258	146938	D	11JUN1946	0.00200	146939	F	10JUN1946	0.00307
146944	F	11JUN1946	0.00511	146945	F	12JUN1946	0.06224	146946	F	11JUN1946	0.05370
146949	D	15JUN1946	0.00127	146950	F	6JUL1946	0.01180	146951	F	6JUL1946	0.00228
146952	F	6JUL1946	0.00146	146953	B	2AU1946	0.00341	146954	F	10AU1946	0.00576
146955	C	10AUG1946	0.00224	146956	D	24AUG1946	0.00228	146957	F	18AUG1946	0.00049
146958	E	15AUG1946	1.92654	146959	E	15AUG1946	0.57556	146960	F	10AUG1946	0.14159
146961	C	10SEP1946	0.63211	146962	C*	10SEP1946	0.30647	146963	F	17SEP1946	0.32844
146964	D	17SEP1946	0.45158	146965	D	18SEP1946	0.00941	146966	D	14SEP1946	0.05577
146967	D	6	41508	146968	E	14SEP1946	0.55968	146969	E	16SEP1946	0.53505
146969	F	10SEP1946	1.19295	146970	E	14SEP1946	2.32687	146971	E	16SEP1946	3.43263
146972	E	17SEP1946	2.44416	146973	F	24SEP1946	0.49197	146974	F	15SEP1946	2.46110
146975	F	15SEP1946	1.92654	146976	B	15SEP1946	0.01306	146977	C	14SEP1946	0.01759
146978	C*	10OCT1946	0.05306	146979	C*	14OCT1946	0.01957	146980	E	15OCT1946	0.07454
146981	C	15OCT1946	0.00818	146982	D	15OCT1946	0.44148	146983	E	15OCT1946	0.83244
146984	D	14OCT1946	0.03541	146985	D	14OCT1946	0.02666	146986	E	12OCT1946	0.13195
146987	E	12OCT1946	0.43984	146988	F	13OCT1946	1.08824	146989	E	13OCT1946	0.46588
146990	E	6	21026	146991	E	13OCT1946	1.08226	146992	F	11OCT1946	1.72874
146993	F	11OCT1946	0.72456	146994	F	13OCT1946	2.23128	146995	B	NOV1946	0.01443
146996	C	6NOV1946	0.00508	146997	C*	10NOV1946	0.24127	146998	C*	10NOV1946	0.22041
146999	D	6NOV1946	0.12902	147000	C	8NOV1946	0.52843	147001	C	9NOV1946	0.65459
147002	C	9NOV1946	0.08038	147003	D	9NOV1946	0.13133	147004	C	9NOV1946	0.05289
147005	E	6NOV1946	0.04021	147006	E	7NOV1946	0.17313	147007	E	7NOV1946	0.91640
147008	E	4	03474	147009	E	7NOV1946	0.53636	147010	E	7NOV1946	0.58320
147011	F	6NOV1946	0.63415	147012	F	6NOV1946	0.42392	147013	F	6NOV1946	0.61714
147014	C	22MAR1947	0.00147	147015	C	28MAR1947	0.00264	147016	C	28MAR1947	0.00024
147017	C	28MAR1947	0.00267	147018	A	4APR1947	0.00173	147019	C	25APR1947	0.01195
147020	E	21APR1947	0.00209	147021	E	7APR1947	0.00481	147022	A	24MY1947	0.05564
147023	E	31MY1947	0.00412	147024	C	16JUL1947	0.00382	147025	A	28AUG1947	0.04444
147026	F	15E1947	0.00785	147027	E	24SEP1947	0.00545	147028	E	24SEP1947	0.30129
147029	E	10MY1947	0.00773	147030	E	11OCT1947	0.00512	147031	F	11OCT1947	0.35568
147032	E	10MY1947	0.00718	147033	GS	3MY1947	0.00928	147034	GS	9MY1947	0.10742
147035	GS	10MY1947	0.00716	147036	GS	10MY1947	0.03053	147037	GS	10MY1947	0.04544
147038	GS	10MY1947	0.00773	147039	GS	10MY1947	0.00706	147040	GS	12MY1947	0.01724
147041	GS11	12MY1947	0.07129	147042	GS12	12MY1947	0.02413	147043	GS13	12MY1947	0.01805
147044	GS11	12MY1947	0.05285	147045	GS11	12MY1947	0.01915	147046	GS12	12MY1947	0.04023
147047	GS11	13MY1947	0.00822	147048	GS18	13MY1947	0.01204	147049	GS19	13MY1947	0.00587
147050	GS22	14MY1947	0.00304	147051	GS	13OCT1947	0.02491	147052	GS	30OCT1947	0.38449
147053	GS	30OCT1947	0.36502	147054	GS	30OCT1947	1.70030	147055	GS	30OCT1947	0.00285
147056	GS	4OCT1947	1.42050	147057	GS	4OCT1947	1.98366	147058	GS	4OCT1947	0.59870
147059	GS	5OCT1947	0.10115	147060	GS11	5OCT1947	0.16368	147061	GS12	5OCT1947	0.25512
147062	GS12	5OCT1947	0.39555	147063	GS14	5OCT1947	0.77050	147064	GS15	5OCT1947	0.21754
147065	GS15	5OCT1947	0.01876	147066	GS17	5OCT1947	0.11973	147067	GS18	5OCT1947	0.02842
147068	GS18	5OCT1947	0.00147	147069	GS21	5OCT1947	0.00112	147070	GS22	5OCT1947	0.14378
147071	GS19	5OCT1947	0.00125	147072	GS23	5OCT1947	0.00365	147073	GS24	5OCT1947	0.06503
147074	GS25	5OCT1947	0.00125	147075	GS26	5OCT1947	0.00125	147076	GS27	5OCT1947	0.00125
147077	GS28	5OCT1947	0.00125	147078	GS29	5OCT1947	0.00125	147079	GS30	5OCT1947	0.00125
147080	GS31	5OCT1947	0.00125	147081	GS32	5OCT1947	0.00125	147082	GS33	5OCT1947	0.00125
147083	GS34	5OCT1947	0.00125	147084	GS35	5OCT1947	0.00125	147085	GS36	5OCT1947	0.00125
147086	GS37	5OCT1947	0.00125	147087	GS38	5OCT1947	0.00125	147088	GS39	5OCT1947	0.00125
147089	GS40	5OCT1947	0.00125	147090	GS41	5OCT1947	0.00125	147091	GS42	5OCT1947	0.00125
147092	GS43	5OCT1947	0.00125	147093	GS44	5OCT1947	0.00125	147094	GS45	5OCT1947	0.00125
147095	GS46	5OCT1947	0.00125	147096	GS47	5OCT1947	0.00125	147097	GS48	5OCT1947	0.00125
147098	GS49	5OCT1947	0.00125	147099	GS50	5OCT1947	0.00125	147100	GS51	5OCT1947	0.00125
147101	GS52	5OCT1947	0.00125	147102	GS53	5OCT1947	0.00125	147103	GS54	5OCT1947	0.00125
147104	GS55	5OCT1947	0.00125	147105	GS56	5OCT1947	0.00125	147106	GS57	5OCT1947	0.00125
147107	GS58	5OCT1947	0.00125	147108	GS59	5OCT1947	0.00125	147109	GS60	5OCT1947	0.00125
147110	GS61	5OCT1947	0.00125	147111	GS62	5OCT1947	0.00125	147112	GS63	5OCT1947	0.00125
147113	GS64	5OCT1947	0.00125	147114	GS65	5OCT1947	0.00125	147115	GS66	5OCT1947	0.00125
147116	GS67	5OCT1947	0.00125	147117	GS68	5OCT1947	0.00125	147118	GS69	5OCT1947	0.00125
147119	GS70	5OCT1947	0.00125	147120	GS71	5OCT1947	0.00125	147121	GS72	5OCT1947	0.00125
147122	GS73	5OCT1947	0.00125	147123	GS74	5OCT1947	0.00125	147124	GS75	5OCT1947	0.00125
147125	GS76	5OCT1947	0.00125	147126	GS77	5OCT1947	0.00125	147127	GS78	5OCT1947	0.00125
147128	GS79	5OCT1947	0.00125	147129	GS80	5OCT1947	0.00125	147130	GS81	5OCT1947	0.00125
147131	GS82	5OCT1947	0.00125	147132	GS83	5OCT1947	0.00125	147133	GS84	5OCT1947	0.00125
147134	GS85	5OCT1947	0.00125	147135	GS86	5OCT1947	0.00125	147136	GS87	5OCT1947	0.00125
147137	GS88	5OCT1947	0.00125	147138	GS89	5OCT1947	0.00125	147139	GS90	5OCT1947	0.00125
147140	GS91	5OCT1947	0.00125	147141	GS92	5OCT1947	0.00125	147142	GS93	5OCT1947	0.00125
147143	GS94	5OCT1947	0.00125	147144	GS95	5OCT1947	0.00125	147145	GS96	5OCT1947	0.00125
147146	GS97	5OCT1947	0.00125	147147	GS98	5OCT1947	0.00125	147148	GS99	5OCT1947	0.00125
147149	GS100	5OCT1947	0.00125	147150	GS101	5OCT1947	0.00125	147151	GS102	5OCT1947	0.00125
147152	GS103	5OCT1947	0.00125	147153	GS104	5OCT1947	0.00125	147154	GS105	5OCT1947	0.00125
147155	GS106	5OCT1947	0.00125	147156	GS107	5OCT1947	0.00125	147157	GS108	5OCT1947	0.00125
147158	GS109	5OCT1947	0.00125	147159	GS110	5OCT1947	0.00125	147160	GS111	5OCT1947	0.00125
147161	GS112	5OCT1947	0.00125	147162	GS113	5OCT1947	0.00125	147163	GS114	5OCT1947	0.00125
147164	GS115	5OCT1947	0.00125	147165	GS116	5OCT1947	0.00125	147166	GS117	5OCT1947	0.00125
147167	GS118	5OCT1947	0.00125	147168	GS119	5OCT1947	0.00125	147169	GS120	5OCT1947	0.00125
147170	GS121	5OCT1947	0.00125	147171	GS122	5OCT1947	0.00125	147172	GS123	5OCT1947	0.00125
147173	GS124	5OCT1947	0.00125	147174	GS125	5OCT1947	0.00125	147175	GS126	5OCT1947	0.00125
147176	GS127	5OCT1947	0.00125	147177	GS128	5OCT1947	0.00125	147178	GS129	5OCT1947	0.00125
147179	GS130	5OCT1947	0.00125	147180	GS131	5OCT1947	0.00125	147181	GS132	5OCT1947	0.00125
147182	GS133	5OCT1947	0.00125	147183	GS134	5OCT1947	0.00125	147184	GS135	5OCT1947	0.00125
147185	GS136	5OCT1947	0.00125	147186	GS137	5OCT1947	0.00125	147187	GS138	5OCT1947	0.00125
147188	GS139	5OCT1947	0.00125	147189	GS140	5OCT1947	0.00125	147190	GS141	5OCT1947	0.00125
147191	GS142	5OCT1947	0.00125	147192	GS143	5OCT1947	0.00125	147193	GS144	5OCT1947	0.00125
147194	GS145	5OCT1947	0.00125	147195	GS146	5OCT1947	0.00125	147196	GS147	5OCT1947	0.00125
147197	GS148	5OCT1947	0.00125	147198	GS149	5OCT1947	0.00125	147199	GS150	5OCT1947	0.00

rona of short, stout spines with somewhat expanded bases. The central area of the valve is ornamented with a stellate group of short striae radiating around a central puncta. In occasional specimens the ornamentation of the central area is poorly developed or lacking. In most specimens a distinct, structureless, hyaline space separates the two areas of ornamentation on the valve surface.

With the exception of the marginal spines, the morphologic characteristics of this species are quite similar to *C. stelligera*. The structures of the frustule of *C. pseudostelligera* are somewhat finer and its distribution tends to be more restricted than *C. stelligera*. It is abundant only in eutrophied inshore waters and in estuaries of the main lake.

129 CYPSTELL TCI NO OF STATICS 156

146915	CH	20FE1966	0.01707	146923	CH	22NO1966	0.01093	146920	CH	20DE1966	0.00031
146905	CH	JL1947	0.00123	146906	CH	MY1947	0.01394	146907	CH	JL1947	0.00247
146913	CH	6AU1947	0.01046	146922	CH	21AU1947	0.47253	146911	EV	11JH1937	0.00238
146745	EV	27JL1937	0.04646	146757	EV	25JL1937	0.29349	146747	EV	10A1937	0.01238
146763	EV	23AU1937	0.02029	146765	EV	30AU1937	0.13943	146760	EV	22SE1937	0.02462
146744	EV	6UC1937	0.00488	146767	EV	27OC1937	0.00774	146768	EV	14PR1938	0.01470
146756	EV	27AP1938	0.00950	146759	EV	15MY1938	0.00575	146761	EV	27MY1938	0.00545
146930	B 6	5JN1966	0.01399	146940	B 6	11JL1966	0.03317	146941	B 6	24JL1966	0.01542
146931	B 6	21AU1966	0.00682	146943	B 6	16AU1966	0.00795	146944	C 1	10AU1966	0.00193
146932	B 6	15JL1966	0.01540	146944	B 6	14JL1966	0.00183	146945	E 3	14JL1966	0.00479
146933	F 1	6JL1966	0.01180	146945	F 2	6JL1966	0.00910	146946	B 3	7AU1966	0.00210
146942	F 1	10SE1966	0.00882	146946	F 1	15SE1966	0.08153	146947	C 1	15SE1966	0.00022
146943	C 2	10AU1966	0.01118	146947	C 3	18AU1966	1.47327	146948	C 6	18AU1966	0.00432
146944	C 2	15AU1966	0.21066	146948	C 3	15AU1966	0.04933	146949	F 1	10AU1966	0.01178
146945	C 2	10SE1966	0.02088	146949	C 2	17SE1966	0.02580	146950	O 4	18SE1966	0.01894
146946	D 6	18SE1966	0.00384	146950	E 4	16SE1966	0.00785	146951	E 2	16SE1966	0.00681
146947	E 3	16SE1966	0.02355	146951	E 4	16SE1966	0.02216	146952	E 5	16SE1966	0.00613
146948	E 4	0.00310	146952	F 1	10SE1966	0.08153	146953	F 3	15SE1966	0.00022	
146949	B 3	15OC1966	0.00435	146953	B 6	14OC1966	0.00452	146954	C 2	14OC1966	0.01319
146950	C 2	16OC1966	0.00489	146954	C 2	13OC1966	0.00745	146955	C 2	15OC1966	0.01415
146951	O 4	15OC1966	0.00293	146955	C 5	14OC1966	0.01180	146956	O 6	14OC1966	0.01381
146952	E 1	12OC1966	0.01346	146956	E 2	12OC1966	0.02199	146957	E 3	13OC1966	0.00512
146953	E 4	13OC1966	0.00812	146957	E 5	13OC1966	0.00810	146958	F 1	11OC1966	0.00941
146954	F 2	11OC1966	0.01380	146958	F 3	11OC1966	0.01386	146959	B 6	NO1966	0.00722
146955	C 7	6NO1966	0.00912	146959	C 1	10NO1966	0.01126	146960	C 1	10NO1966	0.00241
146956	D 1	6NO1966	0.00714	146960	D 2	6NO1966	0.02483	146961	O 3	9NO1966	0.00703
146957	O 4	6NO1966	0.01148	146961	O 5	9NO1966	0.01365	146962	C 6	9NO1966	0.01889
146958	E 1	6NO1966	0.01340	146962	E 2	7NO1966	0.02663	146963	E 3	7NO1966	0.00817
146959	E 4	7NO1966	0.01505	146963	E 5	7NO1966	0.04460	146964	E 6	7NO1966	0.01000
146960	F 1	6NO1966	0.01115	146964	F 2	6NO1966	0.01398	146965	F 3	6NO1966	0.00252
146961	C 3	27JL1967	0.00385	146965	C 3	28R1967	0.00588	146966	C 3	28R1967	0.00926
146962	C 7	28R1967	0.01018	146966	C 7	19AP1967	0.00542	146967	A 4	19AP1967	0.00902
146963	A 6	19AP1967	0.00069	146967	C 5	25AP1967	0.00195	146968	C 7	21AP1967	0.02242
146964	F 2	23AP1967	0.00813	146968	E 5	23AP1967	0.01234	146969	E 2	7MY1967	0.00299
146965	A 3	23MY1967	0.00647	146969	E 3	28MY1967	0.01093	146970	E 3	15JH1967	0.00246
146966	A 3	11JL1967	0.00485	146970	A 4	11JL1967	0.00936	146971	C 3	16JL1967	0.11082
146967	C 5	16JL1967	0.27135	146971	F 2	16JL1967	0.00591	146972	E 2	14JL1967	0.00764
146968	C 3	15JL1967	0.01507	146972	E 3	15JL1967	0.01000	146973	C 3	25SE1967	0.01109
146969	C 5	2SE1967	0.00050	146973	E 2	15SE1967	0.04004	146974	E 3	1SE1967	0.01571
146970	E 5	31AU1967	0.00507	146974	A 3	18SE1967	0.00857	146975	A 4	18SE1967	0.00129
146971	A 6	15SE1967	0.00310	146975	E 2	24SE1967	0.01363	146976	E 5	23SE1967	0.01867
146972	C 5	4OC1967	0.00993	146976	E 2	11OC1967	0.06918	146977	E 3	11OC1967	0.04008
146973	E 3	10OC1967	0.01873	146977	G 5	9MY1967	0.00168	146978	G 5	10MY1967	0.00185
146974	GS10	13MY1967	0.00172	146978	G 5	3OC1967	0.01059	146979	GS 4	3OC1967	0.00374
146975	GS 9	4OC1967	0.00587	146979	GS10	5OC1967	0.00247	146980	GS21	6AP1967	0.00112
146976	MS 1	2OC1967	0.00075	146980	MS 1	2OC1967	0.00798	146981	MS 1	18SE1967	0.00577
146977	MS 1	18SE1967	0.11670	146981	MS 1	19SE1967	0.13818	146982	MS 1	20SE1967	0.00549
146978	MS 1	20SE1967	0.02398	146982	MS 1	20OC1967	0.02027	146983	MS 1	4OC1967	0.00852
146979	MS 1	5OC1967	0.00799	146983	MS 1	6OC1967	0.00860	146984	MS 1	5OC1967	0.04604
146980	MS 2	29MY1967	0.01507	146984	MS 2	29MY1967	0.02100	146985	MS 2	29MY1967	0.00883
146981	MS 2	22MY1967	0.17181	146985	MS 2	6AP1967	0.25770	146986	MS 2	6AP1967	0.00848
146982	MS 2	21AP1967	0.02277	146986	MS 2	10PY1967	0.03923	146987	MS 2	19AP1967	0.00359

Cyclotella stelligera (Cleve and Grun.) V. H.

Cyclotella meneghiniana var. ? *stelligera* Cleve and Grun., Kongl. Sven. Vet.-Akad. Handl., 18(5):22, pl. 5, fig. 63. 1881.

Cyclotella stelligera (Cleve and Grun.) V. H., Syn. Diet. Belgique, pl. 94, fig. 22-27. 1882.

Cells cylindrical with slightly concentrically undulate valves. Cells always occur singly. Specimens from Lake Michigan 3-24 μ in diameter. Marginal zone narrow, only about one-fourth the radius of the valve. Ornamentation of the marginal zone composed of striae without visible substructure. Striae quite coarse, about 11-14 in 10 μ , all of approximately equal length. Other structures, such as ribs, chambers, or slime pores are lacking. Ornamentation of the central area is quite variable. Usually a single large puncta is present in the center of the valve. A number of irregular ribs radiate around the center giving a stellate central structure. Smaller, isolated puncta or thickenings may occur between the major structures. In the smaller cells this entire central ornamentation is reduced to a stellate cluster of dots. In some specimens the entire central area is covered by very fine puncta which may be either radially or randomly distributed.

130. CYSTELL TCT NO OF STATIONS 144

146073	CH	1876	0.11809	1	3541	CH	23N01945	0.01229	1	46908	CH	19F61881	0.01132	1			
146910	CH	0C1945	0.02294	1	46921	CH	23N01945	0.01229	1	46908	CH	DE1945	0.04028	1			
146917	CH	12J41546	0.00582	1	46915	CH	0E1546	0.15364	1	46916	CH	19AP1946	0.01815	1			
146924	CH	10M1946	0.00564	1	46923	CH	22N01946	0.06775	1	46920	CH	20E01946	0.00893	1			
146905	CH	2A1947	0.02206	1	46959	CH	MR1947	0.07286	1	46912	CH	AF1547	0.01150	1			
146916	CH	4W1947	0.00238	1	46956	CH	RY1947	0.04779	1	46910	CH	5JN1947	0.12291	1			
146907	CH	15E1947	0.00084	1	46962	CH	21A1947	0.15103	1	46925	EV	0A1947	0.01070	1			
146764	EV	17J1937	0.02417	1	46757	EV	25J1937	0.08184	1	46747	EV	1A01937	0.21784	1			
146763	EV	23A01937	0.71023	1	46765	EV	30A01937	0.88600	1	46765	EV	75E1937	0.06513	1			
146752	EV	15E1937	0.10884	1	46760	EV	22E1937	0.03939	1	46750	EV	24E1937	0.06127	1			
146765	EV	60C1537	0.16730	1	46767	EV	270C1537	0.01160	1	46749	EV	12M1938	0.07282	1			
146768	EV	16M1938	0.04410	1	46762	EV	10M1938	0.22056	1	46756	EV	27AP1938	0.06336	1			
146759	EV	19M1938	0.00338	1	46761	EV	7M1938	0.00818	1	1226	C	10M1964	0.03181	1			
1228	O	14M1964	0.00779	1	1229	O	14M1964	0.00423	1	1231	E	16M1964	0.01223	1			
1232	E	16M1964	0.00174	1	1236	C	14M1964	0.00175	1	1237	C	8JN1964	0.00258	1			
1250	C	10J1964	0.00822	1	1255	E	15J1964	0.00913	1	1256	E	14J1964	0.01183	1			
1257	E	14J1964	0.00957	1	1258	F	6J1964	0.00236	1	1260	F	6J1964	0.00955	1			
1265	C	10A1964	0.00224	1	1244	E	15E1964	0.02122	1	1272	C	10E1964	0.05336	1			
1273	C	12E1964	0.01615	1	1275	E	17E1964	0.01290	1	1276	O	3JN1964	0.01118	1			
1279	E	16E1964	0.01371	1	1280	E	2	16E1964	0.00681	1	1286	F	15E1964	0.02189	1		
1287	F	14E1964	0.00236	1	1445	E	6	40C1964	0.00145	1	1338	C	8	0.00529	1		
1339	C	29M1967	0.00312	1	1340	C	7	29M1967	0.00145	1	1342	A	19AP1967	0.00361	1		
1343	A	19AP1967	0.00139	1	1344	C	3	25AP1967	0.00331	1	1346	C	7	21AP1967	0.00668	1	
1347	E	23AP1967	0.00325	1	1348	E	5	23AP1967	0.00685	1	1373	C	7	5M1967	0.00285	1	
1374	E	7M1967	0.00558	1	1376	E	5	6M1967	0.00281	1	1408	A	3	23M1967	0.00447	1	
1433	C	17JN1967	0.00646	1	1446	A	3	11J1967	0.00245	1	1447	A	4	11J1967	0.01170	1	
1449	C	16J1967	0.00764	1	1450	C	5	16J1967	0.00190	1	1451	C	7	16J1967	0.00591	1	
1452	E	14J1967	0.01490	1	1453	E	3	15J1967	0.01264	1	1454	E	5	15J1967	0.00600	1	
1464	A	28A1967	0.00247	1	1509	C	5	25E1967	0.00505	1	1511	E	2	13E1967	0.01935	1	
1512	E	15E1967	0.01178	1	1513	E	5	31A1967	0.00507	1	1532	A	3	19E1967	0.00866	1	
1533	A	19E1967	0.00865	1	1539	C	3	40C1967	0.01510	1	1541	E	2	110C1967	0.01064	1	
1542	E	3	110C1967	0.01017	1	1543	E	5	100C1967	0.00118	1	1582	CS	6	10M1967	0.00278	1
1583	CS	7	10M1967	0.00505	1	1595	CS	1	30C1967	0.00112	1	1595	CS	2	30C1967	0.00593	1
1596	CS	3	30C1967	0.01564	1	1598	CS	5	40C1967	0.00396	1	1599	CS	7	40C1967	0.01049	1
1560	GS	8	40C1967	0.00872	1	1562	GS10	1	50C1967	0.00740	1	1570	GS10	1	50C1967	0.00992	1
1571	GS10	1	40C1967	0.00495	1	1574	GS22	1	60C1967	0.00975	1	1598	F1	1	20C1967	0.01189	1
1546	U	1	20C1967	0.01000	1	1527	IR	1	20E1967	0.01259	1	1545	ML	1	20C1967	0.00676	1
1550	MR	1	50C1967	0.04195	1	1551	ML	2	21AP1967	0.02793	1	1599	FW	4	5M1967	0.01360	1
1600	SS	2	0.0191	1	1352	W	2	21AP1967	0.06013	1	1403	C	2	10M1967	0.03923	1	
1404	MD	2	10M1967	0.01270	1	1455	ES	2	12M1967	0.00645	1	1349	CI	2	15AP1967	0.00718	1
1423	MA	2	25M1967	0.00428	1												

Cyclotella temperei M. Per. and Hérub.

Cyclotella temperei M. Peragallo and Hérubaud in: Hérubaud, Foss. Diat. Auvergne, Vol. I, p. 35, pl. 8, fig. 23. 1902.

Cells cylindrical, surface of the valves flat or only slightly concave. Cells occur singly. Specimens from Lake Michigan 8-12 μ in diameter. Marginal zone of the valves very broad about three-fourths the diameter of the valve. Ornamentation of the marginal zone consists of anastomosing striae of varying length, somewhat sinuous and without visible substructure. The longest of the striae are of equal length, forming an even border to the central area. A series of marginal spines are present. Striae 14-18 in 10 μ at the margin of the valve. Spines widely but regularly spaced, about 4 in 10 μ . The central area is small and circular. Its only ornamentation is a rosette of quite small but conspicuous puncta surrounding the center of the valve.

Specimens of this species are very rare in collections from Lake Michigan. It was originally described from fossil material and it is entirely possible that the specimens we have observed are not of recent origin. It is also possible that this species belongs to the group of "pleistocene relicts" that survive in benthic communities in relatively deep water in the upper Great Lakes. The only other taxon found in Lake Michigan that resembles *C. temperei* in morphology is *C. wolterecki* Hust. Although Husted (1942) points this out in his discussion of *C. wolterecki*, he does not allude to *Cladogramma cebuense* Grun., which, although larger and more coarsely structured, is remarkably similar to the two entities discussed above in structure and which, like *C. wolterecki*, was described from the western Pacific Islands.

132 CYTEMPER TCT NO OF STATIONS									
(1544	MU 1	20C1967	0.00238)	(1522	BH 1	18SE1567	1.60464)	(1550	PR 1
(1550	BH 2	19AP1967	1.23345)	(1400	SB 2	6PY1967	0.00596)	(1553	FR 2
(1522	GA 2	23PI1967	0.00511)						
								50C1967	0.39648)
								23AP1967	C.01055)

Cyclotella wolterecki Hust.

Cyclotella wolterecki Husted, Internat. Rev. Hydrobiol., 42:16, text fig. 11-13. 1942.

Cells cylindrical with slightly concentrically undulate valves, usually sunken in the center. Cells occur singly. Specimens from Lake Michigan 4-9 μ in diameter. The main visible ornamentation on the valve surface is a series of radiate striae of varying lengths and without visible substructure. The longest of these striae reach nearly to the center of the valve so that the central area is reduced to a small, circular area only 1-2 μ in diameter. This area usually contains a single, large puncta. The striae are fine, about 22 in 10 μ at the margin of the valve, and somewhat difficult to resolve to the thinness of the valve and to their highly irregular length. A series of more or less well developed spines, with thickened and expanded bases, are usually visible at the margin of the valves. The spines are randomly arranged and appear to have no special orientation to the striae or to one another.

This species, like *C. atomus* Hust., was originally described from the tropics. Although this distribution is quite unusual, the forms from Lake Michigan appear to be morphologically identical with the specimens described and figured by Husted (l. c.). Indeed the morphology of this taxon is almost unique. The only species that resembles it in general structure of the valve and arrangement of ornamentation is *C. temperei*, which, according to published descriptions and illustrations, is a considerably larger and more coarsely structured form.

133 CYMOLTER TCT NO OF STATIONS									
(1243	E 6	13JN1964	0.00418)	(1446	A 3	11JL1967	0.00245)	(1557	GS 4
(1550	PR 1	50C1967	0.01239)						
								30C1967	C.00374)

Species incertae sedis

Cyclotella sp. #1.

134 CYSPECOA TCT NO OF STATIONS									
(1245	F 2	11JN1964	0.00492)						

Cyclotella sp. #2.

135 CYSPEC08 TCT NO OF STATIONS 10											
(1284	E 6	17SE1964	0.00953)	(1285	F 1	15SE1964	0.01165)	(1320	E 4	7ND1964	0.00827)
(1321	E 5	7ND1964	0.00638)	(1322	E 6	7ND1964	0.01666)	(1323	F 1	6ND1964	0.00279)
(1324	F 2	6ND1964	0.01165)	(1325	F 3	6ND1964	0.00504)	(1536	E 2	24SE1967	0.00273)
(1541	E 2	110E1967	0.01597)								

Cyclotella sp. (aff. *C. striata* var. *bipunctata* Fricke).

131 CYSSTRVB TCT NO OF STATIONS 3											
(1240	D 6	10JN1964	0.00920)	(1243	E 6	13JN1964	0.00209)	(1504	A 3	28AU1967	0.00247)

Genus *Cymatopleura* Wm. Smith
Wm. Smith, Annals Mag. Nat. Hist., 7(2):13. 1851.

Freshwater members of the genus *Cymatopleura* find their primary habitat in epipellic communities. They are, however, also successful facultative planktonic and occur in low to moderate numbers in plankton collections.

Cymatopleura cockleia J. Brun.

Cymatopleura cockleia J. Brun, Mem. Soc. Phys. Hist. Nat. Geneve, 31:25, pl. 276, fig. 6. 1911.

136 CTECHLE TCT NG OF STATIONS 16

(3541	CH	1FE1881	0.01956	(46517	CH	12J81946	0.00055	(46914	CH	19A91946	C.00107	J
(46816	CH	48V1967	0.00334	(46922	CH	21A91947	0.00194	(46764	EV	17J11937	C.CC006	J
(46763	EV	23A91937	0.02029	(46752	EV	155E1937	0.02177	(46767	EV	27D1937	C.CC387	J
(46762	EV	18M1938	0.08822	(1391	GS15	12M1967	0.00479	(1394	GS18	13M1967	C.CC172	J
(1395	GS19	13M1967	0.00112	(1396	GS22	13M1967	0.00074	(1398	GS16	50C1567	C.CC033	J
(1569	GS17	50C1967	0.00149	(								

Cymatopleura elliptica (Bréb. and Godey) Wm. Smith

Surirella elliptica de Brébisson and Godey, Consid. Diat., p.17. 1838.

Cymatopleura elliptica (Bréb. and Godey) Wm. Smith, Annals Mag. Nat. Hist., Ser. 2, 7:13, pl. 7, fig. 10-11. 1851.

137 CTCLLPT TCT NO OF STATIONS 5

(46758	EV	5JN1937	0.00357	(46743	EV	20JN1937	C.00856	(46757	EV	25JL1937	C.CC481	J
(46747	EV	1AUL1937	0.00495	(46765	EV	30AUL1937	0.00558	(				

Cymatopleura solea (Bréb. and Godey) Wm. Smith

Cymbella solea de Brébisson and Godey, Mem. Soc. Acad. Sci. Falaise, 1:51, pl. 7. 1835.

Cymatopleura solea (Bréb. and Godey) Wm. Smith, Annals Mag. Nat. Hist., Ser. 2, 7:12, pl. 3, figs. 8-9. 1851.

138 CTSGLEA TCT NO OF STATIONS 144

(46973	CH	1876	0.04274	(3540	CH	11W11875	0.00932	(3541	CH	1FE1881	C.26411	J
(3507	CH	19FE1881	0.02264	(46910	CH	0C1945	0.00546	(46823	CH	23N91945	C.04204	J
(46937	CH	12J1946	0.01275	(46514	CH	19AP1946	C.03097	(46924	CH	10M1946	C.22927	J
(46923	CH	22N91946	0.15736	(46920	CH	20DE1946	0.01232	(46905	CH	J81947	C.01103	J
(46905	CH	M81947	0.02277	(46916	CH	48V1947	0.01561	(46906	CH	M1947	C.01062	J
(46919	CH	5JN1947	0.01214	(46907	CH	1JL1947	0.09375	(46922	CH	21AUL1947	C.01163	J
(46758	EV	5JN1937	0.00323	(46743	EV	20JN1937	0.00518	(46745	EV	3JL1937	C.00856	J
(46764	EV	17JL1937	0.05641	(46757	EV	25JL1937	0.03852	(46747	EV	1AUL1937	C.02228	J
(46765	EV	30AUL1937	0.01673	(46752	EV	155E1937	0.02177	(46760	EV	22JL1937	C.00985	J
(46750	EV	11SE1937	0.01414	(46744	EV	60C1937	0.00975	(46748	EV	13D1937	C.06405	J
(46767	EV	27EC1937	0.00774	(46749	EV	12M1938	0.01211	(46768	EV	14M1938	C.01470	J
(46762	EV	18M1938	0.08822	(46751	EV	30M1938	0.02233	(46756	EV	14M1938	C.00504	J
(46759	EV	19M1938	0.06675	(46761	EV	27M1938	0.03593	(46766	EV	14D1938	C.03169	J
(1225	C 6	15M1964	0.01452	(1228	E 2	14V1964	0.00581	(1229	C 5	14M1964	C.00423	J
(1230	E 2	16M1964	0.00593	(1231	E 3	16M1964	C.01223	(1232	E 5	16M1964	C.01391	J
(1233	E 3	5JN2964	C.00238	(1439	E 6	5JN1964	0.00200	(1237	C 2	8JN1964	C.CC516	J
(1238	E 3	11JN1964	0.00400	(1241	E 6	13JN1964	C.00143	(1242	E 3	13JN1964	C.CC300	J
(1243	E 6	13JN1964	0.00209	(1244	F 1	11JN1964	0.00439	(1245	F 2	11JN1964	C.CC137	J
(1246	F 3	31JN1964	0.00412	(1248	F 3	24JL1964	C.00197	(1252	C 1	16JL1964	C.CC558	J
(1254	F 2	15JL1964	0.00383	(1257	E 3	14JL1964	0.00239	(1259	F 2	6JL1964	C.CC310	J
(1260	F 2	6JL1964	0.00191	(1269	E 3	15AUL1964	0.00274	(1285	F 1	15SE1964	C.CC582	J
(1304	F 1	11DE1964	0.00743	(1367	E 6	6NO1964	C.00361	(1313	O 3	9NO1964	C.CC193	J
(1323	F 1	6NO1964	0.00139	(1325	F 3	23AP1967	C.00252	(1328	C 3	28M1967	C.CC397	J
(1339	C 5	28M1967	0.00624	(1340	C 7	28M1967	0.00073	(1342	A 4	19AP1967	C.CC180	J
(1343	C 5	19AP1967	0.00486	(1344	C 2	23AP1967	0.00165	(1345	C 5	23AP1967	C.CC170	J
(1346	C 7	21AP1967	0.00134	(1347	E 2	23AP1967	0.00325	(1348	E 5	23AP1967	C.CC037	J
(1348	A 5	48V1967	C.04828	(137C	A 6	38V1967	0.01381	(1371	C 3	48V1967	C.CC693	J
(1372	A 5	38V1967	0.00419	(1373	C 3	38V1967	C.00856	(1374	E 2	7M1967	C.CC598	J
(1375	E 3	7M1967	0.01203	(1376	E 5	6M1967	C.00281	(1410	A 6	24M1967	C.CC091	J
(1411	C 3	31M1967	0.00416	(1412	C 5	13M1967	C.00842	(1413	C 7	25M1967	C.CC632	J
(1414	E 2	28M1967	0.00336	(1416	E 4	28M1967	C.00219	(1432	A 4	13JN1967	C.CC255	J
(1433	C 3	17JN1967	C.00646	(1434	C 5	17JN1967	0.00598	(1436	E 2	15JN1967	C.CC724	J
(1437	E 3	30JN1967	0.00448	(1448	A 6	10JL1967	0.00354	(1449	C 3	16JL1967	C.CC382	J
(1453	E 3	15JL1967	0.00253	(1511	A 6	15JL1967	0.00307	(1379	GS 5	9M1967	C.CC305	J
(1380	GS 4	9M1967	0.00336	(1381	GS 5	10M1967	0.00239	(1382	GS 6	10M1967	C.CC078	J
(1384	GS 8	12M1967	0.00294	(1387	GS 12	12M1967	0.00294	(1388	GS12	12M1967	C.1448C	J
(1389	GS13	12M1967	0.01288	(1390	GS14	12M1967	0.02340	(1391	GS15	12M1967	C.CC410	J

(1392	GS16	12MY1567	0.01233	(1393	GS17	13MY1967	0.02192	(1394	GS18	13MY1967	C.08429	)
(1395	GS19	13MY1967	0.02114	(1396	GS20	13MY1967	C.08074	(1397	GS21	13MY1967	C.08027	)
(1398	CS14	50C1967	0.00361	(1399	CS15	50C1967	C.00035	(1400	GS16	50C1967	C.00144	)
(1369	GS17	50C1967	0.01338	(1370	CS18	50C1967	0.00992	(1372	GS20	60C1967	C.00090	)
(1375	CS18	60C1967	0.00516	(1346	LU 1	20C1967	C.00560	(1350	HG 1	18611967	C.00471	)
(1352	SM 1	60C1967	0.01981	(1353	SC 1	60C1967	C.00734	(1428	PU 2	29MY1567	C.00301	)
(1426	MS 2	29MY1967	0.02249	(1391	MI 2	21AP1967	C.00021	(1417	HG 2	22MY1967	C.01495	)
(1350	HR 2	19AP1967	0.00061	(1401	MC 2	6MY1967	0.01176	(1402	TR 2	6MY1967	C.01083	)
(1400	SB 2	6MY1967	0.02383	(1394	CH 2	25AP1967	0.00173	(1429	ML 2	29MY1967	C.01062	)
(1403	CA 2	10MY1967	0.02615	(1399	CL 2	19AP1967	0.00359	(1419	RU 2	23MY1967	C.05492	)
(1422	CA 2	23MY1967	0.02955	(1423	NA 2	29MY1967	0.01113	(1424	KA 2	29MY1967	C.01132	)

Cymatopleura solea var. *apiculata* (Wm. Smith) Ralfs

Cymatopleura apiculata Wm. Smith, Syn. British Diat., Vol. 1, p. 37, pl. 10, fig. 79. 1853.

Cymatopleura solea var. *apiculata* (Wm. Smith) Ralfs in: Pritchard, Hist. Infus., p. 793. 1861.

139	CTSOLEVA	TCT	NC	CF	STA	ICNS	39					
(60973	CH	1876	0.04724	(3541	CH	1FE1881	C.00978	(46921	CH	23AC1545	C.00065	)
(46917	CH	12JA1946	0.00083	(46514	CH	19AP1946	0.00107	(46924	CH	10MY1946	0.00282	)
(46905	CH	JAI1947	0.00123	(46116	CH	4MY1947	0.00136	(46907	CF	JLI1947	C.00247	)
(46922	CH	21AU1947	C.00048	(46788	EV	5JUN1937	C.01070	(46763	EV	20JUN1937	0.00456	)
(46744	EV	60C1537	0.00975	(46749	EV	12MR1938	C.01214	(46751	EV	30MR1938	C.02233	)
(46752	EV	19MY1938	0.00675	(1230	E 2	16MY1934	0.00296	(1289	C 7	14OC1964	0.00446	)
(1343	A 6	19AP1967	0.00049	(1345	C 5	25AP1967	C.00195	(1376	E 5	6MY1967	C.00281	)
(1408	A 3	23MY1967	0.00894	(1414	E 2	28MY1967	0.00072	(1415	E 3	28MY1967	C.00450	)
(1432	A 4	13JUN1967	0.00255	(1434	C 5	17JUN1967	C.00209	(1435	C 7	13JUN1967	C.00316	)
(1377	CS 1	9MY1967	0.00396	(1381	CS 5	10MY1967	0.00239	(1386	CS10	12MY1967	C.00287	)
(1388	GS12	12MY1967	0.00603	(1390	CS14	12MY1967	0.00587	(1391	GS15	12MY1967	C.00556	)
(1394	GS18	13MY1967	0.00172	(1373	CS21	60C1967	C.00112	(1390	MS 1	50C1967	C.01239	)
(1395	PU 2	5MY1967	0.01366	(1401	MG 2	6MY1967	0.00588	(1422	CA 2	23MY1967	C.00511	)

Cymatopleura solea var. *clavata* O. Müll.

Cymatopleura solea var. *clavata* O. Müller, Bot. Jahrb., 34(1):22, fig. 1. 1903.

140	CTSCLVVC	TCT	NC	CF	STATIONS	1
(46747	EV	1AU1937	0.00248	(		

Cymatopleura solea var. *regula* (Ehr.) Grun.

Surirella regula Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:136. 1841.

Cymatopleura regula Ralfs in: Pritchard, Hist. Infus., p. 793. 1861.

Cymatopleura solea var. *regula* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:466. 1862.

141	CTSCLVVR TCT NC CF STATIONS					6						
(60973	CH	1876	0.11809	(3541	CH	1FE1881	0.00578	(46914	CH	19AP1946	C.00107	)
(46919	CH	5JUN1947	0.00303	(46507	CH	JLI1947	0.00197	(46922	CH	21AU1947	C.00048	)

Genus *Cymbella* Agardh
Agardh, Conspectus Crit. Diat., p. 1. 1830.

Members of the genus *Cymbella* find their primary habitat in periphyton or epipelagic communities. The specimens that occur in our collections are most likely derived from such habitats in most instances.

Cymbella acutiuscula Cleve

Cymbella acutiuscula Cleve, K. Svenska Vet.-Akad. Handl., Ny Förlag, 26(2): 164, pl. 4, fig. 26. 1894.

Coll: 1404.

Cymbella aequalis Wm. Smith

Cymbella aequalis Wm. Smith in: Greville, Annals Mag. Nat. Hist., Ser. 2, 16:255, pl. 9, fig. 4. 1855.

185 CESPECE TCT NC CF STATIONS 2									
146917	CH	12JAL1966	O.O0028	1	1258	F 1	6JUL1964	O.O00236	1

Cymbella affinis Kütz.

Cymbella affinis Kützing, Bacill., p. 80, pl. 6, fig. 15. 1844.

142 CRAFTINI TCT NC CF STATIONS 35															
146917	CH	12JAL1966	O.O0028	1	146524	CH	10MY1966	C.O0071	1	146956	CH	MY1947	C.CC113	1	
146915	CH	5JUN1967	O.O0152	1	146522	CH	21AUL1967	C.O0046	1	146758	EV	5JUN1937	C.CC2110	1	
146723	EV	20JUN1937	O.O0528	1	146766	EV	17JUL1937	C.O0806	1	146767	EV	17JUL1937	C.CC2111	1	
146763	EV	21AUL1937	O.O0029	1	146765	EV	7SE1937	O.O0171	1	146769	EV	22SE1937	C.CC242	1	
146750	EV	24SE1937	C.O0943	1	1225	D 5	14MY1966	O.O0211	1	1226	D 5	14MY1966	C.CC2112	1	
1	1254	F 1	11JUN1966	C.O0110	1	1255	F 2	11JUN1966	O.O0346	1	1257	E 1	14JUL1966	C.CC183	1
1	1270	F 1	10AUL1966	O.O0545	1	1279	E 1	16SE1966	O.O0785	1	1280	E 1	15SE1966	C.CC080	1
1	1346	C 7	21AP1967	O.O0134	1	1388	GS12	12MY1967	O.O2411	1	1389	GS13	20C1967	C.CC2113	1
1	1352	GS16	12MY1967	O.O0616	1	1355	GS13	20C1967	C.O1014	1	1356	GS15	50C1967	C.CC2116	1
1	1569	GS17	10C1967	O.O0297	1	1571	GS19	40C1967	C.O0176	1	1572	GS16	10C1967	C.CC2115	1
1	1350	SH 2	19AP1967	O.O0881	1	14C1	PG 2	6MY1967	C.O0588	1	1403	CA 2	10MY1967	C.CC323	1
1	1407	SH 2	14MY1967	C.O0597	1	14C6	GS 2	13MY1967	O.O0270	1	1408	CA 2	10MY1967	C.CC323	1

Cymbella amphicephala Naeg. ex Kütz.

Cymbella amphicephala Naegli ex Kützing, Sp. Alg., p. 890. 1849.

143 CBAMPHIC TCT NC CF STATIONS 3										
146764	EV	17JUL1937	C.O0806	1	1389	GS13	12MY1967	C.O0258	1	1530
									FR 1	24SE1967
										C.O1000

Cymbella angustata (Wm. Smith) Cleve

Navicula angustata Wm. Smith, Syn. British Diat., Vol. I, p. 52, pl. 17, fig. 156. 1853.

Cymbella angustata (Wm. Smith) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):161. 1895.

144 CBANGUST TCT NC OF STATIONS 3									
146764	EV	17JUL1937	C.O0806	1	146757	EV	25JUL1937	C.O0481	1
								146747	EV
								1AUL1937	C.O0248

Cymbella aspera (Ehr.) Hérib.

Cocconema asperum Ehrenberg, Ber. Akad. Wiss. Berlin, 1839:30. 1839.

Cymbella aspera Héribaud, Diat. Auvergne, p. 99, pl. 3, fig. 10. 1893.

145 CBASPERA TOT NC CF STATIONS 3											
(1512	E 3	15E1967	O.O0393)	(1350	GS14	12MY1967	C.O0587)	(1404	PG 2	10MY1967	C.O1270)

Cymbella cesatii Grun.

Cymbella cesatii Grunow in: A. Schmidt, Atlas Diat., pl. 71, figs. 48-49. 1881.

144 CIRCESATI TCT NO OF STATIONS 14

146919	CH	5JN1947	0.00455	1	1244	F 1	11JN1964	0.00219	1	1245	F 2	11JN1964	C.00346	1
1244	F 3	11JN1964	0.00598	1	1258	F 1	6JL1964	C.00708	1	1259	F 2	6JL1964	C.00310	1
1260	F 3	6JL1964	0.00191	1	1285	F 1	15SE1964	C.02330	1	1305	F 2	110C1964	0.00173	1
1388	GS12	12MY1967	0.00093	1	1350	GS14	12MY1967	0.00587	1	1394	GS18	13MY1967	C.00172	1
1403	CA 2	10MY1967	0.00923	1	1404	MC 2	10MY1967	0.02561	1					

Cymbella cistula (Ehr.) Kirchn.

Bacillaria cistula Ehrenberg in: Ehrenberg and Hemprich, Symbolae physicae, Vol. 4, pl. 2(4), fig. 10. 1828.

Cymbella cistula (Ehr.) Kirchner in: Cohn, Kryptog.-Fl. Schlesien, Vol. 2, p. 189. 1878.

147 CBCISTUL TCT NO OF STATIONS 43

146921	CH	23NO1945	0.00065	1	146517	CH	12JL1946	C.00055	1	146914	CH	19AP1946	0.00107	1
146920	CH	20DE1946	0.00092	1	146936	CH	4MY1947	0.00034	1	146906	CH	MY1947	C.00066	1
146919	CH	5JN1947	0.02580	1	146513	CH	6JL1947	C.02092	1	146922	CH	21AU1947	C.00097	1
146784	EV	17JL1937	0.01612	1	146757	EV	25JL1937	0.00963	1	146747	EV	18U1937	C.00248	1
146765	EV	30AU1937	0.00556	1	1244	F 1	11JN1964	0.00219	1	1258	F 1	6JL1964	C.00472	1
1268	F 2	15AU1964	0.00274	1	1270	F 1	10AU1964	0.00272	1	1285	F 1	15SE1964	C.04077	1
1302	E 5	130C1964	0.00405	1	1382	GS 6	10MY1967	0.00833	1	1386	GS1C	12MY1967	0.00287	1
1387	GS11	12MY1967	0.00792	1	1388	GS12	12MY1967	0.00803	1	1389	GS13	12MY1967	C.00298	1
1392	GS16	12MY1967	0.00616	1	1396	GS20	13MY1967	C.00074	1	1554	GS 1	30C1967	C.00356	1
1557	GS 4	30C1967	0.00374	1	1567	GS15	50C1967	0.00199	1	1569	GS17	50C1967	C.00446	1
1574	GS22	60C1967	0.01430	1	1524	MR 1	20SE1967	0.02189	1	1529	KW 1	20SE1967	C.01159	1
1530	FR 1	24SE1967	0.02000	1	1550	MR 1	30C1967	C.02478	1	1553	SG 1	60C1967	C.01469	1
1424	MC 2	29MY1967	C.02100	1	1350	BM 2	19AP1967	0.00220	1	1403	CA 2	10MY1967	C.07462	1
1404	MC 2	10MY1967	0.02561	1	1405	ES 2	12MY1967	0.00645	1	1349	CI 2	19AP1967	C.00359	1
1406	GS 2	13MY1967	0.00270	1										

Cymbella cistula var. *gibbosa* J. Brun

Cymbella cistula var. *gibbosa* J. Brun, Diatomiste, Vol. 2, pl. 14, fig. 27. 1895.

148 CBCISTUL TCT NO OF STATIONS 7

1240	D 6	10JN1964	0.00153	1	1285	F 1	15SE1964	0.01165	1	1379	CS 3	9MY1967	C.00305	1
1387	GS11	12MY1967	0.01584	1	1566	GS14	50C1967	0.00183	1	1526	MO 1	20SE1967	C.00569	1
1403	CA 2	10MY1967	0.02765	1										

Cymbella cistula var. *truncata* J. Brun.

Cymbella cistula var. *truncata* J. Brun, Diat. Alps et Jura, p. 58, pl. 3, fig. 2. 1880.

149 CBCISTUL TCT NO OF STATIONS 1

1403	CA 2	10MY1967	0.02615	1										
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Cymbella cuspidata Kütz.

Cymbella cuspidata Kützting, Bacill., p. 79, pl. 3, fig. 40. 1844.

150 CBCUSPID TCT NO OF STATIONS 14

146917	CH	12JL1946	0.00055	1	146914	CH	19AP1946	0.00107	1	146758	EV	5JN1937	C.00357	1
146766	EV	17JL1937	0.00806	1	146757	EV	25JL1937	0.00963	1	146747	EV	18U1937	C.00248	1
146769	EV	15E1937	0.02171	1	146751	EV	30MR1938	0.02235	1	146759	EV	19MY1938	C.00336	1
146761	EV	27MY1938	0.00273	1	1574	GS22	60C1967	0.00575	1	1527	IR 1	20SE1967	C.00629	1
14627	LU 2	29MY1967	0.01211	1	1350	BM 2	19AP1967	0.00220	1					

Cymbella cuspidata var. *schulzei* A. Cleve

Cymbella cuspidata var. *schulzei* A. Cleve, Soc. Sci. Fennica Comm. Biol., 4(14):75. 1934.

152 CCBUSPUS TOT NC OF STATIONS 1
(1392 GS16 12MY1967 0.00308) (

Cymbella delicatula Klitz.

Cymbella delicatula Klitzing, Sp. Alg., p. 59. 1849.

153 CROBELICA TOT NC OF STATIONS 41
146914 CH 19AP1946 0.00107) (46920 CH 20DE1946 C.00062) (46916 CH 4MY1947 C.02205)
146919 CH 9JN1947 1.28223) (46927 CH 11JN1947 C.00099) (46922 CH 21AU1947 C.00145)
146798 EV 9JN1937 0.00713) (46743 EV 20JN1937 0.00428) (46770 EV 9JL1937 C.01193)
146764 EV 17JL1937 0.04835) (46757 EV 25JL1937 C.02457) (46747 EV 1AU1937 C.00248)
146763 EV 23AU1937 0.10146) (46752 EV 15SE1937 0.06530) (46748 EV 13OC1937 C.02115)
146768 EV 16MR1938 0.01470) (46762 EV 18MR1938 C.02206) (1243 E 13JN1944 C.00209)
(1244 F 1 11JN1944 0.00658) (1258 F 1 6JL1944 0.00944) (1259 F 2 6JL1944 C.00310)
(1260 F 3 6JL1944 0.00764) (1270 F 2 10AU1944 0.00272) (1285 F 1 15SE1944 C.04743)
(1304 F 1 11OC1944 0.00444) (1305 F 2 11OC1944 0.00173) (1379 GS 3 9MY1947 C.00309)
(1384 GS 8 10MY1947 0.00185) (1387 GS11 12MY1947 C.01980) (1388 GS12 12MY1947 C.00602)
(1389 GS13 12MY1947 0.01289) (1390 GS14 12MY1947 0.00587) (1391 GS15 12MY1947 C.00479)
(1394 GS18 13MY1947 0.06172) (1555 GS 2 3CC1947 C.00706) (1574 GS22 6OC1947 C.00883)
(1550 MR 1 5CC1947 0.01239) (1350 SM 2 19AP1947 0.00220) (1402 TR 2 6MY1947 C.00541)
(1403 CA 2 10MY1947 0.22353) (1409 ES 2 12MY1947 0.00845) (

Cymbella hebridica (Grun.) Cleve

Enayonema hebridicum Grunow in: Cleve and Möller, Diatoms, No. 37. 1877.
Cymbella hebridica (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):169. 1895.

154 CCHBRID TOT NC OF STATIONS 1
(3541 CH 1FE1881 0.00578) (

Cymbella hustedii Krasske

Cymbella hustedii Krasske, Bot. Arch., 3(4):204, fig. 11. 1923.

155 CCHUSTED TOT NC OF STATIONS 19
146914 CH 19AP1946 0.00107) (46920 CH 20DE1946 C.00062) (46916 CH 4MY1947 C.02205)
146757 EV 25JL1937 0.00481) (46748 EV 13OC1937 0.02135) (46767 EV 27OC1937 C.00774)
146768 EV 16MR1938 0.01470) (1243 E 13JN1944 C.00209)
(1388 GS12 12MY1947 0.00603) (1557 GS 4 3CC1947 0.00374) (1563 GS11 5OC1947 0.00234)
(1565 GS13 5CC1947 0.01014) (1566 GS17 3OC1947 0.00149) (1574 GS22 6OC1947 C.00883)
(1527 TR 1 20SE1947 0.00625) (1553 SG 1 6OC1947 0.00734) (1403 CA 2 10MY1947 0.01308)
(1404 MQ 2 10MY1947 0.01270) (

Cymbella hybrida Grun.

Cymbella hybrida Grunow ex Cleve and Möller, Diatoms, No. 161. 1878.

156 CCHYBRID TOT NC OF STATIONS 4
146921 CH 22NO1945 0.00065) (46747 EV 1AU1937 C.00248) (46751 EV 30MR1938 C.01117)
(1268 E 2 15AU1944 0.00274) (

Cymbella inaequalis Ross

Cymbella inaequalis Ross, New Phytol., 51(3):381. 1952.

157 CHINAEQU TOT NC OF STATIONS 1
(1268 E 2 15AU1944 0.00274) (

Cymbella incerta (Grun.) Cleve

Cymbella pisciculus var. *incerta* Grunow in; Cleve and Möller, Diatoms,
No. 96. 1878.

Cymbella incerta (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd,
26(2):170. 1895.

158 CBINCERT TOT NO OF STATIONS 2

(1270 F 1 1CAU1964 0.00272) (1388 GS12 12MY1967 C.02413) (

Cymbella laevis Naeg.

Cymbella laevis Naegeli ex Kützinger, Sp. Alg., p. 58. 1849.

159 CBLAEVIS TOT NO OF STATIONS 3

(46757 EV 25JL1937 C.00481) (1285 F 1 155E1964 0.00582) (1350 GS14 12MY1967 C.00587)

Cymbella lanceolata (Ehr.) Kirchn.

Cocconema lanceolatum Ehrenberg, Infusionsthierchen, p. 224, pl. 19,
fig. 6. 1838.

Cymbella lanceolata Kirchner in; Cohn, Kryptog.-Fl. Schlesien, Vol. 2,
p. 188. 1878.

160 CBLANCEO TOT NO OF STATIONS 3

(46751 EV 30MR1938 0.01117) (1545 ML 1 20C1967 0.00676) (1407 SM 2 14MY1967 C.00597)

161 CBLANCEO TOT NO OF STATIONS 1

(1285 F 1 155E1964 0.00582) (

Cymbella lata Grun.

Cymbella lata Grunow ex Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd,
26(2):165, pl. 4, fig. 27. 1894.

162 CBLATA TOT NO OF STATIONS 2

(46747 EV 1AU1937 0.00248) (1285 F 1 155E1964 0.00582) (

Cymbella latens Krasske

Cymbella latens Krasske, Arch. Hydrobiol., 31:43, text fig. p. 53. 1937.

182 CVENTRAC TOT NO OF STATIONS 46

(460573 CH 1876 0.04724) (46770 EV 9JL1937 0.01193) (46764 EV 17JL1937 0.04835)
(46750 EV 24SE1937 0.00943) (46768 EV 16MR1938 0.05880) (1256 E 2 14JL1964 C.00183)
(1258 F 1 6JL1964 0.01180) (1285 F 1 155E1964 C.03494) (1358 C 7 4ND1964 0.00304)
(1316 D 6 9ND1964 0.00378) (1451 C 7 16JL1967 0.00197) (1453 E 3 15JL1967 C.00253)
(1541 E 2 11OC1967 0.00532) (1543 E 5 10CC1967 0.00718) (1394 GS 9 10MY1967 C.00185)
(1387 GS11 12MY1967 0.22180) (1388 GS12 12MY1967 0.00403) (1389 GS13 12MY1967 C.00263)
(1390 GS14 12MY1967 0.02349) (1391 GS15 12MY1967 0.00479) (1394 GS16 13MY1967 0.00172)
(1397 GS21 13MY1967 C.00065) (1398 GS22 14MY1967 C.00607) (1574 GS22 40C1967 C.04315)
(1522 SM 1 18SE1967 0.00182) (1523 RA 1 19SE1967 0.00923) (1526 MD 1 20SE1967 0.01135)
(1528 SM 1 20SE1967 0.01444) (1529 KW 1 20SE1967 C.19187) (1545 ML 1 20C1967 0.00676)
(1549 MD 1 40C1967 0.01370) (1550 ME 1 20C1967 0.18195) (1553 SG 1 40C1967 0.00734)
(1428 MU 2 29MY1967 0.00603) (1426 MS 2 29MY1967 C.03150) (1427 LU 2 29MY1967 C.03632)
(1417 MD 2 29MY1967 0.00374) (1350 SM 2 19AP1967 C.05066) (1399 PW 2 5MY1967 0.00680)
(1401 MD 2 6MY1967 0.02352) (1394 GH 2 25AP1967 0.00173) (1429 ML 2 29MY1967 C.04247)
(1403 CA 2 10MY1967 1.21616) (1454 MR 2 10MY1967 0.12703) (1407 SM 2 14MY1967 C.03751)
(1406 GB 2 13MY1967 0.05270) (

Cymbella leptoceros (Ehr.) Rabenh.

Cocconema leptoceros Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:123, pl. 1

(2), fig. 30. 1843.

Cymbella leptoceros (Ehr.) Rabenhorst, Süssw.-Diat., p. 22, pl. 7, fig. 14a. 1853.

163 CLEPTOC TCT NO OF STATIONS 3

(1244	F 1	11JN1964	0.00110	(1270	F 1	10AU1964	0.00817	(1304	F 1	11OC1964	0.00247
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Cymbella leptoceros var. *rostrata* Hust.

Cymbella leptoceros var. *rostrata* Hustedt, Arch. Hydrobiol., 39:132, figs. 52-54. 1942.

164 CLEPTVR TOT NO OF STATIONS 7

(46748	EV	13OC1937	0.02135	(1387	GS11	12MY1967	0.00396	(1389	GS13	12MY1967	0.00258
(1426	MS 2	22MY1967	0.01050	(1350	SH 2	19AP1967	0.00220	(1403	GA 2	10MY1967	0.01308
(1407	SH 2	14MY1967	0.00597								

Cymbella mexicana (Ehr.) Cleve

Cocconema mexicanum Ehrenberg, Ber. Akad. Wiss. Berlin, 1844:342. 1844.

Cymbella mexicana (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):177. 1894.

165 CMEXICA TCT NO OF STATIONS 6

(46920	CH	20CE1946	0.00031	(1384	GS 8	10MY1967	0.00185	(1330	FR 1	24SE1967	0.01000
(1350	HR 1	30C1967	0.01239	(1402	TR 2	6MY1967	0.00541	(1354	GH 2	29AP1967	0.00173

Cymbella microcephala Grun.

Cymbella microcephala Grunow in: Van Heurck, Syn. Diat. Belgique, p. 63, pl. 8, figs. 36-39. 1885.

166 CMCRICC TOT NO OF STATIONS 64

(60973	CH	1876	0.02362	(46510	CH	0C1945	0.00109	(46919	CH	5JN1947	0.02883
(46913	CH	6AU1947	0.01046	(46758	EV	5JN1937	0.00357	(46743	EV	20JN1937	0.00856
(46720	EV	9JL1937	0.00596	(46784	EV	17JL1937	0.00806	(46757	EV	25JL1937	0.01928
(46747	EV	14U1937	0.00763	(46763	EV	23AU1937	0.00438	(46752	EV	15SE1937	0.00767
(46748	EV	13OC1937	0.00405	(46788	EV	16MR1938	0.00580	(46762	EV	18MR1938	0.00411
(46751	EV	30MR1938	0.01117	(1256	E 2	14JL1964	0.00213	(1258	F 1	6JL1964	0.01885
(1258	F 2	6JL1964	0.00310	(1260	F 3	9JL1964	0.00191	(1268	E 2	15AU1964	0.00547
(1269	E 3	15AU1964	0.00274	(1270	F 1	10AU1964	0.02178	(1279	E 1	16SE1964	0.01178
(1288	E 6	17SE1964	0.00835	(1285	F 1	15SE1964	0.00402	(1287	F 3	15SE1964	0.00500
(1297	O 6	14OC1964	0.00190	(1302	E 5	13OC1964	0.00405	(1304	F 1	11OC1964	0.01482
(1338	C 3	28MR1967	0.00132	(1449	C 3	16JL1967	0.00382	(1506	A 6	29AU1967	0.00523
(1512	E 3	15SE1967	0.00393	(1533	A 4	19SE1967	0.00464	(1536	E 2	24SE1967	0.00273
(1582	GS11	12MY1967	0.01584	(1389	GS13	12MY1967	0.00258	(1554	GS 1	30C1967	0.00356
(1555	GS 2	30C1967	0.01766	(1556	GS 3	30C1967	0.00521	(1558	GS 5	40C1967	0.01189
(1560	GS 8	15SE1967	0.00545	(1565	GS13	5OC1967	0.01016	(1566	GS14	5OC1967	0.00183
(1567	GS15	5OC1967	0.00318	(1569	GS17	5OC1967	0.00149	(1574	GS22	6OC1967	0.01151
(1572	GS28	6OC1967	0.00129	(1546	LU 1	20C1967	0.01000	(1552	SH 1	18SE1967	0.00182
(1523	RA 1	19SE1967	0.00023	(1526	MO 1	20SE1967	0.00569	(1528	SE 1	20SE1967	0.01444
(1529	KW 1	20SE1967	0.01917	(1545	MO 1	40C1967	0.02741	(1552	SH 1	6OC1967	0.00660
(1550	CR 2	5OC1967	0.04956	(1350	SH 2	19AP1967	0.00881	(1402	HR 2	6MY1967	0.00541

(1403	CA 2	10MY1967	0.20923	(1404	MC 2	10MY1967	0.01270	(1407	SH 2	14MY1967	0.01194
(1423	WA 2	25MY1967	0.00428								

Cymbella naviculaformis (Auerw.) Kirchn.

Cymbella cuspidata var. *naviculaformis* Auerwald ex Rabenhorst, Fl.

Europaea Alg., Sect. 1, p. 78. 1864.

Cymbella naviculaformis (Auerw.) Kirchner in: Cohn, Kryptog.-Fl. Schlesien, Vol. 2, p. 187. 1878.

168 CBNVICUS TCT NO OF STATIONS 10

(46921	CH	23NO1945	0.00065	(46517	CH	12JA1946	0.00028	(46924	CH	10MY1946	0.00071
(46925	CH	JA1947	0.00123	(46509	CH	MR1947	0.00455	(46916	CH	4MY1947	0.00034
(46906	CH	MY1947	0.00046	(46519	CH	5JA1947	0.00455	(46922	CH	21AU1947	0.00046
(46745	EV	6OC1937	0.00488	(							

Cymbella norvegica Grun.

Cymbella norvegica Grunow in: A. Schmidt, Atlas Diat., pl. 10, fig. 41.
1875.

169 CBNPVEG TCT NO OF STATIONS 1

(1403	CA 2	10MY1947	0.01308	(							
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Cymbella obtusiuscula Kütz.

Cymbella obtusiuscula Kützling, Bacill., p. 79, pl. 3, fig. 68. 1844.

170 CROBTUSI TCT NO OF STATIONS 6

(46973	CH	1876	0.02362	(46758	EV	5JN1937	0.00357	(1353	GS17	13MY1947	0.00274
(1567	GS15	5OC1967	0.00318	(1520	HO 1	18SE1967	0.00471	(1405	ES 2	12MY1967	0.00645

Cymbella parva (Wm. Smith) Cleve

Cocconeoma parvum Wm. Smith, Syn. British Diat., Vol. 1, p. 76, pl. 23,
fig. 222. 1853.

Cymbella parva (Wm. Smith) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd,
26(2):172. 1894.

171 CBPARVA TCT NO OF STATIONS 5

(46973	CH	1876	0.02362	(1256	E 2	14JL1946	0.00183	(1285	F 1	15SE1964	0.01747
(1546	LU 1	2OC1967	0.00500	(1403	CA 2	10MY1967	0.02615	(			

Cymbella parvula Krasske

Cymbella parvula Krasske, Zeitschr. Geschiefbeforsch., 9(2):92, pl. 2,
fig. 3. 1933.

172 CBPARVUL TCT NO OF STATIONS 8

(46758	EV	5JN1937	0.00357	(1258	F 1	6JL1946	0.00236	(1352	GS16	12MY1967	0.00308
(1565	GS13	5OC1967	0.01521	(1574	GS22	6OC1967	0.00288	(1553	SG 1	6OC1967	0.00734
(1404	MG 2	10MY1967	0.02541	(1407	SM 2	14MY1967	0.00597	(			

Cymbella prostrata (Berk.) Cleve

Monema prostratum Berkeley, Gleanings British Alg., pl. 4, fig. 3. 1832.

Cymbella prostrata (Berk.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd,
26(2): 167. 1894.

173 CBPROSTR TCT NO OF STATIONS 80

(46921	CH	23NO1945	0.00129	(46517	CH	12JA1946	0.00083	(46915	CH	20FE1946	0.00569
(46924	CH	10MY1946	0.00071	(46923	CH	22NO1946	0.00437	(46920	CH	20DE1946	0.00031
(46916	CH	4MY1947	0.00034	(46506	CH	RT1947	0.00066	(46919	CH	5JN1947	0.00463
(46922	CH	21AU1947	0.00291	(46758	EV	5JN1937	0.01426	(46764	EV	17JL1937	0.00806
(46757	EV	25JL1937	0.00563	(46747	EV	18U1937	0.00455	(46763	EV	23AU1937	0.00209
(46765	EV	30AL1937	0.00508	(46752	EV	15SE1937	0.15061	(46748	EV	13OC1937	0.12810
(46745	EV	12MR1938	0.03641	(46768	EV	16MR1938	0.01470	(46762	EV	16MR1938	0.06617
(46766	EV	14OE1938	0.01584	(1243	E 6	13JN1964	0.00418	(1245	F 2	11JN1964	0.00346
(1265	CA 2	10MI1964	0.00224	(1270	F 1	10MI1964	0.00272	(1275	E 1	16SE1964	0.00393
(1285	F 1	15SE1964	0.01165	(1343	A 6	19AP1967	0.00208	(1345	C 5	25AP1967	0.00195
(1369	A 4	4MY1967	0.00745	(1379	E 3	7MY1967	0.00241	(1416	E 5	28MY1967	0.00219
(1504	A 3	28AU1967	0.00247	(1512	E 3	15EL1967	0.00393	(1536	E 2	24SE1967	0.01091
(1538	E 5	23SE1967	0.29277	(1386	GS10	12MY1967	0.00287	(1387	GS11	12MY1967	0.00752
(1394	GS18	13MY1967	0.00172	(1395	GS19	13MY1967	0.00117	(1396	GS20	13MY1967	0.00074
(1397	GS21	13MY1967	0.00392	(1396	GS 1	3OC1967	0.00136	(1555	GS 2	3OC1967	0.00553
(1556	GS 3	3OC1967	0.01043	(1557	GS 4	3OC1967	0.00747	(1563	GS11	5OC1967	0.00234
(1567	GS19	5OC1967	0.00635	(1568	GS16	5OC1967	0.00144	(1569	GS17	5OC1967	0.00149

(1573	GS21	60C1967	0.00336	(1574	GS22	46C1967	0.03739	(1544	PU 1	20C1967	C.CC238	)
(1557	PS 1	20C1967	0.00798	(1524	MI 1	20E1967	0.13135	(1546	LU 1	20C1967	C.C6502	)
(1521	SM 1	185E1967	0.00577	(1523	RA 1	195E1967	0.02768	(1525	PM 1	20C1967	C.C8355	)
(1526	MO 1	20E1967	0.06238	(1527	TR 1	20E1967	0.06289	(1528	SR 1	20C1967	C.C2888	)
(1529	HW 1	20E1967	0.06617	(1530	FR 1	24SE1967	0.16002	(1545	WL 1	20C1967	C.C0676	)
(1548	CA 1	30C1967	0.05088	(1552	SM 1	60C1967	0.01521	(1550	PN 1	50C1967	C.C7434	)
(1553	SG 1	60C1967	0.01669	(1428	PU 2	29MV1967	0.03001	(1426	MS 2	29MV1967	C.C1150	)
(1527	LU 2	29MV1967	0.01211	(1350	BH 2	19AP1967	0.06441	(1401	PD 2	6MV1967	C.C0588	)
(1402	TR 2	6MV1967	0.01624	(1403	CA 2	10MV1967	0.06539	(1407	SM 2	14MV1967	C.C4180	)
(1349	CI 2	19AP1967	0.00359	(1456	GB 2	13MV1967	0.05770	(				)

Cymbella rugosa Hust.

Cymbella rugosa Hustedt, Abh. Naturw. Ver. Bremen, 34(1):67, figs. 29-31. 1955.

175	CYRUGRO	TCT NO OF STATIONS	3									
(3541	CH	1FE1881	0.00578	(1244	F 1	11JN1964	C.C0110	(1270	F 1	10AU1964	C.CC272	)

Cymbella sinuata Greg.

Cymbella sinuata Gregory, Quart. J. Micr. Sci., 4:4, pl. 1, fig. 17. 1856.

175	CBSINUA	TCT NO OF STATIONS	30									
(3540	CH	11MV1879	0.00466	(146758	EV	5JN1937	C.C0357	(146764	EV	17JL1937	C.CC806	)
(146763	EV	23AU1937	0.02029	(146748	EV	13OC1937	C.C02159	(1256	E 2	14AL1964	C.C0189	)
(1258	F 1	6JL1964	0.00472	(1263	C 7	15AU1964	C.C0060	(1275	O 2	17SE1964	0.00245	)
(1285	F 1	15SE1964	0.00582	(1372	C 5	5MV1967	0.00355	(1375	E 3	7MV1967	C.C0241	)
(1394	GS18	13MV1967	0.00172	(1367	GS15	50C1967	C.C0635	(1568	GS16	50C1967	C.C0144	)
(1565	GS17	50C1967	0.00165	(1571	GS19	60C1967	C.C0050	(1572	GS20	60C1967	C.C0090	)
(1573	GS21	60C1967	0.00112	(1574	GS22	60C1967	C.C0863	(1575	GS28	60C1967	C.CC125	)
(1546	LU 1	20C1967	0.00500	(1526	MO 1	20E1967	0.01138	(1527	TR 1	20E1967	C.C0025	)
(1551	ES 1	50C1967	0.00795	(1350	HR 1	50C1967	C.C26019	(1426	MS 2	29MV1967	C.C0150	)
(1417	MO 2	22MV1967	0.00374	(1350	BH 2	19AP1967	0.01762	(1401	MO 2	6MV1967	C.C0588	)

Cymbella sinuata fo. *ovata* Hust.

Cymbella sinuata fo. *ovata* Hustedt, Internat. Rev. Hydrobiol., 10:236. 1922.

176	CBSINUFO	TCT NO OF STATIONS	1									
(1350	BH 2	19AP1967	0.00220	(								)

Cymbella sinuata var. *antiqua* (Grun.) Cleve

Cymbella abnormis var. *antiqua* Grunow in: Mojsisovics and Neumayer, Beitr. Paläontol. Osterreich-Ungarns, Bd. 2, Heft 4, p. 141, pl. 29, fig. 31. 1882.

Coll: 1105.

Cymbella triangulata (Ehr.) Cleve

Gloeonema triangulatum Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:77. 1846.
Cymbella triangulata (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Föjd, 26(2):168. 1894.

177	CBTRIANG	TCT NO OF STATIONS	36									
(3540	CH	11MV1879	0.00466	(3541	CH	1FE1881	C.C03013	(146921	CH	23ND1945	C.C0023	)
(146915	CH	20FE1946	0.01707	(146923	CH	22ND1946	C.C02841	(146920	CH	20DE1946	C.C0123	)
(146905	CH	JA1947	0.00123	(146906	CH	MR1947	0.01366	(146906	CH	MY1947	C.C0066	)
(146907	CH	JI1947	0.00049	(146922	CH	21AU1947	0.00553	(1247	E 3	14JL1964	C.C0627	)
(1259	E 2	6JL1964	0.00410	(1275	O 2	15SE1964	0.00645	(1284	E 6	17SE1964	C.C0189	)
(1285	F 1	15SE1964	0.01747	(1302	E 5	13OC1964	0.06405	(1304	F 1	11OC1964	C.C0741	)
(1322	E 6	7NOV1964	0.00353	(1323	E 1	6NOV1964	0.00275	(1324	E 2	6NOV1964	C.C0233	)
(1308	GS12	12MV1967	0.01810	(1350	GS14	12MV1967	0.00567	(1557	GS 4	30C1967	C.C0374	)

(1558	GS 5	50C1967	0.00396)	(1562	GS1C	50C1967	0.00247)	(1563	GS11	50C1967	C.02324)
(1564	GS12	50C1967	0.00494)	(1566	GS14	50C1967	0.00183)	(1567	GS15	50C1967	C.02382)
(1568	GS16	50C1967	0.00413)	(1569	GS17	50C1967	0.01635)	(1570	GS18	50C1967	C.02592)
(1548	CA 1	30C1967	0.03816)	(1551	ES 1	50C1967	0.00799)	(1421	CH 2	23MY1967	C.01735)

Cymbella tumida (Bréb.) V. H.

Cocconema tumida de Brébisson ex Kützing, Sp. Alg., p. 60. 1849.

Cymbella tumida (Bréb.) Van Heurck, Syn. Diat. Belgique, p. 64, pl. 2, fig. 10. 1885.

178	COTUMIDA TCT AC CF STATIONS	1
(1544	PU 1	20C1567 0.00477) (

Cymbella turgida Greg.

Cymbella turgida Gregory, Quart. J. Micr. Sci., 4:5, pl. 1, fig. 18. 1856.

180 CBTURGPV TCT NC OF STATIONS		2						
(1387	GS11	12MY1967	0.01188)	(1389	GS13	12MY1967	0.00258)	(

Cymbella turgidula Grun.

Cymbella turgidula Grunow in: A. Schmidt, Atlas Diat., pl. 9, figs. 23-26. 1875.

Coll: 1244.

Cymbella ventricosa Agardh

Cymbella ventricosa Agardh, Conspect. Crit. Diat., part 1, p. 9. 1830.

181	CBVENTRE TOT AC CF STATIONS										42
(46921	CH	23NC1945	C.00065)	(46524	CH	10MY1966	0.00282)	(46919	CH	5JN1947	C.00152)
(46922	CH	21AU1947	0.00057)	(46798	EV	5JN1937	C.05708)	(46743	EV	20JN1937	C.00428)
(46770	EV	9JL1937	C.00596)	(46764	EV	17JL1937	0.00806)	(46757	EV	25JL1937	C.01444)
(46767	EV	18U1937	0.00950)	(46763	EV	22AU1937	0.01404)	(46765	EV	30AU1937	C.00358)
(46752	EV	15SE1937	0.13061)	(46760	EV	22SE1937	0.00985)	(46750	EV	24SE1937	C.00471)
(46748	EV	13OC1937	0.02135)	(46767	EV	27CC1937	0.00387)	(46749	EV	12MR1936	C.02427)
(46762	EV	18MR1938	0.06617)	(1232	E 5	10MY1964	0.00522)	(1240	O 6	10JL1964	C.00400)
(1243	E 6	11JN1964	0.01253)	(1244	F 1	11JN1964	C.00548)	(1279	E 1	16SE1964	C.00393)
(1377	GS 1	9MY1967	0.00396)	(1378	GS 2	9MY1967	0.00421)	(1392	GS16	12MY1967	C.00308)
(1395	GS18	13MY1967	0.00536)	(1396	GS 7	40C1967	0.00350)	(1365	GS13	8C1967	C.00507)
(1367	GS15	50C1967	0.00318)	(1565	GS17	50C1967	0.00149)	(1571	CS19	60C1967	C.00176)
(1575	GS28	60C1967	0.00129)	(1547	MS 1	20C1967	0.01597)	(1546	LU 1	20C1967	C.00001)
(1522	RH 1	16SE1967	0.00947)	(1527	TR 1	20SE1967	0.03774)	(1530	FR 1	24SE1967	C.00000)
(1526	MS 2	29MY1967	0.01050)	(1462	IR 2	6MY1967	C.01083)	(1405	ES 2	12MY1967	C.00045)

Species incertae sedis

Cymbella sp. (aff. *C. cuspidata* var.?).

151 CBCUSPVC TCT NO OF STATIONS 8											
(46758	EV	5JN1937	0.01426)	(46757	EV	25JL1937	0.00963)	(46747	EV	1AU1937	C.01485)
(46763	EV	23AU1937	0.02025)	(46762	EV	18MR1938	0.02206)	(1545	MA 1	20C1967	C.00676)
(1354	GH 2	25AP1967	0.00173)	(1464	MC 2	10MY1967	C.02541)	(			

Cymbella sp. (aff. *C. pusilla*).

174. CAPSULE TCT NO OF STATIONS			10								
(46913	CH	5JL1947	0.00303)	(46764	EV	17JL1937	0.02417)	(46747	EV	1AU1937	C.00445)
(46763	EV	23AU1937	0.02025)	(1242	E 3	13JN1964	0.00150)	(1270	F 1	10AU1964	C.00345)
(1285	F 1	15SE1964	0.04077)	(1375	E 3	7MY1967	C.00241)	(1566	GS14	50C1967	C.00183)
(1404	MC 2	10MY1967	0.01270)	(							

Cymbella sp. #4.

184 CBSPECOD TOT NO OF STATIONS 7												
(46752	EV	15SE1937	0.02177	(46750	EV	24SE1937	C.00471	(46748	EV	13OC1937	C.02135	
(46768	EV	16MR1938	0.01470	(46751	EV	30MR1938	1.21706	(	1284	E 6	17SE1964	C.00318
(	1445	B 6	14OC1964	0.00326	(							

Cymbella sp. #6.

186 CBSPECOD TCT NO OF STATIONS 11											
(46919	CH	5JN1947	0.00152	(46758	EV	5JN1937	C.01070	(46770	EV	9JL1937	C.00596
(46764	EV	17JL1937	0.04835	(46747	EV	18JL1937	0.00248	(46752	EV	15SE1937	C.02177
(46744	EV	6OC1937	0.00915	(46767	EV	27OC1937	0.00387	(46759	EV	19MY1938	C.00338
(	1565	GS13	30C1967	0.00208	(	1405	ES 2	12MY1967	0.00645	(	

Cymbella sp. #7.

187 CBSPECOD TCT NO OF STATIONS 4											
(46770	EV	9JL1937	0.01785	(46764	EV	17JL1937	C.04835	(46757	EV	25JL1937	C.03370
(46768	EV	16MR1938	0.01470	(							

Cymbella sp. #8.

188 CBSPECOD TCT NO OF STATIONS 1									
(46764	EV	17JL1937	0.01612	(					

Cymbella sp. #9.

189 CBSPECOD TOT NO OF STATIONS 1									
(46770	EV	9JL1937	0.00596	(					

Cymbella sp. #10.

190 CBSPECOD TOT NO OF STATIONS 1									
(	1394	GS18	13MY1967	0.00172	(				

Cymbella sp. #11.

191 CBSPECOD TCT NO OF STATIONS 1									
(	1398	GS22	14MY1967	0.00304	(				

Cymbella sp. #12.

192 CBSPECOD TCT NO OF STATIONS 1									
(	1565	GS13	30C1967	0.00507	(				

Cymbella sp. #13.

193 CBSPECOD TOT NO OF STATIONS 1									
(	1567	GS15	30C1967	0.00155	(				

Cymbella sp. #14.

194	CBSPECN	ICT	AC	CF	STATIONS	1
(	1573	6521	60C1967	0.00112	)	(

Genus *Cymbellonitzschia* Hust.

Hustedt in: A. Schmidt, Atlas Diat., pl. 352, figs. 12-13. 1924.

Members of the genus *Cymbellonitzschia* usually comprise a minor portion of the flora. Scattered reports of its occurrence indicate that it finds its primary habitat in periphyton and epipellic communities. The only species found in Lake Michigan is most abundant in epipellic communities in relatively deep water. Only isolated accidental occurrences are noted in plankton collections.

Cymbellonitzschia diluviana Hust.

Cymbellonitzschia diluviana Hustedt, Abh. Naturw. Verein Bremen 33(3):453, fig. 23-24. 1954.

195 CNDILUV TOT NO OF STATIONS 3																	
(	1550	MR 1	50C1967	0.02478	)	(	1417	HO 2	22MY1967	0.00374	)	(	1350	BH 2	15AP1967	C.0C220	)

Genus *Denticula* Ehr.
Ehrenberg, Infusionsthierschen, p. 207. 1838.

Most freshwater members of the genus *Denticula* are most abundant in communities growing on solid surfaces. This is true of the single representative that occurs in our collections. It is, however, apparently a successful facultative plankton as it is noted in moderate abundance in many plankton collections from Lake Michigan, especially in nearshore collections.

Denticula tenuis var. *crassula* (Naeg.) Hust.

Denticula crassula Naegeli ex Kltzing, Sp. Alg., p. 889. 1849.

Denticula tenuis var. *crassula* (Naeg.) Husted in: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 381, fig. 724. 1930.

196 DETENUCV TCT NG CF STATIONS 98

460973	CH	1876	0.02362	446521	CH	23NO1945	0.00065	446914	CH	19AP1946	C.00107
446920	CH	20E11946	0.00031	446516	CH	4MY1547	C.00034	446906	CH	MY1547	C.00066
446919	CH	5JN1947	0.00030	446507	CH	4JL1947	0.00049	446758	EV	5JN1937	C.00357
446764	EV	11JL1937	0.01612	446762	EV	23AUG1537	0.00509	446752	EV	15SE1937	C.00530
446748	EV	13OC1937	0.04270	446767	EV	27OC1937	0.00774	446762	EV	10MR1938	C.02206
112540	D 6	10JN1944	0.000153	112543	E 6	13JN1944	0.01253	112544	F 1	11JN1944	C.00877
112554	D 2	15JL1944	0.00192	112556	E 2	14JL1944	0.00183	112558	F 1	6JL1944	C.17462
112559	F 2	6JL1944	0.00930	11260	F 3	6JL1944	0.01528	11267	O 6	18AU1944	C.00432
11268	E 2	15AU1944	0.01230	11270	F 1	10AU1944	0.05718	11244	B 6	19SE1944	C.00303
11278	B 6	16SE1944	0.00384	11279	E 1	16SE1944	C.05497	11284	E 6	17SE1944	C.02224
11285	F 1	15SE1944	0.01533	11286	F 2	15SE1944	0.01095	11287	F 3	15SE1944	C.00500
11295	E 2	12OC1944	0.00314	11301	E 4	13OC1944	0.00842	11302	E 5	13OC1944	C.00605
11304	F 1	11OC1944	0.03407	11305	F 2	11OC1944	C.00690	11306	F 3	11OC1944	C.00594
11322	E 6	7NO1944	0.00333	11323	F 1	6NO1944	0.00139	11340	C 7	28MR1947	C.00145
11346	C 7	21AP1947	0.00134	11374	E 2	7MY1947	0.00299	11449	C 3	18JL1947	C.00382
11452	E 2	14JL1947	0.01916	11512	E 3	15SE1947	0.00093	11533	A 4	15SE1947	C.00464
11534	A 6	19SE1947	0.00310	11536	E 2	24SE1947	0.01363	11537	E 3	24SE1947	C.00431
11538	E 5	25SE1947	0.00276	11541	E 2	11OC1947	0.00532	11542	E 3	11OC1947	C.01526
11543	E 5	10OC1947	0.00718	11380	G 5	6MY1947	0.00336	11381	GS 5	10MY1947	C.00239
11382	GS 4	10MY1947	0.00055	11384	GS 8	10MY1947	0.00555	11386	GS10	12MY1947	C.00287
11387	GS11	12MY1947	0.00596	11389	GS13	12MY1947	0.01805	11394	GS18	13MY1947	C.00516
11398	GS22	14MY1947	0.00911	11554	GS 1	30C1947	0.02846	11555	GS 2	30C1947	C.02472
11556	GS 3	30C1947	0.01364	11557	GS 4	30C1947	0.02242	11558	GS 5	40C1947	C.00371
11559	GS 7	40C1947	0.01049	11561	GS 9	40C1947	0.00587	11562	GS10	50C1947	C.00049
11563	GS11	50C1947	0.00468	11564	GS12	50C1947	0.00165	11565	GS13	50C1947	C.01521
11566	GS14	50C1947	0.00183	11567	GS15	50C1947	0.00318	11568	GS16	50C1947	C.00144
11569	GS17	50C1947	0.00145	11574	GS22	60C1947	0.17834	11577	MS 1	20C1947	C.02305
11584	LU 1	20C1947	0.02501	11526	MD 1	20SE1947	0.05689	11527	TR 1	20SE1947	C.00176
11529	KW 1	2CSE1947	0.57561	11530	FR 1	24SE1947	C.32003	11545	ML 1	20C1947	C.00676
11545	MD 1	40C1947	0.04852	11551	ES 1	50C1947	C.02394	11552	SM 1	40C1947	C.00543
11550	MR 1	50C1947	0.01239	11553	SG 1	60C1947	0.02203	11401	MO 2	6MY1947	C.01764
11402	TR 2	6MY1947	0.02166	11352	KX 2	21AP1947	0.02577	11403	CA 2	10MY1947	C.0277C
11404	MO 2	10MY1947	0.01270	11467	SM 2	14MY1947	0.11517				

Genus *Diatoma* Bory (nom. cons. non Loureiro 1790)

Bory, Dict. Class. Hist. Nat., 5:461. 1824.

Of the members of the genus *Diatoma* occurring in Lake Michigan, only *D. tenue* var. *elongata* and *D. tenue* var. *pachycephala* are abundant in off-shore plankton collections. Both of these entities are erratic in occurrence but tend to be most abundant in areas that are appreciably eutrophied. During peak bloom years they are taken in collections from the entire basin.

Diatoma ehrenbergii Kütz.

Diatoma ehrenbergii Kützing, Bacill., p. 48, pl. 17, fig. 17(1-3). 1844.

197 OIENHBN TCT NG CF STATIONS 40

446921	CH	23NO1945	0.00065	446524	CH	10MY1946	0.00141	446923	CH	22NO1946	C.00219
446520	CH	20E11946	0.00092	446516	CH	4MY1947	0.00170	446906	CH	MY1947	C.00066
446919	CH	5JN1947	0.00030	446507	CH	4JL1947	0.00049	446758	EV	5JN1937	C.00357
446764	EV	11JL1937	0.01612	446762	EV	23AUG1537	0.00509	446752	EV	15SE1937	C.00530
446748	EV	13OC1937	0.04270	446767	EV	27OC1937	0.00774	446762	EV	10MR1938	C.02206

(46764)	EV	17JL1937	0.00806	(46757)	EV	25JL1937	0.00481	(46767)	EV	27OC1937	C.00387	
(46756)	EV	27AP1938	0.00168	(46761)	EV	27MY1938	0.00273	(46762)	C 7	16MY1964	C.00391	
(1345)	C 5	25AP1967	0.00780	(1346)	C 7	21AP1967	0.00267	(1348)	E 5	23AP1967	C.00322	
(1442)	C 3	16JL1967	0.00764	(1395)	GS19	13MY1967	0.00587	(1397)	GS21	13MY1967	C.00112	
(1398)	GS22	14MY1967	0.00407	(1572)	GS20	60C1967	C.00090	(1574)	GS22	60C1967	C.00288	
(1354)	LU 1	20C1967	0.00200	(1580)	FR 1	24SL1967	C.00100	(1552)	SM 1	60C1967	C.00640	
(1550)	MR 1	50C1967	0.03717	(1426)	MS 2	29MY1967	C.20997	(1427)	LU 2	29MY1967	0.01211	
(1417)	HO 2	22MY1967	0.03246	(1418)	SH 2	22MY1967	0.00866	(1401)	HO 2	28MY1967	C.00588	
(1354)	GH 2	26AP1967	0.01208	(1429)	HL 2	23MY1967	0.00427	(1407)	SH 2	14MY1967	C.01508	
(1423)	WA 2	25MY1967	0.00856	(1424)								

204	OIVULGVG TOT NO OF STATIONS	1
(1340)	C 7	28MY1967 0.00800

Diatoma hiemale var. *mesodon* (Ehr.) Grun.

Fragilaria mesodon Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1838:57, pl. 2(1), fig. 9. 1839.

Diatoma hiemale var. *mesodon* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 51, figs. 3-4. 1881.

198	OIMIEVM TOT NO OF STATIONS	2
(46758)	EV	5JN1937 0.00357
(1341)	A 3	19AP1967 0.00108

Diatoma tenue Agardh

Diatoma tenue Agardh, Svenska Bot., Vol. 7, pl. 491, figs. 4-5. 1812.

195	DITENEV TOT NO OF STATIONS	58
(46924)	CH	10MY1946 0.01411
(46771)	EV	11JN1937 0.01189
(46756)	EV	14OE1938 0.06337
(1298)	O 4	11JN1964 0.01116
(1244)	F 1	11JN1964 0.00329
(1265)	C 2	10AU1964 0.01118
(1302)	E 5	13OC1964 0.00405
(1340)	C 7	28MR1967 0.00617
(1433)	C 3	17JN1967 0.00875
(1449)	C 3	16JL1967 0.00764
(1454)	E 9	15JL1967 0.00200
(1394)	GS20	13MY1967 0.01036
(1354)	GS 1	30C1967 0.01067
(1522)	SH 1	18SE1967 0.00365
(1426)	MS 2	29MY1967 0.16788
(1350)	SH 2	16AP1967 0.03435
(1352)	KW 2	21AP1967 0.00859
(1420)	HL 2	29MY1967 0.01185
(1406)	GR 2	13MY1967 0.00809
(1423)	WA 2	25MY1967 0.03426
(46509)	CH	MR1947 0.02277
(46749)	EV	12MR1938 0.03641
(1230)	E 2	10MY1964 0.00153
(1240)	O 6	10JN1964 0.00153
(144C 8 6		11JL1964 0.00737
(154U1964		0.00274
(2MR1967		0.68490
(12JN1967		0.00257
(13JN1967		0.00531
(16JL1967		0.08267
(24SL1967		0.01863
(13MY1967		0.41205
(30C1967		0.00153
(50C1967		0.02478
(21AP1967		0.17688
(25MY1967		0.01768
(23AP1967		0.09594
(12MY1967		0.00645
(23MY1967		0.00948
(46912)	CH	AP1947 C.01150
(46761)	EV	27MY1938 C.00273
(1439)	B 6	5JN1964 C.00200
(1241)	E 2	13JN1964 C.00296
(1264)	C 1	10AU1964 C.00193
(1269)	E 3	15AU1964 C.00548
(1338)	C 3	28MR1967 C.25520
(1432)	A 4	13JN1967 C.00511
(1446)	A 3	11JL1967 C.00488
(1452)	E 2	14JL1967 C.00426
(1395)	GS19	13MY1967 C.00235
(1398)	GS22	14MY1967 C.00304
(1544)	MU 1	20C1967 C.01191
(1428)	MU 2	29MY1967 1.38805
(1452)	A 2	22MY1967 0.07103
(1399)	FW 2	5MY1967 0.00680
(1354)	GH 2	25AP1967 1.40877
(1407)	SM 2	14MY1967 0.30138
(1422)	GA 2	23MY1967 0.03576

Diatoma tenue var. *elongatum* Lyngb.

Diatoma tenue var. *elongatum* Lyngbye, Tent. Hydrophyt. Danicae, p. 179, pl. 61, figs. E 1-2. 1819.

200	OITENEV TOT NO OF STATIONS	283
(46910)	CH	OC1945 1.63302
(46917)	CH	12JAL1946 36.27559
(46924)	CH	10MY1946 5.57170
(46905)	CH	JA1947 3.62733
(46916)	CH	4MY1947 27.78786
(46907)	CH	5JN1937 1.20685
(46758)	EV	5JN1937 0.00290
(46745)	EV	5JL1937 0.00290
(46757)	EV	25JL1937 0.16259
(46765)	EV	30AU1937 0.03904
(46750)	EV	24SE1937 0.02828
(46762)	EV	27OC1937 0.05802
(46762)	EV	18MR1938 0.08822
(46756)	EV	27AP1938 7.42818
(46921)	CH	23NO1945 15.99441
(46908)	CH	DE1945 25.19637
(46914)	CH	12JAL1946 28.11130
(46920)	CH	22NO1946 1.70477
(46912)	CH	MY1947 14.84869
(46919)	CH	MY1947 18.37766
(46922)	CH	6JUL1947 0.86719
(46743)	EV	11JN1937 1.19823
(46764)	EV	9JL1937 0.01789
(46763)	EV	14JL1937 0.00738
(46760)	EV	15SE1937 0.10884
(46748)	EV	40C1937 2.18494
(46768)	EV	12MR1938 0.52191
(46772)	EV	30MR1938 1.25056
(46761)	EV	19MY1938 C.69548
(46916)	CH	AP1947 11.75887
(46920)	CH	20JL1946 3.22616
(46912)	CH	AP1947 C.25594
(46919)	CH	5JN1947 18.05836
(46922)	CH	21JUL1947 2.26663
(46743)	EV	20JN1937 0.14987
(46758)	EV	17JL1937 C.03223
(46745)	EV	23JUL1937 0.06088
(46757)	EV	22SE1937 C.03239
(46760)	EV	13OC1937 0.01135
(46763)	EV	16MR1938 C.16169
(46762)	EV	16AP1938 C.46681
(46756)	EV	27MY1938 C.83522

146766	EV	14JCE1538	0.59679	1	1223	8	3	18MY1964	0.02344	1	1224	8	4	18MY1964	0.01568	3
146767	C	15MY1964	0.02776	1	1226	7	7	18MY1964	0.00849	1	1227	C	2	18MY1964	0.00219	1
146768	O	14MY1964	0.00586	1	1228	7	5	14MY1964	0.00586	1	1229	C	2	14MY1964	0.00586	1
146769	B	14MY1964	0.11261	1	1234	3	3	18MY1964	0.23336	1	1235	C	2	18MY1964	0.17793	1
146770	B	14MY1964	0.12787	1	1236	C	1	8MY1964	1.17533	1	1237	C	2	8MY1964	0.27842	1
146771	B	10JUN1964	0.11780	1	1251	E	2	11JUN1964	0.04534	1	1245	F	2	11JUN1964	0.11729	1
146772	E	12JUN1964	0.21291	1	1248	8	2	24JUL1964	0.02547	1	1440	B	6	11JUL1964	0.06825	1
146773	E	14JUL1964	0.29886	1	1248	B	3	24JUL1964	0.03547	1	1440	B	6	10JUL1964	0.05166	1
146774	E	14JUL1964	0.01547	1	1249	3	3	8JUL1964	1.14048	1	1240	C	6	10JUL1964	0.05166	1
146775	E	16JUL1964	0.13037	1	1252	C	1	16JUL1964	1.07392	1	1253	C	2	16JUL1964	0.63904	1
146776	E	15JUL1964	0.67037	1	1255	O	5	15JUL1964	0.02667	1	1444	B	6	15JUL1964	0.07020	1
146777	E	15JUL1964	0.03597	1	1255	C	1	10JUL1964	0.04002	1	1253	C	2	16JUL1964	0.01075	1
146778	F	14JUL1964	0.13370	1	1261	8	3	24JUL1964	0.02546	1	1242	B	3	17JUL1964	0.00210	1
146779	E	24JUL1964	0.01706	1	1264	C	1	30JUL1964	0.0337	1	1240	C	6	13JUL1964	0.00450	1
146780	F	14JUL1964	0.47107	1	1264	B	6	12JUL1964	0.0337	1	1240	E	2	15JUL1964	0.67020	1
146781	F	13JUL1964	0.02467	1	1270	C	1	10JUL1964	0.61195	1	1444	B	6	15JUL1964	0.05066	1
146782	C	22JUL1964	0.02198	1	1275	C	1	12JUL1964	0.01561	1	1276	O	3	18JUL1964	0.00450	1
146783	E	15JUL1964	0.02522	1	1275	O	2	17JUL1964	0.01935	1	1276	O	3	18JUL1964	0.63353	1
146784	E	18JUL1964	0.03718	1	1278	E	6	18JUL1964	0.02690	1	1279	E	1	15JUL1964	0.01178	1
146785	E	18JUL1964	0.03718	1	1278	E	6	18JUL1964	0.02690	1	1279	E	1	15JUL1964	0.01178	1
146786	E	18JUL1964	0.03065	1	1284	E	6	17JUL1964	0.40352	1	1287	F	3	15JUL1964	0.61001	1
146787	C	13OCT1964	0.00435	1	1445	B	6	14OCT1964	0.60578	1	1289	C	2	14JUL1964	0.07145	1
146788	C	13OCT1964	0.01511	1	1445	B	6	14OCT1964	0.00734	1	1289	C	2	14JUL1964	0.07145	1
146789	C	13OCT1964	0.01698	1	1455	O	4	15OCT1964	0.01189	1	1296	O	5	14JUL1964	0.61574	1
146790	O	14OCT1964	0.24655	1	1458	E	1	12OCT1964	0.00269	1	1299	E	2	12JUL1964	0.01571	1
146791	C	13NOV1964	0.13488	1	1302	C	3	13NOV1964	0.01766	1	1302	E	3	13OCT1964	0.14576	1
146792	C	13NOV1964	0.11312	1	1306	F	3	11OCT1964	0.60277	1	1307	B	6	9OCT1964	0.50512	1
146793	C	6NOV1964	0.01435	1	1312	D	2	10NOV1964	0.62251	1	1310	C	2	10JUL1964	0.00227	1
146794	C	13NOV1964	0.06256	1	1312	D	2	8NOV1964	0.00621	1	1313	O	3	9NOV1964	0.41161	1
146795	C	2NOV1964	0.01525	1	1315	D	5	9NOV1964	0.62733	1	1316	O	6	9NOV1964	0.37020	1
146796	C	13NOV1964	0.00383	1	1321	E	3	7NOV1964	0.02873	1	1322	E	6	7JUL1964	0.44656	1
146797	C	7NOV1964	0.01034	1	1321	E	3	7NOV1964	0.02873	1	1322	E	6	7JUL1964	0.44656	1
146798	C	6NOV1964	0.00139	1	1336	C	3	27JUL1967	0.61348	1	1337	C	3	28MAY1967	1.13170	1
146799	C	13NOV1964	0.80121	1	1342	E	5	28MAY1967	0.15595	1	1340	C	2	28MAY1967	0.10094	1
146800	C	19APR1967	0.01123	1	1345	A	6	19APR1967	0.25265	1	1343	A	6	19APR1967	0.60804	1
146801	C	25APR1967	0.24011	1	1345	C	5	25APR1967	0.08187	1	1346	C	7	21APR1967	0.15885	1
146802	C	19APR1967	1.25135	1	1348	A	3	23APR1967	0.11378	1	1348	A	3	6MY1967	0.05545	1
146803	A	4MY1967	0.00373	1	1370	A	3	3MY1967	0.23478	1	1373	C	7	5MY1967	0.00285	1
146804	A	2MY1967	0.14049	1	1405	A	4	3MY1967	0.00241	1	1376	E	5	6MY1967	0.11968	1
146805	C	23MY1967	0.00894	1	1405	A	4	23MY1967	0.00298	1	1411	C	3	3MY1967	0.02872	1
146806	C	31MY1967	0.00421	1	1413	C	7	25MY1967	0.00316	1	1414	E	2	28MY1967	0.62687	1
146807	C	28MY1967	0.00316	1	1413	C	7	24MY1967	0.03280	1	1431	A	3	12JUN1967	1.19585	1
146808	A	13JUN1967	0.12261	1	1433	C	3	11JUN1967	0.24545	1	1435	C	3	11JUN1967	0.01706	1
146809	C	13JUN1967	0.73880	1	1436	E	2	15JUN1967	1.85989	1	1437	E	3	15JUN1967	0.01346	1
146810	C	10JUN1967	0.00386	1	1436	E	2	14JUN1967	1.88347	1	1447	A	4	17JUN1967	0.65494	1
146811	A	10JUL1967	10.65455	1	1445	C	3	16JUL1967	0.22546	1	1450	C	5	16JUL1967	0.03528	1
146812	C	16JUL1967	14.19733	1	1453	E	3	14JUL1967	20.11751	1	1453	E	3	15JUL1967	0.35387	1
146813	E	15JUL1967	0.28048	1	1510	E	2	4AUG1967	0.01676	1	1511	E	2	15JUL1967	0.66490	1
146814	E	15JUL1967	0.49866	1	1513	E	5	31AUG1967	0.09121	1	1534	A	1	15JUL1967	0.04651	1
146815	E	24JUL1967	0.78006	1	1527	E	3	24JUL1967	1.32097	1	1538	E	5	23JUL1967	2.12672	1
146816	E	10CUL1967	0.00236	1	1537	G5	1	11CUL1967	0.00236	1	1542	E	3	11JUL1967	0.98145	1
146817	E	10CUL1967	0.10774	1	1537	G5	1	9MY1967	0.00236	1	1545	E	2	10JUL1967	0.00236	1
146818	G5	9MY1967	0.00619	1	1380	G5	4	9MY1967	0.02354	1	1582	C	6	10MY1967	0.60278	1
146819	G5	10MY1967	0.00471	1	1380	G5	4	10MY1967	0.00471	1	1586	G510	12MY1967	0.60287	1	
146820	G511	12MY1967	0.01594	1	1388	G512	12MY1967	0.01207	1	1589	G513	12MY1967	0.01547	1		
146821	G512	12MY1967	0.00479	1	1394	G515	13MY1967	0.00479	1	1592	G516	12MY1967	0.16334	1		
146822	G513	13MY1967	0.01918	1	1394	G518	13MY1967	0.01670	1	1595	G519	13MY1967	0.32882	1		
146823	G520	13MY1967	0.56972	1	1397	G521	13MY1967	1.26962	1	1598	G522	14MY1967	0.62125	1		
146824	G521	14MY1967	0.00479	1	1397	G521	13MY1967	0.00479	1	1596	G5	30CUL1967	0.04172	1		
146825	G5	30CUL1967	0.01609	1	1598	G5	9	40CUL1967	0.05554	1	1595	G5	7	40CUL1967	0.01748	1
146826	G5	40CUL1967	0.00801	1	1561	G5	9	40CUL1967	0.00817	1	1562	G510	50CUL1967	0.02527	1	
146827	G5	50CUL1967	0.00716	1	1561	G5	9	40CUL1967	0.00817	1	1562	G510	50CUL1967	0.02527	1	
146828	G516	50CUL1967	0.01903	1	1571	G519	12MY1967	0.01776	1	1572	G520	60CUL1967	0.60394	1		
146829	G517	60CUL1967	0.10527	1	1574	G522	60CUL1967	0.60391	1	1575	G528	60CUL1967	0.07225	1		
146830	G518	60CUL1967	0.01024	1	1574	G522	60CUL1967	0.60391	1	1575	G528	60CUL1967	0.07225	1		
146831	G519	20JUL1967	0.40205	1	1521	H1	1	18JUL1967	0.02358	1	1523	H1	1	15JUL1967	0.01045	1
146832	H1	20JUL1967	0.02015	1	1521	H1	1	18JUL1967	0.02358	1	1523	H1	1	15JUL1967	0.01045	1
146833	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146834	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146835	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146836	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146837	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146838	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146839	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146840	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146841	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146842	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146843	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146844	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146845	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146846	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1	24JUL1967	2.08021	1	
146847	H2	20JUL1967	0.05775	1	1529	M0	2	20JUL1967	0.05477	1	1530	F1				

Diatoma tenue var. *pachycephala* Grun.

Diatoma tenue var. *pachycephala* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 50, fig. 15. 1881.

201 OTENUPV 101 NO OF STATICS 215

146910	CH	0C1945	0.47506	1	146921	CH	23NOV1945	2.73235	1	146908	CH	0E1945	6.87815	1
146911	CH	12JAN1946	4.25523	1	146915	CH	02NOV1946	1.72993	1	146914	CH	19APR1946	6.41643	1
146912	CH	10MY1946	0.89381	1	146923	CH	22NOV1946	0.12895	1	146920	CH	20DEC1946	0.03354	1
146909	CH	08JUN1947	0.99107	1	146912	CH	APR1947	0.02300	1	146916	CH	04JUN1947	6.41767	1

146656	CH	MY1947	6.85927	146619	CH	5JN1947	3.05762	146697	CH	JI1947	C.73720
146622	CH	21AU1947	0.30926	146728	EV	5JN1937	0.79880	146671	EV	11JN1937	L.93048
146743	EV	23JN1937	0.1327	146752	EV	3.11J1937	0.06270	146710	EV	14JN1937	L.93048
146768	EV	12JL1937	0.15116	146757	EV	25JL1937	0.10110	146747	EV	18J1937	C.01980
146763	EV	23JN1937	0.2029	146765	EV	30AU1937	0.04662	146760	EV	22SE1937	C.16249
146750	EV	25JL1937	0.22322	146743	EV	13JL1937	0.36583	146748	EV	13JL1937	C.16249
146747	EV	27OC1937	0.14700	146744	EV	12MR1937	0.23061	146768	EV	16MR1938	L.13229
146762	EV	18MR1938	0.68822	146751	EV	30MR1938	0.25956	146772	EV	18MR1938	L.13229
146756	EV	27AF1937	11.61240	146755	EV	19JL1938	C.12465	146761	EV	16JL1938	C.16249
146766	EV	14DE1938	5.32319	146725	C.6	15MY1944	C.68601	146726	C.6	16MY1944	C.79909
146727	C.2	19JL1944	0.10308	146728	C.2	14MY1944	0.03053	146729	C.5	14MY1944	C.13553
146730	C.2	24JL1944	0.08001	146731	C.3	16JL1944	0.01469	146732	C.3	16JL1944	C.05084
146733	B.3	5JN2964	C.25720	146734	C.3	18JN1944	0.23336	146735	C.3	16JN1944	C.05084
146738	B.6	5JN1944	0.30769	146736	C.1	8JN1944	0.07874	146737	C.2	8JN1944	L.16241
146740	D.3	11JN1944	0.01800	146739	C.4	11JN1944	0.00812	146740	C.6	10JN1944	C.02960
146741	E.2	13JN1944	0.05731	146742	E.3	13JN1944	0.00300	146743	E.6	13JN1944	L.16241
146744	F.1	11JN1944	0.11842	146745	F.2	11JN1944	0.01037	146746	F.3	11JN1944	C.05958
146747	B.3	14JL1944	0.31587	146748	B.3	26JL1944	0.06306	146749	B.3	11JL1944	C.65213
146751	C.7	24JL1944	0.30838	146752	C.3	8JL1944	0.44511	146753	C.2	10JL1944	C.65213
146754	C.7	16JL1944	0.40555	146755	C.1	16JL1944	1.26918	146756	C.1	16JL1944	C.23279
146757	C.2	15JL1944	0.26815	146758	D.5	15JL1944	C.20768	146759	E.2	14JL1944	C.08211
146761	E.3	14JL1944	0.08135	146762	F.1	6JL1944	0.53803	146763	F.2	6JL1944	C.59804
146764	F.3	6JL1944	0.17954	146765	F.3	24JL1944	0.01570	146766	F.3	17JL1944	0.01680
146767	F.3	24JL1944	0.87730	146768	F.3	16JL1944	0.13938	146769	F.3	15JL1944	C.12101
146770	C.1	10AU1944	0.15639	146771	C.2	10AU1944	0.04024	146772	C.3	18AU1944	0.18591
146773	D.6	18AU1944	0.05837	146774	E.2	15JL1944	0.17224	146775	E.3	15AU1944	0.04559
146776	F.1	10AU1944	0.04803	146777	C.1	22SE1944	0.03246	146778	C.1	10SE1944	0.08021
146779	C.2	10SE1944	0.07527	146780	C.1	17SE1944	0.00468	146781	C.2	17SE1944	C.63226
146782	C.2	18SE1944	0.03955	146783	D.4	18SE1944	0.00620	146784	D.6	18SE1944	L.74872
146785	E.4	16SE1944	0.02384	146786	E.2	16SE1944	0.00681	146787	E.3	16SE1944	C.65474
146788	E.4	16SE1944	0.07756	146789	E.5	16SE1944	0.10420	146790	E.6	17SE1944	C.61322
146791	F.1	15SE1944	0.04944	146792	F.2	15SE1944	0.02189	146793	F.3	15SE1944	C.02002
146794	F.3	15OC1944	0.00218	146795	F.6	15OC1944	0.13372	146796	F.6	15OC1944	C.02002
146797	C.1	16OC1944	0.02274	146798	C.1	16OC1944	0.00489	146799	D.1	15OC1944	0.01491
146800	D.1	15OC1944	0.02274	146801	D.1	15OC1944	0.42522	146802	D.1	15OC1944	C.16703
146803	D.5	14OC1944	0.27541	146804	D.5	14OC1944	1.29716	146805	D.1	20C1944	0.01346
146806	D.5	12OC1944	0.40484	146807	E.3	13OC1944	0.05012	146808	E.3	13OC1944	C.77819
146809	E.3	12OC1944	0.23344	146810	E.3	13OC1944	0.05012	146811	E.3	13OC1944	C.77819
146812	F.2	11OC1944	0.00173	146813	F.2	11OC1944	0.38967	146814	F.2	11OC1944	0.06451
146815	F.2	11OC1944	0.00221	146816	C.2	10JN1944	0.01361	146817	C.1	8JN1944	C.16835
146818	D.2	11JL1944	0.21729	146819	D.2	11JL1944	0.62094	146820	D.2	11JL1944	C.42111
146821	D.5	9JN1944	0.60055	146822	D.5	9JN1944	0.52886	146823	D.5	9JN1944	C.26806
146824	F.2	7JN1944	C.29248	146825	F.3	7JN1944	0.15448	146826	F.3	7JN1944	0.14476
146827	F.3	7JN1944	0.64698	146828	F.3	7JN1944	C.77982	146829	F.3	7JN1944	0.06616
146830	F.3	6JN1944	0.00666	146831	F.3	6JN1944	0.45200	146832	F.3	6JN1944	0.01155
146833	C.3	29JL1947	0.82306	146834	C.3	29JL1947	0.92558	146835	C.3	29JL1947	L.12783
146836	C.3	29JL1947	1.83247	146837	C.3	29JL1947	1.51872	146838	C.3	29JL1947	L.12783
146839	C.3	29JL1947	0.52400	146840	C.3	29JL1947	0.12904	146841	C.3	29JL1947	L.12280
146842	C.3	21AF1947	0.76108	146843	C.3	21AF1947	0.83570	146844	C.3	21AF1947	C.15804
146845	C.3	21AF1947	0.36084	146846	C.3	4MY1947	C.00373	146847	C.3	3MY1947	C.24359
146848	C.3	5MY1947	0.00395	146849	C.3	5MY1947	0.00856	146850	C.3	7MY1947	0.01494
146851	C.3	2MY1947	0.00261	146852	C.3	6MY1947	0.00863	146853	C.3	28MY1947	C.68708
146854	A.4	23MY1947	0.00595	146855	A.6	24MY1947	0.07330	146856	A.3	31MY1947	C.00821
146857	C.5	31MY1947	0.00261	146858	C.7	23MY1947	0.06318	146859	C.2	28MY1947	C.43666
146860	C.5	28MY1947	0.00225	146861	E.5	28MY1947	0.01093	146862	E.3	12JN1947	C.91132
146863	A.4	13JN1947	0.17881	146864	C.3	17JN1947	0.38100	146865	C.3	17JN1947	C.14595
146866	C.7	13JN1947	0.24311	146867	E.2	15JN1947	0.15198	146868	E.5	14JN1947	C.02542
146869	A.3	11JL1947	0.62618	146870	A.6	11JL1947	0.53331	146871	A.6	10JL1947	C.95309
146872	C.3	16JL1947	1.33746	146873	C.3	16JL1947	0.66648	146874	C.3	16JL1947	C.95812
146875	E.2	14JL1947	0.31239	146876	E.3	15JL1947	C.20379	146877	E.3	15JL1947	L.18603
146878	C.3	28JL1947	0.00247	146879	C.3	25E1947	0.64906	146880	C.3	15JL1947	C.15867
146881	E.3	15E1947	0.02745	146882	E.5	31JL1947	0.08615	146883	E.6	15E1947	C.11551
146884	E.3	24E1947	0.00271	146885	E.3	24E1947	0.03016	146886	E.3	15E1947	C.02762
146887	E.3	11OC1947	0.01193	146888	E.3	11OC1947	0.00505	146889	E.5	10OC1947	C.01437
146890	G.3	9MY1947	0.02476	146891	G.5	9MY1947	0.64739	146892	G.3	10MY1947	C.16696
146893	G.3	24JL1947	0.04564	146894	G.5	24JL1947	0.00273	146895	G.5	10MY1947	C.16696
146896	G.5	12MY1947	0.02011	146897	G.5	12MY1947	0.05545	146898	G.5	12MY1947	C.12107
146899	G.5	12MY1947	0.00216	146900	G.5	12MY1947	0.00249	146901	G.5	12MY1947	0.04315
146902	G.5	12MY1947	0.00191	146903	G.5	12MY1947	0.00191	146904	G.5	12MY1947	0.00191
146905	G.5	12MY1947	0.00666	146906	G.5	13MY1947	0.13975	146907	G.5	14MY1947	L.12527
146908	G.5	30C1947	0.33445	146909	G.5	30C1947	0.17302	146910	G.5	30C1947	C.01043
146911	G.5	30C1947	0.01178	146912	G.5	30C1947	0.01178	146913	G.5	30C1947	C.01043
146914	G.5	30C1947	0.00823	146915	G.5	30C1947	0.00507	146916	G.5	30C1947	C.15584
146917	G.5	30C1947	0.00743	146918	G.5	30C1947	0.00688	146919	G.5	30C1947	C.01043
146920	G.5	30C1947	0.00336	146921	G.5	30C1947	0.00336	146922	G.5	30C1947	C.01043
146923	G.5	30C1947	0.00314	146924	G.5	30C1947	0.00314	146925	G.5	30C1947	C.01043
146926	G.5	30C1947	0.00144	146927	G.5	30C1947	0.00144	146928	G.5	30C1947	C.01043
146929	G.5	30C1947	0.00076	146930	G.5	30C1947	0.00076	146931	G.5	30C1947	C.01043
146932	G.5	30C1947	0.00025	146933	G.5	30C1947	0.00025	146934	G.5	30C1947	C.01043
146935	G.5	30C1947	0.00012	146936	G.5	30C1947	0.00012	146937	G.5	30C1947	C.01043
146938	G.5	30C1947	0.00006	146939	G.5	30C1947	0.00006	146940	G.5	30C1947	C.01043
146941	G.5	30C1947	0.00003	146942	G.5	30C1947	0.00003	146943	G.5	30C1947	C.01043
146944	G.5	30C1947	0.00001	146945	G.5	30C1947	0.00001	146946	G.5	30C1947	C.01043
146947	G.5	30C1947	0.00000	146948	G.5	30C1947	0.00000	146949	G.5	30C1947	C.01043
146950	G.5	30C1947	0.00000	146951	G.5	30C1947	0.00000	146952	G.5	30C1947	C.01043
146953	G.5	30C1947	0.00000	146954	G.5	30C1947	0.00000	146955	G.5	30C1947	C.01043
146956	G.5	30C1947	0.00000	146957	G.5	30C1947	0.00000	146958	G.5	30C1947	C.01043
146959	G.5	30C1947	0.00000	146960	G.5	30C1947	0.00000	146961	G.5	30C1947	C.01043
146962	G.5	30C1947	0.00000	146963	G.5	30C1947	0.00000	146964	G.5	30C1947	C.01043
146965	G.5	30C1947	0.00000	146966	G.5	30C1947	0.00000	146967	G.5	30C1947	C.01043
146968	G.5	30C1947	0.00000	146969	G.5	30C1947	0.00000	146970	G.5	30C1947	C.01043
146971	G.5	30C1947	0.00000	146972	G.5	30C1947	0.00000	146973	G.5	30C1947	C.01043
146974	G.5	30C1947	0.00000	146975	G.5	30C1947	0.00000	146976	G.5	30C1947	C.01043
146977	G.5	30C1947	0.00000	146978	G.5	30C1947	0.00000	146979	G.5	30C1947	C.01043
146980	G.5	30C1947	0.00000	146981	G.5	30C1947	0.00000	14698			

202 DIVULGAR TCT NC OF STATIONS 73

(46921	CH	23NO1945	0.03816	(46517	CH	12JA1946	0.01137	(466915	CH	20FE1946	C.C0565	1
(46914	CH	15AP1946	0.00961	(46524	CH	10RY1946	0.05079	(466923	CH	22NO1946	C.C3634	1
(46920	CH	20GE1946	0.00862	(46555	CH	JA1947	0.00245	(466959	CH	4RI1947	C.C0455	1
(46916	CH	4MY1947	0.00136	(46619	CH	5JN1947	0.01214	(466758	EV	5JN1937	C.C3921	1
(46771	EV	11JN1937	0.01426	(46743	EV	20JN1937	0.11989	(46770	EV	9JL1937	C.C5267	1
(46764	EV	17JL1937	0.05641	(46751	EV	25JL1937	0.00963	(46747	EV	18JL1937	C.C0495	1
(46750	EV	24SE1937	0.00471	(46748	EV	13OC1937	C.02135	(46767	EV	27OC1937	C.C00774	1
(46761	EV	27MY1938	0.00273	(46766	EV	14OE1938	0.01564	(13300	E 3	13OC1964	C.C0359	1
(1305	F 1	11OC1964	0.00247	(1341	A 3	19AP1967	C.00217	(1348	E 5	23AP1967	C.C0137	1
(1371	C 3	4MY1967	0.00462	(1415	E 3	28MY1967	0.00225	(1432	A 4	13JN1967	C.C0255	1
(1352	A 3	18SE1967	0.02302	(1541	E 2	11OC1967	C.00532	(1332	G 6	10MY1967	C.C0278	1
(1387	GS11	12MY1967	0.00396	(1392	GS16	12MY1967	0.00308	(1355	GS19	13MY1967	C.C0117	1
(1354	GS 1	30C1967	0.01779	(1555	GS 2	3CC1967	C.00353	(1559	GS 7	4CC1967	C.C0350	1
(1364	GS12	5OC1967	0.00494	(1569	GS17	5OC1967	C.00297	(1570	GS18	5OC1967	C.C0092	1
(1571	GS19	6OC1967	0.00117	(1573	GS21	6OC1967	0.00224	(1574	GS22	6OC1967	C.C0288	1
(1575	GS28	6OC1967	0.00129	(1544	MU 1	20C1967	0.00238	(1547	PS 1	20C1967	C.C3992	1
(1524	ML 1	20SE1967	0.02189	(1546	LU 1	20C1967	0.00500	(1551	SH 1	18SE1967	C.C4662	1
(1522	HM 1	18SE1967	0.00912	(1530	FR 1	24SE1967	C.04003	(1531	GH 1	25SE1967	C.C0381	1
(1545	ML 1	2CC1967	0.02703	(1550	MR 1	5CC1967	C.16107	(1428	PL 2	25MY1967	C.C2917	1
(1426	MS 2	29MY1967	0.00597	(1351	ML 2	21AP1967	0.00110	(1427	LU 2	29MY1967	C.C3888	1
(1417	HQ 2	22MY1967	0.01122	(1418	SH 2	22MY1967	0.034215	(1350	HM 2	15AP1967	C.C4405	1
(1399	PK 2	5MY1967	0.01360	(1401	HC 2	6MY1967	C.01176	(1402	TH 2	6MY1967	C.C1083	1
(1400	SB 2	6MY1967	0.05361	(1393	FR 2	23AP1967	0.05274	(1394	CH 2	25AP1967	C.C1008	1
(1429	WL 2	29MY1967	0.03185	(1403	CA 2	10MY1967	C.28769	(1405	ES 2	12MY1967	C.C0645	1
(1406	GB 2	13MY1967	0.00805	(								

Diatoma vulgaris var. *brevis* Grun.

Diatoma vulgare var. *breve* Grunow, Verh. Zool.-Bot. Ges. Wien, 12:363. 1862.

203 DIVULGVB TCT NC OF STATIONS 6

(46758	EV	5JN1937	0.00357	(1236	C* 1	8JN1964	C.C0350	(1264	C* 1	10AU1964	C.CC193	1
(1341	A 3	19AP1967	0.00217	(1567	GS15	5OC1967	0.00159	(1521	SH 1	18SE1967	C.C0885	1

Diatoma vulgaris var. *linearis* V. H.

Diatoma vulgare var. *linearis* Van Heurck, Syn. Diat. Belgique, pl. 50, figs. 7-8. 1881.

205 DIVULGLV TCT NC OF STATIONS 3

(1392	GS16	12MY1967	0.00616	(1549	HQ 1	4OC1967	0.12334	(1407	SM 2	14MY1967	C.C0597	1
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Genus *Diploneis* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1844:84. 1844.

Members of the genus *Diploneis* find their primary habitat in epipelagic communities. Only occasional, isolated specimens are found in our collections.

Diploneis boldtiana Cleve

Diploneis boldtiana Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):43, pl. 2, fig. 12. 1891.

206 OPSLOTL TCT NO OF STATIONS 18

(46973	CH	1874	0.02362	(4540	CP	11PY1879	0.00466	(2541	CH	1FE1881	C.C0512	1
(46910	CH	CC1945	0.00328	(46921	CH	23NO1945	0.00065	(466928	CH	DE1945	C.C1007	1
(46914	CH	19AP1946	0.00214	(46616	CH	4MY1947	0.00068	(466922	CH	21AU1947	C.C0194	1
(46758	EV	5JN1937	0.00357	(46766	EV	17JL1937	0.00963	(46757	EV	25JL1937	C.C0481	1
(46747	EV	18JL1937	0.00248	(46768	EV	16AP1938	C.01470	(1563	GS11	5OC1967	C.C0234	1
(1565	GS13	5OC1967	0.00507	(1567	GS15	5OC1967	0.00159	(1530	FR 1	24SE1967	C.C0100	1

Diploneis domblittensis (Grun.) Cleve

Navicula expleta var. *domblittensis* Grunow in: Mojsisovics and Neumayer, Beitr. Paläontol. Österreich-Ungarns, Bd. 2, Heft 4, p. 156, pl. 30, fig. 60. 1882.

Diploneis domblittensis (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):91, pl. 2, fig. 2. 1894.

207. OPDUMBLG TGT NO OF STATIONS 1
(1389 GS13 12MY1567 0.00258) (

Diploneis elliptica (Kütz.) Cleve

Navicula elliptica Kützing, Bacill., p. 98, pl. 30, fig. 55. 1844.

Diploneis elliptica (Kütz.) Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):42. 1891.

208. DPELLIPT TGT NO OF STATIONS 7
(46902 CH PR1967 0.00455) (46516 CH 9MY1947 0.00034) (46907 CH JL1947 0.00148)
(1559 GS 7 40C1967 0.00390) (1565 GS13 50C1967 0.01014) (1567 GS13 50C1967 0.00476)
(1402 CA 2 10MY1967 0.01306) (

Diploneis oblongella (Naeg.) Ross

Navicula oblongella Naegleii ex Kützing, Sp. Alg., p. 890. 1849.

Diploneis oblongella (Naeg.) Ross, Natl. Mus. Canada Bull., 97:212. 1947.

Coll: 1405

Diploneis oculata (Bréb.) Cleve

Navicula oculata de Brébisson, J. Quekett Micr. Club, 2:38, fig. 5. 1870.

Diploneis oculata (Bréb.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd 26(2):92. 1894.

209. GPOCULAT TGT NO OF STATIONS 9
(46506 CH RV1967 0.00086) (46767 EV 270C1937 0.00387) (1245 F 2 11JN1964 0.00346)
(1260 F 3 6JL1964 0.00191) (1285 F 1 15SE1964 0.00592) (1385 GS13 12MY1967 0.00258)
(1395 GS19 12MY1967 0.00117) (1554 GS 1 30C1967 0.00356) (1565 GS13 50C1967 0.00422)

Diploneis ovalis (Hilse) Cleve

Pinnularia ovalis Hilse, Jahres-Ber. Schlesischen Ges. Vaterl. Kult., 36:82. 1860.

Diploneis ovalis (Hilse) Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):44, pl. 2, fig. 13. 1891.

210. DPOVALIS TGT NO OF STATIONS 6
(40973 CH 1876 0.06724) (46524 CH 10PY1946 0.00071) (1285 F 1 15SE1964 0.01165)
(1304 F 1 11UC1964 0.00247) (1389 GS13 12MY1967 0.000774) (1354 GH 2 25AP1967 0.00173)

Diploneis parva Cleve

Diploneis parva Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):43, pl. 2, fig. 10. 1891.

211	OPPARPA	TCT	NO	OF	STATIONS	20															
(46910	CH				GC1945	0.00109	)	(46517	CH			12JA1946	0.00083	)	(46914	CH			19AP1946	0.00107	)
(46924	CH				10MY1946	0.00141	)	(46520	CH			20SE1946	0.00021	)	(46505	CH			JA1947	0.00123	)
(46906	CH				MY1947	0.00066	)	(46522	CH			21AU1947	0.00145	)	(13895	GS 9			10MY1947	0.00235	)
(13892	GS13				12MY1947	0.00216	)	(13890	GS14			12MY1947	0.01174	)	(1353	GS17			13MY1947	0.00274	)
(15464	GS12				50C1967	0.00165	)	(15465	GS13			50C1967	0.03042	)	(15467	GS15			50C1967	0.00635	)
(15462	GS17				50C1967	0.00145	)	(1574	GS22			50C1967	0.00375	)	(1575	GS28			60C1967	0.00238	)
(1546	LU 1				20C1967	0.00500	)	(1354	GH 2			25AP1967	0.00173	)	(						)

Diploneis subovalis Cleve

Diploneis subovalis Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):96, pl. 1, fig. 27. 1894.

212 OPSUBOVA TCT NO OF STATIONS 3																			
(46747	EV	1AU1937	0.00248)	(1388	GS12	12MY1967	0.01207)	(1565	GS13	50C1967	0.00208)								

Species *incertae sedis*

Diploneis sp. #1.

213 OPSPECCA TOT NO OF STATIONS 2									
(1567	GS15	50C1967	0.00159)	(1568	GS16	50C1967	0.00144)	(	

Diploneis sp. #2.

214	DPSPEC08	TCT	NO	OF	STATIONS	2														
(1545	WL 1		20C1967	0.00676	)	(1350	GH 2		19AP1967	0.00220	)	(								)

Genus *Epithemia* Bréb.

de Brébisson and Godey, Consid. Diat., p. 16. 1838.

Members of the genus *Epithemia* are particularly adapted for epiphytic growth, usually on the coarser attached algae or on aquatic higher plants. Only occasional isolated specimens appear in our collections.

Epithemia andrewsii nom. nov.

Epithemia irregularis Andrews, U. S. Geol. Surv. Prof. Paper 523A:22, pl. 3, fig. 22-25. 1966. (non Fritsch and Rich 1925).

215 EPANDREW TCT NO OF STATIONS										2	
(60973	CH	1876	0.02362	)	(46917	CH	12JA1946	0.00028	)	(	

Epithemia argus (Ehr.) Kütz.

Eumotia argus Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:125, pl. 2(4), fig. 7. 1843.

Epithemia argus (Ehr.) Kütz., Bacill., p. 35, pl. 29, figs. 55-56. 1844.

Coll: 1092.

Epithemia argus var. *alpestris* (Wm. Smith) Grun.

Epithemia alpestris Wm. Smith, Syn. British Diat., Vol. 1, p. 13, pl. 1, fig. 7. 1853.

Epithemia argus var. *alpestris* (Wm. Smith) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:329, pl. 3, fig. 28. 1862.

216 EPARGUVA TOT NC OF STATICS				1
(3541	CH	1FE1881	0.00978	(

Epithemia argus var. *longicornis* (Ehr.) Grun.

Epithemia longicornis Ehrenberg ex Pritchard, Hist. Infus., p. 760, pl. 15, figs. 6-9. 1852.

Epithemia argus var. *longicornis* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:329. 1862.

Coll: 1092.

Epithemia intermedia Fricke

Epithemia intermedia Fricke in: A. Schmidt, Atlas Diat., pl. 249, figs. 14-18. 1904.

217 EPINTERM TOT NO OF STATICS				5
(60973	CH	1876	0.14171	(
(1352	SM 1	60C1967	0.00860	(1501
				MO 2
				PHY1947
				C.00066
				(1567
				GS15
				50C1967
				C.00159
				)
				6MY1967
				0.00588
				(

Epithemia smithii Carruthers

Epithemia proboscidea Wm. Smith, Syn. British Diat., Vol. 1, p. 13, pl. 1, fig. 8. 1853. (non Kütz. 1844).

Epithemia smithii Carruthers in: Gray, Handb. British Freshw. Weeds, p. 76. 1864.

218 EP5MITHI TCT NO OF STATICS				6
(60973	CH	1876	0.02362	(3561
(60763	EV	23AC1937	0.02029	(1285
				F 1
				1FE1881
				C.00078
				(46926
				CH
				10MY1966
				C.00071
				)
				155E1964
				0.01165
				(1574
				GS22
				60C1967
				C.00268
				)

219 EPSOREKO TOT NC OF STATICS				6
(1389	GS13	12MY1567	0.00258	(1396
(1531	GH 1	255E1967	0.00845	(1545
				NL 1
				13MY1967
				C.00074
				(1574
				GS22
				60C1967
				C.00288
				)
				20C1967
				0.00876
				(1550
				MR 1
				50C1967
				0.03717
				)

Epithemia turgida (Ehr.) Kütz.

Navicula turgida Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1830:64. 1832.

Epithemia turgida (Ehr.) Kütz. in: Bacill., p. 34, pl. 5, fig. 14. 1844.

220 EPTURGID TCT NC OF STATICS				9
(3561	CH	1FE1881	0.03911	(46152
(1555	GS 2	30C1967	0.00353	(1565
(1574	GS22	60C1967	0.01151	(1575
				GS28
				155E1937
				C.02177
				(1279
				E 1
				165E1564
				C.00393
				)
				50C1967
				0.00507
				(1567
				GS15
				50C1967
				0.00318
				)
				60C1967
				0.00129
				(1352
				MR 2
				21AP1967
				C.00859
				)

Epithemia zebra (Ehr.) Kütz.

Navicula zebra Ehrenberg, Abh. Akad. Wiss. Berlin, 1833:262. 1835.

Epithemia zebra (Ehr.) Kützing, Bacill., p. 34, pl. 5, fig. 7(6)a-c. 1844.

222 EPZERRA TCT NO OF STATIONS 4									
(40973	CH	1876	0.04724	(3541	CH	1FE1881	0.02935	(1574	GS22
(1529	KM 1	20SE1967	0.02398	(					60C1567 C.CC288)

Epithemia zebra var. *porcellus* (Kütz.) Grun.

Epithemia porcellus Kützing, Bacill., p. 34, pl. 5, figs. 18-19. 1844.

Epithemia zebra var. *porcellus* (Kütz.) Grunow, Verh. Zool.-Bot. Ges.

Wien, 12:328, pl. 6, figs. 3-4. 1862.

221 EPZERRA TCT NO OF STATIONS 6									
(40973	CH	1876	0.02362	(46757	EV	254L1937	0.00481	(1369	A 4
(1545	WL 1	20C1567	0.00676	(1550	MR 1	50C1567	0.01239	(1401	MD 2
									4MY1567 C.CC373)
									4MY1567 C.01176)

Genus *Eucocconeis* Cleve

Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):173. 1895.

Members of the genus *Eucocconeis* are most abundant in benthic communities. Only occasional specimens are noted in our collections.

Eucocconeis flexella (Kütz.) Hust.

Cymbella? flexella Kützing, Bacill., p. 80, pl. 4, fig. 14. 1844.

Eucocconeis flexella (Kütz.) Hustedt in: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 193, fig. 270. 1930.

223 EUFLEXEL TCT NO OF STATIONS 22									
(46924	CH	10MY1946	0.00071	(46516	CH	4MY1947	0.02579	(46906	CH
(46919	CH	5JN1947	0.02276	(1258	F 1	6JL1964	0.00472	(1279	E 1
(1285	F 1	15SE1966	0.02912	(1286	F 2	15SE1964	0.01035	(1387	GS11
(1388	GS12	12MY1967	0.04223	(1389	GS13	12MY1967	0.01031	(1390	GS14
(1392	GS16	12MY1967	0.00308	(1353	GS17	13MY1967	0.00274	(1354	GS18
(1565	GS13	50C1967	0.01014	(1566	GS15	50C1967	0.00794	(1569	GS17
(1574	GS22	60C1967	0.00575	(1550	MR 1	50C1567	0.02478	(1403	CA 2
(1404	MD 2	10MY1967	0.03811	(					10MY1967 C.05231)

Eucocconeis flexella var. *alpestris* (Brun) Hust.

Achnanthes flexella var. *alpestris* Brun, Diat. Alpes et Jura, p. 30, fig. 26. 1880.

Eucocconeis flexella var. *alpestris* (Brun) Hustedt in: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 193, fig. 271. 1930.

224 EUFLEXVA TCT NO OF STATIONS 8									
(1565	GS13	50C1967	0.03042	(1551	ES 1	50C1567	0.00799	(1550	MR 1
(1528	MS 2	29MY1967	0.01050	(1417	MD 2	22MY1967	0.01122	(1350	RH 2
(1405	ES 2	12MY1967	0.01535	(1407	SP 2	14MY1967	0.01154	(	
									50C1967 C.04195)
									19AP1967 C.0C661)

Eucocconeis lapponica Hust.

Eucocconeis lapponica Hustedt, Naturw. Untersuch. Sarekgebirges Schwedisch-Lappland, Bd. 3, Bot. Heft 6, p. 549, pl. 17, figs. 8-9. 1924.

225 EULAPPEN TOT NC OF STATIONS 1				
(146757	EV	25JUL1937	0.00481)	(

Euccoconeis lapponica var. *ninkei* (Reim.) Comb. nov.

Achnanthes ninkei Guermeur and Manguin, Österreichische Bot. Zeitschr., 100(4/5):541, pl. 1, figs. 10-11. 1953.

Achnanthes lapponica var. *ninkei* (Guer. and Mang.) Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:259, pl. 16, figs. 29-30. 1966.

226 EULAPPEN TCT NC CF STATICS 26											
(146758	EV	5JUN1937	0.00713)	(146757	EV	25JUL1937	0.00481)	(146763	EV	23AUG1937	0.00117)
(146752	EV	15SE1937	0.02177)	(146762	EV	18PR1938	0.04411)	(14710	F 1	10AUG1964	0.00272)
(1285	F 1	15SE1944	0.00582)	(1304	F 1	11CC1964	0.00247)	(1354	CS18	13MY1967	0.00172)
(1565	GS13	50C1967	0.01014)	(1567	GS15	50C1967	0.00129)	(1572	GS20	60C1567	0.00090)
(1574	GS22	40C1967	0.02013)	(1575	GS28	40C1967	0.00129)	(1527	TM 1	20SE1967	0.00628)
(1529	MA 1	20SE1967	0.01195)	(1532	SM 1	60C1567	0.00660)	(1550	MA 1	50C1967	0.00585)
(1426	MS 2	25MY1967	0.01050)	(1350	BH 2	19AP1967	0.00220)	(1400	SB 2	6MY1967	0.00596)
(1403	GA 2	10MY1967	0.02531)	(1404	MC 2	10MY1967	0.03081)	(1405	ES 2	12MY1967	0.00296)
(1407	SM 2	14MY1967	0.00597)	(1421	CH 2	23MY1967	0.01735)	(			

Genus *Eunotia* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:44. 1837.

Members of the genus *Eunotia* find their primary habitat in benthic communities. The majority of species are found only in waters of relatively low pH and total dissolved solids. The specimens taken in the Lake Michigan plankton are undoubtedly derived from either benthic habitats in the lake or, more likely, from streams entering the lake,

Eunotia arcus Ehr.

Eunotia arcus Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:45. 1837.

227 ENARCUS TOT NC OF STATIONS 1				
(1565	GS13	50C1967	0.00597)	(

Eunotia arcus var. *bidens* Grun.

Eunotia arcus var. *bidens* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 34, fig. 7. 1881.

229 ENARCUS TOT NC OF STATIONS 3											
(1388	GS12	12MY1967	0.00603)	(1524	MI 1	20SE1967	0.02189)	(1404	PG 2	10MY1967	0.00254)

Eunotia arcus var. *fallax* Hust.

Eunotia arcus var. *fallax* Hustedt in: Pascher, Süßw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 175, fig. 219. 1930.

228 ENARCUS TCT NC OF STATIONS 1				
(146768	EV	16PR1938	0.01476)	(

Eunotia curvata (Kütz.) Lagerst.

Synedra lunaris Ehrenberg, Abh. Akad. Wiss. Berlin, 1831:87. 1832.

Exilaria curvata Kützing, Alg. Dec., No. 112. 1834.

Eunotia lunaris (Ehr.) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 35, figs. 3-4. 1881. (non de Brébisson, 1864).

Eunotia curvata (Kutz.) Lagerstedt, Öfv. K. Svenska Vet.-Akad. Förh., 41(2):61. 1884.

230 ENCURVAT TOT NO OF STATIONS 2

(1550 MR 1 50C1967 0.01235) (1427 LU 2 29MY1967 0.01211) (

Eunotia diodon Ehr.

Eunotia diodon Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:45. 1837.

231	END100CN	TOT NO OF STATIONS	1
1	1404	MO 2	10MY1967 0.0127C)

Eunotia exigua (Bréb.) Rabh.

Himantidium exiguum de Brébisson ex Kützing, Sp. Alg., p. 8. 1849.

Eunotia exigua (Bréb.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 73. 1864.

Coll: 1404.

Eunotia flexuosa Bréb.

Eunotia flexuosa de Brébisson ex Kützing, Sp. Alg., p. 6. 1849.

232	ENFLEXUO TOT NO OF STATIONS	1
(1574	GS22	60C1967 0.0C288) (

Eunotia incisa Wm. Smith

Eunotia incisa Wm. Smith *ex* Gregory, Quart. J. Micr. Sci., 2:96, pl. 4, fig. 4. 1854.

233	ENINCLISA TOT NO OF STATIONS	1
(1417	HO 2	22MY1967 0.00374) (

Eunotia naegelii Migula

Eunotia naegelii Migula in: Thomé, Fl. Deutschland, 2(1):203. 1907.

234	ENNAEGEL TGT NO OF STATIONS	1
(1404	NO 2	10NY1967 0.06352) (

Eunotia pectinalis (O. F. Müll.) Rabh.

Conferva pectinalis O. F. Müller, Nova Octa Acad. Sci. Petropolitane, 3(Hist.):91, pl. 1, figs. 4-7. 1788.

Eunotia pectinalis (O. F. Müll.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 73. 1864.

Coll: 1404.

Eunotia praerupta Ehr.

Eunotia praerupta Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:414. 1843.

235 ENPRAERU TCT NO OF STATIONS 4									
(1304	F 1	11CC1964	0.00247)	(1388	GS12	12MY1967	C.00603)	(1569	GS17
(1553	SG 1	60C1967	0.00734)	(					5CC1567 C.C0419)

Eunotia serra Ehr.

Eunotia serra Ehrenberg, Ber. Akad. Wiss. Berlin, 1837:45. 1837.

Coll: 1092.

Eunotia trinacria Krasske

Eunotia trinacria Krasske, Bot. Arch., 27:349, fig. 1. 1929.

236 ENTRINAC TCT NO OF STATIONS 1			
(1404	MG 2	10MY1967	G.C127C)

Genus *Fragilaria* Lyngb.

Lyngbye, Tent. Hydrophyt. Danicae, p. 182. 1819.

Fragilaria brevistriata Grun.

Fragilaria brevistriata Grunow in: Van Heurck, Syn. Diat. Belgique, p. 157, pl. 45, fig. 32. 1885.

Cells rectangular, in life united by the valve faces into band-shaped colonies of varying length. Valves linear with subrostrate apices, specimens from Lake Michigan 10-30 μ long, 3-5 μ broad. The striae are short, marginal, slightly radiate, about 13-16 in 10 μ . Due to the shortening of the striae the pseudoraphe is a broad, linear-lanceolate space, without ornamentation, occupying most of the valve surface.

Most of our records of this taxon come from inshore areas in Lake Michigan. Published records indicate that it reaches its greatest abundance in smaller mesotrophic to eutrophic lakes.

237 FBSREVIS TCT NO OF STATIONS 55									
146573	CH	1876	0.04724)	146521	CH	23NG1965	0.00129)	146509	CH
146500	CH	MY1967	0.00066)	146763	EY	23MU1937	C.02525)	11227	C ² 2
(1264	C ² 2	14.11.1964	0.00778)	(1275	D 2	175F1966	0.00645)	(1279	E 1
								18MY1964	C.C0110)
								16SE1964	C.C0178)

(1284	E 6	175E1964	0.00318	(1285	F 1	155E1964	0.01747	(1292	O 1	150C1964	0.00373
(1304	F 1	116C1964	0.00247	(1352	A 4	194P1967	0.00761	(1411	C 3	13MY1967	0.00410
(1538	E 5	235E1967	0.00552	(1388	G512	12MY1967	0.01207	(1389	G513	12MY1967	0.00258
(1390	G514	12MY1967	0.00587	(1392	G516	12MY1967	0.01233	(1394	G518	13MY1967	0.00344
(1395	G519	13MY1967	0.00117	(1396	G520	13MY1967	0.00592	(1397	G521	13MY1967	0.00065

(1528	G522	14MY1967	0.00304	(1565	G513	50C1967	0.07406	(1567	G515	50C1967	0.00159
(1549	G517	50C1967	0.00145	(1570	G518	50C1967	0.00992	(1572	G520	60C1967	0.00152
(1573	G521	60C1967	0.00672	(1574	G522	60C1967	0.02013	(1575	G528	60C1967	0.00516
(1544	MU 1	20C1967	0.00477	(1546	LU 1	20C1967	0.02001	(1520	MO 1	16SE1967	0.00875
(1521	SH 1	16SE1967	0.00577	(1526	MO 1	20SE1967	0.01136	(1527	IR 1	20SE1967	0.00625
(1531	GH 1	25SE1967	0.01691	(1545	ML 1	20C1967	0.04730	(1552	SM 1	60C1967	0.02641
(1550	ME 1	50C1967	1.96241	(1553	SE 1	60C1967	0.03672	(1428	MU 2	25MY1967	0.00603
(1426	MS 2	25MY1967	0.00100	(1351	MI 2	21AP1967	0.00310	(1417	FO 2	22MY1967	0.04486
(1350	BH 2	14AP1967	0.03435	(1401	MC 2	6MY1967	0.01176	(1352	KW 2	21AP1967	0.00859
(1354	GH 2	25AP1967	0.00518	(1404	MC 2	10MY1967	0.05081	(1407	SH 2	14MY1967	0.02388
(1406	GS 2	13MY1967	0.00270	(1408	MC 2	10MY1967	0.05081	(1407	SH 2	14MY1967	0.02388

Fragilaria brevistriata var. *capitata* Hérib.

Fragilaria brevistriata var. *inflata* Héribaud, Foss. Diat. Auvergne, vol. 2, p. 92, pl. 12, fig. 18. 1903.

The valves of this entity are lanceolate with subcapitate to capitate apices. All other features are as in the nominate variety.

Grunow's prior figure of *F. brevistriata* var. *subcapitata* (in Van Heurck 1881) is apparently without standing because of his failure to either figure or describe the nominate variety until 1885 (for discussion see Patrick and Reimer 1966).

Coll: 827.

Fragilaria brevistriata var. *inflata* (Pant.) Hust.

Fragilaria inflata Pantocsek, Res. Wiss. Erforsh. Balatonsees, vol. 2, p. 79, pl. 9, figs. 219-221. 1902.

Fragilaria brevistriata var. *inflata* (Pant.) Hustedt in: Pascher, Süßw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 145, fig. 152. 1930.

The valves of this entity are elliptic-lanceolate with rostrate to subcapitate ends. Other features as in the nominate variety.

238 FRBREVVI TCI NC OF DIAI 1524

(46764	EV	17JUL1927	0.01612	(46767	EV	27CC1937	0.00387	(1260	F 3	6JUL1964	0.00101
(1532	A 3	18SE1967	0.00329	(1396	G520	13MY1967	0.00370	(1398	G522	14MY1967	0.00304
(1565	G513	50C1967	0.01595	(1569	G517	50C1967	0.00149	(1571	G519	60C1967	0.00117
(1522	BH 1	14SE1967	0.00182	(1526	MO 1	20SE1967	0.00869	(1530	FR 1	24SE1967	0.01000
(1549	MO 1	40C1967	0.01370	(1552	SM 1	60C1967	0.01321	(1550	PR 1	50C1967	0.04956
(1428	MU 2	25MY1967	0.00603	(1426	MS 2	25MY1967	0.01050	(1350	BH 2	19AP1967	0.01542
(1404	MS 2	10MY1967	0.01270	(1408	MC 2	10MY1967	0.05081	(1407	SH 2	14MY1967	0.02388

Fragilaria capucina Desm.

Fragilaria capucina Desmazieres, Plant. Crypt. Nord France, 1st. ed., Fasc. 10, no. 453. 1825.

Cells rectangular, in life united into closely appressed, band-shaped colonies by the valve faces. Specimens from Lake Michigan 15-80µ long, 2-5µ broad. Valves linear with bluntly rounded, usually more or less cuneate apices. Striae perpendicular to the midline of the valve throughout its length, 14-18 in 10µ, without visible substructure. Pseudoraphe linear, narrow, at the center of the valve expanded into a transverse fascia sometimes extending to the margin of the valve. In specimens in which the fascia does not reach the margin of the valve it is irregularly bordered by indistinct striae.

In Lake Michigan this entity is common in collections from inshore areas, and occasional populations are found in collections from the open lake. Published reports indicate that it reaches its greatest abundance in mesotrophic to eutrophic lakes.

239 - ERICAPIC1: IGY NO. OF STATIONS - 318

160973	CH	1876	0.23618	(3540	CH	11MY1875	0.04659	(3541	CH	1FE1881	0.01956	
13507	CH	19FE1881	0.05660	(46510	CH	CC1945	0.04806	(46621	CH	23NO1945	0.04656	
146050	CH	HE1885	0.06588	(46512	CH	12JA1886	0.03022	(46515	CH	20FE1886	0.06171	
146914	CH	16AP1886	0.07688	(46524	CH	10MY1886	0.05026	(46923	CH	22NO1886	1.17685	
146925	CH	20DE1886	0.08115	(46525	CH	16JL1887	0.30200	(46930	CH	0.06559		
146912	CH	AP1947	2.74807	(46510	CH	4MY1947	0.01221	(46906	CH	RI1547	0.47454	
146919	CH	5JN1947	0.02124	(46507	CH	LI1947	1.02568	(46913	CH	6AU1547	5.10672	
146927	CH	21AU1947	1.46929	(46758	EV	5JN1937	0.02708	(46771	EV	13JL1937	0.13214	
146763	EV	20JN1937	2.15805	(46745	EV	3JL1937	7.60711	(46770	EV	9JL1937	4.56555	
146764	EV	17JL1937	10.46035	(46757	EV	25JL1937	2.29166	(46749	EV	5AU1937	3.46565	
146763	EV	18MY1964	0.00937	(1225	E	30AU1937	0.00115	(46749	EV	7SE1937	0.00884	
146752	EV	15SE1937	0.02717	(46760	EV	22SE1937	1.10296	(46750	EV	24SE1937	1.45167	
146744	EV	6CC1937	1.93182	(46748	EV	13CC1937	6.45103	(46767	EV	18AP1938	0.02206	
146745	EV	12MR1938	0.40053	(46768	EV	16MR1938	0.50768	(46762	EV	18MR1938	0.02206	
146751	EV	30MR1938	0.02233	(46772	EV	18AP1938	0.03545	(46756	EV	27AP1938	0.01343	
146755	EV	19MY1938	0.01013	(46761	EV	27MY1938	0.10078	(46766	EV	14DE1938	2.54677	
12233	B	3	18MY1964	0.00938	(1224	E	4	18MY1964	0.00932	(1225	C	6
1226	C	7	16MY1964	0.45282	(1227	C	2	13Y1964	0.09102	(1228	O	2
1225	D	5	14MY1964	0.11630	(1230	E	2	16MY1964	0.48895	(1232	E	5
1233	B	3	5JN1964	0.00408	(1234	B	3	16MY1964	0.10595	(1235	C	7
14339	B	6	5JN1964	0.10585	(1236	C	1	8JN1964	0.00009	(1237	C	2
1239	O	3	11JN1964	0.09000	(1239	O	4	11JN1964	0.20308	(1240	D	6
1241	E	2	13JN1964	0.51749	(1242	E	3	11JN1964	0.00595	(1243	E	6
1244	F	1	11JN1964	0.84427	(1245	F	2	11JN1964	0.32501	(1246	F	3
1247	B	3	14JL1964	0.02561	(1248	B	3	24JL1964	0.00786	(1249	B	6
1441	B	6	24JL1964	0.12996	(1245	C	3	8JL1964	0.38023	(1250	C	6
1251	C	7	16JL1964	0.89072	(1252	C	1	16JL1964	0.39429	(1253	C	2
1256	D	2	15JL1964	0.10151	(1255	O	5	15JL1964	0.01767	(1256	E	2
1257	E	3	14JL1964	0.00557	(1258	F	1	6JL1964	1.65184	(1259	F	2
1260	F	3	6JL1964	0.24830	(1261	B	3	2AU1964	0.02747	(1262	B	3
14642	B	6	2AU1964	0.15533	(1263	B	6	16AU1964	0.01581	(1263	C	7
1264	C	1	10AU1964	0.09654	(1265	C	2	10AU1964	0.06483	(1266	D	3
1267	D	6	18AU1964	0.08813	(1268	E	2	15AU1964	0.03556	(1269	E	3
1270	F	1	10SE1964	0.03971	(1444	B	6	19SE1964	0.00303	(1271	F	7
1272	C	1	10SE1964	0.30874	(1273	C	2	10SE1964	0.10705	(1274	O	1
1275	D	2	17SE1964	0.07096	(1276	O	3	18SE1964	0.04470	(1277	D	4
1278	D	6	15SE1964	0.15855	(1278	D	4	15SE1964	0.10595	(1280	D	5
1281	E	3	16SE1964	0.00795	(1282	E	4	16SE1964	0.02216	(1283	E	5
1284	E	6	17SE1964	3.78102	(1285	F	1	12SE1964	0.04659	(1286	F	2
1287	F	3	19SE1964	0.01501	(1288	F	3	14OC1964	1.14284	(1445	B	6
1289	C	7	14OC1964	1.13632	(1290	C	1	16OC1964	2.91832	(1291	C	2
1292	D	1	15OC1964	0.52177	(1293	O	2	15OC1964	0.04145	(1294	O	3
1295	O	3	14OC1964	0.01125	(1305	F	2	14OC1964	0.03147	(1297	F	6
1298	E	1	12OC1964	0.32044	(1299	E	2	12OC1964	0.43984	(1300	E	3
1301	E	4	13OC1964	0.02208	(1302	E	5	13OC1964	1.41712	(1303	E	6
1304	F	1	10C1964	0.01235	(1305	F	2	11OC1964	0.02388	(1306	F	3
1307	B	6	NO1964	0.06454	(1308	C	7	6NO1964	0.11558	(1309	C	1
1310	C	2	10NO1964	0.26345	(1311	O	1	8NO1964	2.67763	(1312	O	2
1313	D	3	9NO1964	0.02703	(1314	O	4	9NO1964	0.05752	(1315	O	5
1316	D	6	9NO1964	0.24176	(1317	E	1	6NO1964	0.04021	(1318	E	2
1319	E	2	7NO1964	0.02356	(1326	E	4	7NO1964	0.04371	(1321	E	5
1322	E	6	7NO1964	0.44667	(1327	F	1	6NO1964	0.01254	(1324	F	2
1325	F	3	6NO1964	0.07053	(1336	C	3	27JL1967	0.00578	(1337	C	3
1338	C	3	25AP1967	0.07056	(1339	C	6	28MY1967	0.00166	(1340	C	7
1341	A	3	19AP1967	0.05424	(1342	A	4	19AP1967	0.00361	(1343	A	7
1344	C	3	25AP1967	0.02316	(1345	C	5	25AP1967	0.00390	(1346	C	7
1347	C	6	25AP1967	0.01235	(1347	C	8	25AP1967	0.00249	(1348	C	9
1369	A	4	4MY1967	0.00745	(1370	A	6	3JY1967	0.64449	(1371	C	3
1373	C	7	25MY1967	0.00570	(1374	E	2	7JY1967	0.02092	(1375	E	3
1376	E	3	6MY1967	0.19042	(1408	A	4	23JY1967	0.08049	(1409	A	5
1410	A	6	25MY1967	0.19734	(1411	C	3	31MY1967	0.03282	(1412	C	5
1413	C	7	25MY1967	0.01895	(1414	E	2	28MY1967	0.00136	(1415	C	3
1416	E	3	6MY1967	0.02872	(1431	C	3	12JN1967	0.12355	(1432	A	1
1433	C	3	7JN1967	0.11226	(1434	C	5	17JN1967	0.00598	(1435	C	7
1436	E	2	15JN1967	0.01523	(1437	E	3	20JN1967	0.00537	(1438	E	5
1446	A	3	11JL1967	0.10653	(1447	A	4	11JL1967	0.65404	(1448	A	6
1449	C	3	16JL1967	0.15667	(1450	C	5	16JL1967	0.00190	(1451	C	7
1452	O	3	19JL1967	0.01264	(1453	O	3	19JL1967	0.01264	(1454	E	6
1504	A	3	28AU1967	0.12344	(1506	A	6	28AU1967	0.74625	(1509	C	5

1	1510	C 7	29AU1967	0.11065	(1511	E 2	15E1967	0.53719	(1512	E 3	15E1967	0.24237
1	1511	E 5	10AU1967	1.18577	(1532	A 3	10E1967	4.13915	(1533	A 4	19E1967	1.26730
1	1534	A 6	19E1967	0.77771	(1535	C 7	20E1967	2.59117	(1536	E 2	24E1967	0.35175
1	1537	C 2	24E1967	0.04587	(1538	E 2	22E1967	0.11234	(1539	E 3	24E1967	0.12597
1	1540	C 5	10E1967	0.64015	(1541	E 2	11OC1967	2.46763	(1542	E 3	11E1967	0.64611
1	1543	E 5	10C1967	0.35914	(1527	GS 1	5M1967	0.65541	(1378	OS 2	9M1967	0.18082
1	1379	GS 3	10M1967	0.33801	(1380	GS 4	9M1967	0.58853	(1381	GS 5	10M1967	0.61060
1	1382	GS 6	10M1967	0.38858	(1383	GS 7	10M1967	3.18114	(1384	GS 8	10M1967	0.64701
1	1385	GS 9	10M1967	1.64818	(1386	GS10	12M1967	1.00546	(1387	GS11	12M1967	1C18274
1	1388	GS12	12M1967	15.64794	(1389	GS13	12M1967	53.24595	(1390	GS14	12M1967	43.19512
1	1391	GS15	12M1967	25.47527	(1392	GS16	12M1967	39.22340	(1393	GS17	13M1967	28.76256
1	1394	GS18	13M1967	45.62591	(1395	GS19	13M1967	36.47147	(1396	GS20	13M1967	41.07135
1	1397	GS22	13M1967	36.50396	(1398	GS23	14M1967	6.80086	(1399	GS 1	14C1967	2.43229
1	1555	GS 2	30C1967	0.10946	(1556	GS 3	30C1967	0.45017	(1557	GS 4	30C1967	0.06353
1	1558	GS 5	40C1967	0.25369	(1559	GS 6	40C1967	0.64896	(1560	GS 8	40C1967	0.02834
1	1561	GS 9	40C1967	0.07935	(1562	GS10	50C1967	0.03454	(1563	GS11	40C1967	0.62313
1	1564	GS12	50C1967	0.32919	(1565	GS13	50C1967	0.18254	(1566	GS14	50C1967	0.70629
1	1567	GS15	50C1967	1.11135	(1568	GS16	50C1967	1.41412	(1569	GS17	50C1967	0.86754
1	1570	GS19	50C1967	0.18197	(1571	GS19	29M1967	44.0394	(1572	GS20	29M1967	5.71123
1	1573	GS21	40C1967	18.90085	(1574	GS22	40C1967	0.04890	(1575	GS28	40C1967	36.67818
1	1584	MU 1	20C1967	0.38125	(1547	MS 1	20C1967	0.74281	(1524	PI 1	20E1967	28.02103
1	1586	MU 3	20C1967	0.80301	(1520	MO 1	1E5E1567	0.63845	(1521	SH 1	1E5E1567	0.52315
1	1522	8H 1	10E1967	0.01276	(1523	RA 1	19E1967	23.44683	(1525	PM 1	20E1967	5.79306
1	1526	NW 1	20E1967	3.73215	(1527	TR 1	20E1967	1.30818	(1528	SE 1	20E1967	3.23419
1	1529	KW 1	20E1967	1.30711	(1530	FR 1	24E1967	0.33003	(1531	GH 1	25E1967	0.21133
1	1555	ML 1	20C1967	2.05410	(1548	CA 1	30C1967	0.45524	(1549	MO 1	40C1967	0.06780
1	1551	ES 1	30C1967	8.17957	(1552	SM 1	60C1967	7.28953	(1550	PK 1	50C1967	5.55074
1	1553	SG 1	40C1967	8.93067	(1528	MU 2	29M1967	9.07656	(1546	PS 2	29M1967	5.71123
1	1351	PI 2	21AP1967	0.89372	(1427	LU 2	29M1967	1.42857	(1417	HO 2	22M1967	18.15119
1	1418	SH 2	22M1967	27.31169	(1420	BH 7	19AP1967	1.12773	(1425	FA 2	29M1967	13.38285
1	1359	PM 2	5M1967	5.23307	(1401	MO 2	4E1967	0.76293	(1402	TR 2	4M1967	5.40463
1	1400	SB 2	6M1967	1.43102	(1352	KW 2	21AP1967	7.65627	(1353	FR 2	23AP1967	1.83654
1	1354	GH 2	25AP1967	2.37508	(1429	KL 2	29M1967	0.49347	(1403	CA 3	10M1967	2.51076
1	1406	PD 2	10M1967	13.02116	(1405	GS 2	12M1967	65.01667	(1407	SH 2	14M1967	21.81665
1	1349	CI 2	19AP1967	1.14951	(1406	GR 2	13M1967	5.47783	(1415	BU 2	23M1967	5.50573
1	1420	HA 2	23M1967	7.27583	(1421	CH 2	23M1967	9.55170	(1422	GA 2	23M1967	5.52721
1	1423	IM 2	29M1967	25.09816	(1424	KW 2	29M1967	15.89558	(1430	PG 2	12JN1967	1.55446

Fragilaria capucina var. *lanceolata* Grun.

Fragilaria capucina var. *lanceolata* Grunow in: Van Heurck, Syn. Diat.
Belgique, pl. 45, fig. 5. 1881.

Valves elongate, lanceolate, evenly narrowed from near the center to the ends. Ends usually slightly capitate. Other features the same as in the nominate variety.

Although this entity has essentially the same distribution as the nominate variety in Lake Michigan, it is usually more abundant in offshore collections. As is true of many taxa in the genus, the shape of the valve is quite variable.

240 FRACPULV TOT NO OF STATIONS 142

1	46910	CH	0C1945	0.00228	(46921	CH	23NO1945	0.01681	(46917	CH	12JA1946	0.02246
1	46911	CH	20FE1946	0.02182	(46914	CH	29AP1946	0.08699	(46926	CH	10M1946	0.41269
1	46923	CH	22NO1946	2.20090	(46920	CH	20OE1946	0.68090	(46905	CH	JA1947	0.02451
1	46909	CH	PM1947	0.27232	(46912	CH	AF1947	0.05749	(46916	CH	4E1947	0.05497
1	46906	CH	MY1947	0.03916	(46910	CH	5M1947	0.00617	(46907	CH	JI1947	0.38259
1	46913	CH	6AU1947	0.05413	(46922	CH	21AU1947	0.23652	(46758	EV	5JN1937	0.01626
1	46771	EV	11M1937	0.31295	(46756	EV	20JN1937	0.26548	(46770	EV	5UL1937	0.31611
1	46764	EV	7JL1937	0.02223	(46757	EV	25JL1937	0.24077	(46767	EV	18U1937	0.15394
1	46765	EV	30AU1937	0.34579	(46769	EV	7E1937	0.02171	(46752	EV	15E1937	0.02177
1	46760	EV	12E1937	1.11555	(46750	EV	16E1937	0.02554	(46764	EV	6OC1937	0.68279
1	46767	EV	27OC1937	1.40807	(46749	EV	12MR1938	0.01027	(46768	EV	16MR1938	0.04410
1	46762	EV	18MR1938	0.26667	(46751	EV	30MR1938	0.03350	(46772	EV	18AP1938	0.12775
1	46756	EV	27AP1938	0.02186	(46753	EV	19M1938	0.00454	(46769	EV	16E1946	0.00739
1	46766	EV	14ME1938	1.15653	(1234	B 3	18JN1964	0.00843	(1439	B 6	5JN1964	0.00599
1	1237	C 1	8JN1964	0.01289	(1238	C 3	11JN1964	0.00400	(1239	O 4	11JN1964	0.00232
1	1241	E 2	13JN1964	0.00206	(1243	E 4	13JN1964	0.01670	(1241	B 1	16E1964	0.00545
1	1245	F 2	11JN1964	0.00692	(1247	B 3	14JL1964	0.01281	(1248	B 3	24UL1964	0.00182
1	1460	B 6	14JL1964	0.05228	(1441	B 6	25JL1964	0.00441	(1249	C 3	8UL1964	0.00563
1	1250	C 2	10JL1964	0.00156	(1251	B 6	16JL1964	0.00410	(1252	B 6	16JL1964	0.00189
1	1253	C 1	16JL1964	0.00513	(1254	O 2	15JL1964	0.01532	(1255	O 5	15JL1964	0.00513
1	1256	E 2	14JL1964	0.00550	(1258	F 1	6JL1964	0.00708	(1259	F 2	6JL1964	0.00620
1	1261	B 3	28UL1964	0.00136	(1442	B 6	16E1964	0.00410	(1262	E 4	16E1964	0.00189
1	1264	C 1	10AU1964	0.08109	(1265	C 1	10AU1964	0.00894	(1266	O 3	18AU1964	0.00351
1	1267	D 6	18AU1964	0.00865	(1268	C 2	15AU1964	0.00547	(1270	F 1	10AU1964	0.00427
1	1271	C 1	12E1964	0.00222	(1272	C 1	19E1964	0.00410	(1282	E 4	16E1964	0.00189
1	1283	E 5	16E1964	0.00126	(1288	B 3	15OC1964	0.01306	(1245	B 6	14OC1964	0.00466
1	1289	C 1	12E1964	0.00121	(1290	C 2	16OC1964	0.00379	(1277	C 2	16E1964	0.00739
1	1292	D 1	15OC1964	0.00373	(1293	D 2	15OC1964	0.01415	(1294	O 3	15OC1964	0.00659
1	1296	D 5	14OC1964	0.01180	(1298	E 1	12C1964	0.00269	(1299	E 2	12OC1964	0.00185
1	1300	F 1	17M1964	0.01112	(1301	E 4	13OC1964	0.00883	(1302	E 5	13OC1964	0.00810

1303	E 6	130C1964	0.02239	13105	F 2	110L1964	0.00173	13108	C 7	640C1964	G.02433
1310	C 2	120N1964	0.00227	13112	O 2	80D1964	0.00621	13116	E 6	90N1964	G.00756
13117	E 1	60N1964	0.00766	13118	E 2	70N1964	0.00380	13120	E 4	70N1964	G.00620
1321	E 5	70N1964	G.00638	1322	E 6	70N1964	0.02959	1323	F 1	60N1964	G.00557
1324	F 2	60N1964	0.00695	1337	C 3	28R1967	0.00294	1339	C 5	28R1967	G.00312
1340	C 7	28R1967	0.00073	1343	A 6	28R1967	0.00260	1375	E 3	70N1967	G.00541
1414	E 2	28R1967	0.00336	1448	A 3	10JL1967	0.01061	1454	E 5	15JL1967	G.00800
1512	E 3	15E1967	0.00393	1532	A 3	18SE1967	0.00349	1533	A 4	19SE1967	G.00528
1535	C 7	20SE1967	0.00122	1536	E 2	24SE1967	0.00816	1541	E 2	110C1967	G.00241
1542	E 3	110C1967	0.01017	1580	G 2	9M1967	0.00504	1594	G 1	30C1967	G.01067
1563	G 11	50C1967	0.00234	1569	G 17	50C1967	0.00149	1571	G 19	60C1967	G.00410
1572	G 20	60C1967	0.00276	1573	G 21	60C1967	0.00112	1587	P 1	20C1967	G.02592
1582	RM 1	18SE1967	0.00182	1586	MG 1	20SE1967	0.00112	1587	MG 2	20SE1967	G.01159
1588	CA 1	30C1967	G.00588	1592	SH 1	65C1967	0.03962	1593	SG 1	60C1967	G.00734
1628	MU 2	28R1967	0.02102	1617	HO 2	62R1967	0.01122	1618	HO 2	21AP1967	G.00142
1630	BM 2	28R1967	0.14674	1732	M 2	21AP1967	0.24916	1734	GM 2	28AP1967	G.00345
1679	ML 2	28R1967	0.19110	1607	SM 2	14R1967	0.04180	1749	C 12	19AP1967	G.00359
1686	GB 2	13M1967	G.02636								

Fragilaria capucina var. *mesolepta* Rabb.

Fragilaria capucina var. *mesolepta* Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 118. 1864.

Valves constricted at the central area, either linear or slightly expanded between the central area and the ends. The central area is usually a hyaline fascia. Ends of the valves rostrate to subcapitate. Size range and ornamentation of the valve the same as in the nominate variety.

The distribution and abundance of this entity in Lake Michigan is essentially the same as for the nominate variety.

241 FRAGILIUM ICT NO. OF STATIONS 176

13540	CH	18M1970	0.02746	13507	CH	19FE1981	0.04528	14610	CH	12C1945	G.00218
14621	CH	23N01945	0.00453	14650	CH	DE1945	0.01007	14617	CH	GC1945	G.00083
14651	CH	16AP1946	0.00214	14652	CH	10MY1946	0.00282	14623	CH	22NO1946	G.00437
14620	CH	200C1946	0.00092	14653	CH	MR1947	0.02277	14612	CH	AP1947	G.03449
14616	CH	4MY1947	0.00204	14656	CH	MY1947	0.00066	14610	CH	MY1947	G.00759
14607	CH	JL1947	0.00444	14613	CH	6AU1947	0.01046	14622	CH	21AU1947	G.00097
14675	EV	5JN1937	0.07689	14671	EV	11N1937	0.00238	14673	EV	22SE1937	G.00585
14675	EV	3JL1937	0.06270	14670	EV	9JL1937	0.31011	14674	EV	17JL1937	1.49879
14675	EV	25JL1937	0.24552	14672	EV	8JL1937	0.63132	14670	EV	22SE1937	G.00585
14674	EV	130C1937	0.10675	14674	EV	12MB1938	0.00242	14678	EV	10MR1938	G.01470
14675	EV	27AP1938	0.06272	14675	EV	19MY1938	0.00338	14674	EV	18MY1938	G.00196
1226	C 7	16R1964	0.01142	1227	C 2	13MY1964	0.00439	1228	O 2	14MY1964	G.00564
1230	E 1	16R1964	0.01185	1232	E 5	16MY1964	0.00248	1233	C 3	5JN2964	G.00238
1234	8 3	18R1964	0.00562	1240	8 6	5JN1964	0.00599	1236	C 1	8JN1964	G.12952
1237	C 2	8JN1964	0.00516	1239	O 4	11JN1964	0.00232	1241	E 2	13JN1964	G.00296
1243	E 1	13R1964	0.01216	1244	F 1	11JN1964	0.00877	1245	F 2	11JN1964	G.01037
1246	E 3	11JN1964	0.00598	1241	8 6	24JL1964	0.00220	1249	C 3	8JL1964	G.03802
1252	C 1	16JL1964	0.00279	1253	C 2	16JL1964	0.00228	1254	O 2	15JL1964	G.00152
1258	F 1	6JL1964	0.03550	1259	F 2	6JL1964	0.01259	1260	F 3	6JL1964	0.01730
1262	8 3	17AU1964	0.02210	1264	C 1	10AU1964	0.00579	1265	C 2	10AU1964	G.00224
1268	E 2	15AU1964	0.00276	1270	3 1	10AU1964	0.00272	1279	E 1	16SE1964	G.00785
1283	E 5	16SE1964	0.00613	1284	E 6	17SE1964	0.00635	1288	8 3	15OC1964	G.03701
1289	C 7	15OC1964	0.00446	1290	C 1	16OC1964	0.03411	1291	C 2	16OC1964	G.02932
1292	O 1	15OC1964	0.02609	1294	O 3	15OC1964	0.00559	1298	E 1	12OC1964	G.02154
1299	E 2	12OC1964	0.00739	1300	E 3	13OC1964	0.02148	1301	E 4	13OC1964	G.01325
1302	E 5	13OC1964	0.02429	1303	E 6	13OC1964	0.00918	1304	F 1	11OC1964	G.00247
1305	F 2	11OC1964	0.00803	1306	F 3	11OC1964	0.00277	1307	8 6	10C1964	G.01082
1308	C 7	6NO1964	0.00912	1309	C 1	10NO1964	0.01286	1310	C 2	10NO1964	G.01134
1311	D 1	8NO1964	G.02096	1312	O 2	8NO1964	0.01862	1313	O 3	9NO1964	G.00286
1316	O 6	9NO1964	0.00756	1318	E 2	7NO1964	0.00380	1320	E 4	7NO1964	G.00641
1321	E 5	7NO1964	0.01015	1322	E 6	7NO1964	0.01866	1324	F 2	6N1964	G.00606
1337	C 3	08R1967	0.00197	1338	8 3	28R1967	0.00297	1341	A 3	09R1967	G.00241
1343	A 6	15AP1967	0.00066	1370	A 4	3MY1967	0.00230	1375	E 3	7R1967	G.00241
1376	E 5	08R1967	0.00562	1410	A 6	24R1967	0.00364	1416	E 5	28R1967	G.00219
1427	E 1	14JL1967	0.01148	1434	A 6	14JL1967	0.00236	1436	A 6	10JL1967	G.00257
1449	C 3	16JL1967	0.01146	1451	C 7	16JL1967	0.03543	1452	E 2	14JL1967	G.00241
1454	E 5	24JL1967	0.01400	1511	E 2	13SE1967	0.00644	1512	E 3	10JL1967	G.00257
1533	A 4	19SE1967	0.00128	1534	A 6	19SE1967	0.00186	1535	C 7	20SE1967	G.00644
1536	E 2	24JL1967	0.01093	1538	E 5	23SE1967	0.00552	1541	E 2	11OC1967	G.00261
1378	GS 2	9R1967	0.00841	1379	GS 3	08R1967	0.00211	1380	GS 4	08R1967	G.00261
1381	GS 5	10R1967	0.00812	1382	GS 6	10R1967	0.00555	1383	GS 7	10R1967	G.01067
1384	GS 8	10R1967	0.00815	1385	GS 9	10R1967	0.00471	1386	GS 10	12R1967	G.01149
1387	GS 11	12R1967	0.00516	1388	GS 12	12R1967	0.00488	1389	GS 13	12R1967	G.01159
1390	GS 14	14R1967	0.00552	1391	GS 15	12R1967	0.00676	1392	GS 16	12R1967	G.02157
1393	GS 17	12R1967	0.17532	1394	GS 18	13R1967	0.01201	1395	GS 19	13R1967	G.02836
1396	GS 20	13R1967	0.12657	1397	GS 21	13R1967	0.04578	1398	GS 22	14R1967	G.00261
1398	GS 23	30C1967	0.00521	1399	GS 24	30C1967	0.00329	1397	GS 25	50C1967	G.00318
1398	GS 26	30C1967	0.00577	1399	GS 27	50C1967	0.00743	1397	GS 28	50C1967	G.02975

(1571	GS15	60C1567	0.20488	(1572	GS20	60C1567	1.13543	(1573	CS21	60C1567	C.10527
(1574	GS22	60C1567	0.00575	(1575	GS28	60C1567	0.12128	(1544	MU 1	20C1567	C.02621
(1547	MS 1	20C1567	0.01597	(1524	MI 1	20S1567	0.02182	(1546	LU 1	20C1567	C.03501
(1526	MO 1	20S1567	0.01707	(1530	FR 1	24S1567	0.01030	(1531	GH 1	25S1567	C.02536
(1545	MU 1	20C1567	0.04730	(1548	CA 1	30C1567	0.01272	(1549	MQ 1	40C1567	C.21927
(1551	ES 1	50C1567	0.03195	(1550	NR 1	50C1567	0.09912	(1553	SG 1	60C1567	C.02203
(1528	MU 2	25MY1567	0.22227	(1548	MS 2	29MY1567	0.48758	(1527	LU 2	29MY1567	C.04053
(1517	MO 2	22MY1567	0.07851	(1518	SH 2	22MY1567	0.17107	(1350	EH 2	19AP1567	C.08590
(1401	MO 2	6MY1567	0.01176	(1353	FR 2	23AP1567	0.02110	(1354	CH 2	25AP1567	C.05520
(1429	MU 2	29MY1567	0.55208	(1454	MC 2	10MY1567	0.16622	(1405	ES 2	12MY1567	C.13545
(1406	OB 2	13MY1567	0.11592	(1423	MA 2	25MY1567	0.00428	(1			

Fragilaria construens (Ehr.) Grun.

Staurosira construens Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:424. 1843.

Fragilaria construens (Ehr.) Grunow, Verh. Zool. Bot. Ges. Wien, 12:371. 1862.

Cells in girdle view rectangular, joined by the valve faces into long, closely appressed, band-shaped colonies. Specimens from Lake Michigan 5-25 μ long, 4-12 μ broad. Valves short, lanceolate with strongly inflated central portion and protracted, subcapitate to capitate ends. In girdle view of the colony the sharp expansion of the valve appears as a line, or a double line, depending on the level of focus, running the length of the colony. Striae slightly radiate throughout the length of the valve, in the more robust specimens finely lineate, 14-18 in 10 μ . Pseudoraphe variable in shape, in some specimens very narrowly lanceolate and sharply bordered. In others more broadly lanceolate and indistinctly bordered. No specially differentiated central area is present.

Specimens of this taxon from Lake Michigan are highly variable, both in the shape of the valve and in the structure of the striae. Many populations approach closely the form of the smaller size range of *F. inflata* (Heid.) Hust. but specimens of larger size, clearly referable to that taxon, have never been found in our collections. Further research may show that the specimens treated under this epithet actually represent a complex of similar forms, but such distinctions cannot be made in our material. Large populations are rare in Lake Michigan and the forms present grade into one another so subtly that no distinctions can be made. Published reports indicate that this entity reaches its greatest abundance in eutrophic lakes. Most of our reports come from inshore areas that are appreciably eutrophied.

242. FRAGCONSTR ICT NC OF STATIONS 48

(60973	CH	1876	0.04724	(3541	CH	1FE1881	C.00978	(46923	CH	22NO1946	C.00219
(46920	CH	20GE1946	0.00185	(46922	CH	21AU1947	0.00194	(46798	EV	5JUN1937	C.00397
(46763	EV	23AU1937	0.01029	(46766	EV	27FE1938	0.00168	(1236	C* 1	8JUN1904	C.00175
(1243	E 6	13JUN1904	0.00209	(1284	C* 1	10AU1904	0.00193	(1272	C* 1	10SE1904	C.00821
(1279	E 1	16SE1904	0.00785	(1287	F 3	15SE1904	0.00500	(1253	O 2	15OC1904	0.00472
(1341	A 3	19AP1907	0.00325	(1408	A 3	23MY1907	0.00447	(1536	E 2	24SE1907	C.00273
(1388	GS12	12MY1907	0.00603	(1356	GS20	13MY1907	C.01036	(1357	GS21	13MY1907	C.00065
(1555	GS 2	30C1907	0.00706	(1509	GS17	50C1907	0.00149	(1571	GS19	60C1907	C.00117
(1572	GS20	60C1907	0.01532	(1573	GS24	60C1907	0.00336	(1574	GS22	60C1907	C.01726
(1575	GS28	60C1907	0.00387	(1544	MU 1	20C1567	C.00715	(1546	LU 1	20C1567	C.03001
(1521	SH 1	18SE1907	0.05377	(1522	HR 1	18SE1907	0.00547	(1527	HR 1	20SE1907	C.03145
(1529	NR 1	20SE1907	0.01398	(1530	FR 1	24SE1907	C.01000	(1545	NA 1	20C1567	C.10812
(1552	SH 1	6C1907	0.02641	(1550	MR 1	50C1907	1.58992	(1553	SG 1	60C1567	C.00734
(1428	MU 2	25MY1907	0.00301	(1426	MS 2	29MY1907	0.05249	(1417	MO 2	22MY1907	C.01122
(1350	RU 2	19AP1907	0.16519	(1402	FR 2	6MY1907	0.00541	(1356	CH 2	25AP1907	C.00690
(1404	MO 2	10MY1907	0.02541	(1407	SM 2	14MY1907	C.02986	(1349	CI 2	15AP1907	C.00359

Fragilaria construens var. *binodis* (Ehr.) Grun.

Fragilaria ? binodis Ehrenberg, Mikrogeol., pl. 5(2), fig. 26; pl. 6(1), fig. 43; pl. 11, fig. 15. 1854.

Fragilaria construens var. *binodis* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:371. 1862.

Valves biundulate with constricted midportions and protracted, rostrate to subcapitate ends. Size range and ornamentation of the valve surface the same as in the nominate variety. Valves often more or less asymmetric, strongly constricted on one side and somewhat less constricted to nearly parallel on the other.

Published reports indicate that this entity has about the same distribution range as the nominate variety. Asymmetric forms appear to be most common in highly eutrophied habitats.

243 FRCONS88 TOT NO OF STATIONS 65

13541	CH	1FE1881	0.01096	1	446747	EV	14U1937	0.00246	1	1245	F 2	11JN1964	0.00346	1
13264	C 1	10AU1964	0.00772	1	1270	F 1	10AU1964	0.00272	1	1279	E 1	16SE1964	0.01178	1
12885	F 1	15SE1964	0.00582	1	1304	F 1	11OC1964	0.00247	1	1305	F 2	11OC1964	0.00345	1
13304	F 3	11OC1964	0.00554	1	1324	F 2	06C1964	0.00233	1	1338	C 3	24PP1967	0.00132	1
13341	A 3	19AP1967	0.00542	1	1342	A 4	19AP1967	0.00361	1	1532	A 3	18SE1967	0.00657	1
15334	E 2	24SE1967	0.00818	1	1541	E 2	11OC1967	0.00532	1	1387	GS11	12M1967	0.00296	1
13388	GS12	12M1967	0.00603	1	1389	GS13	12M1967	0.00258	1	1391	GS15	12M1967	0.00479	1
13392	GS16	12M1967	0.00141	1	1394	GS18	13M1967	0.00344	1	1395	GS19	13M1967	0.00117	1
13396	GS20	13M1967	0.00592	1	1394	GS 1	30C1967	0.00356	1	1398	GS 5	40C1967	0.00946	1
15561	GS 9	40C1967	0.00387	1	15565	GS13	50C1967	0.00302	1	1566	GS16	50C1967	0.00183	1
1567	GS15	50C1967	0.01429	1	1568	GS16	50C1967	0.01299	1	1569	GS17	50C1967	0.01189	1
1571	GS19	60C1967	0.00224	1	1572	GS20	60C1967	0.00264	1	1574	GS22	60C1967	0.00215	1
1575	GS28	60C1967	0.02193	1	1584	MU 1	20C1967	0.00436	1	1586	LU 1	20C1967	0.03021	1
15220	HD 1	18SE1967	0.00901	1	1521	SH 1	18SE1967	0.00416	1	1522	SH 1	18SE1967	0.00385	1
15226	M 1	20SE1967	0.01479	1	1527	TR 1	20SE1967	0.01836	1	1528	SH 1	20SE1967	0.02808	1
15228	KW 1	20SE1967	0.01708	1	1530	FR 1	25SE1967	0.00801	1	1531	SH 1	25SE1967	0.00572	1
1545	WL 1	20C1967	0.04381	1	1549	MG 1	40C1967	0.01370	1	1552	SH 1	60C1967	0.01321	1
15550	MR 1	50C1967	0.03553	1	1553	SE 1	60C1967	0.02203	1	1528	MU 2	29M1967	0.00954	1
1426	MS 2	29M1967	0.02100	1	1427	LU 2	29M1967	0.02421	1	1417	HD 2	22M1967	0.00729	1
1418	SH 2	22M1967	0.00716	1	1350	SH 2	19AP1967	0.01674	1	1401	MC 2	48M1967	0.01764	1
13350	FR 2	23AP1967	0.00555	1	1354	GH 2	23AP1967	0.01034	1	1404	PQ 2	10M1967	0.02541	1
1407	SH 2	14M1967	0.00597	1	1406	GH 2	13M1967	0.00539	1					

Fragilaria construens var. *capitata* Hérib.

Fragilaria construens var. *capitata* Héribaud, Diat. Auvergne, p. 144, pl. 1, fig. 2. 1893.

Valves linear-lanceolate with protracted, capitate ends, occasionally slightly constricted near the middle of the valve. Specimens from Lake Michigan 12-30 μ long, 4-7 μ broad, striae 14-16 in 10 μ . Ornamentation of the valve surface the same as in the nominate variety.

244 FRCONSVC TOT NO OF STATIONS 12

13541	CH	1FE1881	0.01096	1	1274	G 1	17SE1964	0.00469	1	1279	E 1	16SE1964	0.02236	1
13882	GS 6	10C1967	0.00278	1	1352	GS16	12M1967	0.00525	1	1396	GS2C	13M1967	0.00074	1
15565	GS 1	30C1967	0.00712	1	1559	GS 7	40C1967	0.00350	1	1571	GS19	60C1967	0.00059	1
13350	SH 2	19AP1967	0.00225	1	1354	GH 2	23AP1967	0.01073	1	1404	PQ 2	10M1967	0.01270	1

Fragilaria construens var. *minuta* Temp. and Per.

Fragilaria construens var. *minuta* Tempere and Peragallo, Diat. Monde Entier, ed. I, no. 89. 1889.

Very small form, only 4-10 μ long and 2-3 μ broad. Valves elliptical-lanceolate in shape and striae finer than in the nominate variety, 16-20 in 10 μ .

Although uncommon in modern collections, this entity is abundant in some subfossil material from the upper Great Lakes region. It is the same entity that we (Stoermer and Yang 1968) reported as an undetermined species abundant in Lake Huron sediments. Andrews (1966) reported entities under the name *F. construens* var. *venter* in the same size range. While it is conceivable that the range of variation in the above entity may include our specimens, it appears to us that the consistently narrower valves and the finer striae are sufficiently distinctive characteristics to separate the two taxa.

267 FRISPECUR TCT NC OF STATIONS 14											
(466910)	CH	DCI945	0.00109	(46515)	CH	20FEI946	C.00569	(46696)	CH	MY1547	C.CC133
(46758)	EV	5JUN1937	0.00713	(46763)	EV	23AUG1937	C.04058	(46768)	EV	18MR1938	C.C1470
(46762)	EV	18MR1938	0.02206	(1260)	F 3	8JUL1964	C.00191	(1268)	E 2	19AUG1964	C.CC274
(1270)	F 1	10AUG1964	0.00272	(1285)	F 1	15SEI1964	0.01105	(1305)	F 2	11OC1964	C.CC173
(1351)	A 3	19AP1967	0.00217	(1346)	C 7	21AP1967	0.00267	(1354)	CH 2	25AP1967	C.CC345

Fragilaria construens var. *pumila* Grun.

Fragilaria construens var. *pumila* Grunow in: Van Heurck, Syn. Diat.
Belgique, pl. 45, fig. 21a. 1881.

Valves elliptic-lanceolate to lanceolate with somewhat protracted, rostrate apices. Size range and ornamentation of the valve surface the same as in the nominate variety.

245 FRCONSVP TCT NC OF STATIONS 24											
(3541	CH	1FEI1881	0.04891	(46747	EV	1AU1937	0.00248	(46763	EV	23AUG1937	C.C2029
(46750	EV	24SEI1937	0.00471	(1264	C* 1	1CAU1964	0.00193	(1364	F 1	11OC1964	0.0C494
(1341	A 3	19AP1967	0.00108	(1533	A 4	19SEI1967	0.00464	(1536	E 2	24SEI1967	C.CC273
(1537	E 3	24SEI1967	0.00431	(1574	G522	6OC1967	0.00288	(1544	MU 1	20C1967	0.0C715
(1520	MU 1	18SEI1967	0.00471	(1522	8H 1	18SEI1967	0.00365	(1527	TR 1	25SEI1967	0.0C158
(1529	8H 1	25SEI1967	0.01195	(1531	GM 1	25SEI1967	0.01091	(1545	ML 1	20C1967	0.0C406
(1550	MR 1	5OC1967	0.02478	(1553	SG 1	6OC1967	0.00734	(1420	MU 2	29MY1967	C.CC904
(1417	HO 2	22MY1967	0.00374	(1350	8H 2	19AP1967	0.04185	(1354	CH 2	25AP1967	C.CC345

Fragilaria construens var. *subsalina* Hust.

Fragilaria construens var. *subsalina* Hustedt, Mitt. geogr. Ges., Naturhist.
Mus. Lübeck, 2 Reihe, 30:106, fig. 5-8. 1925.

Valves linear with parallel sides and cuneate, in the larger specimens somewhat protracted, ends. Size range and ornamentation of the valve surface as in the nominate variety.

247 FRCONSVA TCT NO OF STATIONS 9											
(60973)	CH	1876	0.02362	(46758)	EV	5JUN1937	C.01070	(46762)	EV	18MR1938	C.02206
(1229)	E 1	16SEI1967	0.00785	(1341)	A 3	19AP1967	0.00108	(1365)	G517	5OC1967	C.0C149
(1550)	MR 1	5OC1967	0.01239	(1350)	8H 2	19AP1967	0.00220	(1404)	PG 2	10MY1967	C.02541

Fragilaria construens var. *venter* (Ehr.) Grun.

Fragilaria venter Ehrenberg, Mikrogeol., pl. 14, fig. 50. 1854.

Fragilaria construens var. *venter* (Ehr.) Grunow in: Van Heurck, Syn. Diat.
Belgique, pl. 45, figs. 21b, 22, 23, 24b, 26a-b. 1881.

Valves rhombic-elliptical to elliptical with somewhat protracted, rostrate ends. Maximum length of specimens from Lake Michigan does not exceed 10µ. Ornamentation of the valve surface essentially similar to that of the nominate variety.

246 FRCONSVP TCT NC OF STATIONS 71											
(3540)	CH	11MY1879	0.00646	(3541)	CH	1FEI1881	0.00978	(46917)	CH	12JUL1946	C.CC083
(46915)	CH	20FEI1946	0.00569	(46923)	CH	22NOV1946	0.00219	(46920)	CH	20OE1946	C.CC031
(46905)	CH	JUL1947	0.00123	(46918)	CH	4MY1947	0.00068	(46919)	CH	5JUN1947	C.CC043
(46907)	CH	JUL1947	0.00049	(46922)	CH	21AUG1947	0.00380	(46758)	EV	5JUN1937	C.C1426
(46971)	EV	11JUN1937	0.00238	(46743)	EV	20JUN1937	C.00428	(46764)	EV	17JUL1937	C.CC835
(46747)	EV	18JUN1937	0.01338	(46752)	EV	15SEI1937	0.02177	(46750)	EV	24SEI1937	C.CC043
(46748)	EV	13OC1937	0.04270	(46767)	EV	27OC1937	0.01547	(46768)	EV	18MR1938	C.CC820
(46762)	EV	18MR1938	0.02206	(1274)	D 1	17SEI1964	0.00469	(1279)	E 1	16SEI1964	C.CC785
(1284)	E 6	17SEI1964	0.00310	(1285)	C* 2	16OC1964	0.00245	(1287)	0 6	14OC1964	C.CC381
(1303)	E 6	13OC1964	0.01119	(1322)	E 6	7NOV1964	0.00335	(1340)	C 7	28MR1967	0.00145
(1374)	E 2	72YU1967	0.00598	(1452)	E 2	14JUL1967	0.00213	(1537)	E 3	24SEI1967	C.CC431
(1538)	E 5	23SEI1967	0.01181	(1541)	E 2	11OC1967	0.00532	(1543)	GS 7	10MY1967	C.CC325
(1387)	G511	12MY1967	0.00396	(1392)	G516	12MY1967	0.00308	(1354)	G518	13MY1967	C.CC344
(1396)	G520	13MY1967	0.00148	(1398)	G522	14MY1967	0.00067	(1397)	GS 4	30C1967	C.CC374
(1399)	GS 7	4OC1967	0.00396	(1361)	GS 9	4OC1967	0.00587	(1503)	G511	5OC1967	C.CC376
(1566)	G514	5OC1967	0.00183	(1567)	G515	5OC1967	0.00476	(1572)	G520	6OC1967	C.CC180
(1474)	R527	6OC1967	0.01065	(1575)	G528	6OC1967	0.00129	(1544)	MU 1	20C1967	C.CC468

(1521	SH 1	185E1967	0.01154	(1523	WA 1	155E1967	0.01845	(1526	PD 1	205E1967	C.15930
(1522	SR 1	205E1967	0.13936	(1528	SR 1	205E1967	0.07215	(1529	RM 1	25E1967	C.07195
(1545	WL 1	20C1967	0.04730	(1552	SM 1	40C1967	0.15947	(1550	MR 1	50E1967	C.07173
(1553	SG 1	40C1967	0.03672	(1517	HO 2	25E1967	0.00374	(1350	RM 1	19AP1967	C.03744
(1390	PW 2	0.01345	(1401	HO 2	40C1967	0.03710	(1402	TR 2	25E1967	C.04873	
(1352	KM 2	21AP1967	0.04295	(1404	KM 2	10P1967	0.02541	(1405	FS 2	12P1967	C.00845
(1407	SM 2	14P1967	0.37615	(1349	C1 2	14P1967	0.00359				

Fragilaria crotonensis Kitton

Fragilaria crotonensis Kitton, Sci. Gossip, 5:110, fig. 81. 1869.

Cells in girdle view lanceolate, with blunt ends and expanded central portions. Cells joined by valve faces of the expanded central portion into long, ribbon-shaped colonies. Specimens from Lake Michigan 40-112µ long and 2-4µ broad at the widest part of the valve. Valves very elongate, spindle-shaped, with expanded central portion, tapering gradually to near the apices which are bluntly rounded to subcapitate. Pseudoraphe very narrow, linear. In most specimens a central area is present in the form of a broad transverse fascia. In some specimens this area is indistinctly bordered by partially developed striae and in some specimens, particularly in the smaller size range, the central area is entirely lacking. The striae are indistinct and sometimes irregular 12-16 in 10µ.

248 FRAGMENT ICT NO OF STATIONS 320

(60973) CH	1876	44.63863	(13540) CH	11P1979	12.27228	(13541) CH	1FE1881	6.72992
(13507) CH	19E1967	10.98036	(14016) CH	6C1969	12.38513	(14692) CH	29M1965	23.28755
(14650) CH	0E1945	12.10473	(14651) CH	12J1946	11.73145	(14693) CH	20E1546	17.38461
(14691a) CH	19AP1966	11.97185	(14692a) CH	10P1966	10.38574	(14692b) CH	29M1966	34.66364
(14692) CH	20E1966	11.07423	(14693) CH	4A1947	42.78908	(14694) CH	HR1947	8.43313
(146912) CH	8P1947	36.42423	(146916) CH	4P1947	16.25365	(146906) CH	MY1947	14.32250
(146919) CH	5J1947	16.66893	(146927) CH	3L1947	30.03308	(146913) CH	6A1947	76.14265
(146922) CH	19AP1967	35.53008	(146917) EV	4P1947	16.28697	(146917) EV	4P1947	76.14265
(146743) EV	20J1937	20.98141	(146745) EV	3J1937	28.67243	(146770) EV	9J1937	28.38730
(146748) EV	17J1937	29.55681	(146750) EV	25J1937	53.94588	(146747) EV	14J1937	55.24171
(146763) EV	23C1937	32.38635	(146765) EV	13C1937	25.42710	(146765) EV	7E1937	55.92705
(146732) EV	15E1937	40.83586	(146767) EV	22E1937	42.21954	(146750) EV	24E1937	42.75816
(146744) EV	4CC1937	56.47186	(146768) EV	30C1937	2.86008	(146767) EV	7E1937	46.45383
(146749) EV	12M1938	36.70348	(146768) EV	16M1938	5.87799	(146762) EV	18P1938	55.03960
(146751) EV	30M1938	13.44350	(146772) EV	18P1938	12.12027	(146756) EV	27AP1938	1.64242
(146755) EV	15P1938	5.10915	(146761) EV	27P1938	32.58875	(146766) EV	14O1938	33.26596
(1223) B 3	18P1964	2.51582	(1224) B 4	18P1964	1.64690	(1225) C 6	15P1964	7.13446
(1226) C 7	10P1964	10.12777	(1227) C* 2	13P1964	6.83189	(1228) O 2	14P1964	5.46066
(1229) O 5	14P1964	11.08940	(1230) E 2	14P1964	6.84546	(1231) E 3	14P1964	2.39703
(1232) E 5	16P1964	8.88277	(1233) B 3	5JN2964	16.33682	(1234) B 3	18JN1964	25.51452
(1235) C 7	16JN1964	22.93330	(1239) B 6	5JN1964	14.31369	(1236) C* 1	8JN1964	11.76223
(1237) C* 2	8JN1964	15.33900	(1238) O 3	13JN1964	3.22000	(1239) O 4	13JN1964	6.55225
(1240) O 6	10JN1964	8.16063	(1241) E 2	13JN1964	8.27986	(1242) E 3	13JN1964	C.41063
(1243) E 2	13JN1964	8.91595	(1244) F 1	11JN1964	27.78416	(1245) F 2	13JN1964	14.52182
(1246) F 3	11JN1964	14.22338	(1247) F 7	14JN1964	24.50103	(1248) B 3	24JN1964	27.03554
(1440) B 6	14JN1964	15.78656	(1441) B 6	24JN1964	12.58838	(1249) C 3	8JL1964	14.63878
(1250) C 6	10JL1964	12.26310	(1251) C 7	16JL1964	11.82282	(1252) C* 1	16JL1964	16.95508
(1253) C 2	16JL1964	16.82541	(1256) O 2	15JL1964	16.24889	(1255) O 5	15JL1964	5.45791
(1256) E 2	14JL1964	5.93146	(1257) E 3	14JL1964	2.17729	(1258) F 1	6JL1964	37.62181
(1259) F 2	6JL1964	29.48956	(1260) F 3	6JL1964	25.25545	(1261) B 3	26JL1964	42.31100
(1262) B 3	17JL1964	62.32475	(1442) B 6	26JL1964	26.46294	(1262) B 3	16JL1964	57.23322
(1263) C 7	15JL1964	24.92393	(1264) C* 1	10JL1964	20.67886	(1265) C* 2	10JL1964	40.21638
(1266) O 3	19JL1964	27.99214	(1267) C 6	18JL1964	12.38219	(1268) E 2	15JL1964	22.74606
(1269) F 3	15JL1964	21.21337	(1270) F 1	10JL1964	30.45540	(1271) C 7	22E1964	6.53026
(1272) C* 1	10E1964	34.91359	(1273) C* 2	10E1964	35.57201	(1274) O 1	17E1964	35.86073
(1275) C 1	10E1964	39.50773	(1276) C 1	10E1964	36.88111	(1277) C 1	10E1964	22.12165
(1278) O 6	18E1964	11.13801	(1279) E 1	16E1964	31.88832	(1280) E 2	16E1964	5.93941
(1281) E 3	16E1964	25.07428	(1282) E 4	16E1964	36.45428	(1283) E 5	16E1964	22.50669
(1284) E 4	15E1964	42.41447	(1285) F 1	16E1964	38.32321	(1286) F 2	16E1964	42.14026
(1287) F 3	15E1964	33.78502	(1288) E 6	15C1964	57.29460	(1445) B 6	14C1964	18.94577
(1289) C 7	14C1964	10.46568	(1290) C 1	16C1964	49.34621	(1291) C 1	16C1964	35.39318
(1292) D 3	15C1964	38.08084	(1293) C 2	15C1964	41.66328	(1300) E 3	13C1964	28.38118
(1295) O 4	15C1964	24.14779	(1296) O 5	14C1964	14.32112	(1297) O 6	14C1964	10.12905
(1298) E 1	12C1964	36.11783	(1299) E 2	12C1964	35.40685	(1300) E 3	13C1964	32.57561
(1301) E 4	13C1964	39.45638	(1302) E 5	13C1964	41.66328	(1303) E 6	13C1964	45.51862
(1306) F 1	11C1964	75.20003	(1305) F 2	11C1964	75.33560	(1306) F 3	11C1964	76.05742
(1307) E 6	10C1964	36.87489	(1308) C 7	6C1964	16.39343	(1309) C 1	10C1964	58.64686
(1310) C* 2	10C1964	50.47618	(1311) O 1	8C1964	48.03673	(1312) O 1	8C1964	45.51862
(1313) O 3	9C1964	34.59459	(1314) O 4	9C1964	35.78984	(1315) O 5	9C1964	27.07005
(1316) E 4	29J1964	29.13568	(1317) E 6	29J1964	18.24957	(1318) E 2	29J1964	28.38118
(1319) E 7	7C1964	47.83598	(1320) E 4	7C1964	46.18407	(1321) E 5	7C1964	48.45007
(1322) E 6	7C1964	51.78750	(1323) F 1	6C1964	67.80487	(1324) F 2	6C1964	65.87677
(1325) F 3	6C1964	69.13126	(1326) F 3	7J1964	6.34387	(1327) F 3	26J1964	3.36486
(1338) G 3	28M1967	2.71593	(1339) C 5	28M1967	2.20739	(1340) C 7	28M1967	2.91087
(1341) A 3	19AP1967	2.74129	(1342) A 4	19AP1967	3.61499	(1344) C 3	25AP1967	1.05050
(1346) E 5	23AP1967	2.76938	(1347) C 7	23AP1967	2.61107	(1348) E 2	23AP1967	2.91292
(1348) E 5	23AP1967	1.75188	(1368) A 4	4M1967	4.21292	(1369) A 4	4M1967	C.33919

(1370	A 6	3MY1567	6.41271	(1371	C 3	4MY1567	6.54610	(1372	C 5	5MY1567	6.36175
(1373	C 7	6MY1567	6.47921	(1374	E 2	7MY1567	6.35014	(1375	E 3	7MY1567	1.88847
(1376	E 6	6MY1567	6.38302	(1408	A 3	23MY1567	6.46926	(1409	A 4	23MY1567	2.14077
(1410	A 6	24MY1567	6.39377	(1411	C 3	31MY1567	2.07203	(1412	C 5	31MY1567	1.54882
(1413	C 7	23MY1567	2.21331	(1414	E 2	28MY1567	2.38791	(1415	E 3	28MY1567	5.44970
(1416	E 5	28MY1567	2.77942	(1431	A 3	12MJ1567	3.82110	(1432	A 4	13MJ1567	4.49331
(1433	C 3	17MJ1567	4.97352	(1436	C 5	17MJ1567	2.53619	(1435	C 7	13MJ1567	7.25692
(1436	E 2	15MJ1567	1.88522	(1437	E 3	15MJ1567	6.45218	(1438	E 5	14MJ1567	3.36928
(1446	A 3	11JL1567	2.39716	(1457	A 4	11JL1567	12.77133	(1448	A 6	10JL1567	5.44651
(1449	C 3	16JL1567	6.08235	(1450	C 5	16JL1567	8.93078	(1451	C 7	16JL1567	10.60982
(1452	E 2	14JL1567	6.25210	(1453	E 3	15JL1567	6.57036	(1454	E 5	15JL1567	15.56310
(1504	A 3	28AU1567	32.14417	(1505	A 4	28AU1567	32.46417	(1506	A 6	25AU1567	22.5C529
(1506	C 3	25E1567	20.14227	(1507	C 5	25E1567	29.32269	(1510	C 7	25AU1567	26.11444
(1511	E 2	15E1567	12.03303	(1512	E 3	15E1567	24.16721	(1513	E 5	31AU1567	51.43007
(1532	A 3	18SE1567	44.38092	(1533	A 4	19SE1567	44.84267	(1534	A 6	15SE1567	43.86807
(1535	E 2	20SE1567	14.44831	(1537	E 3	12MY1567	19.27795	(1538	E 5	24SE1567	50.50375
(1538	E 5	23SE1567	27.05732	(1539	C 3	40C1567	42.24627	(1540	C 5	40C1567	36.21909
(1541	E 2	11OC1567	37.99650	(1542	E 3	11C1567	24.20667	(1543	E 5	10OC1567	28.15686
(1577	G 2	13MY1567	6.67101	(1578	G 5	9MY1567	2.33223	(1579	G 5	13MY1567	5.56536
(1380	G 5	4MY1567	9.41651	(1381	G 5	5MY1567	5.67667	(1382	G 5	10MY1567	2.91432
(1383	G 5	7MY1567	5.05239	(1384	G 5	8MY1567	2.41988	(1385	G 5	9MY1567	3.23044
(1386	G 510	12MY1567	1.70928	(1387	G 511	12MY1567	7.20840	(1388	G 512	13MY1567	4.22523
(1389	G 513	12MY1567	13.58686	(1390	G 514	12MY1567	7.33987	(1391	G 515	13MY1567	8.04482
(1392	G 516	12MY1567	5.17767	(1393	G 517	13MY1567	10.35503	(1394	G 518	13MY1567	8.79004
(1395	G 519	13MY1567	2.38392	(1396	G 520	13MY1567	6.88047	(1397	G 521	13MY1567	8.77932
(1398	G 522	14MY1567	8.07062	(1399	G 523	30C1567	3C.38490	(1395	G 52	30C1567	37.67626
(1398	G 524	30C1567	23.36121	(1397	G 54	30C1567	54.92272	(1398	G 5	40C1567	51.88676
(1399	G 5	40C1567	54.34706	(1396	G 5	40C1567	32.73036	(1396	G 5	40C1567	32.76557
(1396	G 510	50C1567	30.22154	(1393	G 511	50C1567	46.32184	(1394	G 512	50C1567	73.16148
(1395	G 513	50C1567	60.67963	(1396	G 514	50C1567	45.44046	(1397	G 515	50C1567	3C.11876
(1398	G 516	50C1567	31.05964	(1399	G 517	50C1567	56.59111	(1395	G 518	50C1567	44.59183
(1397	G 519	60C1567	8.89106	(1372	G 520	60C1567	6.68758	(1373	G 521	60C1567	14.26764
(1374	G 522	60C1567	31.81268	(1375	G 523	60C1567	13.72761	(1374	G 524	20C1567	6.40031
(1347	M 2	10C1567	23.12175	(1354	M 1	20SE1567	15.76186	(1354	M 1	20C1567	3.44120
(1320	HO 1	18SE1567	18.85951	(1521	SH 1	18SE1567	18.44295	(1522	SH 1	18SE1567	0.09912
(1523	RA 1	19SE1567	41.32040	(1525	PH 1	20SE1567	25.62317	(1526	PH 1	20SE1567	15.47477
(1527	JR 1	20SE1567	5.23270	(1528	SH 1	20SE1567	26.10452	(1529	PH 1	20SE1567	17.65199
(1530	FR 1	24SE1567	18.88188	(1531	GH 1	24SE1567	0.48183	(1545	KL 1	20C1567	3.13535
(1548	GA 1	30C1567	48.59178	(1546	MC 1	40C1567	14.93316	(1547	MC 1	40C1567	28.21391
(1552	SA 1	60C1567	24.74507	(1550	MR 1	50C1567	4.55553	(1553	SG 1	60C1567	16.03376
(1428	PM 2	20RY1567	1.06059	(1426	MS 2	25RY1567	7.72703	(1351	M 2	21AP1567	14.39988
(1427	LU 2	20RY1567	2.90595	(1417	HE 2	20RY1567	2.91517	(1418	SH 2	22AP1567	5.97201
(1350	BR 2	19AP1567	6.05152	(1425	RA 2	25MY1567	12.02363	(1359	PH 2	5MY1567	5.05544
(1401	MO 2	6RY1567	1.97554	(1402	TR 2	6RY1567	4.07191	(1400	SH 2	6MY1567	5.61368
(1352	SK 2	21AP1567	2.63177	(1353	FR 2	23AP1567	2.37383	(1354	PH 2	24AP1567	6.46549
(1429	HL 2	12MY1567	2.03843	(1403	CA 2	10MY1567	5.85851	(1404	MO 2	10MY1567	3.45528
(1405	ES 2	22RY1567	5.57275	(1407	SM 2	14MY1567	6.11553	(1340	C 12	15AP1567	2.12655
(1406	GB 2	13MY1567	6.05436	(1419	BU 2	23MY1567	12.15819	(1420	BU 2	23MY1567	7.66167
(1421	GR 2	22MY1567	11.10340	(1422	GA 2	23MY1567	12.18004	(1423	WA 2	25MY1567	10.52646
(1424	KR 2	25MY1567	13.64242	(1430	MC 2	12JL1567	4.34244	(1431	MC 2	12JL1567	4.34244

Fragilaria crotonensis var. *oregona* Sov.

Fragilaria crotonensis var. *oregona* Sovereign, Trans. American Micr. Soc. 77:107. pl. 2, figs. 1-3. 1958.

Cells in girdle view lanceolate, with expanded central portions and bluntly rounded to subcapitate ends. Cells joined by the valve faces to the expanded central portions into long, ribbon-shaped colonies. Specimens from Lake Michigan 55-150 μ long, 2.5-4 μ broad at the widest point. Valves elongate-lanceolate, central portion of the valve constricted, widest point lying on each side of the central area. Striae fine but distinct, 12-15 in 10 μ . Axial area narrow, central area a structureless transverse fascia.

This species is one of the most widely reported of all freshwater plankton diatoms. Although most authors have chosen to treat all entities having similar colony form under the single epithet, the forms found in Lake Michigan are clearly separable into at least three series on the basis of morphology. The obvious differences in the size range of populations occurring in different lakes in Europe has been commented upon by Huber-Pestalozzi (1942). In Lake Michigan we have found occasional populations of apparent auxospores in the size range of 70-90 μ , clearly smaller than the maximum size of two of the entities in the complex. Nipkow (1927) has reported similar observations from Lake Zurich. It seems clear to us that, in its general usage, the name *F. crotonensis* is applied to a complex of separate genetic entities. The proper taxonomic treatment of this complex is yet to be resolved. The treatment presented here appears reasonable on the grounds of morphologic criteria but further research may prove it to be inadequate.

269 FRISPECDE TOT NO DE STATIONS 29

(146919)	CH	5JN1967	0.00152)	(1235	C 7	16JN1964	0.00282)	(1248	B 3	24JL1964	C.00788)
(1261)	B 3	24U1964	0.00589)	(1264	C* 1	10AU1964	0.00772)	(1299	E 2	12OC1964	C.00314)
(1322)	E 6	7NO1964	0.01000)	(1324	F 2	4NO1964	0.00466)	(1452	E 2	14JL1967	C.00426)
(1454)	E 5	15JL1967	0.00200)	(1532	A 3	18SE1967	0.00329)	(1533	A 4	19SE1967	C.00928)
(1535)	C 7	20SE1967	0.00322)	(1539	C 3	4OC1967	0.00503)	(1393	GS17	19MY1967	C.00274)
(1395)	GS19	13MY1967	0.00235)	(1544	MU 1	20C1967	0.01191)	(1547	MS 1	20C1967	C.01597)
(1521)	SH 1	18SE1967	0.00577)	(1522	BH 1	18SE1967	0.05106)	(1523	RA 1	19SE1967	C.01845)
(1531)	GH 1	25SE1967	0.10989)	(1545	WL 1	20C1967	0.02703)	(1550	MR 1	30C1967	C.01239)
(1428)	MU 2	29MY1967	0.05310)	(1426	MS 2	29MY1967	0.07244)	(1417	HQ 2	22MY1967	C.02243)
(1350)	BH 2	19AP1967	0.01542)	(1429	ML 2	29MY1967	0.04247)	(			

Fragilaria heideni Østrup

Synedra inflata Heiden, Mitt. Grossh. Meckl. Geol. Landesanst., 10(21): 14, fig. 19. 1900.

Fragilaria heideni Østrup, Danske Diat., p. 190, pl. 5, fig. 118. 1910.
Fragilaria inflata (Heid.) Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(2)1:155, fig. 669. 1931. (non Pantocsek 1902).

Cells in girdle view rectangular, in life attached by the valve surfaces into band-shaped colonies. Valves lanceolate with expanded central portions and bluntly rounded to subcapitate ends. Specimens from Lake Michigan 22-40µ long, 7-10µ broad. Striae perpendicular to the midline of the valve throughout, 13-15 in 10µ. Axial area wide, lanceolate, without any especially demarcated central area.

Previous reports indicate that this entity is a littoral form in large lakes. In Lake Michigan it has only been noted in inshore areas.

253 FRINFLAT TCT NO OF STATIONS 3

(1350)	BH 2	15AP1967	0.05506)	(1402	TR 2	6MY1967	0.00541)	(1404	PQ 2	10MY1967	C.01270)
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Fragilaria heideni var. *istvanffy* (Pant.)

Fragilaria istvanffy Pantocsek, Res. Wiss. Erforsh. Balatonsees, p. 79, pl. 9, fig. 225. 1902.

Fragilaria inflata var. *istvanffy* (Pant.) Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(2)1:156, fig. 669. 1931.

Differs from the nominate variety in having more or less strongly tri-undulate margins and subcapitate to capitate ends.

254 FRINFLVI TOT NO OF STATIONS 1

(1350)	BH 2	19AP1967	0.00220)	(							
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Fragilaria intermedia Grun.

Fragilaria intermedia Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 45, figs. 9-11. 1881.

Cells in girdle view elongate-rectangular, in life attached by the valve surfaces into long, band-shaped colonies. Valves linear-lanceolate to lanceolate with rostrate to subcapitate ends. Specimens from Lake Michigan 25-65µ long, 3-5µ broad. Transapical striae perpendicular to the apical axis throughout, coarsely structured, 8-13 in 10µ, finely cross-lineate. Axial area narrow, linear distinctly bordered. Central area a unilateral fascia, not visibly thickened, often indistinct or containing rudimentary striae.

This entity shows a great deal of variation in populations from Lake Michigan. Although previous reports indicate that it is primarily littoral in most habitats, it is present in the offshore plankton from Lake Michigan and often in considerable quantity. The forms occurring in the offshore plankton tend to be more elongate and lanceolate rather than linear in outline and may represent a separate variety or form. Our observations to date, however, indicate that these forms grade into the nominate variety to the extent that they cannot be satisfactorily separated on the basis of morphologic characteristics.

Petersen (1938) and several other authors have called attention to the similarity of this taxon to *Synedra vaucheriae* Kütz. [*Fragilaria vaucheriae* (Kütz.) Peters.]. It is Peterson's contention, based on the observation of isotype material, that the two entities are synonymous. If this contention can be supported, the entity we treat here, as it is generally treated in the modern literature, will need to be renamed as it is easily distinguished from *S. vaucheriae* on several morphologic characteristics. The decision on this awaits the monographer with access to type material.

Ahlstrom (1936) reported *Fragilaria virescens* Ralfs abundant in collections from Lake Michigan. We suspect that he was, in fact, dealing with the entity we treat here.

255 PRINTED TCI NO OF STATIONS 142

146921	CH	23M1945	C.00194	146514	CH	19AP1946	C.00107	146923	CH	22M1946	C.00437
146918	CH	4MY1947	C.00204	146919	CH	5JN1947	C.29453	146922	CH	21A1947	C.00048
146758	EV	5JN1937	1.09839	146771	EV	11JN1937	C.00238	146745	EV	3A1937	C.42000
146770	EV	5JN1937	C.28826	146764	EV	17JL1937	C.20951	146757	EV	25A1937	C.29849
146747	EV	1AUI937	C.45053	146763	EV	23AUI937	C.87256	146752	EV	15S1937	C.35182
146760	EV	22S1937	C.05090	146755	EV	24S1937	C.03199	146748	EV	13S1937	C.42185
146767	EV	27OC1937	C.03095	146749	EV	12PR1938	C.03641	146768	EV	16M1938	C.05880
146762	EV	18MR1938	C.19850	146772	EV	18AP1938	C.00710	146756	EV	27A1938	C.11175
146759	EV	19MY1938	C.01350	146761	EV	27MY1938	C.01163	146766	EV	14O1938	C.30453
11228	C 6	15MY1964	C.00784	11226	C 7	16MY1964	C.01142	11227	C* 2	13MY1964	C.00110
11228	O 2	14MY1964	C.00389	11229	O 5	14MY1964	C.01057	11230	E 2	14MY1964	C.01718
11231	E 3	16MY1964	C.00245	11232	E 5	16MY1964	C.15870	11233	B 3	5A2964	C.00238
11439	B 6	5JN1964	C.00599	11236	C* 1	8JN1964	C.00700	11239	O 4	11JN1964	C.00212
11240	D 6	10JN1964	C.02301	11241	E 2	13JN1964	C.02218	11242	E 3	13JN1964	C.00294
11243	E 6	13JN1964	C.03550	11244	F 1	11JN1964	C.00329	11245	F 2	11JN1964	C.00642
11246	F 3	11JN1964	C.05379	11252	C* 1	16JL1964	C.01395	11254	O 2	15JL1964	C.00192
11256	E 2	14JL1964	C.00916	11257	E 3	14JL1964	C.01975	11258	F 1	6JL1964	C.00072
11260	F 3	6JL1964	C.00191	11267	O 6	18A1964	C.01513	11268	E 2	15A1964	C.00274
11269	E 3	15A1964	C.00274	11270	F 1	10A1964	C.00917	11273	C* 2	10S1964	C.00538
11275	O 2	17S1964	C.05645	11284	E 6	17S1964	C.00318	11285	F 1	15S1964	C.14843
11289	C 7	14OC1964	C.01319	11291	C* 2	16OC1964	C.00245	11292	O 1	15OC1964	C.00373
11297	D 6	14OC1964	C.00762	11303	E 6	13IC1964	C.04378	11305	F 2	10C1964	C.00173
11308	C 7	4NO1964	C.01217	11313	O 6	9NO1964	C.00193	11314	O 6	9NO1964	C.00776
11318	E 2	7NO1964	C.00150	11321	E 5	7NO1964	C.00315	11322	E 6	7NO1964	C.00233
11323	F 1	6NO1964	C.00193	11324	F 2	6NO1964	C.00233	11336	C 3	27A1967	C.01348
11327	C 3	29M1967	C.15163	11338	C 3	28M1967	C.62784	11339	C 5	28M1967	C.43645
11340	C 7	28M1967	C.91624	11341	A 3	19AP1967	C.15132	11342	A 4	19AP1967	C.50148
11343	A 6	19AP1967	C.24316	11344	C 3	25AP1967	C.14508	11345	C 5	25AP1967	C.45611
11346	C 7	21AP1967	C.23367	11347	E 2	23AP1967	C.06178	11348	E 5	23AP1967	C.76765
11368	A 3	4PY1967	C.73516	11369	A 4	4MY1967	C.14164	11370	A 6	3MY1967	C.44424
11371	C 3	4MY1967	C.21007	11372	C 5	5MY1967	C.12768	11373	C 7	5MY1967	C.95835
11376	E 2	7MY1967	C.37954	11375	E 3	7MY1967	C.15234	11376	E 5	6MY1967	C.93881
11408	A 3	23MY1967	C.06260	11409	A 4	23MY1967	C.10415	11410	A 6	24MY1967	C.03983
11411	C 3	31PY1967	C.14280	11412	C 5	31PY1967	C.14015	11413	F 2	31PY1967	C.01264
11414	E 2	28M1967	C.02687	11415	E 3	28M1967	C.00675	11416	E 5	28M1967	C.01093
11511	E 2	13S1967	C.00307	11536	E 2	24S1967	C.00818	11537	E 3	24S1967	C.00431
11538	E 5	23S1967	C.06972	11537	FW 2	21AP1967	C.12180	11538	FW 3	23A1967	C.00516
11550	GS14	12MY1967	C.01174	11552	GS16	12MY1967	C.01849	11553	GS22	14MY1967	C.00607
11559	GS 7	4OC1967	C.00350	11567	GS15	5OC1967	C.00159	11571	ES19	6OC1967	C.00059
11576	GS22	4OC1967	C.00575	11575	GS28	5OC1967	C.00258	11581	ES19	6OC1967	C.00045
11579	MO 1	20S1967	C.00258	11577	TR 1	20S1967	C.18386	11578	SM 1	20S1967	C.01444
11579	KW 1	7AP1967	C.74744	11580	FR 1	7AP1967	C.02000	11581	ES 1	5OC1967	C.01958
11592	SM 1	4OC1967	C.02641	11590	MR 1	5OC1967	C.106195	11593	SG 1	4OC1967	C.10449
11593	MI 2	21AP1967	C.00621	11427	LU 2	23MY1967	C.01211	11418	SM 2	22MY1967	C.01555
11350	M1 2	19AP1967	C.16960	11399	PH 2	5MY1967	C.04081	11401	PG 2	6MY1967	C.03528
11402	TR 2	21AP1967	C.02707	11392	KW 2	21AP1967	C.10238	11393	FR 2	23A1967	C.01052
11354	GH 2	25AP1967	C.00518	11404	MC 2	10PY1967	C.01270	11407	SM 2	14PY1967	C.01194
11421	CH 2	23PY1967	C.01735								

Fragilaria intermedia var. *fallax* (Grun.)

Synedra (amphicephala v. ??) *fallax* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 39, fig. 16c. 1881.

Fragilaria vaucheriae var. *fallax* (Grun.) A. Cleve-Euler, K. Svenska Vet.-Akad. Handl., Fjärde Ser., 4(1):43, figs. 353s-x. 1953.

Valves more elongate and narrower than in the nominate variety, occasional specimens to 120µ long, linear to linear-lanceolate. Other features essentially as in the nominate variety.

256. ERINIEV, TCT NO OF STATISTICS 256.

160973	CH	1876	15.88663	1	12540	CH	11MY1879	4.78564	1	13541	CH	1FE1881	6.65538	1		
160974	CH	19F1881	1.03118	1	146910	CH	5C11945	3.12404	1	146921	CH	23MD1945	1.70214	1		
160908	CH	0E1545	0.21148	1	146917	CH	12J11946	0.66676	1	146915	CH	20F1546	1.47954	1		
160914	CH	19AP1946	3.60807	1	146924	CH	10W1946	2.45330	1	146923	CH	22N1946	5.75250	1		
160920	CH	20E1946	2.91402	1	146905	CH	3A1947	3.14622	1	146909	CH	MY1947	3.11008	1		
160912	CH	AP1947	0.90836	1	146916	CH	4MY1947	0.48518	1	146906	CH	MY1947	0.51768	1		
160919	CH	5A1947	0.00303	1	146957	CH	3A1947	0.70215	1	146903	CH	8AU1947	0.62092	1		
160922	CH	21AU1947	0.37802	1	146958	EV	5JN1937	4.69296	1	146771	EV	11J1937	0.39941	1		
160743	EV	20J1957	2.49734	1	146745	EV	30J1957	10.53292	1	146775	EV	9A1957	0.38352	1		
160764	EV	17J1957	2.48187	1	146757	EV	25J1957	0.89548	1	146747	EV	10A1957	0.59470	1		
160763	EV	23AU1957	3.40505	1	146765	EV	30AU1957	0.62465	1	146769	EV	7J1957	0.65475	1		
160752	EV	15E1957	9.14234	1	146760	EV	22E1957	9.23728	1	146750	EV	24E1957	10.42560	1		
160751	EV	17E1957	2.67807	1	146767	EV	27E1957	0.70097	1	146749	EV	22E1957	0.62564	1		
160768	EV	10MR1958	5.35058	1	146762	EV	10MR1958	5.77856	1	146751	EV	30MR1958	7.50335	1		
160772	EV	18AP1958	3.57700	1	146756	EV	27AP1958	2.58576	1	146759	EV	19MY1958	2.46686	1		
160761	EV	2A1958	0.00166	1	146766	EV	27E1958	0.70117	1	146753	EV	0.62564	1			
161224	B4	18MY1964	0.07646	1	12225	C6	15MY1964	0.48127	1	12226	C7	16MY1964	0.05312	1		
161227	C2	2	13MY1964	0.06470	1	12228	0	14MY1964	0.40873	1	12229	0	14MY1964	0.54133	1	
161231	E	3	16MY1964	0.43207	1	12232	5	16MY1964	0.21763	1	12234	3	16MY1964	0.05062	1	
161339	B6	5JN1964	0.00795	1	12336	C1	8JN1964	0.00700	1	12337	C2	8JN1964	0.00258	1		
161238	D3	11JN1964	0.28005	1	12339	0	14JN1964	0.37830	1	12340	0	10JN1964	0.02301	1		
161241	E2	13JN1964	0.22776	1	1242	E3	13JN1964	0.11090	1	1243	E6	13JN1964	0.07358	1		
161244	F1	11JN1964	0.00768	1	12425	F2	13JN1964	0.02765	1	12426	F3	10JN1964	0.02917	1		
161248	F1	24JN1964	0.00197	1	12500	C6	10JL1964	0.00822	1	12502	C1	16JL1964	0.02232	1		
161256	F2	15JL1964	0.00598	1	12506	E2	15JL1964	0.07694	1	12507	E3	16JL1964	0.01936	1		
161258	F1	6JL1964	0.01416	1	12509	F2	6JL1964	0.00620	1	12600	F3	6JL1964	0.01528	1		
161261	B3	24JN1964	0.00156	1	12603	E7	15JL1964	0.00600	1	12604	C3	16JL1964	0.00619	1		
161265	C2	10AU1964	0.00071	1	12609	E3	15AU1964	0.00548	1	12700	F1	16AU1964	0.00792	1		
161271	C7	22E1964	0.00653	1	1273	C2	0.05E1964	0.00538	1	12728	0	16E1964	0.00394	1		
161279	E1	18E1964	0.00993	1	12806	E2	14E1964	0.00681	1	12811	E3	14E1964	0.00572	1		
161284	E4	17E1964	0.00635	1	12809	F1	15E1964	0.04659	1	12804	F2	15E1964	0.01095	1		
161288	B3	15OC1964	0.00653	1	1445	B6	14OC1964	0.00652	1	12809	C7	14OC1964	0.00640	1		
161295	D4	15OC1964	0.00595	1	12907	0	04OC1964	0.07997	1	12908	E1	12OC1964	0.01077	1		
161300	E3	13OC1964	0.00716	1	13002	E5	13OC1964	0.02429	1	13003	E6	13OC1964	0.01075	1		
161304	F1	11OC1964	0.00494	1	13007	B6	NC1964	0.01082	1	13008	C7	6NC1964	0.00912	1		
161313	0	9OC1964	0.00306	1	13114	0	9OC1964	0.00287	1	13116	0	9OC1964	0.00589	1		
161317	E1	6NC1964	0.00383	1	13119	E3	7NC1964	0.00262	1	13200	E4	7NC1964	0.00207	1		
161321	E5	7NC1964	0.00638	1	1322	E6	7NC1964	0.02999	1	13224	F7	6NC1964	0.00466	1		
161325	F3	6NC1964	0.00252	1	13336	E7	27JL1964	0.00888	1	13337	C3	28JL1964	1.10876	1		
161338	C3	28MR1967	0.01983	1	13339	C5	28MR1967	0.02806	1	13400	C7	28MR1967	0.04036	1		
161341	A3	15AP1967	0.10197	1	13402	A4	15AP1967	0.39829	1	13403	A6	19AP1967	0.02962	1		
161344	C3	25AP1967	0.11581	1	13405	C5	25AP1967	0.21051	1	13406	C7	24AP1967	0.46733	1		
161347	E2	23AP1967	0.38046	1	13408	E5	23AP1967	0.52776	1	13608	A3	4MY1967	0.43984	1		
161369	A4	4MY1967	0.27582	1	13700	A6	3MY1967	0.60536	1	13711	C3	4MY1967	1.18657	1		
161372	C5	5MY1967	0.49652	1	13703	C7	5MY1967	0.59901	1	13704	C3	1MY1967	0.50209	1		
161375	E3	7MY1967	0.42109	1	13705	E5	6MY1967	1.18332	1	14008	A3	23MY1967	0.42603	1		
161409	A6	23MY1967	0.35616	1	14010	A6	24MY1967	0.33883	1	14011	C3	1MY1967	0.53185	1		
161412	C3	3MY1967	0.39726	1	14013	C7	25MY1967	0.88448	1	14014	E2	28MY1967	0.67611	1		
161415	E3	28MY1967	0.31479	1	14106	E5	28MY1967	1.98998	1	14107	A3	12JN1967	0.04635	1		
161432	A3	13JN1967	0.39128	1	14109	A3	17JN1967	0.42833	1	14130	A3	13JN1967	0.15131	1		
161435	C7	13JN1967	0.38519	1	14206	E2	15JN1967	1.44440	1	14307	E3	15JN1967	0.01456	1		
161438	E5	16JN1967	7.87945	1	14406	A3	11JL1967	0.00245	1	14409	C3	16JL1967	0.65419	1		
161450	C3	0.00648	1	14508	E7	0.00648	1	14509	E2	0.00648	1	14510	E3	0.00648	1	
161453	E3	15JL1967	0.64707	1	15004	A3	28AU1967	0.01234	1	15100	C7	29AU1967	0.03316	1		
161511	E2	15E1967	0.00614	1	15102	E3	15E1967	0.02356	1	15306	E2	24E1967	0.03545	1		
161537	E	0.00196	1	15308	E5	27E1967	0.19378	1	15309	E2	0.00196	1	15310	E3	0.00196	1
161540	C5	4OC1967	0.02482	1	15501	E2	11OC1967	0.00532	1	15402	E3	11OC1967	0.00509	1		
161573	GS1	9MY1967	5.26422	1	1378	GS5	9MY1967	13.84557	1	1379	GS3	9MY1967	0.90879	1		
161380	GS5	9JL1967	12.35010	1	1379	GS5	16JL1967	16.18614	1	1380	GS6	16JL1967	16.18675	1		
161383	GS7	10MY1967	12.35030	1	1384	GS8	10MY1967	13.58721	1	1385	GS9	10MY1967	0.07611	1		

161386	GS1C	12MY1967	16.67505	1	1387	GS11	12MY1967	4.71324	1	1388	GS12	12MY1967	0.85522	1	
161389	GS13	12MY1967	0.51569	1	1390	GS14	12MY1967	0.75749	1	1391	GS15	12MY1967	3.35201	1	
161392	GS16	12MY1967	4.53264	1	1393	GS17	13MY1967	5.75729	1	1394	GS18	13MY1967	2.71221	1	
161395	GS19	13MY1967	0.25836	1	1396	GS20	13MY1967	0.44440	1	1397	GS21	13MY1967	0.02028	1	
161398	GS22	19MY1967	0.35465	1	1554	GS1	30C1967	0.00712	1	1555	GS2	30C1967	0.01412	1	
161537	GS4	0.63362	1	1556	GS3	0.63362	1	1557	GS4	0.63362	1	1558	GS5	0.63362	1
161560	GS8	4OC1967	0.01317	1	1561	GS9	4OC1967	0.01761	1	1562	GS10	5OC1967	0.01480	1	
161563	GS11	5OC1967	0.03507	1	1564	GS12	5OC1967	0.00823	1	1565	GS13	5OC1967	0.01014	1	
161566	GS16	0.00519	1	1567	GS17	0.00519	1	1568	GS18	0.00519	1	1569	GS19	0.00519	1
161569	GS17	5OC1967	0.41621	1	1570	GS18	5OC1967	0.00992	1	1571	GS19	4OC1967	0.00823	1	
161573	GS21	6OC1967	0.00266	1	1574	GS22	6OC1967	0.02401	1	1575	GS28	6OC1967	0.00516	1	
161581	MI1	0.00218	1	1576	MI1	0.00218	1	1577	MI1	0.00218	1	1578	MI1	0.00218	1
161520	MI1	18E1967	0.00943	1	1521	MI1	18E1967	0.00347	1	1523	MI1	19E1967	0.00708	1	

(1526	MO 1	205E1967	0.21619)	(1527	TR 1	2C5E1967	G.27044)	(1529	KW 1	205E1967	G.02398)
(1530	FR 1	245E1967	0.05001)	(1545	ML 1	20C1967	G.02703)	(1548	GA 1	30C1967	G.05088)
(1532	SM 1	6C1967	0.11206)	(1550	HA 1	90C1967	G.03975)	(1553	SG 1	60C1967	G.01469)
(1428	MU 2	20W1967	0.15668)	(1426	MS 2	29W1967	G.45144)	(1551	MI 2	21W1967	1.34057)
(1427	LU 2	25W1967	2.51816)	(1417	HL 2	23W1967	2.55127)	(1518	SP 2	22W1967	1.80637)
(1350	BU 2	15W1967	0.14097)	(1425	RA 2	25W1967	G.55648)	(1359	PM 2	5W1967	1.30577)
(1401	MO 2	6W1967	1.07554)	(1402	TR 2	6W1967	2.51246)	(1400	SB 2	6W1967	2.55444)
(1352	KX 2	21W1967	2.25161)	(1318	FR 2	23W1967	2.51534)	(1354	CH 2	25W1967	1.21302)
(1429	ML 2	20W1967	0.40344)	(1403	CA 2	10W1967	10.04315)	(1404	PC 2	10W1967	G.72405)
(1405	ES 2	12W1967	0.25155)	(1407	SM 2	14W1967	G.11365)	(1340	CI 2	19W1967	G.63223)
(1406	GR 2	13W1967	0.06270)	(1415	BU 2	23W1967	G.95203)	(1420	IH 2	23W1967	G.12485)
(1421	CK 2	23W1967	0.13879)	(1422	GA 2	23W1967	G.42916)	(1423	WA 2	25W1967	1.04987)
(1424	KN 2	25W1967	0.46625)								

Fragilaria leptostauron (Ehr.) Hust.

Biblarium leptostauron Ehrenberg, Mikrogeol., pl. 12, figs. 25-36. 1854.

Fragilaria leptostauron (Ehr.) Husted in: Rabenhorst, Kryptog.-Fl.

Deutschland, 7(2):153, figs. 668a-b. 1931.

Cells in girdle view short rectangular, attached by the valve faces into short, often irregular or disorganized, band-shaped colonies. Valves lanceolate with extremely expanded centers, larger specimens cruciate in outline. This central expansion appears as a line or double line, depending on the level of focus, when the colony is seen in girdle view. Specimens from Lake Michigan 8-30 μ long, 7-18 μ broad. Striae very coarse, chambered 5-9 in 10 μ , distinctly cross lineate. Axial area moderately broad, lanceolate in shape. No distinguishable central area is present. This species is extremely variable in outline and ornamentation and deformed or abnormal specimens are common in our collections.

257 FLEPTICS TCT KC CF STATICS 107

(6C973	CH	1876	0.11809)	(354G	CF	11W1E76	0.05125)	(354I	GH	1FE1E81	C.CC978)
(3507	SH	19FE1881	0.04528)	(4652I	CH	23SD1965	0.00805)	(46917	GH	12AI1946	0.0C139)
(46915	CH	20FE1946	0.39983)	(46514	GH	19W1946	0.00584)	(46924	GH	10W1946	G.CC335)
(46923	CH	22W1946	0.02045)	(46520	CH	20DE1946	0.00285)	(46965	CH	JA1947	G.00245)
(46909	CH	19W1947	0.00493)	(46516	CK	4W1947	0.00475)	(46906	CP	WY1947	G.00796)
(46913	CH	5JN1947	0.00516)	(46907	CH	4W1947	0.00537)	(46922	CH	21AI1947	G.01557)
(46758	EV	5JN1937	0.15334)	(46771	EV	11JN1937	0.00475)	(46743	EV	20JN1937	G.02569)
(46764	EV	17JL1937	0.10411)	(46761	EV	30JL1937	0.01173)	(46747	EV	18JN1937	G.05198)
(46763	EV	23AU1937	0.12175)	(46765	EV	30AU1937	0.00558)	(46752	EV	15SE1937	G.17414)
(46760	EV	22SE1937	0.00589)	(46750	EV	24SE1937	0.01414)	(46764	EV	60C1937	G.00488)
(46748	EV	130C1937	0.40564)	(46747	EV	10C1937	0.00195)	(46748	EV	60W1937	G.00410)
(46722	EV	18W1938	0.15439)	(46756	EV	27AP1938	0.00336)	(46755	EV	19W1938	G.00338)
(46766	EV	14DE1938	0.03169)	(1235	C 7	16JN1964	G.00282)	(1238	D 3	11JN1964	G.CC2CC)
(1240	D 6	10JN1964	0.05829)	(1263	E 6	13JN1964	G.CC984)	(1252	C* 1	16JN1964	G.00558)
(1264	C* 1	10AU1964	0.03193)	(1265	C* 2	10AU1964	0.00224)	(1267	D 6	18AU1964	G.00216)
(1270	F 1	14AU1964	0.00227)	(1271	C 7	22SE1964	0.01306)	(1279	E 1	16SE1964	G.01571)
(1293	E 5	16SE1964	0.01226)	(1286	E 4	17SE1964	0.02542)	(1285	F 1	15SE1964	0.01165)
(1297	D 6	14OC1964	0.00381)	(1300	E 3	13OC1964	0.00358)	(1302	E 5	13OC1964	G.01215)
(1303	E 6	13OC1964	0.00560)	(1308	C 7	80C1964	G.00304)	(1317	E 1	80C1964	G.CC191)
(1318	E 6	7NO1964	0.00190)	(1322	E 6	7NO1964	G.01466)	(1338	C 3	28W1967	G.00264)
(1341	A 3	19W1967	0.00217)	(1343	A 6	19W1967	0.00556)	(1348	E 5	23AP1967	G.00274)
(1348	A 3	6W1967	0.00314)	(1371	C 6	4W1967	0.00231)	(1411	C 2	31W1967	G.00410)
(1449	C 3	16JL1967	0.00387)	(1506	E 2	24SE1967	0.00273)	(1538	E 5	25E1967	G.00076)
(1563	E 5	10C1967	0.00218)	(1386	GS10	12W1967	0.00516)	(1387	GS11	12W1967	G.03565)
(1388	GS12	12W1967	0.00063)	(1389	GS13	12W1967	0.00516)	(1393	GS15	13W1967	G.00274)
(1394	GS18	13W1967	0.00516)	(1397	GS21	13W1967	0.00069)	(1399	GS22	14W1967	G.01907)
(1565	GS13	50C1967	0.00104)	(1566	GS14	50C1967	0.00183)	(1567	GS15	50C1967	G.00318)
(1569	GS17	50C1967	0.00092)	(1570	GS18	50C1967	0.00092)	(1573	GS21	50C1967	G.00224)
(1574	GS22	60C1967	2.21481)	(1575	GS28	60C1967	0.00387)	(1576	GS21	20C1967	G.CC500)

(1521	SH 1	18SE1967	0.00577)	(1526	MG 1	20SE1967	G.36880)	(1527	TR 1	20SE1967	G.5E491)
(1528	SH 1	6C1967	0.18770)	(1529	HA 1	90C1967	G.03974)	(1532	PS 2	60C1967	G.01626)
(1550	MR 1	50C1967	0.08673)	(1553	SG 1	60C1967	G.02482)	(1426	MS 2	29W1967	G.45144)
(1350	BM 2	19W1967	0.00661)	(1399	FW 2	5W1967	0.08161)	(1461	PC 2	6W1967	G.33514)
(1602	TR 2	6W1967	0.22762)	(1400	SR 2	6W1967	1.18582)	(1462	MI 2	22W1967	G.00348)
(1404	MG 2	10W1967	0.08892)	(1407	SM 2	14W1967	0.20302)	(1449	CI 2	19W1967	G.01078)
(1422	GA 2	23W1967	0.01022)	(1423	WA 2	23W1967	G.00856)				

Fragilaria leptostauron var. *dua* (Grun.) Hust.

Fragilaria harrisonii var. *dua* Grunow, Verh. Zool.-Bot. Ges. Wien, 12:368, pl. 7, figs. 8a-d. 1862.

Fragilaria leptostauron var. *dua* (Grun.) Husted in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2):154, figs. 668h-i. 1931.

The valves of this entity lack the strongly expanded central portion of the nominate variety and are rhombic-lanceolate to elliptic-lanceolate in outline. Other features are as in the nominate variety.

258 FRLEPTVD TOT AC OF STATIONS 5										
(1270	F 1	10AU1964	0.00272)	(1569	GS17	50C1967	0.00149)	(1571	GS19	60C1967 0.00117)
(1550	MR 1	50C1967	0.00673)	(1426	MS 2	29MY1967	0.02100)	(		

260 FRLEPTVR TOT AC OF STATIONS 2										
(1341	A 3	19AP1567	0.00108)	(1552	SM 1	60C1567	0.00660)	(		

Fragilaria leptostaurum var. *fossilis* (Pant.) Řeháková

Staurosira harrisonii var. *fossilis* Pantocsek, Foss. Bacill. Ungarns, Vol. 3, p. 95, pl. 5, fig. 77. 1905.

Fragilaria leptostaurum var. *fossilis* (Pant.) Řeháková, Rozpr. Ustřed. Ust. geol. Československa, 32:37, pl. 11, figs. 17-18. 1965.

The valves of this entity are considerably elongated in the apical axis and less strongly expanded in the mid portion of the valve than the nominate variety. The striae are somewhat shortened and a broad, lanceolate, structureless area occupies the axis of the valves. The maximum size of this variety exceeds that of the nominate variety, specimens in our material reaching 45µ in length. Structure and direction of the striae essentially similar to the nominate variety.

259 FRLEPTVF TOT AC OF STATIONS 5										
(1567	GS15	50C1967	0.00159)	(1571	GS19	60C1967	0.00559)	(1426	MS 2	29MY1967 0.02100)
(1354	GH 2	23AF1967	0.00076)	(1405	MS 2	10MY1967	0.01270)	(		

Fragilaria pinnata Ehr.

Fragilaria pinnata Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:415, pl. 3(6), fig. 8. 1843.

Cells in girdle view elongate-rectangular to square, attached by the valve faces into band-shaped colonies. Colony formation variable sometimes consisting of only a few cells. Valves variable in outline, linear-elliptic to elliptic, in the smaller individuals nearly circular. Specimens from Lake Michigan 5-30µ long, 2-6µ broad. Striae coarse, chambered, 8-11 in 10µ, distinctly cross lineate. Axial area narrow, linear to very slightly lanceolate. No specially demarcated central area is present.

This species is scattered in collections taken in nearshore areas in Lake Michigan. Occasional valves are noted in collections from offshore areas, especially in the fall months.

262 FRPINATV TOT AC OF STATIONS 191										
(460973	CH	1876	1.60045)	(3540	CH	11MY1875	0.00589)	(3541	CH	1FE1881 0.00847)
(3507	CH	19FE1881	0.01132)	(46621	CH	23AD1945	0.00517)	(46617	CH	12JA1946 0.01663)
(46615	CH	20FE1886	0.17641)	(46516	CH	15SF1946	0.02883)	(46524	CH	10MY1946 0.05744)
(46623	CH	22NO1946	0.11147)	(46520	CH	20OE1946	0.06655)	(46695	CH	JA1947 0.13605)
(46605	CH	MR1947	0.02728)	(46516	CH	4MY1947	0.01561)	(46956	CH	MY1947 0.10022)
(46619	CH	5JUN1947	0.10525)	(46507	CH	JL1947	0.05375)	(46922	CH	21AU1947 0.03926)
(46758	EV	5JUN1937	0.59910)	(46771	EV	11JUN1937	0.00238)	(46743	EV	20JUN1937 0.23779)
(46764	EV	17JL1937	0.34645)	(46757	EV	25JUL1937	0.23109)	(46747	EV	1AU1937 0.34656)
(46763	EV	23AU1937	0.48701)	(46752	EV	15SE1937	1.52373)	(46760	EV	22SE1937 0.08863)
(46750	EV	24SE1937	0.73997)	(46744	EV	6OC1937	0.29750)	(46748	EV	13OC1937 1.43040)
(46767	EV	27OC1937	1.40807)	(46749	EV	12PS1938	0.16545)	(46768	EV	14MB1938 0.17639)
(46762	EV	18MR1938	3.75334)	(46751	EV	30MR1938	0.62528)	(46756	EV	27AP1938 0.01343)
(46759	EV	12MY1938	0.10466)	(46761	EV	27PY1938	0.04956)	(46766	EV	14DE1938 1.15560)
(1226	C 7	16MY1964	0.02604)	(1231	E 3	16PY1964	0.02245)	(1232	E 5	16MY1964 0.02348)
(1233	C 7	16JUN1964	0.01412)	(1238	O 3	11JUN1964	0.00200)	(1240	O 6	10JUN1964 0.29605)
(1243	E 6	13JUN1964	0.47607)	(1244	F 1	11JUN1964	0.00110)	(1251	C 7	16JUL1964 0.02296)
(1255	O 5	15JUL1964	0.00513)	(1256	E 2	19JUL1964	0.00183)	(1264	C 1	10AUG1964 0.01513)
(1267	O 6	18AUG1964	0.03026)	(1269	E 3	15AUG1964	0.00274)	(1271	C 7	22SE1964 0.02611)
(1272	C 1	10SE1964	0.01662)	(1274	O 1	17SE1964	0.00938)	(1275	O 2	17SE1964 0.00645)
(1276	O 3	18SE1964	0.01118)	(1278	D 6	18SE1964	0.00769)	(1279	E 1	16SE1964 0.00393)

1282	E 4	165E1964	0.01108	1283	E 5	165E1964	0.01839	1284	E 6	175E1964	0.05912
1285	F 1	154E1964	0.0174	1286	F 2	154E1964	0.0174	1287	A 3	155E1964	0.00900
1289	C 7	150C1964	0.00440	1294	O 3	150C1964	0.00330	1296	O 5	146C1964	0.01574
1297	O 6	140C1964	0.07997	1299	E 2	120C1964	0.00314	1302	E 5	130C1964	0.12552
1303	E 6	130C1964	0.12672	1308	E 1	130C1964	0.00295	1311	E 1	130C1964	0.00258
1314	O 6	7N01964	0.00756	1318	E 2	7N01964	0.00190	1320	E 4	7N01964	0.00207
1321	E 5	7N01964	0.00636	1322	E 6	7N01964	0.00299	1336	C 3	274E1967	0.00193
1337	C 5	28M1967	0.002147	1338	C 3	28M1967	0.00204	1339	C 5	28M1967	0.00312
1340	C 7	28M1967	0.003267	1341	A 3	19AP1967	0.002542	1342	A 4	19AP1967	0.00722
1343	A 6	19AP1967	0.03905	1345	C 5	25AP1967	0.00195	1346	C 7	21AP1967	0.00601
1347	E 2	23AP1967	0.002163	1348	E 5	23AP1967	0.00260	1350	E 3	23AP1967	0.00316
1349	A 4	4M1967	0.01118	1370	A 6	3M1967	0.04143	1374	E 2	7M1967	0.00299
1376	E 5	4M1967	0.00281	1408	A 3	23M1967	0.00447	1413	C 7	23M1967	0.00832
1445	C 3	14J1967	0.00764	1452	E 2	14J1967	0.00638	1508	C 3	25E1967	0.00400
1512	E 3	15E1967	0.00393	1532	A 3	18E1967	0.00329	1533	A 4	19E1967	0.01393
1534	E 4	19E1967	0.00620	1536	E 2	24E1967	0.01009	1537	E 3	24E1967	0.01725
1538	E 5	23E1967	1.80081	1541	E 2	110C1967	0.01004	1543	E 5	100C1967	0.12111
1382	CS 6	10M1967	0.00278	1383	GS 7	10M1967	0.00802	1384	CS 8	10M1967	0.01109
1386	GS10	12M1967	0.00255	1387	GS11	12M1967	0.00345	1388	GS12	12M1967	0.01207
1385	GS13	12M1967	0.07220	1390	GS14	12M1967	0.01762	1391	CS15	12M1967	0.01305
1392	GS16	12M1967	0.09862	1393	GS17	13M1967	0.01644	1394	CS18	13M1967	0.02580
1395	GS19	13M1967	0.00939	1396	GS20	13M1967	0.01362	1397	CS21	13M1967	0.00981
1398	GS22	14M1967	1.06243	1399	GS 1	30C1967	0.01779	1555	GS 2	30C1967	0.00353
1556	CS 3	30C1967	0.02607	1557	GS 4	30C1967	0.06353	1558	GS 5	40C1967	0.30418
1559	GS 2	40C1967	0.02448	1560	GS 8	40C1967	0.01417	1562	CS10	50C1967	0.00493
1563	GS11	50C1967	0.00701	1564	GS12	50C1967	0.00326	1565	CS13	50C1967	0.44620
1566	GS14	50C1967	0.00917	1567	GS15	50C1967	0.11114	1568	GS16	50C1967	0.05195
1569	GS17	50C1967	0.01676	1570	GS18	50C1967	0.03947	1571	GS19	60C1967	0.21893
1572	GS20	60C1967	0.46326	1573	GS21	60C1967	0.22394	1574	GS22	60C1967	1.44481
1575	GS28	60C1967	0.45157	1544	M 1	20C1967	0.00715	1547	PS 1	20C1967	0.02395
1526	M 1	26E1967	0.00787	1546	LU 1	20C1967	0.03001	1520	M 1	18E1967	0.03465
1521	SH 1	18E1967	0.01154	1522	H 1	18E1967	0.03100	1523	RA 1	19E1967	0.01845
1525	PH 1	26E1967	0.27851	1528	HK 1	26E1967	0.46342	1527	TR 1	20E1967	5.67824
1528	SH 1	20E1967	13.6280	1529	RA 1	20E1967	36.6480	1530	FR 1	44E1967	0.20002
1531	GH 1	25E1967	0.03381	1545	ML 1	20C1967	3.85215	1549	PQ 1	45C1967	0.64111
1551	ES 1	40C1967	0.01508	1552	SM 1	40C1967	0.97260	1550	HR 1	50C1967	11.03880
1553	SM 1	60C1967	3.12724	1526	MS 2	22M1967	0.00395	1551	P 1	21AP1967	0.10290
1417	HO 2	22M1967	0.10842	1418	SH 2	22M1967	0.45101	1350	BP 2	19AP1967	0.24669
1425	RA 2	24E1967	0.01767	1426	TR 1	14J1967	0.14335	1427	TR 2	4M1967	0.31014
1402	TR 2	4M1967	8.40306	1400	SB 2	6M1967	2.76388	1352	TR 2	21AP1967	3.29840
1353	FR 2	23AP1967	0.04219	1354	GH 2	25AP1967	0.01859	1424	P 2	10M1967	0.65776
1405	ES 2	6M1967	0.03222	1407	SM 2	24E1967	0.25477	1349	C 3	12AP1967	0.17643
1406	GB 2	13M1967	0.00270	1421	CH 2	23M1967	0.01735	1422	GA 2	23M1967	0.02555
1423	WA 2	25M1967	0.13703	1424	KN 2	25M1967	0.06661				

Fragilaria pinnata var. *intercedens* (Grun.) Hust.

Fragilaria mutabile var. *intercedens* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 13. 1881.

Fragilaria pinnata var. *intercedens* (Grun.) Husted in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:161. 1931.

Distinguished from the nominate variety by its strictly linear shape, more robust structure and wider axial area. Striae 6-9 in 10μ, shorter than in the nominate variety.

The status of this entity is questionable. Its morphology, except for the lack of marginal spines and presence of cross lineation in the striae, is very similar to the linear forms of *F. spinosa* Skv. The relationship between *F. mutabile* (Wm. Smith) Grun., *F. pinnata* Ehr. and their numerous described varieties and Skvortzow's taxon should be critically reexamined.

268 FRSEPCOD TCT NC GF STATIONS 33

146914	CH	19AP1946	0.00107	14652C	CH	200E1946	0.00031	14696C	CH	MY1947	0.00066
146507	CH	31J1947	0.00146	14675B	EV	5M1937	0.00713	14676A	EV	17J1937	0.00806
146747	EV	18U1937	0.00169	14676B	EV	13C1937	0.00270	14677	EV	270C1937	0.00387
14676B	EV	16M1938	0.01470	14676E	EV	18M1938	0.00220	14675E	EV	30M1938	0.01117
14284	E 6	175E1964	0.00316	1393	E 6	19AP1967	0.00139	1387	CS11	12M1967	0.01188
1388	GS12	12M1967	0.00603	1398	GS15	14M1967	0.00306	1567	CS19	30C1967	0.00310
1569	GS17	50C1967	0.00145	1574	GS22	60C1967	0.64315	1525	FW 1	20E1967	0.02785
1526	M 1	20E1967	0.01566	1527	TR 1	20E1967	0.05660	1528	SB 1	20E1967	0.01444
1552	SM 1	60C1967	0.00866	1550	HR 1	50C1967	0.00139	1355	WT	11AP1967	0.00190
1418	SH 2	22M1967	0.04221	1399	FW 2	5M1967	0.00680	1461	PO 2	6M1967	0.03528
1402	TR 2	6M1967	0.01625	1352	KN 2	21AP1967	0.00859	1407	SM 2	14M1967	0.01154

Fragilaria pinnata var. *lanceolata* (Schum.) Hust.

Fragilaria lanceolata Schumann, Schrift. Phys.-Ökon. Ges. Königsberg, pl. 1, fig. 4. 1867.

Fragilaria pinnata var. *lanceolata* (Schum.) Husted in: A. Schmidt, Atlas Diat., pl. 297, figs. 51, 59-64. 1913.

Valves lanceolate with more or less gibbous midportions and protracted, often somewhat unequal ends. Morphology and ornamentation of the frustule essentially similar to the nominate variety.

263 FRPINNV TCT NO OF STATIONS 67

16C973	CH	1876	0.07085	146521	CH	23N01945	C.00129	146617	CH	12JA1946	C.00028
146923	CH	22N01946	0.00219	146520	CH	20G01966	0.00062	146905	CH	JA1947	C.00265
146907	CH	JI1947	C.00049	146522	CH	21AU1547	C.00048	11229	D 5	14WV1964	C.00211
11240	D 6	10JN1964	0.01381	11243	E 6	13JN1966	0.01462	11244	F 1	11JN1964	C.00110
11264	C* 1	1CAU1964	0.00386	11272	C* 1	10SE1964	C.00410	11278	D 6	18SE1964	C.00384
11297	D 6	14OC1964	0.01142	11301	E 4	13OC1964	0.00442	11302	E 5	13OC1964	C.00405
11343	A 6	19AP1967	0.00347	11356	E 2	24SE1967	0.00273	11385	GS 9	10WV1967	C.00471
11387	GS11	12WV1967	0.00792	11396	GS10	13WV1967	0.00296	11397	GS21	13WV1967	C.00131
11398	CS22	14WV1967	0.00304	11554	GS 1	30C1967	0.00356	11555	GS 2	30C1967	C.00353
11557	GS 4	30C1967	0.00374	11560	GS 0	40C1967	0.00472	11565	GS13	50C1967	C.00456
11567	CS15	50C1967	0.00159	11569	CS17	50C1967	0.00149	11570	CS18	50C1967	C.00492
11571	GS15	40C1967	0.00111	11572	GS20	40C1967	0.00431	11573	GS21	40C1967	C.00224
11574	GS22	60C1967	0.00288	11546	LU 1	20C1967	0.01501	11520	MD 1	18SE1967	C.00463
11522	HM 1	18SE1967	0.00729	11523	PA 1	19SE1967	0.00923	11525	PW 1	20SE1967	C.00355
11526	MD 1	20SE1967	1.51903	11527	TR 1	20SE1967	8.15094	11528	SA 1	20SE1967	C.00304
11529	KW 1	20SE1967	2.68617	11545	ML 1	20C1967	0.21623	11548	ES 1	50C1967	C.00799
11552	SM 1	60C1967	0.13204	11550	MR 1	50C1967	0.33453	11553	SG 1	60C1967	C.00372
11526	MS 2	28WV1967	0.02100	11551	RI 2	21AP1967	C.00010	11517	IO 2	22WV1967	C.00748
11350	HM 2	19AP1967	0.05947	11399	PW 2	5WV1967	0.01360	11401	MO 2	6WV1967	C.111759
11402	TR 2	6WV1967	0.12454	11400	SE 2	6WV1967	0.00596	11352	KW 2	21AP1967	C.00613
11354	GH 2	25AP1967	0.00518	11406	SC 2	10WV1967	0.145	11405	ES 2	12WV1967	C.01290
11407	SM 2	14WV1967	0.16719	11349	CI 2	15AP1967	0.00359	11420	JH 2	23WV1967	C.01511
11423	NA 2	25WV1967	0.00856								

Fragilaria spinosa Skv.

Fragilaria mutabilis var. *robusta* Skvortzow and Meyer, Proc. Sungaree River Biol. Station, 1:7, pl. 1, fig. 8. 1928.

Fragilaria spinosa Skvortzow, Phillipine J. Sci., 37:307, pl. 1, figs. 13, 27; pl. 4, figs. 13, 19; pl. 5, figs. 54, 59. 1937.

Cells in girdle view elongate-rectangular, attached by the valve faces into band-shaped colonies. Membranous spines arising from the valve margin overlap the adjacent cell. Valves highly variable in outline, linear-elliptic to lanceolate, often more or less gibbous near the center. Specimens from Lake Michigan 25-46μ long, 5-8μ broad. Striae very coarse, chambered, not extending to the midline of the valve, 5-8 in 10μ, without visible sub-structure. A submarginal spine is visible between each of the striae. Axial area broad, more or less lanceolate, without visible structure. No specially demarcated central area is present.

Our specimens from Lake Michigan are uniformly narrower than those originally described by Skvortzow, length-width ratios being about 1/5-1/6 rather than 1/3.5-1/5 as in the Lake Baikal material. The structure and ornamentation of the frustule in our specimens is essentially identical to the specimens described by Skvortzow.

This species is rare in our collections, and its recorded distribution indicates that it is a member of the periphyton community in relatively deep water.

Coll: 1395.

Fragilaria vaucheriae (Kütz.) Peters.

Exilaria vaucheriae Kütz., Linnaea, 8:560, pl. 15, fig. 38. 1833.

Synedra vaucheriae (Kütz.) Kütz., Bacill., p. 65, pl. 14(4), figs.

1, 2a, 3. 1844.

Fragilaria vaucheriae (Kütz.) Peterson, Bot. Not. 1938(1/3):167, figs. 1a-b. 1938.

Cells in girdle view linear, united by the valve faces into band-shaped colonies of variable length. Valves elliptic-lanceolate to lanceolate with more or less protracted, usually rostrate, ends. Specimens from Lake Michigan 8-30µ long, 3-4.5µ broad. Axial area narrow, central area unilateral, usually noticeably thickened on its margins. Striae distinct, parallel throughout the length of the valve, 14-16 in 10µ.

This entity is common in periphyton collections but only occasional specimens are noted in plankton collections from Lake Michigan. In general aspect it resembles *F. intermedia* but is distinguished from that species by its finer striae, less strongly silicified frustule, and the presence of a distinctly thickened border around the central area.

656 SYVAUCHE ICT NO. OF STATICS 149

(3540	CH	118Y1879	0.00466	(3561	CH	1FE1881	0.00378	(46510	CH	0C1945	0.00437
(44921	CH	23N01945	0.00259	(46008	CH	0E1945	0.02014	(46917	CH	12J1946	0.00305
(46915	CH	20E1946	0.04552	(46514	CH	19AP1946	0.01602	(46924	CH	0C1946	0.02540
(46923	CH	22N01946	0.01748	(46920	CH	20E1946	0.00246	(46909	CH	MR1947	0.02277
(46932	CH	8P1947	0.01150	(46516	CH	9M1947	0.01221	(46906	CH	MY1947	0.00756
(46919	CH	5JN1947	0.49316	(46907	CH	JI1947	0.00148	(46922	CH	21AU1947	0.00630
(46758	EV	5JN1937	8.41872	(46771	EV	11AN01937	0.01189	(46763	EV	20JN1937	0.06250
(46745	EV	3JL1937	0.00270	(46770	EV	6JL1937	1.10525	(46764	EV	17JL1937	2.11120
(46757	EV	25JL1937	0.58736	(46747	EV	1AU1937	0.46043	(46763	EV	23AU1937	4.18019
(46765	EV	30AU1937	0.02789	(46752	EV	15SE1937	0.23944	(46760	EV	22SE1937	1.15340
(46750	EV	24SE1937	0.29222	(46748	EV	13OC1937	0.10875	(46767	EV	27OC1937	0.90029
(46768	EV	10MR1938	0.07350	(46762	EV	10MR1938	0.24261	(46756	EV	27AP1938	0.03336
(46759	EV	19MY1938	0.02026	(46761	EV	27MY1938	0.00818	(46766	EV	14OC1938	0.07921
(1236	C* 1	8JN1964	0.00175	(1237	C* 2	8JN1964	0.00298	(1240	O 6	10JN1964	0.00460
(1243	E 6	13JN1964	0.00263	(1244	F 1	11JN1964	0.01425	(1245	F 2	11JN1964	0.02075
(1246	F 3	11JN1964	0.01793	(1252	C* 1	16JL1964	0.00279	(1255	O 5	15JL1964	0.00513
(1259	F 2	6JL1964	0.00310	(1264	C* 2	09AU1964	0.02124	(1265	C* 2	09AU1964	0.00894
(1266	D 3	18AU1964	0.00351	(1268	E 2	15AU1964	0.00547	(1269	E 3	15AU1964	0.00274
(1270	C 1	18AU1964	0.00272	(1274	E 1	15JL1964	0.00538	(1275	O 2	17SE1964	0.00645
(1279	E 1	16SE1964	0.01178	(1284	E 6	17SE1964	0.00318	(1285	F 2	15SE1964	0.04406
(1298	E 1	12OC1964	0.00539	(1299	E 2	12OC1964	0.00314	(1301	E 4	13OC1964	0.00442
(1304	F 1	11OC1964	0.00247	(1316	O 6	9NOV1964	0.00378	(1318	E 2	7NOV1964	0.00380
(1319	F 3	7NOV1964	0.00262	(1320	E 4	7NOV1964	0.00207	(1341	A 3	19AP1967	0.00108
(1343	A 6	19AP1967	0.00208	(1374	E 2	7MY1967	0.00299	(1410	A 6	24MY1967	0.00564
(1422	A 4	13JN1967	0.00205	(1451	C 7	16JL1967	0.00157	(1454	E 5	15JL1967	0.00200
(1508	C 3	25E1967	0.00400	(1511	E 2	15E1967	0.00307	(1534	A 6	19SE1967	0.00310
(1536	E 2	24SE1967	0.00818	(1537	E 3	24SE1967	0.00431	(1538	E 5	23SE1967	0.00943
(1540	C 3	4OC1967	0.00406	(1541	E 2	11C1967	0.04760	(1542	E 3	11OC1967	0.00301
(1543	E 5	10OC1967	0.01437	(1379	GS 3	9MY1967	0.00302	(1380	GS 4	9MY1967	0.00168
(1382	GS 6	10MY1967	0.01198	(1384	GS 8	10MY1967	0.00185	(1387	GS11	12MY1967	0.00714
(1392	GS16	12MY1967	0.00308	(1394	GS18	13MY1967	0.01032	(1395	GS19	13MY1967	0.00235
(1396	GS20	13MY1967	0.00148	(1397	GS21	13MY1967	0.00196	(1398	GS22	14MY1967	0.00607
(1394	GS 1	30C1967	0.02491	(1395	GS 2	30C1967	0.00706	(1396	GS 3	30C1967	0.00521
(1397	GS 4	30C1967	0.02242	(1362	GS10	5OC1967	0.00493	(1365	GS13	5OC1967	0.00535
(1366	GS14	5OC1967	0.00183	(1368	GS16	5OC1967	0.00144	(1369	GS17	5OC1967	0.00149
(1370	GS18	5OC1967	0.01963	(1372	GS20	6OC1967	0.00270	(1373	GS21	6OC1967	0.00112
(1374	GS22	6OC1967	0.01766	(1375	GS28	6OC1967	0.00387	(1344	NU 1	20C1967	1.02446
(1347	MS 1	20C1967	0.00981	(1324	MI 1	20SE1967	0.00757	(1546	LU 1	20C1967	1.28045
(1320	HO 1	18SE1967	0.02829	(1321	SH 1	18SE1967	0.02308	(1322	BH 1	18SE1967	0.00365
(1323	PA 1	18SE1967	0.00923	(1326	MO 1	12SE1967	0.12916	(1327	TR 1	20SE1967	1.30149
(1328	SB 1	20SE1967	0.15882	(1329	KW 1	20SE1967	0.24940	(1330	FR 1	24SE1967	1.33003
(1345	ML 1	20C1967	2.11715	(1348	CA 1	21JL1967	0.01272	(1349	HO 1	20C1967	0.04111
(1351	ES 1	5OC1967	0.00709	(1352	SM 1	6OC1967	0.01981	(1350	MR 1	5OC1967	0.19593
(1353	SO 1	6OC1967	0.03672	(1428	MU 2	29MY1967	0.00603	(1427	LU 2	29MY1967	0.00362
(1417	HO 2	22MY1967	0.01895	(1350	DM 2	15AP1967	0.07790	(1425	AA 2	29MY1967	0.00944
(1399	PW 2	5MY1967	0.04081	(1402	TR 2	4MY1967	0.02707	(1400	SB 2	4MY1967	0.00293
(1352	KM 2	21AP1967	0.07731	(1354	GM 2	25AP1967	0.00345	(1429	ML 2	29MY1967	0.00427
(1403	GA 2	10MY1967	2.30156	(1404	MC 2	10MY1967	0.07622	(1405	ES 2	12MY1967	0.03225
(1407	SM 2	14MY1967	0.04777	(1349	CI 2	19AP1967	0.00359	(1406	GB 2	13MY1967	0.02065
(1419	BU 2	23MY1967	0.01831	(142C	IH 2	23MY1967	0.03021	(			

Fragilaria vaucheriae var. *capitellata* (Grun.) Patr.

Synedra capitellata Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 26. 1881.

Synedra vaucheriae var. *capitellata* (Grun.) Cleve, J. Linnean Soc. London, Bot., 20:314. 1883.

Fragilaria vaucheriae var. *capitellata* (Grun.) Patrick, Akad. Nat. Sci. Philadelphia Monogr. 13:121. 1966.

Valves lanceolate with subcapitate to capitate ends. Specimens from Lake Michigan 15-50 μ long, 3-4 μ broad. Striae somewhat finer than in the nominate variety, 14-18 in 10 μ . Other features of morphology and ornamentation of the frustule essentially similar to the nominate variety.

This entity is quite common in plankton collections from Lake Michigan. It is somewhat questionable that forms having a much expanded central area such as illustrated by Patrick (Patrick and Reimer 1966) belong to this taxon.

697 SYVAUCVC TOT NO OF STATICS 39

(446917	CH	12JA1946	0.00028)	(446914	CH	19AP1946	0.00167)	(446923	CH	22NO1946	0.00219)
(446903	CH	MO1947	0.00495)	(446932	CH	8P1947	0.01150)	(446936	CH	4MY1947	0.00170)
(446758	EV	5JN1937	0.03431)	(446743	EV	20JN1937	0.00856)	(446745	EV	3JL1937	0.04180)
(446247	EV	18U1937	0.00445)	(446763	EV	23AU1937	0.04058)	(446752	EV	15SE1937	0.06930)
(1244	F 1	11JN1964	0.00219)	(1258	F 1	6JL1964	0.00768)	(1259	F 2	6JL1964	0.00620)
(1260	F 3	6JL1964	0.00573)	(1279	E 1	16SE1964	0.00785)	(1281	E 3	16SE1964	0.00392)
(1285	F 1	15SE1964	0.04659)	(1297	O 6	14OC1964	0.00190)	(1310	C 7	29AU1967	0.00316)
(1311	E 2	1SE1967	0.00307)	(1379	GS 1	9P1967	0.00819)	(1382	GS 6	10NY1967	0.00278)
(1387	GS11	12MY1967	0.01188)	(1388	GS12	12MY1967	0.00663)	(1397	GS 4	3OC1967	0.00374)
(1561	GS 9	4OC1967	0.00587)	(1563	GS11	5OC1967	0.00234)	(1565	GS13	5OC1967	0.00507)
(1567	GS15	5OC1967	0.00199)	(1574	GS22	4OC1967	0.00863)	(1546	LU 1	2OC1967	0.00560)
(1526	MO 1	20SE1967	0.00565)	(1549	MO 1	4OC1967	0.01370)	(1552	SH 1	6OC1967	0.00640)
(1550	NR 1	5OC1967	0.02478)	(1403	CA 2	10NY1967	0.32693)	(1404	PU 2	10NY1967	0.07622)

Fragilaria vaucheriae var. *truncata* (Grev.)

Exilaria truncata Greville, in: Pritchard, Hist. Infus., p. 789. 1861.

Synedra vaucheriae var. *truncata* (Grev.) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 20. 1881.

Valves linear with rostrate to subcapitate apices. Other features of the morphology and ornamentation of the frustule essentially similar to the nominate variety.

This entity is relatively rare in our collections. Previous reports indicate that it finds its primary habitat in the periphyton.

695 SYVALCVT TGT NC OF STATICS 2

(1265	C* 2	1CAU1964	0.00224)	(1361	A 3	19AP1967	0.00217)
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Species incertae sedis

Fragilaria sp. #1.

266 FRSPEDCA TGT NC OF STATICS 6

(1565	GS13	5OC1967	0.04363)	(155C	NR 1	5OC1967	0.06195)	(1350	SH 2	14AP1967	0.01101)
(1354	GH 2	25AP1967	0.00173)	(140C	MG 2	10P1967	0.03811)	(1420	JH 2	23NY1967	0.10574)

Fragilaria sp. #7.

27C FRSPESQD TCT NO OF STATIONS 223

146973	CH	1876	0.37789	1	3540	CH	11811875	0.01804	1	3541	CH	1FE1881	0.22498
146974	CH	061545	0.00000	1	446521	CH	22801545	0.25222	1	446528	CH	0E1545	0.48324
146975	CH	12141546	0.02244	1	446515	CH	20F19424	0.11590	1	446514	CH	194F1546	0.00427
146976	CH	108Y1546	0.02116	1	446523	CH	22ND1546	0.07868	1	446920	CH	20201546	1.24165
146977	CH	JA1547	0.15147	1	446528	CH	20F19424	0.05444	1	446512	CH	20F1546	0.00146
146978	CH	4MY1547	1.38535	1	446506	CH	MY1547	1.16478	1	446919	CH	5JN1547	0.01214
146979	CH	1J1547	1.18594	1	446913	CH	6AU1547	0.04184	1	446522	CH	23AU1547	0.54043
146979	EV	11JN1537	0.01426	1	446763	EV	20F19424	0.05444	1	446512	CH	20F1546	0.00146
146979	EV	6J11937	0.27433	1	446764	EV	17J11937	0.05641	1	446757	EV	25J11937	0.01444
146979	EV	18U1937	0.01338	1	446763	EV	23AU1937	0.18756	1	446765	EV	30AU1937	0.00598
146979	EV	75E1937	0.05171	1	446765	EV	23J11937	0.01477	1	446758	EV	40C1937	0.00187
146979	EV	270C1937	0.00774	1	446749	EV	12MP1538	0.02427	1	446768	EV	16AP1538	0.00880
146979	EV	108Y1938	0.08822	1	446751	EV	30PM1938	0.02233	1	446756	EV	27AP1538	0.00564
146979	EV	78U1538	0.00818	1	446766	EV	140E1538	0.03105	1	1445	0	6	0.00188
146979	EV	11J11964	0.13266	1	1441	8	24J11964	0.03605	1	1250	0	6	0.00188
146979	EV	16J11964	0.01155	1	1252	0	16J11964	0.01094	1	1253	0	6	0.00188
146979	EV	1254	0	1	1254	0	15J11964	0.09753	1	1256	0	6	0.00188
146979	EV	1257	0	1	1257	0	6J11964	0.33037	1	1259	0	6	0.00188
146979	EV	1260	0	1	1260	0	24U1964	1.43296	1	1443	8	0	0.00188
146979	EV	1260	0	1	1260	0	225E1964	0.00653	1	1272	0	6	0.00188
146979	EV	1273	0	1	1273	0	175E1964	0.50673	1	1275	0	2	0.00188
146979	EV	1278	0	1	1278	0	165E1964	0.06635	1	1278	0	6	0.00188
146979	EV	1279	0	1	1279	0	165E1964	0.30635	1	1281	0	3	0.00188
146979	EV	1282	0	1	1282	0	165E1964	0.46201	1	1284	0	6	0.00188
146979	EV	1285	0	1	1285	0	165E1964	0.18008	1	1287	0	3	0.00188
146979	EV	1445	0	1	1445	0	140C1964	0.01415	1	1296	0	5	0.00188
146979	EV	1297	0	1	1297	0	130C1964	0.00716	1	1304	0	1	0.00188
146979	EV	1305	0	1	1305	0	110C1964	0.01106	1	1308	0	7	0.00188
146979	EV	1310	0	1	1310	0	8NC1964	0.00774	1	1312	0	2	0.00188
146979	EV	1317	0	1	1317	0	7ND1964	0.46587	1	1315	0	3	0.00188
146979	EV	1320	0	1	1320	0	7NC1964	0.02594	1	1322	0	6	0.00188
146979	EV	1323	0	1	1323	0	155C1964	0.05783	1	1336	0	3	0.00188
146979	EV	1337	0	1	1337	0	28M1967	0.00254	1	1339	0	5	0.00188
146979	EV	1340	0	1	1340	0	194F1967	0.00934	1	1342	0	4	0.00188
146979	EV	1343	0	1	1343	0	23AP1967	0.00331	1	1345	0	3	0.00188
146979	EV	1346	0	1	1346	0	23AP1967	0.00513	1	1348	0	3	0.00188
146979	EV	1349	0	1	1349	0	4PY1538	0.00353	1	1370	0	4	0.00188
146979	EV	1371	0	1	1371	0	4PY1538	0.00709	1	1373	0	7	0.00188
146979	EV	1374	0	1	1374	0	0.01203	0.00709	1	1375	0	3	0.00188
146979	EV	1408	0	1	1408	0	23M1967	0.00443	1	1410	0	6	0.00188
146979	EV	1411	0	1	1411	0	31M1967	0.02105	1	1413	0	7	0.00188
146979	EV	1414	0	1	1414	0	28M1967	0.01126	1	1416	0	3	0.00188
146979	EV	1431	0	1	1431	0	13JN1967	0.28609	1	1433	0	3	0.00188
146979	EV	1434	0	1	1434	0	13JN1967	0.04579	1	1436	0	2	0.00188
146979	EV	1437	0	1	1437	0	14M1967	0.00726	1	1446	0	3	0.00188
146979	EV	1447	0	1	1447	0	16J11967	0.00354	1	1449	0	3	0.00188
146979	EV	1450	0	1	1450	0	14J11967	0.01064	1	1454	0	5	0.00188
146979	EV	1453	0	1	1453	0	25A1967	0.03569	1	1508	0	1	0.00188
146979	EV	1459	0	1	1459	0	29AU1967	0.04110	1	1911	0	2	0.00188
146979	EV	1512	0	1	1512	0	31AU1967	0.01135	1	1532	0	3	0.00188
146979	EV	1533	0	1	1533	0	195E1967	0.00310	1	1535	0	7	0.00188
146979	EV	1536	0	1	1536	0	245E1967	0.00638	1	1538	0	5	0.00188
146979	EV	1539	0	1	1539	0	40C1967	0.00885	1	1541	0	2	0.00188
146979	EV	1542	0	1	1542	0	110C1967	0.00408	1	1543	0	5	0.00188
146979	EV	1549	0	1	1549	0	9M1967	0.00841	1	1381	0	65	0.00188
146979	EV	1582	0	1	1582	0	12M1967	0.00287	1	1387	0	511	0.00188
146979	EV	1589	0	1	1589	0	12M1967	0.01174	1	1391	0	511	0.00188
146979	EV	1592	0	1	1592	0	13M1967	0.01096	1	1394	0	518	0.00188
146979	EV	1598	0	1	1598	0	30C1967	0.03022	1	1555	0	3	0.00188
146979	EV	1599	0	1	1599	0	30C1967	0.28774	1	1558	0	5	0.00188
146979	EV	1599	0	1	1599	0	40C1967	0.00704	1	1561	0	5	0.00188
146979	EV	1599	0	1	1599	0	50C1967	0.00291	1	1564	0	632	0.00188
146979	EV	1599	0	1	1599	0	50C1967	0.04922	1	1568	0	516	0.00188
146979	EV	1599	0	1	1599	0	50C1967	0.02975	1	1571	0	516	0.00188
146979	EV	1599	0	1	1599	0	50C1967	0.02821	1	1572	0	516	0.00188
146979	EV	1599	0	1	1599	0	185E1967	0.01731	1	1526	0	60	0.00188
146979	EV	1599	0	1	1599	0	205E1967	0.02358	1	1548	0	61	0.00188
146979	EV	1599	0	1	1599	0	50C1967	0.05931	1	1570	0	61	0.00188
146979	EV	1599	0	1	1599	0	22M1967	0.00748	1	1425	0	8A	0.00188
146979	EV	1599	0	1	1599	0	22M1967	0.00748	1	1425	0	8A	0.00188
146979	EV	1599	0	1	1599	0	21AP1967	0.21474	1	1554	0	6	0.00188
146979	EV	1599	0	1	1599	0	10M1967	0.06392	1	1405	0	ES	0.00188
146979	EV	1599	0	1	1599	0	21AP1967	0.02156	1	1554	0	6	0.00188
146979	EV	1599	0	1	1599	0	23M1967	0.08675	1	1422	0	CA	0.00188
146979	EV	1599	0	1	1599	0	23M1967	0.08675	1	1422	0	CA	0.00188

Fragilaria sp. #8 (*F. crotomensis* erstlingzellen?).

271 FRSPESQD TCT NO OF STATIONS 204

146973	CH	1876	0.37074	1	446513	CH	6AU1947	0.01046	1	446771	EV	11JN1937	0.02238	
146973	CH	5J11937	0.02385	1	446764	EV	17J11937	0.048835	1	446757	EV	25J11937	0.00481	
146974	CH	1AU1937	0.00000	1	446760	EV	23AU1937	0.00471	1	446765	EV	30AU1937	0.00598	
146974	EV	270C1937	0.00774	1	446761	EV	27J11937	0.00273	1	446766	EV	16AP1938	0.00865	
146974	EV	108Y1938	0.08822	1	446751	EV	30PM1938	0.02233	1	446756	EV	27AP1538	0.00564	
146974	F 3	6J11964	0.00151	1	1444	8	16AU1564	0.00198	1	1270	F 3	10AU1564	0.00817	
146974	F 1	110C1964	0.24274	1	1305	F 6	110C1564	0.02243	1	1306	F 3	110C1564	0.01105	
146974	F 5	6J11964	0.00151	1	1316	F 6	6J11964	0.00151	1	1318	F 2	7NG1564	0.00380	
146974	F 1	1323	0	1	1324	F 2	6J11964	0.00151	1	1325	F 2	8NG1564	0.27678	
146974	F 1	6J11964	0.24350	1	1324	F 2	6J11964	0.00151	1	1326	F 2	10NG1564	0.00380	
146974	F 1	16AJ1967	0.03937	1	1383	G 5	7	10MY1567	0.00267	1	1387	G 511	120Y1967	0.00356

Fragilaria sp. #9.

272 FRSPCCOCT ICT NO OF STATIONS 15

146915	CH	20FE1966	0.01138	146916	CH	4MY1947	0.00271	146919	CH	5UN1947	C.00495
146743	EV	20JUN1937	0.00585	146757	EV	25JUL1937	0.00428	146763	EV	23MAY1947	C.02029
146752	EV	15SE1937	0.02177	146758	F 1	6JUL1964	0.03946	146759	F 2	6JUL1964	C.02479
146760	F 3	6JUL1964	0.00533	146761	F 4	10SE1964	0.00616	146762	F 4	17SE1964	C.00635
146765	F 1	15SE1964	0.00900	146766	F 2	14JUL1967	0.00535	146768	GS 5	40C1967	C.00793

Fragilaria sp. #10.

273 FRSPCCOCT ICT NO OF STATIONS 10

146924	CH	10MY1946	0.00071	146916	CH	4MY1947	0.00136	146919	CH	5UN1947	C.00510
146922	CH	21JUN1937	0.00548	146743	EV	20JUN1937	0.00428	146757	EV	23MAY1947	C.02029
146759	F 2	6JUL1964	0.00930	146761	F 1	15SE1964	0.01165	146763	CA 2	10MY1967	C.04593
146764	MO 2	10MY1967	0.02541								

Fragilaria sp. #11.

274 FRSPCCOCT ICT NO CF STATIONS 4

146909	CH	PR1947	0.00055	146916	CH	4MY1947	0.00204	14449	C 3	16JUL1967	C.03892
146910	FR 1	24SE1947	0.01006								

Fragilaria sp. #15.

275 FRSPCCOCT ICT NO CF STATIONS 1

14606	GR 2	12PY1967	C.00270								
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Fragilaria "crotonensis" v. tenuissima."

245 FRCTOTVA ICT NO OF STATIONS 136

146973	CH	1876	0.56684	13540	CH	11MY1876	0.04659	13541	CH	1FE1881	C.02935
13507	CH	19FE1881	0.00752	146910	CH	EC1945	0.10159	146921	CH	23MAY1947	C.02029
146908	CH	CE1945	0.02014	146917	CH	12JUL1946	0.04491	146918	CH	20FE1946	C.10812
146914	CH	18FE1946	0.00747	146924	CH	10MY1946	0.02292	146926	CH	20CDE1946	C.04232
146909	CH	PR1947	0.11593	146909	CH	PR1947	C.01821	146912	CH	AP1947	C.02892
146916	CH	4MY1947	0.02613	146906	CH	PR1947	C.01062	146907	CH	AP1947	C.15231
146913	CH	8JUL1947	0.09413	146922	CH	21JUL1947	0.02423	146923	CH	31JUL1947	C.00628
146771	EV	11JUN1937	0.12125	146743	EV	20JUN1937	0.00428	146749	EV	30JUL1937	C.12739
146770	EV	6JUL1937	0.30415	146764	EV	17JUL1937	0.37067	146757	EV	25JUL1937	C.13480
146747	EV	10JUL1937	0.30656	146763	EV	23MAY1937	0.52760	146765	EV	30JUL1937	C.10035
146769	EV	7SE1937	0.03442	146752	EV	15SE1937	0.00707	146760	EV	22SE1937	C.43331
146750	EV	26SE1937	0.041676	146746	EV	60C1937	C.38763	146749	EV	13C1937	C.00540
146762	EV	27OC1937	0.36362	146749	EV	12MR1938	0.32771	146768	EV	16MR1938	C.10290
146767	EV	18MR1938	0.27155	146751	EV	30MR1938	0.04466	146772	EV	18MR1938	C.44569
146764	EV	27AP1938	0.30322	146759	EV	19MY1938	0.52402	146761	EV	27MY1938	C.05451
146766	EV	14OC1938	0.22180	13177	GS 1	9MY1967	0.01187	13178	GS 2	9MY1967	C.00641
13179	GS 3	9MY1967	0.13927	13800	GS 4	9MY1967	0.17152	13801	GS 5	10MY1967	C.00302
13182	GS 6	10MY1967	0.01665	13893	GS 7	10MY1967	0.08287	13894	GS 8	10MY1967	C.02033
13895	GS 9	10MY1967	0.01413	13896	GS10	12MY1967	0.03160	13897	GS11	12MY1967	C.15447
13898	GS12	12MY1967	0.02223	13900	GS14	12MY1967	0.05255	13901	GS15	12MY1967	C.02394
13902	GS16	12MY1967	0.18183	13993	GS17	12MY1967	0.05470	13994	GS18	13MY1967	C.12725
13925	GS19	13MY1967	0.08969	13956	GS20	13MY1967	0.01258	13957	GS21	13MY1967	C.00392
13998	GS22	14MY1967	0.15788	13994	GS 1	30C1967	C.98623	13995	GS 2	30C1967	C.06003
13956	GS 3	30C1967	0.18772	13957	GS 4	30C1967	C.97166	13958	GS 5	40C1967	C.73728
13959	GS 7	40C1967	0.41617	13960	GS 8	40C1967	C.17003	13961	GS 9	40C1967	C.11310
13962	GS10	40C1967	0.26644	13963	GS11	40C1967	C.14223	13964	GS12	40C1967	C.12944
13966	GS14	50C1967	0.05987	13967	GS15	50C1967	C.12384	13968	GS16	50C1967	C.15984
13969	GS17	50C1967	0.27055	13970	GS18	50C1967	C.68517	13971	GS19	50C1967	C.03278
13972	GS20	60C1967	0.30364	13973	GS21	60C1967	C.14223	13974	GS22	60C1967	C.12944
13976	GS28	60C1967	0.27095	13944	MU 1	20C1967	0.04766	13945	PS 1	20C1967	C.41517
13974	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13975	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13976	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13977	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13978	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13979	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13980	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13981	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13982	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13983	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13984	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13985	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13986	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13987	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13988	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13989	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13990	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13991	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13992	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13993	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13994	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13995	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13996	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13997	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13998	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
13999	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14000	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14001	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14002	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14003	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14004	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14005	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14006	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14007	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14008	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14009	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14010	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14011	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14012	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14013	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14014	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14015	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14016	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14017	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14018	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14019	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14020	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14021	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14022	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517
14023	MU 1	20C1967	0.04713	13946	MU 1	20C1967	C.04001	13947	PS 1	20C1967	C.41517

Frustulia rhomboides (Ehr.) De Toni

Navicula rhomboides Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:419, pl. 3(1), fig. 15. 1843.

Frustulia rhomboides (Ehr.) De Toni, Syll. Alg. Vol. 2, Sect. 1, p. 277. 1891.

276 FURHMBG TCT AC CF STATIONS 2									
{ 46906	CH		MY1947	0.00066 }	{ 46507	CH		YL1947	C.00049 }

Frustulia rhomboides var. *amphipleuroides* (Grun.) Cleve

Navicula rhomboides var. *amphipleuroides* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):47, pl. 3, fig. 59. 1880.

Frustulia rhomboides var. *amphipleuroides* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):123. 1894.

277 FURHMBV TCT AC CF STATIONS 10									
{ 46973	CH		1876	0.02362 }	{ 3541	CH		1FE1881	C.00578 }
{ 46924	CH		10MY1946	0.00071 }	{ 46523	CH		22NO1946	0.00437 }
{ 46919	CH		5JN1947	0.10925 }	{ 1388	CS12		12MY1967	0.00803 }
{ 1550	HR	1	5CC1967	0.01239 }	{			1569	CS17
								50C1967	C.0C149 }

Frustulia rhomboides var. *saxonica* (Rabh.) De Toni

Frustulia saxonica Rabenhorst, Sussw.-Diat., p. 50, pl. 7, fig. 1. 1853.

Frustulia rhomboides var. *saxonica* (Rabh.) De Toni, Syll. Alg., Vol. 2, Sect. 1, p. 277. 1891.

278 FURHMBV TCT AC CF STATIONS 2									
{ 3540	CH		11MY1879	0.00466 }	{ 1254	C	2	15JL1964	C.00192 }

Frustulia vulgaris (Thw.) De Toni

Schizonema vulgare Thwaites, Annals Mag. Nat. Hist., Ser. 2, 1:170, pl. 12(H), fig. 1-5. 1848.

Frustulia vulgaris (Thw.) De Toni, Syll. Alg., Vol. 2, Sect. 1, p. 280. 1891.

279 FUVULGAR TCT AC CF STATIONS 5									
{ 46748	EV		13CC1937	C.02135 }	{ 1285	F	1	15SE1964	0.00582 }
{ 1431	A	3	12JN1967	0.00257 }	{ 1350	RM	2	19AP1967	0.00220 }

Frustulia weinholdii Hust.

Frustulia weinholdii Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschlands, Vol. 7(2)5:731, fig. 1101. 1937.

280 FWEINHG TCT AC CF STATIONS 1									
{ 46915	CH		5JN1947	0.00152 }	{				

Genus *Gomphonopsis* Cleve

Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):73. 1894.

The members of the genus *Gomphonopsis* noted in our collections are dominant entities in periphyton communities in many areas of the upper Great Lakes. The occasional specimens noted in our collections are undoubtedly derived from such habitats.

Gomphoneis erienae (Grun.) Skv.

Gomphonema erienae Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 23, fig. 10. 1880.

Gomphoneis erienae (Grun.) Skvortzow, Proc. Sungaree River Biol. Sta., 1(5):28. 1928.

281 GSERIENS TCT NO OF STATIONS 1

(1406 GB 2 13MY1967 0.00270) (

Gomphoneis herculeanum (Ehr.) Cleve

Gomphonema herculeanum Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:78. 1845.

Gomphoneis herculeanum (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):73. 1894.

282 GSERHCU TCT NO OF STATIONS 1

(146770 EV 9JL1937 0.00596) (

Genus *Gomphonema* Agardh
Agardh, Syst. Alg., p. 15. 1824.

Most members of the genus *Gomphonema* find their primary habitat in periphyton communities. A relatively small proportion of the species occurring in such habitats in Lake Michigan are also taken in plankton collections.

Gomphonema abbreviatum Kütz.

Gomphonema abbreviatum Kützing, Bacill., p. 84, pl. 8, figs. 5-6. 1844.

283 GCABBREV TCT NO OF STATIONS 2

(146921 CH 23NO1545 C.00085) (1236 C* 1 8JN1964 0.00175) (

Gomphonema abbreviatum var. *inflata* Hust.

Gomphonema abbreviatum var. *inflata* Hustedt, Arch. Hydrobiol., 47(4):630, fig. 21. 1953.

Coll: 1550.

Gomphonema acuminatum var. *brebissonii* (Kütz.) Grun.

Gomphonema brebissonii Kützing, Sp. Alg., p.66. 1849.

Gomphonema acuminatum var. *brebissonii* (Kütz.) Grunow in: Syn. Diat. Belgique, pl. 23, figs. 23-26. 1880.

284 GCACUPIN TCT NO OF STATIONS 1

(1354 GH 2 25AP1967 0.00173) (

Gomphonema acuminatum var. *coronata* (Ehr.) Rabh.

Gomphonema coronatum Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:17. 1841.

Gomphonema acuminatum var. *coronata* (Ehr.) Rabenhorst, Fl. Europaea Alg., Sect. I, p. 124. 1864.

285 GCACURVE TCT NO OF STATIONS 1

(146917 CH 12JAL1946 0.00055) (

Gomphonema acuminatum var. *pusillum* Grun.

Gomphonema acuminatum var. *pusillum* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 23, fig. 19. 1880.

286 GOACUMVP TCT NO OF STATIONS 1
(1350 BH 2 198P1967 0.00220) (

Gomphonema angustatum (Kltz.) Rabh.

Sphenella angustata Kltzing, Bacill., p. 83, pl. 8, fig. 4. 1844.

Gomphonema angustatum (Kltz.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 283. 1864.

287 GCANGUST TCT NO OF STATIONS 22
(146758 EV 5JN1937 0.00357) (146763 EV 23AU1937 0.02029) (1236 C* 1 8JN1964 0.00175)
(1377 GS 1 8MY1967 0.00396) (1544 MU 1 20C1967 0.00238) (1546 LU 1 20C1967 0.01000)
(1520 HC 1 18SE1967 0.00963) (1521 SH 1 18SE1967 0.00577) (1522 EH 1 18SE1967 0.00365)
(1531 GH 1 25SE1967 0.00845) (1545 WL 1 20C1967 0.00676) (1550 PR 1 50C1967 0.02371)
(1428 MU 2 29MY1967 0.00904) (1526 PS 2 29MY1967 0.01050) (1427 LU 2 29MY1967 0.03632)
(1417 HC 2 22MY1967 0.00748) (1350 BH 2 198P1967 0.00324) (1400 SB 2 6MY1967 0.02283)
(1354 GH 2 25AP1967 0.00172) (1429 WL 2 29MY1967 0.01052) (1403 CA 2 10MY1967 0.01308)
(1404 PG 2 10MY1967 0.03811) (

Gomphonema angustatum var. *producta* Grun.

Gomphonema angustatum var. *producta* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 24, figs. 52-55. 1880.

288 GOANGUPV TCT NO OF STATIONS 9
(146758 EV 5JN1937 0.01783) (1264 C* 1 10AU1964 0.00193) (1389 GS13 12PY1967 0.00258)
(1367 GS12 50C1967 0.00159) (1545 WL 1 20C1967 0.00676) (1549 MG 1 40C1967 0.01970)
(1417 HG 2 22MY1967 0.00374) (1350 BH 2 198P1967 0.00441) (1400 SB 2 6MY1967 0.00596)

Gomphonema angustatum var. *sarcophagus* (Greg.) Grun.

Gomphonema sarcophagus Gregory, Micr. J., 4:113, pl. 1, fig. 42. 1856.

Gomphonema angustatum var. *sarcophagus* (Greg.) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 25, fig. 2. 1880.

Coll: 1331.

Gomphonema clevei Fricke

Gomphonema clevei Fricke in: A. Schmidt, Atlas Diat., pl. 234, figs. 44-46. 1902.

289 GOCLEVEI TCT NO OF STATIONS 3
(1571 GS19 60C1967 0.00117) (1530 FR 1 24SE1967 0.01000) (1550 MR 1 50C1967 0.04956)

Gomphonema constrictum Ehr.

Gomphonema constrictum Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1830:63. 1832.

290 GCECNSTR TCT NO OF STATIONS 7
(13541 CH 1FE1ER1 0.00078) (146748 EV 130C1937 0.02135) (1566 GS14 50C1967 0.00183)
(1572 GS20 60C1967 0.00090) (1575 GS28 60C1967 0.00129) (1426 PS 2 29MY1967 0.02100)
(1407 SM 2 14PY1967 0.00597) (

Gomphonema constrictum var. *capitatum* (Ehr.) V. H.

Gomphonema capitatum Ehrenberg, Infusionsthierchen, p. 217, pl. 18, fig. 2. 1838.

Gomphonema constrictum var. *capitatum* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 123. 1885.

291 GCGGNSVC TCT AC CF STATIONS 1
(1350 BM 2 19AP1967 C.CC22C) (

Gomphonema gracile Ehr.

Gomphonema gracile Ehrenberg, Infusionsthierehen, p. 217, pl. 18, fig. 3. 1838.

292 GCGRACIL TCT AC CF STATIONS 12
(46758 EV 5JN1937 C.C1070) (46757 EV 25JL1937 C.C0481) (46763 EV 23AU1937 C.C4C58)
(46752 EV 15SE1937 C.C0530) (1341 A 3 19AP1967 C.C0108) (1397 GS21 13MY1967 C.C0065)
(1354 GS 1 5CC1967 C.C0354) (1350 GS 1 30C1967 C.C0521) (1365 GS13 5CC1967 C.C1521)
(1350 MR 1 5DC1967 C.C0139) (1350 BP 2 19AP1967 C.C0241) (1404 MC 2 10MY1967 C.C127C)

Gomphonema gracile var. *cymbelloides* Grun.

Gomphonema gracile var. *cymbelloides* Grunow ex Cleve, K. Svenska Vet.-Akad. Handl., Ny Föjd, 26(2):182. 1894.

293 GCGRACVA ICT AC CF STATIONS 1
(1559 GS 7 4CC1967 C.C0030) (

Gomphonema grovei M. Schm.

Gomphonema grovei M. Schmidt in: A. Schmidt, Atlas. Diat., pl. 214, figs. 13-18. 1899.

294 GCGRVEIL TOT AC CF STATIONS 6
(1371 GS19 5CC1967 C.C0117) (1372 GS2C 6CC1967 C.C0C9C) (1550 MR 1 5CC1967 C.C4556)
(1427 LU 2 2MY1967 C.C0362) (1350 BP 2 19AP1967 C.C0020) (14C4 PG 2 10MY1967 C.C0170)

Gomphonema intricatum Klitz.

Gomphonema intricatum Klitzing, Bacill., p. 87, pl. 9, fig. 4. 1844.

295 GCGINTRIC TCT AC CF STATIONS 56
(13541 CH 1FE1881 C.C01956) (46521 CH 23NO1945 C.C0129) (46917 CH 12JA1946 C.C0C28)
(46923 CH 22NO1946 C.C00219) (46620 CH 20DE1946 C.C0092) (46909 CH MR1947 C.C0045)
(46916 CH 4PY1947 C.C0008) (46656 CH PY1947 C.C0113) (46907 CH JL1947 C.C0C04)
(46922 CH 21AU1947 C.C00145) (46758 EV 5JN1937 C.C0357) (46784 EV 17JL1937 C.C0C06)
(46757 EV 25JL1937 C.C01444) (46747 EV 1AU1937 C.C00743) (46783 EV 23AU1937 C.C2849)
(46752 EV 15SE1937 C.C12414) (46760 EV 22SE1937 C.C0492) (46790 EV 24SE1937 C.C0471)
(46748 EV 13CC1937 C.C17079) (46767 EV 27OC1937 C.C01160) (46768 EV 16MR1938 C.C2249)
(46762 EV 16MR1938 C.C02206) (46751 EV 30MR1938 C.C01117) (46761 EV 27MY1938 C.C0C73)
(1244 F 1 11JN1904 C.C0C11C) (1258 F 1 6JL1904 C.C01618) (1259 F 2 6JL1904 C.C0C10)
(1279 E 1 16SE1904 C.C00393) (1284 E 6 17SE1904 C.C01271) (1285 F 1 15SE1904 C.C08736)
(1390 GS14 12MY1967 C.C00587) (1391 GS15 12MY1967 C.C00958) (1392 GS16 12MY1967 C.C0C16)
(1397 GS21 1MY1967 C.C00663) (1393 GS11 5CC1967 C.C00234) (1366 GS14 5CC1967 C.C0C183)
(1367 GS15 5DC1967 C.C00476) (1371 GS19 6OC1967 C.C00059) (1372 GS20 6OC1967 C.C00040)
(1373 GS21 6CC1967 C.C00112) (1374 GS22 6OC1967 C.C04315) (1322 BP 1 15SE1907 C.C0C182)
(1523 HA 1 15SE1907 C.C04454) (1526 MG 1 20SE1907 C.C00569) (1530 FR 1 24SE1907 C.C1000)
(1551 ES 1 5CC1967 C.C00799) (1552 SM 1 6CC1967 C.C02641) (1550 MR 1 5CC1967 C.C6195)
(1553 SG 1 6OC1967 C.C03472) (1426 HS 2 29MY1967 C.C03150) (1350 BR 2 16AP1967 C.C01762)
(1402 TR 2 6MY1967 C.C01083) (1353 FR 2 23AP1967 C.C1C055) (1403 CA 2 10MY1967 C.C6539)
(1404 MO 2 10MY1967 C.C02541) (1407 SM 2 14PY1967 C.C05374) (

Gomphonema intricatum var. *dichotomum* (Klitz.) Grun.

Gomphonema dichotomum Klitzing, Linnaea, 8:569, pl. 15, fig. 48. 1833.

Gomphonema intricatum var. *dichotomum* (Klitz.) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 24, figs. 30-31. 1880.

296 GCGINTRV TCT AC CF STATIONS 9
(46752 EV 15SE1937 C.C04354) (1388 GS12 12MY1967 C.C00603) (1374 GS22 6CC1967 C.C01726)
(1527 BM 1 5CC1967 C.C07334) (1552 MC 1 20SE1907 C.C00569) (1552 SM 1 6CC1967 C.C1081)
(1550 PR 1 5CC1967 C.C07334) (1553 SG 1 6CC1967 C.C01469) (14C4 MC 2 10MY1967 C.C127C)

Gomphonema intricatum var. *pumila* Grun.

Gomphonema intricatum var. *pumila* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 24, figs. 35-36. 1880.

297 GCLATRP TCT NC OF STATIONS 47											
(3540	CH	18W1879	0.03727	(46506	CH	PV1147	C.00066	(46758	EV	5JN1937	C.C1783
(46770	EV	24U1937	0.00596	(46764	EV	17JL1937	0.01612	(46757	EV	25JL1937	C.C0963
(46747	EV	18U1937	0.01238	(46763	EV	23AU1937	0.28409	(46765	EV	3SE1937	C.C2171
(46752	EV	15SE1937	0.02177	(46768	EV	22SE1937	0.00492	(46748	EV	13EC1937	C.C2135
(46767	EV	24U1937	0.00774	(46768	EV	16W1938	C.01370	(1240	D 4	10JN1964	C.C0153
(1243	F 6	13JN1964	0.00626	(1268	E 2	15AU1964	0.00274	(1270	F 1	10AL1964	C.C0817
(1285	F 1	15SE1964	0.01165	(1297	U 6	14OC1964	C.00190	(1302	F 5	13OC1964	C.C0405
(1324	F 2	6NO1966	0.00466	(1341	A 3	19AP1967	C.C0108	(1338	F 5	23SE1967	C.C0592
(1386	GS10	12W1967	0.00287	(1387	GS11	12W1967	0.00792	(1389	GS13	12W1967	C.CC256
(1524	GS 1	3CC1967	0.00356	(1525	GS 2	3CC1967	C.00393	(1526	GS13	5OC1967	C.C0235
(1571	GS10	6CC1967	C.00059	(1574	GS22	4CC1967	C.00301	(1544	MO 1	2OC1967	C.CC238
(1526	MO 1	25SE1967	0.01138	(1528	SR 1	20SE1967	0.01444	(1530	FR 1	24SE1967	C.C0200
(1552	SR 1	6CC1967	0.00660	(1550	MR 1	5OC1967	C.11151	(1553	SC 1	6CC1967	C.C2203
(1628	MO 2	29W1967	0.00603	(1617	HO 2	22W1967	0.01122	(1650	BH 2	19AP1967	C.C1101
(1399	PW 2	5W1967	0.00680	(14C2	TR 2	6W1967	0.00541	(1403	CA 2	10W1967	C.C1308
(1405	ES 2	12W1967	0.03225	(1407	SM 2	14W1967	0.00597	(			

Gomphonema lanceolatum Ehr.

Gomphonema lanceolatum Ehrenberg, Abh. Akad. Wiss. Berlin, 1843:32, pl. 2(1), fig. 37. 1845.

298 GOLANCEO TCT AC CF STATIONS 13											
(46764	EV	17JL1937	C.C0806	(46763	EV	23AU1937	C.C0458	(46748	EV	13CC1937	C.C2135
(46767	EV	27OC1937	0.00387	(46768	EV	16W1938	0.01470	(1388	GS12	12W1967	C.CC603
(1561	GS 9	4OC1967	0.01761	(1575	GS28	6CC1967	C.00159	(1550	MR 1	5OC1967	C.C3717
(1417	HO 2	22W1967	0.00374	(1418	SH 2	22W1967	0.01555	(1350	BH 2	19AP1967	C.C1322
(1402	TR 2	6W1967	0.00541	(							

Gomphonema lanceolatum var. *insignis* (Greg.) Cleve

Gomphonema insigne Gregory, Micr. J., 4:12, pl. 1, fig. 39. 1856.
Gomphonema lanceolatum var. *insignis* (Greg.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Foljd, 26(2):183. 1894.

299 GOLANCVI TCT AC CF STATIONS 1											
(46768	EV	16PR1938	C.C4410	(							

Gomphonema longiceps Ehr.

Gomphonema longiceps Ehrenberg, Mikrog., pl. 4(3), fig. 27. 1854.

300 GOLONGIC TCT NC OF STATIONS 1											
(46758	EV	5JN1937	0.00357	(							

Gomphonema manubrium Fricke

Gomphonema manubrium Fricke in: A. Schmidt, Atlas Diat., pl. 248, fig. 12. 1904.

Coll: 1549a.

Gomphonema olivaceoides Hust.

Gomphonema olivaceoides Husted, Arch. Hydrobiol., 43(3/4):397, pl. 37, figs. 9-12. 1950.

302 GOCLEUDE TCT NC OF STATIONS 17											
(46758	EV	5JN1937	0.03205	(46771	EV	11JN1937	C.CC238	(46743	EV	20JN1937	C.C0285
(46764	EV	17JL1937	0.00806	(46757	EV	25JL1937	0.00963	(46763	EV	23AU1937	C.C0209
(46752	EV	15SE1937	0.04354	(46748	EV	13CC1937	C.C0402	(46745	EV	12W1938	C.C01214
(46762	EV	10W1938	0.00617	(46756	EV	24SE1938	C.00108	(1258	F	6JL1964	C.C0472
(1384	GS 8	10W1967	0.00185	(1530	FR 1	24SE1967	C.01020	(1549	MO 1	4CC1967	C.C1370
(1552	SM 1	6CC1967	0.00660	(1550	MR 1	5OC1967	0.03717	(			

Gomphonema olivaceum (Lyngh.) Kütz.

Echinella olivacea Lynghye, Tent. Hydrophyt. Danicae, p. 209, pl. 70, fig. c. 1819.

Gomphonema olivaceum (Lyngh.) Kütz., Bacill., p. 85, pl. 7, figs. 13, 15. 1844.

303 GUGLIVAC TCT NO CF STATICS 82

146921	CH	23NC1945	0.00194	146524	CH	10MY1946	0.00282	146920	CH	200E1946	C.CC062
146905	CH	141147	0.00123	146516	CH	4MY1947	0.00176	146919	CH	5JN1947	0.00363
146922	CH	21AU1947	0.00048	146758	EV	5.0N1937	0.39560	146763	EV	20M1937	C.CC896
146770	EV	9JL1937	0.00596	146764	EV	17JL1937	0.00806	146757	EV	25JL1937	0.01926
146747	EV	14U1937	0.01236	146763	EV	23AU1937	0.12175	146765	EV	30AU1937	C.CC558
146752	EV	15SE1937	0.02177	146760	EV	23SE1937	0.00462	146768	EV	130E1937	0.02135
146767	EV	27OC1937	0.00387	146768	EV	16MR1938	0.01410	146762	EV	18MR1938	0.02206
146751	EV	30MR1938	0.02233	146771	C* 2	13MY1964	0.00170	146761	C* 1	8JN1964	C.CC175
146760	G 6	10JN1964	0.00307	146772	C* 1	16JL1964	0.00276	146773	C* 2	10SE1964	C.CC038
146779	E 1	16SE1964	0.00393	146782	E 4	16SE1964	0.01108	146785	F 1	15SE1964	C.CC582
146781	A 3	19AP1967	0.00048	146784	A 4	19AP1967	0.00180	146786	C 7	21AP1967	0.00401
146788	A 3	4MY1967	0.00314	146789	A 4	4MY1967	0.00373	146792	C 5	5MY1967	C.CC355
146795	E 3	7MY1967	0.00241	146796	E 5	28MY1967	0.00219	146798	A 4	13JN1967	0.00255
146801	C 7	18JL1967	0.00197	146799	E 2	15JL1967	0.00266	146802	E 3	15JL1967	C.CC252
146802	A 3	18JL1967	0.00329	146803	E 5	23SE1967	0.00552	146804	C 5	10MY1967	0.00239
146803	GS11	12MY1967	0.00396	146804	GS13	12MY1967	0.00258	146805	GS20	13MY1967	C.CC222
146807	GS21	13MY1967	0.00048	146808	E 7	4CC1967	0.00350	146809	GS11	5OC1967	0.00234
146807	GS15	50JL1967	0.00318	146809	GS17	50JL1967	0.00297	146810	GS17	6CC1967	0.00059
146810	GS21	6CC1967	0.00224	146811	GS22	6CC1967	0.00063	146812	GS28	6CC1967	C.CC129
146812	HL 1	14JL1967	0.02185	146813	HL 1	20C1967	0.02501	146814	SH 1	18SE1967	C.CC377
146815	HL 1	18SE1967	0.01641	146816	HL 1	20C1967	0.02703	146817	MG 1	4CC1967	C.CC370
146816	ES 1	30C1967	0.00709	146817	HL 1	50C1967	0.02470	146818	SG 1	8CC1967	C.CC734
146818	MU 2	29MY1967	0.00004	146819	MS 2	29MY1967	0.04199	146820	P1 2	21AP1967	0.00421
146819	MU 2	29MY1967	0.04843	146820	HO 2	22MY1967	0.04112	146821	SH 2	15AP1967	C.CC538
146820	MU 2	6MY1967	0.05292	146821	TR 2	6MY1967	0.01083	146822	SH 2	6MY1967	0.00552
146821	GH 2	25AP1967	0.01959	146822	ML 2	29MY1967	0.02123	146823	SH 2	10MY1967	C.CC531
146822	SM 2	14MY1967	0.00597	146823	CL 2	19AP1967	0.00359	146824	GB 2	13MY1967	C.CC296
146823	WA 2	23MY1967	0.01285								

Gomphonema olivaceum var. *calcareum* Cleve

Gomphonema olivaceum var. *calcareum* Cleve, Ofv. K. Svenska Vet.-Akad. Forhandl., 24:231, pl. 4, fig. 7. 1868.

304 GUGLIVAC TCT NO OF STATICS 5

146758	EV	5JN1937	0.01426	146757	EV	25JL1937	C.01444	146747	EV	14U1937	C.00248
146763	EV	23AU1937	0.02020	146759	F 1	15SE1964	0.00582	146748	A 4	19AP1967	C.00180
146764	MU 1	25SE1967	0.01138	146760	TR 1	20SE1967	0.00520	146749	HM 1	20SE1967	0.00577

Gomphonema parvulum (Kütz.) Kütz.

Sphenella ? *parvula* Kützting, Bacill., p. 83, pl. 30, fig. 63. 1844.
Gomphonema parvulum (Kütz.) Kützting, Sp. Alg., p. 65. 1849.

305 GUGLIVAC TCT NO CF STATICS 18

146909	CH	MR1947	0.00455	146798	EV	5JN1937	0.00357	146768	EV	16MR1938	C.CC1470
146798	F 1	4JL1964	0.00336	146799	C* 2	10JL1964	0.00224	146779	E 1	16SE1964	C.CC393
146799	E 2	11OC1967	0.00532	146801	GS11	12MY1967	0.00792	146781	GS19	6CC1967	C.CC117
146799	GS21	6CC1967	0.00112	146802	GS22	6CC1967	0.00208	146782	P1 1	20SE1967	C.004378
146800	HO 1	18SE1967	0.00071	146801	HM 1	18SE1967	0.00182	146783	HA 1	15SE1967	C.CC300
146801	HM 2	19AP1967	0.00500	146802	MC 2	6MY1967	0.00528	146784	GB 2	13MY1967	C.CC27C

Gomphonema parvulum var. *micropus* (Kütz.) Cleve

Gomphonema micropus Kützting, Bacill., p. 84, pl. 8, fig. 12. 1844.
Gomphonema parvulum var. *micropus* (Kütz.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):180. 1894.

306 GUGLIVAC TCT NO OF STATICS 1

146753	SG 1	6CC1967	0.00734
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Gomphonema sphaerophorum Ehr.

Gomphonema sphaerophorum Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:78. 1846.

307 GUGLIVAC TCT NO OF STATICS 1

146750	HM 2	19AP1967	0.00661
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Gomphonema subtile Ehr.

Gomphonema subtile Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:128. 1843.

308 GUGLIVAC TCT NO CF STATICS 1

146750	GS16	50C1967	0.00144
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Gomphonema subtile var. *sagitta* (Schum.) Grun.

Gomphonema sagitta Schumann, Schrift. Phys.-Ökon. Ges. Königsberg, 3:187, pl. 9, figs. 19a-d. 1863.

Gomphonema subtile var. *sagitta* (Schum.) Grun. in: Van Heurck, Syn. Diat. Belgique, pl. 23, fig. 27. 1880.

309 GCSUBTVS TCT NO OF STATIONS 1
(1348 E 5 23AP1967 0.00137) (

Gomphonema tergestinum (Grun.) Fricke

Gomphonema semiapertum var. *tergestina* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 25, fig. 40. 1880.

Gomphonema tergestinum (Grun.) Fricke in: A. Schmidt, Atlas Diat., pl. 234, figs. 39-43. 1902.

310 GOTERGES TCT NO OF STATIONS 2
(1550 MR 1 5CC1967 0.C1239) (14C4 MC 2 10PY1967 0.02541) (

Species incertae sedis

Gomphonema sp. #2.

311 GOSPECUB TCT NO OF STATIONS 12
(46919 CH 5JN1947 0.00455) (46758 EV 5JN1937 0.01073) (46752 EV 155E1937 0.06530)
(46768 EV 16MR1538 0.02940) (46751 EV 30MR1938 0.02233) (1285 F 1 155E1964 C.C0582)
(1394 GS18 13MY1967 0.00172) (1397 GS21 13MY1967 0.00065) (1560 GS 8 40C1967 C.C0472)
(1550 MR 1 5CC1967 0.01239) (14C4 MC 2 10PY1967 0.02541) (14C5 ES 2 12PY1967 C.C0645)

Gomphonema sp. #3.

312 GOSPECOC TCT NO OF STATIONS 3
(46920 CH 20OE1246 0.0CC31) (46752 EV 155E1937 0.02177) (46767 EV 27OC1937 C.C0387)

Gomphonema sp. #6.

313 GOSPECOF TCT NO OF STATIONS 1
(1401 PG 2 6MY1967 0.0C588) (

Genus *Gyrosigma* Hass.

Hassall, British Freshw. Algae, p. 435. 1845.

Although most freshwater species of the genus *Gyrosigma* find their primary habitat in epipellic communities, many are successful facultative plankton. Members of the genus are found in many plankton collections from Lake Michigan, but usually in small numbers.

Gyrosigma acuminatum (Kütz.) Rabh.

Frustulia acuminata Kützting, Linnaea, 8:555, pl. 14, fig. 36. 1833.

Gyrosigma acuminatum (Kütz.) Rabenhorst, Süssw.-Diat., p. 47, pl. 5, fig. 5a. 1853.

315 GYACURJN TCT NO OF STATIONS 1
(1406 GB 2 13MY1967 0.00276) (

Gyrosigma attenuatum (Kütz.) Rabh.

Frustulia attenuatum Kützting, Linnaea, 8:555, pl. 14, fig. 35. 1833.

Gyrosigma attenuatum (Kütz.) Rabenhorst, Süssw.-Diat., p. 47, pl. 5, fig. 2. 1853.

316. GYATTENU TCT AC CF STATIONS 19

(3540	CH	11MY1875	0.00932	(3541	CH	11FE1881	0.02535	(46967	CH	JL1947	C.CC099
(1284	E 6	17SE1964	0.00318	(1285	F 1	15SE1964	0.00582	(1384	GS 8	10MY1967	C.C0185
(1382	GS11	12MY1967	0.00334	(1390	GS14	12MY1967	0.00587	(1394	GS18	13MY1967	C.C0172
(1567	GS15	50C1967	0.00318	(1572	GS20	60C1967	0.00050	(1574	GS22	60C1967	C.C0288
(1575	GS28	60C1967	0.00129	(1547	MS 1	20C1967	0.00798	(1526	MS 1	20SE1967	C.C0276
(1527	TR 1	20SE1967	0.01258	(1553	SG 1	66C1967	0.00734	(1426	PS 2	29MY1967	C.C1C50
(1350	BH 2	19AP1967	0.01542	(							

Gyrosigma nodiferum (Grun.) Reim.

Pleurosigma nodiferum Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):59. 1880.

Gyrosigma nodiferum (Grun.) Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr. 13:320, pl. 24, fig. 2. 1966.

317. GYNODIFE TCT AC CF STATIONS 22

(3541	CH	11FE1881	0.00978	(46520	CH	200E1546	0.00031	(46906	CH	MY1947	C.CC066
(46764	EV	17JL1937	0.00806	(46757	EV	25JL1937	0.00481	(46747	EV	1AU1937	C.C0074
(1350	F 3	6JL1964	0.00191	(1323	F 1	6ND1564	0.00139	(1346	C 7	21AP1567	C.C0134
(1534	A 6	19SE1967	0.00310	(1380	GS 4	9MY1967	0.00336	(1388	GS12	12MY1967	C.C5430
(1385	GS11	12MY1967	0.00258	(1350	GS14	12MY1967	0.00408	(1391	GS15	12MY1967	C.C5310
(1393	GS17	13MY1967	0.01644	(1394	GS18	13MY1967	0.01892	(1395	GS19	13MY1967	C.C0235
(1563	GS11	50C1967	0.00234	(1568	GS16	50C1967	C.C00433	(1552	SP 1	60C1967	C.C01981
(1553	SG 1	66C1967	0.00734	(							

Gyrosigma sciotense (Sulliv. and Wormley) Cleve

Pleurosigma sciotense Sullivant and Wormley, American J. Sci., Ser. 2, 27:251. 1859.

Gyrosigma sciotense (Sulliv. and Wormley) Cleve, K. Svenska Vet.-Akad. Handl., Ny.Följd, 27(3):pl. 1, fig. 5. 1895.

318. GYSCICTE TCT AC CF STATIONS 1

(1405	ES 2	12MY1567	0.00645	(							
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319. GYSCIDQT TCT AC CF STATIONS 12

(1231	E 3	14MY1564	0.00245	(1262	GS16	12MY1967	0.00616	(1394	GS18	13MY1967	C.C0344
(1395	GS12	13MY1967	0.00117	(1566	GS14	50C1967	0.00367	(1567	GS15	50C1967	C.C0581
(1569	GS17	50C1967	0.00824	(157C	GS18	50C1967	0.27767	(1571	GS19	60C1967	C.C0117
(1573	GS21	60C1967	0.00112	(1574	GS22	60C1967	0.00288	(1575	GS28	60C1967	C.C01677

Gyrosigma spencerii (Quek.) Griff. and Henfr.

Navicula spencerii Quekett, Pract. Treat. Micr., p. 440, pl. 9. 1848.

Gyrosigma spencerii (Quek.) Griffith and Henfrey, Microgr. Dict., 1st. ed., p. 303, pl. 11, fig. 17. 1856.

320. GYSPENCE TCT AC CF STATIONS 5

(3540	CH	11MY1875	0.00466	(1275	E 1	16SE1564	0.00393	(1285	F 1	15SE1564	C.C1747
(1569	GS17	50C1967	0.00149	(1407	SM 2	14MY1567	0.01194	(			

Gyrosigma spencerii var. *curvula* (Grun.) Reim.

Pleurosigma spencerii var. *curvula* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):60. 1880.

Gyrosigma spencerii var. *curvula* (Grun.) Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:316, pl. 23, fig. 8. 1966.

321. GYSPENCV TCT AC CF STATIONS 17

(46909	CH	MY1947	0.00455	(46506	CH	MY1947	C.C0066	(46967	CH	JL1947	C.CC049
(46922	CH	22AU1967	0.00048	(1387	GS11	12MY1967	0.00398	(1574	GS22	60C1967	C.C0575
(1521	SM 1	16SE1967	C.C0577	(1526	GS11	20SE1967	0.00569	(1527	TR 2	20SE1967	C.C0625
(1553	SG 1	60C1967	0.00734	(1426	MS 2	29MY1967	C.C01050	(1427	MS 2	29MY1967	C.C0121
(1401	MS 2	6MY1967	0.01176	(1402	TR 2	6MY1967	C.C01624	(1407	SP 2	14MY1967	C.C0597
(1349	CI 2	19AP1967	0.00359	(1422	GA 2	23MY1967	0.00511	(			

Gyrosigma temperei Cleve

Gyrosigma temperei Cleve, Diatomiste, 2(15):55, pl. 3, fig. 3. 1893.

322 GYTEMER TCT NO OF STATIONS 2									
(3507	CH	19FE1881	0.01132	(1550	MR	50C1967	0.01239	(	

Gyrosigma wormleyi (Sulliv.) Boyer

Pleurosigma wormleyi Sullivant in: Sullivant and Wormley, Amer. J. Sci., Ser. 2, 27:251. 1859.

Gyrosigma wormleyi (Sulliv.) Boyer, Contr. Biol. Micr. Sect. Acad. Nat. Sci. Philadelphia, 1:7, pl. 2, fig. 10. 1922.

323 GYMCHPLE TCT NO OF STATIONS 1									
(1531	GH	255E1967	0.00845	(					

Genus *Hannaea* Patr.

Patrick in: Patrick and Reimer

Acad. Nat. Sci. Philadelphia Monogr., 13:131. 1966.

Members of the genus *Hannaea* are most abundant in periphyton communities, especially in mountain streams and cold, oligotrophic lakes. Like several members of the closely related genus *Fragilaria* which have similar habit, they are apparently successful in the plankton under certain conditions. In Lake Michigan occasional specimens are taken in plankton collections from nearshore areas but the genus is rarely noted in offshore collections.

Hannaea arcus (Ehr.) Patr.

Navicula arcus Ehrenberg, Infusionsthierchen, p. 182, pl. 21, fig. 10. 1838.

Hannaea arcus (Ehr.) Patrick in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:132, pl. 4, fig. 20. 1966.

324 HBARCUS TCT NO OF STATIONS 1									
(1244	F	11JN1964	0.00110	(					

Hannaea arcus var. *amphioxys* (Rabh.) Patr.

Ceratoneis amphioxys Rabenhorst, Süssw.-Diat., p. 37, pl. 9, fig. 4. 1853.

Hannaea arcus var. *amphioxys* (Rabh.) Patrick in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:133, pl. 4, fig. 21. 1966.

325 HBARCUVA TOT NO OF STATIONS 2									
(1258	F	6JL1964	0.00236	(1403	CA	10MY1967	0.02615	(	

Genus *Hantzschia* Grun.

Grunow in: Cleve and Grunow

K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):103. 1880.

Freshwater members of the genus *Hantzschia* are most abundant in epipelagic communities in aquatic habitats and in the soil flora. Only occasional isolated specimens have been noted in plankton collections from Lake Michigan.

Hantzschia amphioxys (Ehr.) Grun.

Eunotia amphioxys Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:413, pl. 1(1), fig. 26. 1843.

Hantzschia amphioxys (Ehr.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):103. 1880.

326 HAAMPHC TCT AC OF STATIONS 2

(1320 E 4 7NO1964 0.00207) (1402 TP 2 6MY1967 0.00541) (

Hantzschia amphioxys var. *capitata* O. Müll.

Hantzschia amphioxys var. *capitata* O. Müll., Bot. Jahrb., 43(4):34, pl. 2, fig. 28. 1909.

327 HAAMPHC TCT AC OF STATIONS 3

(46917 CH 12JAI1966 0.00028) (1512 E 3 15E1967 0.00393) (1569 6S17 5CC1967 0.00149)

Genus *Mastogloia* Thw.

Thwaites ex Wm. Smith, Syn. British Diat., Vol. 2, p. 63. 1856.

Freshwater members of the genus *Mastogloia* find their primary habitat in periphyton and epipellic communities. Only occasional specimens are noted in plankton collections from Lake Michigan.

Mastogloia grevillei Wm. Smith

Mastogloia grevillei Wm. Smith, Syn. British Diat., Vol. 2, p. 65, Supp. pl. 62, fig. 389. 1856.

328 MAGREVIL TCT AC OF STATIONS 3

(1388 6S12 12MY1967 0.00603) (1573 6S21 6CC1967 0.00112) (1350 BH 2 19API1967 0.00220)

Mastogloia smithii Thw.

Mastogloia smithii Thwaites ex Wm. Smith, Syn. British Diat., Vol. 2, p. 65, pl. 54, fig. 341. 1856.

329 MASITHI TCT AC OF STATIONS 3

(66973 CH 1876 0.02362) (645C5 CH 181967 0.00123) (1350 BH 2 19API1967 0.00220)

Mastogloia smithii var. *amphicephala* Grun.

Mastogloia smithii var. *amphicephala* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 4, fig. 27. 1880.

Coll: 1100.

Mastogloia smithii var. *lacustris* Grun.

Mastogloia smithii var. *lacustris* Grunow in: Schneider, Naturw. Beitr. Kenntn. Kaukasusländer, p. 111. 1878.

330 MASITHI TCT AC OF STATIONS 3

(1244 F 1 11JAI1964 0.00110) (1243 A 6 19API1967 0.00609) (1407 SM 2 14MY1967 0.00597)

Genus *Melosira* Agardh

Agardh, Syst. Alg., p. 8. 1824.

Melosira distans (Ehr.) Kütz.

Gaillonella distans Ehrenberg, Ber. Akad. Wiss. Berlin, 1836:170. 1836.
Melosira distans (Ehr.) Kütz., Bacill., p. 170, pl. 2, fig. 12. 1844.

Cells cylindrical, united by the valve faces into short colonies. Individual valves of specimens from Lake Michigan 4-12 μ in diameter, 4-6 μ in height (valve mantle). Frustules are heavily silicified. Ornamentation of

the valve surface consists of irregularly arranged poroids. Ornamentation of the valve mantle consists of poroids arranged in rows usually parallel to the perivalvar axis. Rows of poroids usually about 13-15 in 10 μ , poroids within the rows about 15-18 in 10 μ . In the smaller specimens the arrangement of these structures tends to become irregular. The margin of the valve is furnished with a corona of small spines. Pseudosulcus apparent, usually deeply incised. Sulcus deeply incised, forming a sharp angle. Because of the deep incision of the sulcus and pseudosulcus, the margins of the valve mantle tend to be convex and the neck of each valve is more or less bowl-shaped.

This species is uncommon in our collections. Occasional populations are found in the modern plankton and isolated valves occur in many collections. We suspect that some of these are derived from Pleistocene deposits because of their corroded condition and random occurrence.

332 MEDISTRA TCT NO OF STATICS 12

(3540	CH	11MY1879	0.03261	(14651C	CH	0C1945	C.00546	(146914	CH	19AP1946	C.00427
(146923	CH	22NO1946	0.00656	(14652C	CH	28DE1946	C.00092	(146905	CH	JA1947	C.00368
(146916	CH	4MY1947	0.00238	(14657C	CH	JI1947	0.00197	(1536	E 2	24SE1947	C.00273
(1537	E 3	24SE1947	0.00431	(1538	E 5	23SE1947	0.00552	(1554	CS 1	30C1947	C.00712

Melosira distans var. *alpigena* Grun.

Melosira distans var. *alpigena* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 86, figs. 28-29. 1882.

Distinguished from the nominate variety by its smaller size range, lesser degree of silicification and finer ornamentation. Specimens from Lake Michigan 3-6 μ in diameter, 3-4 μ high. Striae on the valve mantle about 16 in 10 μ , poroids within the rows about 22 in 10 μ . The striae are usually oblique to the perivalvar axis and tend to spiral around the frustule rather than being parallel to the perivalvar axis as in the nominate variety.

This entity is very rare in our collections. All specimens observed appear to be of modern derivation.

333 MEDISTRA TCT NO OF STATICS 15

(3541	CH	1FE1881	0.01556	(146744	EV	6CC1937	C.00488	(1341	A 3	19AP1947	C.00651
(1342	A 4	19AP1947	0.00361	(1421	A 3	12JN1947	0.00772	(1436	E 2	15JN1947	C.01809
(1437	E 3	15JN1947	0.00269	(1444	A 3	11JL1947	C.00578	(1451	C 7	14JL1947	C.00394
(1452	E 2	14JL1947	0.00852	(1453	E 3	15JL1947	C.01011	(1332	A 3	18SE1947	C.00657
(1938	E 5	23SE1947	0.01105	(1543	E 5	10CC1947	C.00718	(1355	GS15	19MY1947	C.00470

Melosira granulata (Ehr.) Ralfs

Gaillonella granulata Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:415. 1843.

Melosira granulata (Ehr.) Ralfs in: Pritchard, Hist. Infus., p. 820. 1861.

Cells cylindrical, joined by the valve faces into long, closely appressed colonies. Individual valves of specimens from Lake Michigan 5-20 μ in diameter, 5-20 μ high. Pseudosulcus poorly developed, not apparent, sulcus only slightly incised consisting of a sharply angled furrow. Neck elongate, of the same diameter as the valve. The margin of the valve is often furnished with very coarse spines of irregular length. The longer of these spines often overlap one valve of the next cell in the colony. The degree of silicification and the ornamentation of the frustule is extremely variable. The valve mantle is more heavily silicified than the valve surface. Ornamentation of the valve surface poorly developed consisting of a few irregularly arranged poroids, often without visible structure. The ornamentation of the valve mantle is pleomorphic. In all cases the

poroids are arranged in rows oblique to the pervalvar axis, thus spiraling around the long dimension of the colony. The following types of ornamentation are found:

Status a: Ornamentation of the valve mantle consisting of rows of coarse, more or less rectangular areolae. Areolae rows about 8-9 in 10 μ with 8-10 areolae in 10 μ within the rows. Frustules are heavily silicified.

Status b: Both finely areolate and coarsely areolate frustules found in the same colony.

Status f: Ornamentation of the valve mantle consisting of fine, more or less circular puncta. Punctae rows 10-15 in 10 μ with 10-15 puncta in 10 μ within the rows.

This species is often abundant in eutrophic portions of Lake Michigan.

334 MEGALITHIC COLONY OF STATIONS 262

160973	CH	1876	0.16533	1	354C	CH	11M11675	0.17705	1	354I	CH	1FE1881	0.45575	1
13507	CH	19FE1881	0.12452	1	46510	CH	01C1945	0.30009	1	46921	CH	23NC1545	0.74351	1
14600	CH	0E1945	1.75226	1	46511	CH	12J14046	1.35155	1	46913	CH	20F1416	3.44886	1
14601A	CH	15AP1546	3.36561	1	46524	CH	10M15446	12.38078	1	46923	CH	22NO1546	14.22641	1
146920	CH	20CE1946	2.99412	1	46505	CH	4J1947	5.29722	1	46909	CH	MR1647	2.95979	1
146012	CH	AP1947	5.61121	1	46516	CH	49J1947	6.41077	1	46906	CH	11J1522	2.1008	1
146915	CH	5JN1547	0.54172	1	46507	CH	4JL1947	4.00055	1	46913	CH	6AU1947	4.47607	1
146522	CH	21AU1947	4.31575	1	46758	EV	5JN1937	0.02856	1	46771	EV	11JN1937	0.07113	1
146743	EV	0.04710	1	46759	EV	2.34065	1	46770	EV	9JL1937	0.75044	1		
146764	EV	11JL1937	3.18784	1	46757	EV	25JL1937	0.82548	1	46747	EV	1AU1937	0.64956	1
146763	EV	23AU1937	4.2614	1	46765	EV	30AU1937	7.96430	1	46765	EV	75E1937	0.47603	1
146752	EV	15E1937	5.70309	1	46760	EV	22E1937	0.82367	1	46755	EV	24E1937	0.84197	1
146744	EV	60C1937	0.659482	1	46748	EV	130C1937	0.49668	1	46767	EV	27C1937	1.30447	1
146765	EV	12M1538	0.03641	1	46752	EV	10M1938	2.11734	1	46772	EV	27E1937	0.52258	1
146756	EV	19AP1938	0.03358	1	46755	EV	19M1938	0.00338	1	46761	EV	27M1938	0.24553	1
146766	EV	14E1938	2.94677	1	1233	8.3	5JN2564	3.00064	1	1234	8.3	18JN1964	1.18084	1
1235	C.7	16JN1964	0.01130	1	1236	C.4	8JN1964	2.02942	1	1237	C.2	8JN1964	1.53590	1
1238	D.3	11JN1564	0.08800	1	1240	O.6	10JN1964	0.25770	1	1241	E.2	13JN1964	0.55928	1
1242	E.2	13JN1964	0.00300	1	1243	E.6	13JN1964	0.10023	1	1244	F.1	11JN1964	0.05811	1
1245	F.1	11JN1964	0.02764	1	1247	F.3	14C1964	0.01195	1	1248	G.3	14C1964	0.26892	1
1248	G.3	24JL1964	0.27587	1	1440	B.6	11JL1964	0.02948	1	1441	B.6	24JL1964	0.00220	1
1249	H.3	8JL1964	0.25332	1	1450	G.6	10JL1964	0.00822	1	1451	C.7	16JL1964	0.14483	1
1252	C.1	16JL1964	3.40516	1	1253	C.3	16JL1964	0.28985	1	1254	D.2	15JL1964	0.68815	1
1255	D.2	15JL1964	0.00257	1	1256	E.2	14JL1964	0.07909	1	1257	E.3	14JL1964	0.07118	1
1258	F.1	6JL1964	0.04248	1	1259	F.2	6JL1964	0.05606	1	1260	F.3	6JL1964	0.07119	1
1261	B.3	2AU1564	0.02046	1	1262	B.3	17AU1564	0.10590	1	1263	B.6	2AU1564	0.03165	1
1264	C.1	10AU1564	5.94686	1	1265	C.2	10AU1564	0.04024	1	1266	D.6	18AU1564	0.01403	1
1267	O.6	18AU1564	0.01081	1	1268	E.2	15AU1564	0.11489	1	1269	E.2	15AU1564	0.07837	1
1270	F.1	10AU1564	0.10089	1	1444	B.6	19E1964	0.00806	1	1271	C.7	22E1564	0.02611	1
1272	C.1	10E1564	0.18881	1	1273	C.2	10E1564	0.02151	1	1274	O.1	17E1564	15.10022	1
1275	O.2	17E1564	4.51584	1	1276	O.3	18E1564	1.45284	1	1277	O.4	18E1564	0.01239	1
1278	B.6	18E1564	0.53807	1	1279	E.1	16E1564	3.84322	1	1280	E.2	16E1564	0.30081	1
1281	F.3	16E1564	0.00785	1	1282	E.4	16E1564	0.02210	1	1283	E.5	16E1564	0.22452	1
1284	E.6	17E1564	2.11292	1	1285	F.1	15E1564	0.22713	1	1286	F.2	15E1564	0.04378	1
1287	F.3	10E1564	0.08057	1	1445	B.6	7.00045	1	1446	B.6	26E1564	0.02610	1	
1290	C.1	16C1564	0.36659	1	1251	C.2	10C1564	0.68449	1	1292	C.1	15C1564	0.37394	1
1293	O.2	15C1564	0.04245	1	1294	O.3	15C1564	0.02967	1	1295	O.4	15C1564	0.00595	1
1296	E.5	16C1564	0.00393	1	1297	E.6	16C1564	0.29131	1	1298	F.1	12C1564	0.07124	1
1299	E.2	12C1564	0.73516	1	1300	E.3	13C1564	0.22552	1	1301	E.4	13C1564	0.01766	1
1302	E.5	13C1564	0.29962	1	1303	E.6	13C1564	0.29106	1	1304	F.1	11C1564	0.00164	1
1305	F.1	0.03520	1	1306	F.3	11C1564	0.11948	1	1307	B.6	11C1564	0.05512	1	
1308	C.7	6M1564	0.01825	1	1309	C.1	10M1564	0.08040	1	1310	C.2	10M1564	0.23401	1
1311	D.1	8M1564	0.02064	1	1312	C.2	9M1564	0.09176	1	1313	C.3	9M1564	0.02866	1
1314	B.6	9M1564	0.01435	1	1315	O.5	9M1564	0.01820	1	1316	O.6	9M1564	0.06422	1
1317	E.1	6M1564	0.15952	1	1318	E.2	7M1564	0.22639	1	1319	E.3	7M1564	0.11997	1
1320	E.4	6M1564	0.07059	1	1321	E.5	7M1564	0.01822	1	1322	E.6	7M1564	0.40637	1
1323	F.1	6M1564	0.08920	1	1324	F.2	6M1564	0.32609	1	1325	F.3	6M1564	0.32495	1
1336	C.3	27JL1967	0.67395	1	1337	C.3	28M1967	0.33510	1	1339	C.2	28M1967	0.02182	1
1340	F.1	28M1967	0.00291	1	1341	A.3	19AP1967	0.32078	1	1342	A.4	19AP1967	1.51681	1
1343	A.8	19AP1967	0.06139	1	1344	C.3	25AP1967	0.00331	1	1346	C.7	21AP1967	0.00935	1
1368	A.3	4MY1967	0.00628	1	1369	A.4	4MY1967	0.00373	1	1371	C.3	4MY1967	0.11395	1
1408	E.1	28M1967	0.01789	1	1410	E.2	6.02462	1	1411	E.3	31M1967	0.26808	1	
1414	E.2	28M1967	0.00336	1	1415	E.3	28M1967	0.00450	1	1416	E.5	28M1967	0.00875	1
1431	A.1	12JN1967	0.00515	1	1432	A.2	13JN1967	0.01533	1	1433	B.3	7JN1967	0.18096	1
1434	C.2	13JN1967	0.01764	1	1435	C.7	13JN1967	0.01263	1	1436	E.2	15JN1967	0.02895	1
1446	A.1	11JL1967	13.18529	1	1447	A.4	11JL1967	0.05950	1	1448	A.6	10JL1967	0.01061	1
1451	C.7	10JL1967	0.03563	1	1452	E.2	15E1967	2.14784	1	1453	E.3	15E1967	0.00164	1
1464	A.3	28AU1967	0.34564	1	1511	E.1	15E1967	2.14784	1	1532	A.3	18E1967	2.75944	1
1533	A.4	15E1967	0.04050	1	1534	A.6	15E1967	2.38888	1	1535	C.7	20E1967	0.07681	1
1536	E.3	24E1967	0.00181	1	1537	A.3	24E1967	0.02987	1	1538	E.5	18E1967	0.23001	1
1539	C.3	4CC1967	2.28942	1	1540	C.5	40C1967	0.09927	1	1541	E.2	11C1967	0.48274	1
1562	J.3	11C1967	0.07120	1	1563	E.5	10C1967	0.02140	1	1580	C.5	9M1967	0.00336	1
1587	G.11	12M1967	0.01189	1	1588	G.12	12M1967	0.22263	1	1589	G.13	12M1967	0.26808	1
1590	G.14	12M1967	2.05520	1	1591	G.15	12M1967	1.22588	1	1592	G.16	12M1967	0.41372	1
1593	G.17	13M1967	0.02464	1	1594	G.18	13M1967	1.32453	1	1595	G.19	13M1967	0.00164	1
1596	G.20	13M1967	35.85212	1	1597	C.521	13M1967	0.00004	1	1598	C.522	14M1967	0.02429	1
1594	G.5	13C1967	1.01812	1	1595	G.5	30C1967	0.20913	1	1596	G.5	30C1967	0.26607	1
1597	G.6	14C1967	0.18818	1	1598	G.6	40C1967	0.15958	1	1599	G.7	50C1967	0.09622	1
1590	G.8	4CC1967	0.00229	1	1561	C.5	40C1967	0.05978	1	1562	G.10	50C1967	0.26707	1
1563	G.11	5CC1967	3.60095	1	1564	G.12	5CC1967	7.14333	1	1565	G.13	50C1967	4.47267	1
1566	G.14	5CC1967	21.18877	1	1567	G.15	50C1967	28.11824	1	1568	G.16	50C1967	4.47267	1

(1569	GS17	5CC1967	13.61303	(1570	GS18	20CL1967	17.35422	(1571	GS19	60C1567	41.1C005
(1572	GS20	60C1967	21.61248	(1573	GS21	60C1967	51.19255	(1574	GS22	60C1567	1.4C075
(1575	GS28	60C1967	39.01532	(1544	M75	20CL1967	82.57916	(1547	M51	2C21967	6C.42314
(1546	LU 1	20C1967	78.18736	(1520	H0 1	18SE1567	35.07944	(1521	SH 1	18SE1567	6C.92775
(1522	BH 1	18SE1567	61.01248	(1523	RA 1	19SE1567	9.15700	(1526	MD 1	20SE1567	1C.05228
(1527	TR 1	20SE1567	27.71658	(1529	KW 1	2CSE1567	1.00731	(1530	FR 1	24SE1567	47.84477
(1531	GH 1	25SE1567	38.14032	(1545	WL 1	20C1967	2C.00134	(1548	CA 1	3CC1567	7.53C05
(1549	MO 1	40C1967	21.61248	(1531	ES 1	5CC1567	8.56208	(1532	SH 1	60C1567	3C.02509
(1550	MR 1	5CC1967	2.57713	(1553	SG 1	6CC1567	21.56410	(1428	MU 2	29PV1567	71.72460
(1426	M5 2	29PV1567	1.85827	(1351	PI 2	21AP1567	0.01862	(1427	LU 2	29PV1567	10.07264
(1417	HO 1	22MV1567	4.90564	(1418	SH 2	22MV1567	1.24417	(1350	EW 2	19AF1567	31.07407
(1401	MO 2	6PV1567	0.02352	(1402	TR 2	6MV1567	0C.01083	(1353	FR 2	23AP1567	1C.18987
(1354	GH 2	25AP1567	74.42452	(1425	WL 2	29PV1567	28.1C792	(1403	CA 2	10PV1567	3C.32693
(1408	MO 2	10PV1567	27.64627	(1405	ES 2	22MV1567	1.65758	(1407	SH 2	14PV1567	3.72604
(1349	CI 2	18AP1567	0.02155	(1406	GB 2	23PV1567	9C.00665	(1420	HW 2	23PV1567	4C.27190
(1421	CH 2	23MV1567	0.01804	(1422	GA 2	13PV1567	0C.05065	(1423	NA 2	25MV1567	0C.0C556
(1430	MC 2	12JN1567	0.05355	(							

Melosira granulata fo. *spiralis* Grun.

Melosira (granulata?) var. *spiralis* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 87, figs. 20-22. 1882.

Cells curved in the pervalvar, forming lax spiral colonies. Other morphologic features, including pleomorphic ornamentation, essentially similar to the nominate variety.

Our collections of this entity mostly come from highly eutrophied environments.

335 MEGRANEFC ICT NO OF STATIONS 22

(46974	EV	40C1967	0.00075	(1456	E 3	15JL1567	0C.28086	(1511	E 2	15SE1967	C.05218
(1512	E 3	40C1967	0.00785	(1536	E 2	24SE1567	0.07635	(1541	E 2	11OC1967	C.01064
(1542	E 3	10C1967	0.01017	(1356	GS2C	13MV1567	0C.09592	(1555	GS 2	30C1967	C.1C559
(1558	GS 5	40C1967	0.00785	(1537	GS2C	24JL1567	0C.02240	(1542	GS 1	16C1567	7.01086
(1560	MD 1	18SE1567	3.77138	(1521	SH 1	18SE1567	0.14424	(1522	HW 1	18SE1567	C.87526
(1531	GH 1	25SE1567	0.49376	(1545	WL 1	20C1967	0.01136	(1549	PQ 1	40C1567	C.02741
(1428	MU 2	29PV1567	0.71111	(1417	HO 2	22MV1567	0C.01495	(1429	NA 2	29PV1567	C.0C376
(1406	GB 2	13PV1567	C.05078	(							

Melosira granulata var. *angustissima* O. Müll.

Melosira granulata var. *angustissima* O. Müller, Hedwigia, 38:315, pl. 12, fig. 28. 1899.

Cells elongate-cylindrical, only 3-6µ in diameter. Length of the pervalvar axis more than 5 times the diameter of the valve. Other features of the morphology and ornamentation of the frustule essentially similar to the nominate variety.

336 MEGRANVA TCT NC CF STATIONS 152

(46910	CH	CC1945	0.00546	(46921	CH	23NO1545	C.00194	(46914	CH	15AP1546	C.00214
(46924	CH	10MY1546	0.00212	(46923	CH	22NO1546	0.01311	(46916	CH	48VY1547	C.00407
(46907	CH	40C1967	0.00099	(46922	CH	21JUL1567	0C.02281	(46910	EW	24SE1937	C.32992
(46745	EV	60C1237	0.13656	(1232	E 5	16MV1564	0.00656	(1233	8 3	5JN2564	0.33340
(1236	C* 1	6JN1564	0.22931	(1237	C* 2	6JN1564	0.6325	(1241	E 2	13JN1564	C.06553
(1247	8 3	14JL1564	0.00854	(1248	B 3	24JL1564	0.00985	(1249	F 3	8JUL1564	7.01086
(1251	C 7	16JL1564	0.00579	(1252	C* 1	16JL1564	0.03626	(1253	C* 2	16JL1564	0.01365
(1254	MD 2	15SE1566	0.02681	(1256	E 4	10JL1564	0.04910	(1257	F 3	14JL1564	0.00479
(1261	B 3	24U1564	0.00785	(1264	C* 1	10AU1564	1.35156	(1265	C* 2	10AU1564	0.01341
(1266	0 3	18AU1564	0.01403	(1268	E 2	15AU1564	0.00547	(1272	C* 1	10SE1564	C.11082
(1273	C* 2	15SE1564	0.01613	(1276	0 1	17SE1564	C.14008	(1275	0 2	15SE1564	C.00877
(1277	0 4	18SE1564	0.01239	(1279	E 1	16SE1564	0.29057	(1280	E 2	16SE1564	C.05446
(1284	E 6	17SE1564	0.02224	(1286	F 2	15SE1564	0.02189	(1288	8 3	15C1564	2.85521
(1295	8 3	10C1564	0.01927	(1290	C* 1	16C1564	0.02610	(1291	8 3	16C1564	C.00245
(1292	0 1	15C1564	0.00373	(1294	0 3	15C1564	0.00330	(1297	0 6	14OC1564	0.00190
(1298	E 1	12OC1564	0.03770	(1295	E 2	12C1564	0.04759	(1300	E 3	13OC1564	C.45012
(1302	F 3	13OC1564	0.00204	(1303	F 3	13OC1564	0.00175	(1307	F 3	11OC1564	C.00610
(1306	F 3	11OC1564	0.00594	(1308	C 7	6ND1564	C.12127	(1309	C* 1	10NC1564	C.00655
(1316	0 6	9ND1564	C.00756	(1317	E 1	6NC1564	0.00574	(1318	E 2	7NC1564	C.11712
(1319	E 3	7ND1564	C.00524	(1324	C* 1	6C1564	C.12121	(1321	E 3	7NC1564	C.00319
(1322	E 6	7ND1564	0.16666	(1323	F 1	6NC1564	0.00527	(1337	C 3	2MR1567	C.11176
(1335	C 4	2MR1567	0.00753	(1336	C 7	2MR1567	0.00436	(1341	A 3	19AP1567	C.12475
(1342	A 4	19AP1567	0.14288	(1346	C 7	21AP1567	0.00267	(1348	E 5	23AP1567	C.00137
(1409	A 3	23PV1567	0.01785	(1411	C 3	31PV1567	0C.00821	(1412	C 3	31PV1567	C.00494
(1432	A 4	13JN1567	0.02295	(1433	E 3	17JN1567	0.11626	(1436	E 2	15JN1567	7.00724
(1446	A 3	11JL1567	C.44173	(1447	A 4	11JL1567	C.01403	(1451	C 7	16JL1567	C.00197
(1452	E 2	14JL1567	0.21517	(1454	E 2	15JL1567	0C.03001	(1506	A 6	20AU1567	C.01046
(1508	C 3	25SE1567	0.00400	(1511	E 1	15E1567	C.00525	(1532	A 3	18SE1567	C.00590
(1533	A 4	19SE1567	0.03714	(1534	A 6	19SE1567	0.25163	(1535	C 7	20SE1567	C.00596
(1536	E 2	24SE1567	0.11180	(1537	E 3	24SE1567	0.08469	(1538	E 2	23SE1567	C.01105
(1539	C 3	14C1567	0.11792	(1541	E 2	11OC1567	0.00443	(1543	E 5	23AP1567	C.00117
(1387	GS11	12PV1567	0.00792	(1388	GS12	12PV1567	0.05430	(1389	GS13	12PV1567	C.32746
(1391	GS15	12PV1567	0.00792	(1392	GS16	12PV1567	0.05430	(1393	GS17	13PV1567	C.32096
(1394	GS18	13PV1567	0.01376	(1395	GS19	13PV1567	0C.08220	(1356	GS20	13PV1567	3.62547

(1397	G521	18MY1967	0.08306	(1399	GS 1	30C1967	0.14943	(1556	GS 3	30C1967	C.01043
(1558	GS 5	40C1967	0.00396	(1560	GS 8	40C1967	C.02361	(1561	GS 9	40C1967	C.01174
(1563	GS11	50C1967	0.00408	(1564	GS12	50C1967	C.19587	(1565	GS13	50C1967	C.02335
(1566	GS14	50C1967	0.01723	(1567	GS15	50C1967	C.02510	(1568	GS16	50C1967	C.01612
(1569	GS17	50C1967	0.13973	(1571	GS19	60C1967	C.13698	(1572	GS20	60C1967	C.12618
(1573	GS21	40C1967	1.01912	(1576	GS22	60C1967	C.04890	(1575	GS28	40C1967	C.38704
(1544	MU 1	20C1967	4.22252	(1547	MS 1	20C1967	0.16766	(1540	MU 1	18C1967	14.86162
(1521	SM 1	18C1967	1.23102	(1522	SM 1	18C1967	1.77963	(1523	PA 1	18C1967	C.01845
(1526	MU 1	20C1967	1.09234	(1527	TR 1	20C1967	0.08176	(1529	KM 1	20C1967	C.02398
(1530	FR 1	25C1967	0.80048	(1531	GH 1	25C1967	19.07014	(1545	NL 1	20C1967	C.27450
(1548	CA 1	30C1967	0.50588	(1549	MU 1	40C1967	0.78114	(1551	ES 1	50C1967	C.41531
(1552	SM 1	60C1967	0.20469	(1550	MR 1	50C1967	1.44963	(1553	SG 1	40C1967	1.25260
(1428	MU 2	29MY1967	0.81081	(1409	MS 2	29MY1967	0.46352	(1427	LU 2	29MY1967	0.04584
(1417	HO 2	22MY1967	1.07617	(1418	SH 2	22MY1967	0.38880	(1399	PM 2	5MY1967	C.13165
(1402	TR 2	6MY1967	0.53249	(1354	GH 2	25AP1967	0.09839	(1429	NL 2	29MY1967	5.43582
(1403	CA 2	14MY1967	0.05933	(1404	MG 2	10MY1967	2.00252	(1405	ES 2	12MY1967	C.36120
(1407	SM 2	14MY1967	0.01194	(1406	GB 2	13MY1967	C.56072	(			

Melosira granulata var. *angustissima* fo. *curvata* (Grun.)

Melosira granulata var. *curvata* Grunow in: Van Heurck, Syn. Diat.
Belgique, pl. 87, fig. 18. 1882.

Cells bent in the perivalvar axis, forming lax spiral colonies. Other morphologic features essentially similar to var. *angustissima*.

Both of the above entities are found in abundance only in eutrophic portions of Lake Michigan. *M. granulata* var. *angustissima* fo. *curvata* seems to occur only under highly eutrophic conditions and may represent a response of the previous variety to such conditions.

337	MEGRVAFC	TCF	NO	OF	STATIONS	10					
(1396	GS20	13MY1967	0.03330	(1568	GS16	50C1967	C.00289	(1544	MU 1	20C1967	C.53375
(1522	BM 1	18C1967	0.40845	(1531	GH 1	25C1967	0.99746	(1428	MU 2	29MY1967	C.00901
(1417	HO 2	22MY1967	0.02243	(1350	GR 2	15AP1967	1.55725	(1426	NL 2	29MY1967	C.11074
(1406	GB 2	13MY1967	0.24801	(							

Melosira granulata var. *muzzanensis* (Meist.) Bethge

Melosira muzzanensis Meister, Kryptog.-Fl. Schweiz, 4(1):41, pl. 1,
fig. 10. 1912.

Melosira granulata var. *muzzanensis* (Meist.) Bethge, Pflanzenforsch.,
3:32. 1925.

In this entity the perivalvar axis of cells is much shorter than in the nominate variety, height of the valve mantle only 4-8μ. This variety is apparently not polymorphic and all observed specimens are finely structured. Other morphologic features essentially similar to the nominate variety.

This entity occurs occasionally but always in low abundance in our collections from Lake Michigan. Its taxonomic status is somewhat questionable in that it does not show the polymorphism characteristic of the other varieties of this taxon. It should be pointed out that post-auxospore valves of *M. islandica* have similar length to width ratios.

338	MEISLAVA	TCF	NO	OF	STATIONS	65					
(46914	CH	19AP1946	0.00214	(46524	CH	10MY1946	0.00282	(46956	CH	MY1947	C.00531
(1251	C 7	16JL1964	0.00575	(1254	O 2	15JL1964	0.01341	(1295	O 5	15JL1964	C.01027
(1257	C 3	16JL1964	0.00957	(1281	E 3	16SE1964	C.00789	(1341	A 1	15AP1967	C.00668
(1342	A 4	19AP1967	0.01444	(1344	C 3	28AP1967	0.02151	(1345	C 5	17JUN1967	C.00578
(1346	C 7	21AP1967	0.10168	(1347	E 2	23AP1967	0.00650	(1348	E 5	23AP1967	C.00548
(1368	A 3	4MY1967	0.08797	(1369	A 4	4MY1967	0.04846	(1370	A 6	3MY1967	0.00691
(1371	C 3	7MY1967	0.34858	(1372	E 2	7MY1967	0.04023	(1373	C 7	5MY1967	C.13121
(1374	E 2	7MY1967	0.00598	(1375	E 3	7MY1967	0.01925	(1376	E 5	5MY1967	0.01687
(1405	A 3	28MY1967	0.00316	(1406	A 4	28MY1967	0.00356	(1410			
(1411	C 3	31MY1967	0.03282	(1412	C 5	31MY1967	0.04630	(1413	C 7	25MY1967	C.02527
(1414	E 2	28MY1967	0.10411	(1415	E 3	28MY1967	0.07870	(1416	E 5	28MY1967	C.00875
(1432	A 4	19JUN1967	0.01493	(1433	E 3	17JUN1967	0.00397	(1434	C 5	17JUN1967	C.00586
(1435	C 7	13JUN1967	0.03473	(1436	E 2	15JUN1967	0.02217	(1437	C 3	15JUN1967	C.47103
(1438	E 5	14JUN1967	0.06173	(1446	A 1	11JL1967	0.00978	(1449	C 3	16JL1967	0.06446
(1511	E 2	18C1967	0.00616	(1512	E 3	15E1967	0.00393	(1527	E 3	24SE1967	C.01725
(1538	E 5	23SE1967	0.01105	(1377	GS 1	9MY1967	0.05937	(1380	GS 4	9MY1967	C.01005
(1382	GS 6	10MY1967	0.02220	(1384	GS 8	10MY1967	0.01105	(1385	GS 9	10MY1967	C.00542
(1386	GS10	12MY1967	0.01149	(1387	GS11	12MY1967	0.02376	(1388	GS12	12MY1967	C.11816
(1389	GS13	12MY1967	0.00516	(1394	GS18	13MY1967	0.00344	(1397	GS21	13MY1967	C.00292
(1398	GS22	14MY1967	C.00511	(1367	GS15	50C1967	0.01111	(1549	GS17	50C1967	C.00247
(1428	MU 2	29MY1967	0.00603	(1426	MS 2	29MY1967	0.02100	(1400	SM 2	6MY1967	C.01191
(1422	GA 2	23MY1967	C.01022	(1424	KA 2	25MY1967	0.02665	(			

Melosira islandica O. Müll.

Melosira islandica O. Müller, Jahrb. wissensch. Bot., 43:56, pl. 1, figs. 3-6. 1906.

Cells cylindrical, joined by the valve faces into long, closely appressed filamentous colonies. Individual valves of specimens from Lake Michigan 8-30 μ in diameters, 7-21 μ high (valve mantle). Pseudosulcus little developed, apparent only as a narrow, sharply-angled indentation. Sulcus a shallow furrow with an internal thickening intruding into the interior of the cell. Neck short, in optical section more or less bowl-shaped. Degree of silicification and ornamentation of the frustule highly variable. Ornamentation of the valve surface consists of numerous, randomly arranged, small areolae. The margin of the valve is usually furnished with a corona of very small and inconspicuous spines. Ornamentation of the valve mantle is pleomorphic. In all cases the elements are arranged in rows running parallel to the pervalvar axis. The following types of ornamentation may be found:

Status a: Ornamentation of the valve mantle consisting of rows of coarse, circular areolae. Areolae rows 10-12 in 10 μ with 12-13 areolae in 10 μ within the individual rows. Frustules are heavily silicified.

Status β : Both finely and coarsely areolate frustules found in the same colony.

Status γ : Ornamentation of the valve mantle consisting of fine circular areolae. Areolae rows 13-16 in 10 μ with 14-18 areolae in 10 μ within the rows.

This species is usually abundant and often dominant in spring collections from Lake Michigan. Populations from the offshore waters have usually been referred to *M. islandica* subsp. *helvetica* O. Müll. In the material that we have examined we can find no justification for the sub-specific designation for specimens from Lake Michigan. The populations of variable morphology grade together to the extent that any separation is entirely artificial. It appears that environmental conditions determine the degree of silicification to at least a certain degree as collections from the eutrophied portions of the lake contain only coarsely structured specimens. Auxospore populations are common and post-auxospore cells usually are characterized by much foreshortened pervalvar axes.

339 MEISLAH TOT NO OF STATIONS 311

(46073) CH	1876	3,41360	(3540	CH	11MY1879	8,61948	(3541	CH	1FE1881	5,92781	
(J.3507	CH	195E1881	6,75436	(46921	CH	23NO1945	6,00194	(46908	CH	DE1945	0,46324
(46917	CH	12JA1946	0,10021	(46915	CH	20FE1946	1,84963	(46914	CH	19AP1946	36,55902
(46924	CH	10MY1946	51,40315	(46923	CH	22NO1946	0,08305	(46920	CH	20DE1946	0,13033
(46905	CH	JA1947	1,07611	(46909	CH	HR1947	12,13515	(46912	CH	AP1947	25,41106
(46916	CH	1A1947	1,03023	(46906	CH	MY1947	14,88618	(46910	CH	CH1947	0,15727
(46907	CH	JA1947	0,80131	(46913	CH	6AU1947	0,26143	(46922	CH	21AU1947	0,37802
(46758	EV	5JN1937	34,34864	(46771	EV	5JN1937	56,72511	(46743	EV	20JN1937	20,86151
(46745	EV	3JL1937	0,18809	(46770	EV	5JL1937	0,03578	(46764	EV	17JL1937	2,25624
(46757	EV	25SL1937	2,25166	(46747	EV	1AU1937	2,91111	(46763	EV	23AU1937	1,42496
(46769	EV	7SE1937	0,40482	(46752	EV	15SE1937	0,04530	(46760	EV	22SE1937	0,62462
(46764	EV	6OC1937	0,23610	(46748	EV	13OC1937	76,30913	(46767	EV	27OC1937	0,65029
(46749	EV	12MR1938	27,66745	(46768	EV	16MR1938	58,03322	(46762	EV	10MR1938	2,02311
(46751	EV	30MI1938	56,48775	(46772	EV	16MI1938	61,80268	(46756	EV	27MI1938	41,84235
(46759	EV	19MY1938	80,35110	(46761	EV	27MY1938	36,93448	(46766	EV	14OE1938	0,14259
(12223	B 3	18MY1964	75,91217	(12226	B 4	18MY1964	82,89383	(12225	C 6	18MY1964	57,35005
(12226	C 7	16MY1964	43,48340	(12227	C 2	13MY1964	41,40594	(12228	O 2	14MY1964	58,03928
(12229	D 5	14MY1964	43,46580	(12230	E 2	16MY1964	56,70366	(12231	E 3	16MY1964	12,42441
(12232	E 5	16MY1964	51,13220	(12233	B 3	5JUN1964	29,17291	(12234	B 3	18JN1964	16,72652
(12235	C 7	16JN1964	7,00804	(12239	B 6	5JN1964	43,91608	(12236	C 1	8JN1964	30,01819
(12237	C 2	8JN1964	36,31708	(12238	O 3	11JN1964	77,70000	(12239	F 4	11JN1964	55,31666
(12240	D 6	10JN1964	57,12664	(12241	C 2	11JN1964	55,79486	(12240	F 3	11JN1964	68,12157
(12243	E 6	13JN1964	48,52585	(12244	F 1	11JN1964	11,20577	(12245	F 2	11JN1964	13,06964
(12246	F 3	11JN1964	17,15173	(12247	B 3	14JL1964	21,81262	(12248	B 3	24JL1964	11,24205
(12440	B 6	11JL1964	21,46783	(12441	B 6	24JL1964	44,40625	(12449	C 3	8JL1964	34,20252
(12500	C 6	10JL1964	42,87769	(12501	C 7	16JL1964	6,28657	(12502	C 1	16JL1964	11,12971

1253	C* 2	16J11964	36.82143	1254	C 2	15J11964	56.29994	1255	U 5	15J11964	36.44771
1256	E 2	14J11964	60.01318	1257	E 3	14J11964	64.14642	1258	F 1	6J11964	3.63879
1259	F 2	6J11964	2.66605	1260	F 3	6J11964	17.70175	1261	B 3	24U11964	3.69803
1262	C 7	17AU11964	35.42027	1263	C 1	17AU11964	18.15079	1264	B 6	10U11964	30.05919
1266	C 7	18AU11964	20.12465	1267	C 1	10AU11964	10.13670	1265	C 2	10U11964	5.47694
1269	E 3	18AU11964	30.43804	1270	E 6	18AU11964	6.65716	1266	E 2	15AU11964	24.93576
1271	C 7	22SE11964	0.91402	1272	C 1	10SE11964	8.90495	1267	C 2	10SE11964	4.40911
1274	O 1	17SE11964	7.22564	1275	O 2	17SE11964	5.91900	1268	O 3	18SE11964	15.55743
1277	O 2	18SE11964	5.20911	1278	O 6	18SE11964	2.15227	1269	E 1	16SE11964	7.14650
1280	E 2	16SE11964	5.33732	1281	E 3	16SE11964	25.39214	1282	E 4	16SE11964	8.53186
1283	E 5	16SE11964	25.88665	1284	E 6	17SE11964	4.89598	1283	F 4	15SE11964	4.68814
1286	F 2	15SE11964	5.90460	1287	F 3	15SE11964	6.30559	1288	B 3	15SE11964	6.36571
1285	B 6	14SC11964	0.83596	1289	C 7	14SC11964	6.67151	1290	C 1	16OC11964	5.67580
1291	C 1	14SC11964	0.83596	1290	C 7	14SC11964	0.71929	1291	C 1	14SC11964	6.81925
1294	D 3	15SC11964	1.45767	1295	O 4	15SC11964	1.39137	1296	O 5	14CC11964	5.75933
1297	O 6	14OC11964	4.53143	1298	E 1	12CC11964	0.29082	1299	E 2	12OC11964	3.50583
1300	E 1	12OC11964	0.29082	1299	E 2	12OC11964	1.11275	1302	E 5	11SC11964	6.81925
1303	E 6	13OC11964	7.83611	1304	F 1	11CC11964	0.57789	1305	F 2	11OC11964	5.21505
1306	F 3	11OC11964	0.27163	1307	E 6	NC1564	0.80820	1308	C 7	6NC1564	6.46838
1309	C 1	10NC11964	0.00322	1310	C 4	10NC11964	0.08163	1311	O 1	8NC1564	6.50774
1312	D 2	8NC1564	6.25179	1313	C 3	9NC1564	0.22973	1314	O 4	9NC1564	0.55407
1315	O 5	9NC1564	0.57780	1316	O 6	9NC1564	1.58658	1317	E 1	6NC1564	0.00574
1318	E 1	7NC1564	0.46518	1319	E 3	7NC1564	1.09561	1320	O 4	7NC1564	0.64595
1321	E 5	7NC1564	0.33518	1322	E 6	7NC1564	0.77982	1323	F 1	6NC1564	0.24390
1324	F 2	6NC1564	0.44594	1325	F 3	6NC1564	0.32525	1326	C 3	27J11967	3.23494
1337	C 3	6NC1567	5.14987	1338	C 3	28NC1567	5.14662	1339	C 3	28NC1567	49.10519
1340	C 7	28NC1567	56.24677	1341	A 3	19AP1567	55.05353	1342	A 4	19AP1567	45.38214
1343	A 6	19AP1567	45.12233	1344	C 3	25AP1567	66.82108	1345	C 5	25AP1567	47.75448
1346	C 7	21AP1567	68.32413	1347	E 2	23AP1567	58.84074	1348	E 5	25AP1567	55.2329
1368	A 3	4MY1567	52.54047	1369	A 4	4MY1567	73.05257	1370	A 6	3MY1567	46.12704
1371	C 3	5MY1567	67.22379	1372	C 5	5MY1567	62.86554	1373	C 7	6MY1567	76.67293
1374	E 2	7MY1567	52.52502	1375	E 3	7MY1567	61.98416	1376	E 5	6MY1567	36.25418
1408	A 3	23MY1567	32.86678	1409	A 4	23MY1567	49.27448	1410	A 6	24MY1567	48.17726
1411	C 3	31MY1567	56.28117	1412	C 3	31MY1567	63.44171	1413	C 7	29MY1567	32.36037
1414	E 2	28MY1567	63.94626	1415	E 3	28MY1567	68.30557	1416	E 5	28MY1567	57.86263
1431	A 3	12JN1567	34.42593	1432	A 4	13JN1567	52.03329	1433	C 3	17JN1567	18.60551
1436	C 3	12JN1567	65.27817	1437	C 3	13JN1567	55.25211	1438	E 2	15JN1567	45.85868
1437	E 3	15JN1567	69.71173	1438	E 5	14JN1567	68.86162	1446	A 3	11JL1567	21.06661
1447	A 6	11JL1567	22.10422	1448	A 6	10JL1567	5.17336	1449	C 3	16JL1567	24.67428
1450	C 3	16JL1567	35.54983	1451	E 7	16JL1567	8.81951	1452	E 2	14JL1567	11.17640
1454	E 1	15JL1567	51.31056	1456	E 5	15JL1567	2.66633	1504	A 3	28AU1567	5.14766
1505	A 4	28AU1567	3.94784	1506	C 5	23SE1567	5.21532	1509	C 5	23SE1567	15.76393
1510	C 7	29AU1567	1.70547	1511	E 2	15SE1567	5.58676	1512	E 2	15SE1567	12.64332
1513	E 5	31AU1567	4.25661	1512	A 3	18SE1567	6.45991	1533	A 4	19SE1567	0.77987
1536	A 6	19SE1567	0.81861	1536	C 2	20SE1567	0.42532	1536	F 2	25SE1567	4.19516
1537	E 3	24SE1567	9.96291	1538	E 5	23SE1567	6.18682	1539	C 3	40C1567	0.02013
1540	C 5	40C1567	0.63827	1541	E 2	10SC1567	1.61779	1542	E 2	11C1567	0.78316
1543	E 5	10SC1567	0.50280	1377	C 5	1MY1567	59.01443	1378	E 5	9MY1567	33.85054
1379	GS 3	9MY1567	17.14338	1380	GS 4	9MY1567	16.24247	1381	ES 5	10MY1567	22.87363
1382	GS 6	10MY1567	48.18340	1383	GS 7	10MY1567	32.36838	1384	GS 8	8MY1567	45.30214
1385	GS 9	12MY1567	35.10625	1386	GS1C	12MY1567	46.85434	1387	GS11	12MY1567	39.82845
1388	GS12	12MY1567	25.76169	1389	GS13	12MY1567	7.40015	1390	GS14	12MY1567	13.97534
1391	GS15	12MY1567	17.05913	1392	GS16	12MY1567	14.23860	1393	GS17	13MY1567	16.87646
1394	GS18	13MY1567	4.57563	1395	GS19	13MY1567	3.37036	1396	GS20	13MY1567	0.82868
1397	GS21	13MY1567	1.95881	1398	GS22	14MY1567	27.20345	1399	GS23	13C1567	10.95851
1555	GS 2	30C1567	2.96610	1556	GS 3	30C1567	1.22021	1557	GS 4	30C1567	6.27803
1558	GS 5	40C1567	2.08102	1559	GS 7	40C1567	5.87536	1560	GS 8	40C1567	8.26524
1561	GS 9	40C1567	9.68089	1562	GS10	50C1567	16.57867	1563	GS11	50C1567	7.21198
1564	GS12	50C1567	0.67298	1565	GS13	50C1567	0.03567	1566	GS14	50C1567	6.42008
1567	GS15	50C1567	0.61127	1568	GS16	50C1567	0.60566	1569	GS17	50C1567	0.34784
1570	GS18	50C1567	0.63364	1571	GS19	60C1567	0.00410	1573	GS21	60C1567	5.03024
1574	GS22	60C1567	0.62019	1575	GS28	10C1567	0.04122	1547	PS 1	20C1567	2.25940
1526	MI 1	20C1567	0.04378	1546	LM 1	20C1567	0.02001	1520	HO 1	18SE1567	0.75940
1523	SR 1	17SE1567	0.00923	1526	MO 1	20C1567	0.07189	1527	TR 1	15SE1567	0.15723
1528	SR 1	22SE1567	0.21658	1529	KV 1	20C1567	0.81455	1530	PR 1	24SE1567	0.84008
1531	GH 1	29SE1567	0.50572	1545	WL 1	20C1567	0.06081	1548	CA 1	30C1567	0.03816
1549	MO 1	29SE1567	0.78111	1554	SE 2	22AP1567	7.45963	1552	BM 2	30C1567	0.25002
1550	MR 1	90C1567	0.09912	1553	SG 1	6C1567	0.14689	1428	MU 2	29MY1567	0.14764
1426	MS 2	29MY1567	6.71916	1351	ME 2	21AP1567	31.08145	1427	LU 2	29MY1567	15.37945
1417	MO 2	29MY1567	10.78275	1421	ME 2	22AP1567	2.42654	1429	BM 2	19AP1567	0.00000
1425	RA 2	29MY1567	29.84705	1399	PW 2	SRV1567	56.92491	1401	MO 2	6MY1567	96.79962
1402	TR 2	6MY1567	50.76889	1400	SE 2	6MY1567	86.79675	1352	RM 2	21AP1567	15.92784
1353	PR 2	23AP1567	5.86228	1454	SG 2	29AP1567	7.45963	1429	BM 2	29MY1567	0.20201
1403	CA 2	10MY1567	16.11089	1404	PG 2	10MY1567	8.13008	1405	ES 2	12MY1567	1.44470
1407	SM 2	18MY1567	3.24396	1349	CL 2	19AP1567	46.62867	1619	RU 2	23AP1567	16.50524
1420	HN 2	23MY1567	10.78275	1421	ME 2	22AP1567	18.04074	1422	GA 2	23MY1567	15.61113
1424	KN 2	23MY1567	27.88484	1430	ME 2	22JN1567	0.04935				

Melosira italica subsp. *subartica* O. Müll.

Melosira italica subsp. *subartica* O. Müll., Jahrb. Wiss. Bot., 43:78, pl. 2, figs. 7-11. 1906.

Cells cylindrical, joined by the valve faces into long, more or less closely appressed colonies. Individual valves of specimens from Lake Michigan 7-15 μ in diameter, 5-20 μ high (valve mantle). Valve mantle parallel, valve surface flat or only slightly convex. Pseudosulcus very small, not apparent. Sulcus moderately deeply incised, forming a broad angle, with a conspicuous internal thickening extending into the lumen of the cell. Neck very short and poorly defined. Degree of silicification of the valve mantle variable, usually moderately strong. Ornamentation of the valve surface is comprised of very fine, irregularly arranged puncta with elongate, ray-like puncta at the margins. The margin of the valve surface is furnished with a corona of small species. Ornamentation of the valve mantle comprised of spiral rows of fine, usually more or less elongate, puncta. This species is somewhat pleomorphic but does not exhibit the pronounced structural differences found in other members of the genus. Strongly silicified forms (α status) with about 18 striae in 10 μ and the same number of puncta in 10 μ within the striae. Weakly silicified forms (β status) with about 20 striae in 10 μ and about 22 puncta in 10 μ within the rows.

This entity occurs sporadically in our collections from Lake Michigan. It is common in a number of habitats surrounding the lake, and the populations we have encountered are perhaps derived from tributaries to the lake which became established in the open waters.

340 METALLIC TCT AC OF STATIONS 172

146908	CH	0E1545	C.05035	146516	CH	19AP1567	C.00214	146525	CH	J81947	C.00368
146909	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146910	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146911	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146912	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146913	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146914	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146915	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146916	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146917	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146918	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146919	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146920	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146921	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146922	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146923	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146924	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146925	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146926	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146927	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146928	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146929	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146930	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146931	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146932	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146933	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146934	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146935	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146936	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146937	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146938	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146939	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146940	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146941	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146942	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146943	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146944	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146945	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146946	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146947	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146948	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146949	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146950	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146951	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146952	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146953	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146954	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146955	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146956	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146957	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146958	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146959	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146960	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146961	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146962	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146963	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146964	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146965	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146966	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146967	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146968	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146969	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146970	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146971	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146972	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146973	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146974	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146975	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146976	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146977	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146978	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146979	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146980	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146981	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146982	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146983	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146984	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146985	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146986	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146987	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146988	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146989	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146990	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146991	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146992	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146993	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146994	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146995	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146996	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146997	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146998	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368
146999	CH	WR1947	C.00455	146526	CH	WR1947	C.00284	146528	CH	J81947	C.00368

Melosira undulata (Ehr.) Kütz.

Gaillonella undulata Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:17. 1840.

Melosira undulata (Ehr.) Kütz., Bacill., p. 54, pl. 2, fig. 9. 1844.

Cells cylindrical, joined by the valve faces into short, poorly adhering colonies. Individual valves of specimens from Lake Michigan 20-70 μ in diameter, 20-35 μ high (valve mantle). Valve mantles parallel, valve surfaces flat in the center, convex only at the margins, therefore forming a narrow and inconspicuous pseudosulcus. The sulcus and associated structures are entirely lacking. The walls of the frustule are of varying thickness, thin at the girdle margins, much thicker at the valve mantle, then becoming somewhat thinner again at the valve surface. As the outer margins of the valve mantle are straight and parallel, the variable thickness of the wall makes the inner surface appear unulate from which the name of the taxon is derived. The ornamentation of the valve mantle consists of straight, parallel rows of puncta, about 16 in 10 μ , with complex substructure and apparently subtended by chambers. A conspicuous corona of slime pores is present on the valve mantle about one-third of the distance between the valve surface and the girdle margin. These pores enter the interior of the frustule through a small nipple-like projection on the interior wall. Ornamentation of the valve surface consists of anastomosing radial striae of varying lengths having the same structure as the striae of the valve margin. A small, structureless, area is present at the center of the valve. In some specimens the ornamentation of the wall surface spirals around the midpoint.

This entity is very rare in plankton collections from Lake Michigan. It appears that the specimens found are derived from populations that exist in periphyton communities in relatively deep water (50⁺m). As Hustedt (1927) points out, the reported modern distribution of this species is primarily tropical, although it is present in tertiary deposits throughout central and northern Europe. Its occurrence in the deep waters of Lake Michigan is somewhat puzzling, although it should be pointed out that a morphologically very similar entity, *Cyclotella fottii* Hust. (Fott, 1935; Jurilj, 1954), has been reported from similar habitats in Lake Ohrid.

In life the colonies are attached to rocks or other solid substrates by slime strands arising from the pores of the terminal cell of the colony. Both the attachment to the substrate and the attachment of the cells to one another is tenuis so that individual free cells are often found.

Coll: 973.

Melosira undulata var. *normanii* Arnott ex V. H.

Melosira undulata var. *normanii* Arnott ex Van Heurck, Syn. Diat. Belgique, pl. 90, fig. 7. 1882.

In this entity the interior surface of the valve mantle is polygonal. The interior opening of the slime pores occurs at the angles of the polygon and the nipple-like structure surrounding the pore tends to be more highly developed than in the nominate variety. On the basis of the limited number of specimens we have observed from Lake Michigan it appears that the spiral arrangement of the valve ornamentation is more common in this entity than it is in the nominate variety, although both types of ornamentation are found in both taxa.

Very rare in plankton collections from Lake Michigan. It is suspected that the specimens observed are derived from deepwater periphyton communities. The reported distribution of this entity is more northern than that of the nominate variety (Hustedt 1927).

341 MEUNOUV TCT AC OF STATIONS 2									
(1573	GS21	AGC1967	0.00112	(1550	MR 1	50C1967	C.03717	(	

Melosira varians Ag.

Melosira varians Agardh, Syn. Alg., p. 78. 1817.

Cells cylindrical, joined by the valve faces into long, closely appressed colonies. Individual valves of specimens from Lake Michigan 10-33 μ in diameter, 8-13 μ high (valve mantle). Valve mantles parallel, valve surfaces only slightly convex, therefore forming an inconspicuous pseudosulcus. The sulcus and associated structures are entirely lacking in this species. The walls of the frustule are of similar thickness throughout. The ornamentation of both the valve surface and the valve mantle is composed of very fine puncta which can barely be resolved with the light microscope under optimum optical conditions. In normal preparations the wall appears homogeneous.

This species is occasionally found in nearshore plankton collections from Lake Michigan, especially in areas that have been appreciably eutrophied. Its reported distribution indicates that it reaches its greatest abundance in highly eutrophic waters. It apparently finds its primary habitat in benthic communities although it is not uncommon in the plankton of highly polluted lakes and streams.

342 MEVARIAN TCT AC OF STATIONS 28									
(146762	EV	18MR1968	0.04411	(1571	GS19	60C1967	0.00537	(1544	MU 1
(1547	PS 1	20C1967	0.03992	(1544	LU 1	20C1967	C.01000	(1520	H-1
(1521	SH 1	18SE1967	1.10778	(1522	BH 1	18SE1967	0.00365	(1523	RA 1
(1526	MC 1	20SE1967	0.05589	(1525	KR	20SE1967	0.01199	(1530	FR 1
(1531	GH 1	25SE1967	2.97549	(1550	MR 1	50C1967	1.58592	(1428	MU 2
(1426	MS 2	29MY1967	0.66142	(1427	LU 2	29MY1967	3.09527	(1417	HG 2
(1418	SH 2	22MY1967	1.49518	(1350	BH 2	19AP1967	C.13418	(1461	MO 2
(1400	SB 2	6MY1967	0.00596	(1354	GH 2	25AP1967	0.00690	(1429	NL 2
(1406	GB 2	13MY1967	0.01617	(1422	GA 2	23MY1967	0.05620	(1423	WA 2
(1424	KN 2	29MY1967	0.02665	(					

Species incertae sedis

Melosira sp. #1.

343 MESPECQA TCT AC OF STATIONS 36									
(1229	D 5	16MY1966	0.05521	(1230	E 2	16MY1966	0.05149	(1231	E 3
(1232	E 5	16MY1966	0.40697	(1235	C 7	16JN1966	0.00565	(1237	C* 2
(1241	E 2	13JN1966	0.00139	(1252	E 3	13JN1966	0.00999	(1257	E 3
(1262	B 3	17JN1966	0.00840	(1281	E 3	16SE1966	0.00765	(1346	C 7
(1370	A 6	3MY1967	0.00667	(1372	C 5	3MY1967	0.02128	(1375	E 3
(1416	E 5	29MY1967	0.01749	(1435	C 7	15JN1967	0.00631	(1450	C 5
(1512	E 3	15E1967	0.01571	(1537	E 3	24SE1967	0.02588	(1379	GS 3
(1380	GS 4	9MY1967	0.01513	(1381	GS 5	10MY1967	0.02147	(1384	GS 8
(1385	GS 9	10MY1967	0.00942	(1386	GS10	12MY1967	0.01724	(1389	GS13
(1390	GS14	12MY1967	0.01174	(1391	GS15	12MY1967	0.02873	(1393	GS17
(1394	GS18	13MY1967	0.01172	(1395	GS19	13MY1967	0.01644	(1394	GS 1
(1351	MI 2	21AP1967	0.01241	(1401	MO 2	6MY1967	0.02352	(1400	SB 2

Genus *Meridion* Agardh
Agardh, Syst. Alg., p. 14. 1824.

Members of the genus *Meridion* find their primary habitat in periphyton communities. Only occasional specimens are found in plankton collections from Lake Michigan and these are undoubtedly derived from shoreline sources.

Meridion circulare (Grev.) Agardh

Echinella circularis Greville, Mem. Vernerian Nat. Hist. Soc., 4:213, pl. 8, fig. 2. 1822.

Meridion circulare (Grev.) Agardh, Conspect. Crit. Diat., pt. 3, p. 40. 1831.

344 MRCIRCUL TCT NO OF STATIONS 21											
(146743	EV	20JN1937	0.00428)	(1341	A 3	19AP1967	0.00108)	(1348	E 5	23AP1967	0.00137)
(1394	GS18	12MY1967	0.00344)	(1569	GS17	30C1967	0.00297)	(1571	GS19	40C1967	0.00059)
(1544	MU 1	20C1967	0.00238)	(1522	BH 1	18SE1967	0.00365)	(1550	PR 1	5CC1967	0.02478)
(1426	RS 2	20MY1967	0.01050)	(1427	LU 2	20MY1967	0.01211)	(1417	HO 2	22MY1967	0.01122)
(1418	SH 2	22MY1967	0.0111C)	(135C	BH 2	19AP1967	0.00881)	(1401	PO 2	6MY1967	0.00588)
(1400	SB 2	6MY1967	0.02883)	(1354	GH 2	25AP1967	0.00518)	(1403	CA 2	10MY1967	0.03923)
(1404	HO 2	10MY1967	0.03811)	(14C5	ES 2	12MY1967	0.00645)	(1407	SH 2	14MY1967	0.00597)

Meridion circulare var. *constrictum* (Ralfs) V. H.

Meridion constrictum Ralfs, Annals Mag. Nat. Hist., 12:458, pl. 18, fig. 2. 1843.

Meridion circulare var. *constrictum* (Ralfs) Van Heurck, Syn. Diat. Belgique, p. 161, pl. 51, figs. 14-15. 1885.

345 MRCIRCVC TCT NO OF STATIONS 6											
(1550	NR 1	30C1967	0.01239)	(1428	MU 2	20MY1967	0.00901)	(1350	BH 2	19AP1967	0.00220)
(1354	GH 2	25AP1967	0.01036)	(1464	NR 2	10MY1967	0.02541)	(1405	ES 2	12MY1967	0.00645)

Genus *Navicula* Bory
Bory, Encyclop. Method., p. 562. 1824.

Navicula is by far the largest of the diatom genera occurring in fresh water. Its members occupy a diversity of habits ranging from terrestrial to occurrences in the plankton of large lakes. Probably none of the freshwater species is euplanktonic although a number are successful facultative planktonists and are regularly noted in plankton collections, even those from off-shore areas.

Navicula abiskoensis Hust.

Navicula abiskoensis Hustedt, Arch. Hydrobiol., 39:118, fig. 36. 1942.

Coll: ANSP Schulze A70.

Navicula aboensis (Cleve) Hust.

Navicula torneensis var. *aboensis* Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):33, pl. 2, fig. 7. 1891.

Navicula aboensis (Cleve) Hustedt, Bot. Not., 105:407, figs. 131-132. 1952.

Coll: 1800.

Navicula acceptata Hust.

Navicula acceptata Hustedt, Arch. Hydrobiol., 43:398, pl. 38, figs. 66-67. 1950.

346. NAACCEPT TCT NO OF STATIONS 14											
(3561)	GH	1FE1881	0.00978)	(46768)	EV	16MR1938	C.01470)	(1354)	F 1	110C1564	C.05247)
(1305)	F 2	110C1904	0.00345)	(1140)	C 7	28MR1967	0.00073)	(1555)	GS 2	30C1967	C.00353)
(1574)	GS22	60C1967	0.00575)	(1544)	MU 1	20C1967	C.00715)	(1546)	LU 1	26C1967	C.01000)
(1527)	TR 1	20C1967	0.01250)	(1529)	KW 1	20C1967	0.01199)	(1550)	MR 1	30C1967	C.01239)
(1417)	HO 2	22MR1967	C.00374)	(1320)	RM 2	19MR1967	C.00861)	(			

Navicula aecomoda Hust.

Navicula aecomoda Hustedt, Arch. Hydrobiol., 43:446, pl. 39, figs. 17-18. 1950.

347. NAACCEM TCT NO OF STATIONS 1											
(1350)	BH 2	19AP1967	C.00220)	(							

Navicula ambigua Ehr.

Navicula ambigua Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:129, pl. 2, fig. II(9). 1843.

370. NACUSPVA TOT NO OF STATIONS 1											
(1531)	GH 1	25SE1567	0.00045)	(							

Navicula amphibola var. *perrieri* Per. and Héríb.

Navicula amphibola var. *perrieri* Peragallo and Héríbaut in: Héríbaut, Foss. Diat. Auvergne, Pt. 1, p. 25, pl. 7, fig. 11. 1902.

Coll: ANSP Schulze A70.

Navicula ampiceros Klitz.

Navicula ampiceros Klitzing, Bacill., p. 95, pl. 3, fig. 39. 1844.

Coll: 1056.

Navicula anglica Ralfs

Navicula anglica Ralfs in: Pritchard, Hist. Infus., 4th ed., p. 900. 1861.

348. NAANGLIC TCT NO OF STATIONS 16											
(46921)	CH	23NC1945	0.00065)	(46517)	CH	12JA1946	0.00028)	(46920)	CH	20OE1546	C.00092)
(46905)	CH	JA1947	0.00123)	(46509)	CH	MR1947	0.00455)	(46906)	CH	RI1947	C.00066)
(46907)	CH	JI1947	0.00099)	(46758)	EV	5JN1937	C.02456)	(46764)	EV	17JL1537	C.05641)
(46757)	EV	25JL1937	0.00963)	(46747)	EV	1AU1937	0.00495)	(46763)	EV	23AU1937	C.04058)
(46752)	EV	19SE1937	0.13061)	(46768)	EV	16MR1538	C.01470)	(46762)	EV	18MR1538	C.02206)
(46761)	EV	27MY1938	0.00273)	(							

349. NAANGLIC TCT NC OF STATIONS 6											
(46919)	CH	5JN1947	0.00303)	(46522)	CH	21AU1947	C.00097)	(46747)	EV	1AU1937	C.00743)
(1566)	GS14	30C1967	0.00183)	(1550)	MR 1	30C1967	C.01239)	(1404)	PG 2	10MY1967	C.02541)

Navicula anglica var. *signata* Hust.

Navicula anglica var. *signata* Hustedt, Ber. Deutsch Bot. Ges., 61(5):287, pl. 8, fig. 26. 1943.

350 NAANGLYS TCT NC CF STATIONS 19

(46915 CH	20FE1946	0.00569 J	(46758 EV	5JN1937	C.00357 J	(46747 EV	18U1937	C.00248 J
(46760 EV	22SE1937	0.00492 J	(46767 EV	27CC1937	C.00387 J	(1264 C1	10AC1946	C.CC193 J
(1304 F 1	11OC1946	0.00247 J	(1388 GS12	12MY1947	0.00500 J	(1545 GS13	50C1947	C.00578 J
(1569 GS17	50C1947	0.00149 J	(1546 LU 1	20C1947	0.00500 J	(1521 SM 1	18SE1947	C.00577 J
(1526 MO 1	20SE1947	0.00569 J	(1527 TA 1	20SE1947	0.00529 J	(1528 SM 1	20SE1947	C.00444 J
(1545 MI 1	20C1947	0.01351 J	(1517 MO 2	22MY1947	0.00374 J	(1463 CA 2	10MY1947	C.01308 J
(1523 MA 2	25MY1947	0.00428 J	(					

Navicula anglica var. *subsalsa* (Grun.) Cleve

Navicula timida var. *subsalsa* Grunow, Verh. Zool.-Bot. Ges. Wien, 10:537, pl. 4, fig. 43b. 1860.

Navicula anglica var. *subsalsa* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Förlj, 27(3):22. 1895.

351 NAANGLYS TCT NC CF STATIONS 2

(46758 EV	5JN1937	0.00357 J	(46757 EV	25JN1937	C.00481 J	(		
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Navicula angusta Grun.

Navicula angusta Grunow, Verh. Zool.-Bot. Ges. Wien, 10:528, pl. 5, fig. 19. 1860.

497 NASPECT TCT NC CF STATIONS 4

(46770 EV	9JL1937	0.00590 J	(46766 EV	14OE1938	0.01584 J	(1536 E 2	24SE1947	0.00273 J
(1394 GS18	13MY1947	0.00172 J	(					

Navicula aurora Sov.

Navicula aurora Sovereign, Trans. American Micr. Soc., 77(2):120, pl. 3, figs. 29-31. 1958.

352 NAAURORA TCT NC CF STATIONS 13

(4692C CH	20DE1946	0.00031 J	(46758 EV	5JN1937	0.00357 J	(46771 EV	11JN1937	C.CC238 J
(46764 EV	17JL1937	0.00806 J	(46757 EV	25JL1937	0.00963 J	(46747 EV	18U1937	C.CC248 J
(46766 EV	22SE1937	0.00492 J	(46762 EV	10MY1938	0.02206 J	(46756 EV	27AF1938	C.CC168 J
(1427 LU 2	25MY1947	0.01211 J	(1400 SR 2	6MY1947	C.00596 J	(1404 PG 2	10MY1947	C.CC1270 J
(1405 ES 2	12MY1947	0.00645 J	(					

Navicula bacillum Ehr.

Navicula bacillum Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:418, pl. 4(5), fig. 8. 1843.

353 NABACILL TCT NC CF STATIONS 6

(46758 EV	5JN1937	0.00357 J	(46757 EV	25JN1937	C.00481 J	(46747 EV	18U1937	C.CC495 J
(46750 EV	24SE1937	0.00471 J	(1392 GS16	12MY1947	0.00308 J	(1545 GS13	50C1947	C.CC1018 J

Navicula balcanica Hust.

Navicula balcanica Hustedt, Arch. Hydrobiol., 40:928, pl. 40, figs. 12-15. 1945.

354 NABALCAN TCT NC CF STATIONS 29

(46910 CH	CC1945	0.00218 J	(46521 CH	23NO1945	C.00129 J	(46915 CH	2CFE1946	0.00569 J
(46914 CH	15AP1946	0.00107 J	(46524 CH	10MY1946	C.00071 J	(46923 CH	22NO1946	C.CC637 J
(46920 CH	20DE1946	0.00087 J	(46509 CH	ME1947	C.00911 J	(46916 CH	4MY1947	C.CC634 J
(46506 CH	MY1947	0.00066 J	(46567 CH	JI1947	C.CC148 J	(46922 CH	21AU1947	C.CC024 J
(46758 EV	5JN1937	0.24249 J	(46743 EV	20JN1937	0.00428 J	(4677C EV	9JL1937	C.CC596 J
(46764 EV	17JL1937	0.01365 J	(46757 EV	25JL1937	0.00889 J	(46747 EV	18U1937	0.02123 J
(46763 EV	23AU1937	0.12175 J	(46765 EV	30AU1937	0.01115 J	(46752 EV	15SE1937	C.04354 J
(46760 EV	22SE1937	0.00985 J	(46750 EV	24SE1937	0.02828 J	(46767 EV	27EC1937	C.CC116 J
(46749 EV	12MY1938	0.01214 J	(46762 EV	10MY1938	0.11213 J	(46761 EV	27MY1938	C.CC273 J
(46766 EV	14OE1938	C.CC184 J	(1546 PU 1	22C1947	0.00238 J	(		

Navicula bryophila Peters.

Navicula bryophila Petersen, Bot. Iceland, Vol. 2, p. 388, fig. 13. 1928.

355 NABRYCPH TCT NO OF STATIONS 4																
(46917	CH	12JUL1946	G.00028	(	1285	F	1	155E1964	G.01135	(	1346	C	7	21AP1967	C.00134	)
(	1350	BH 2	19AP1967	G.00441	(											)

Navicula capitata Ehr.

Navicula capitata Ehrenberg, Infusionstierchen, p. 185, pl. 13, fig. 20. 1838.

356 NACAPITA TCT NO OF STATIONS 18															
(46759	EV	15MW1938	G.00338	(	1236	C* 1	8JN1964	G.00175	(	1274	O 1	17SE1964	C.00449	)	
(	1279	E 1	16SE1964	G.00785	(	1286	F 2	19SE1964	G.01095	(	1341	A 3	19AP1967	C.00108	)
(	1521	SH 1	18SE1967	G.01154	(	1526	MO 1	20SE1967	G.00569	(	1931	CH 1	25SE1967	C.00845	)
(	1550	MR 1	5EC1967	G.03717	(	1426	MS 2	29MY1967	G.02100	(	1417	HO 2	22MY1967	C.00374	)
(	1418	SH 2	22MY1967	G.03110	(	1350	BH 2	19AP1967	G.01982	(	1462	IR 2	6MY1967	C.01083	)
(	1352	KW 2	21AP1967	G.00859	(	1407	SW 2	14PY1967	G.00597	(	1406	GB 2	13MY1967	C.00270	)

Navicula capitata var. *hungarica* (Grun.) Ross

Navicula hungarica Grunow, Verh. Zool.-Bot. Ges. Wien, 10:539, pl. 3, fig. 30. 1860.

Navicula capitata var. *hungarica* (Grun.) Ross, Natl. Mus. Canada Bull., 97(2):192. 1947.

357 NACAPIVH TCT NO OF STATIONS 3													
146743	EV	20JN1937	G.00856	(	1253	C* 2	16JUL1964	G.00228	(	1550	MR 1	5EC1967	C.01235

Navicula capitata var. *luneburgensis* (Grun.) Patr.

Navicula hungarica var. *luneburgensis* Grunow in: Mojsisovics and Neumayer, Beitr. Paläont. Österreich-Ungarns, Vol. 2, pt. 4, p. 156, pl. 30, figs. 43-44. 1882.

Navicula capitata var. *luneburgensis* (Grun.) Patrick in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:537, pl. 52, fig. 4. 1966.

358 NACAPITH TCT NO OF STATIONS 25														
146915	CH	20FEB1946	G.01138	(	146514	CH	19AP1946	G.00107	(	146509	CH	MR1947	C.00455	)
146922	CH	21AUL1947	G.00097	(	146764	EV	17JUL1937	G.00806	(	1270	F 1	10AUL1964	C.00272	)
1275	B 2	17SE1964	G.00049	(	1345	C 5	29AP1967	G.00105	(	1346	C 7	21AP1967	C.00134	)
1374	E 2	7MY1967	G.00290	(	1388	G512	12MY1967	G.01207	(	1561	CS 9	4CC1967	C.00587	)
1565	G513	5EC1967	G.01825	(	1574	G542	4CC1967	G.00575	(	1546	KV 1	20C1967	C.00201	)
1500	PO 1	18SE1967	G.00947	(	1527	IR 1	20SE1967	G.00629	(	1550	MR 1	5EC1967	C.02478	)
1428	MU 2	29MY1967	G.00301	(	1354	GH 2	25AP1967	G.00173	(	1463	CA 2	10MY1967	C.01308	)
1349	CI 2	19AP1967	G.00359	(	1420	IH 2	23MY1967	G.01511	(	1421	CH 2	23MY1967	C.01135	)
1423	MA 2	29MY1967	G.00628	(										)

Navicula capsa Hohn

Navicula capsa Hohn, Trans. American Micro. Soc., 80(2):161, pl. 1, fig. 20. 1961.

454 NASBACIL TQI NO OF STATIONS														6	
(46919	CH	5JN1547	G.00152	(	146764	EV	17JUL1937	C.00806	(	146763	EV	23AUL1937	C.00209	)	
(	1350	BH 2	19AP1967	C.02907	(	1401	MO 2	6MY1967	G.00598	(	1404	MO 2	10MY1967	C.01270	)

Navicula caroliniana Patr.

Navicula caroliniana Patrick, Proc. Acad. Nat. Sci. Philadelphia, 111:107, pl. 7, fig. 11. 1959.

Coll: 1741.

Navicula certa Hust.

Navicula certa Hustedt, Arch. Hydrobiol., 40(4):924, pl. 42, figs. 2-3. 1945.

359 NACERIA TCT NG OF STATIONS 4									
(1545	ML 1	20C1967	0.00676)	(1550	MR 1	50C1967	C.01239)	(1426	PS 2
(1351	MI 2	21AP1967	0.00310)	(1350	BH 2	19AP1967	0.00220)	(1404	MC 2

Navicula clementis Grun.

Navicula clementis Grunow in: Mojsisovics and Neumayer, Beitr. Paläont. Österreich-Ungarns, Vol. 2, pt. 4, p. 144, pl. 30, fig. 52. 1882.

361 NACLOIOC TCT NG OF STATIONS 2									
(1388	CS12	12MY1967	0.00603)	(1527	TR 1	20SE1967	C.00629)	(	

Navicula clementis var. *linearis* Bander

Navicula clementis var. *linearis* Bander ex Hustedt in: A. Schmidt, Atlas Diat., pl. 403, fig. 43. 1936.

366 NACLEPVL TCT NG OF STATIONS 2									
(1550	MR 1	50C1967	0.01239)	(1428	MU 2	25MY1967	C.00301)	(	

Navicula clementis var. *quadristigmata* Mang.

Navicula clementis var. *quadristigmata* Manguin, Rev. Algol., Nouv. Sér., 5(4):274, pl. 2 (J. pl. 27), fig. 2. 1961.

456 NASCLEME TCT NG OF STATIONS 2									
(44920	CH	20CE1946	0.00062)	(46767	EV	27OC1937	0.00387)	(	

Navicula cocconeiformis Greg.

Navicula cocconeiformis Gregory ex Greville, Annals Mag. Nat. Hist., Ser. 2, 15:256, pl. 9, fig. 6. 1855.

362 NACOCCEC TCT NG OF STATIONS 5									
(1565	GS13	50C1967	C.02028)	(1549	MG 1	40C1967	0.01370)	(1550	MR 1
(1553	SG 1	60C1967	0.00734)	(1457	SM 2	14MY1967	C.00597)	(	

Navicula confervacea (Kütz.) Grun.

Diadesmis confervacea Kützling, Bacill., p. 109, pl. 30, fig. 8. 1844.
Navicula confervacea (Kütz.) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 14, fig. 36. 1880.

363 NACENFER TCT NG OF STATIONS 2									
(1550	MR 1	50C1967	0.04956)	(1350	BH 2	15AP1967	0.00441)	(	

Navicula costulata Grun.

Navicula costulata Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Förlj, 17(2):27. 1880.

364. NACOSTUL ICT NC OF STATICS 30

146921	CH	23ND1945	0.05917	1	146917	CH	12JA1946	0.00055	1	146924	CH	10MY1946	C.CC635	1
146923	CH	22ND1946	0.01874	1	146922	CH	20DE1946	0.00042	1	146928	CH	08JL1947	C.CC5911	1
146916	CH	4MY1947	0.02238	1	146919	CH	5JN1947	0.00807	1	146907	CH	1JL1947	0.00148	1
146922	CH	21AU1947	0.00582	1	146758	EV	5JN1937	0.03349	1	146743	EV	20JN1937	C.C1285	1
146745	EV	3JL1937	0.02090	1	146764	EV	17JL1937	0.01612	1	146757	EV	25JL1937	C.C0267	1
146747	EV	1AU1937	0.02723	1	146763	EV	23AU1937	C.10146	1	146752	EV	15SE1937	C.08707	1
146756	EV	24SE1937	0.01085	1	146744	EV	6SE1937	C.00488	1	146748	EV	13OC1937	C.C427C	1
146767	EV	27OC1937	0.00174	1	146745	EV	12MR1938	C.C4527	1	146748	EV	16AP1938	C.C5880	1
146762	EV	18PR1938	C.C6617	1	146751	EV	30PR1938	0.01117	1	146756	EV	27AP1938	C.CC168	1
146759	EV	19MR1938	0.01013	1	146761	EV	27MY1938	C.00545	1	12J4	U 1	17SE1964	C.CC465	1

Navicula cryptocephala Kütz.

Navicula cryptocephala Kütz., Bacill., p. 95, pl. 3, figs. 20, 26. 1844.

365. NACRYPTICT ICT NC OF STATICS 35

146915	CH	26FE1946	0.00569	1	146906	CH	17JY1947	0.00066	1	146752	EV	15SE1937	C.C2177	1
146744	EV	8OC1937	0.00275	1	1240	U 6	10JN1946	C.00307	1	1241	E 2	13JN1964	C.C0148	1
1 1533	A 4	19SE1967	0.00464	1	1 1387	GS11	12MY1967	C.00792	1	1 1389	GS13	12MY1967	C.CC516	1
1 1392	GS16	12MY1967	0.00308	1	1 1394	GS18	13MY1967	0.00172	1	1 1397	GS21	13MY1967	C.CC196	1
1 1558	GS 5	4OC1967	0.00396	1	1 1362	GS10	9CC1967	0.00247	1	1 1545	GS13	5OC1967	C.C1521	1
1 1571	GS15	8CC1967	C.CC059	1	1 1575	GS20	6CC1967	C.CC0129	1	1 1546	LU 1	2CC1967	C.CC500	1
1 1522	GH 1	18SE1967	0.00174	1	1 1527	TR 1	20SE1967	0.00629	1	1 1530	FR 1	24SE1967	C.C1602	1
1 1531	GH 1	25SE1967	0.00191	1	1 1545	HL 1	2CC1967	0.00379	1	1 1550	MR 1	9CC1967	C.CC5912	1
1 1553	GH 1	6OC1967	0.00734	1	1 1427	LU 2	29MY1967	0.01211	1	1 1417	HC 2	22MY1967	C.CC748	1
1 1350	BH 2	15AP1967	0.00708	1	1 1451	MS 2	6MY1967	C.C1764	1	1 1462	TR 2	6MY1967	C.CC541	1
1 1400	SB 2	6MY1967	0.00596	1	1 1352	KW 2	21AP1967	0.00859	1	1 1354	CH 2	23AP1967	C.CC0173	1
1 1404	HQ 2	10PY1967	0.01212	1	1 1407	SP 2	14MY1967	0.00597	1					

Navicula cryptocephala var. *intermedia* Grun.

Navicula cryptocephala var. *intermedia* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 8, fig. 10. 1880.

366. NACRYPTICT ICT NC OF STATICS 27

146762	EV	18PR1938	0.02206	1	1 1534	A 6	19SE1967	C.CC620	1	1 1543	E 5	10OC1967	C.CC118	1
1 1393	GS 7	10MY1967	0.00267	1	1 1388	GS12	12MY1967	C.CC603	1	1 1571	CS10	6OC1967	C.CC059	1
1 1573	GS21	6SE1967	0.00112	1	1 1574	GS22	6OC1967	C.CC0575	1	1 1544	PU 1	2CC1967	0.00477	1
1 1547	PS 1	2CC1967	0.00798	1	1 1522	BH 1	16SE1967	C.CC0465	1	1 1528	PD 1	2CC1967	C.CC646	1
1 1545	ML 1	2OC1967	0.00379	1	1 1551	ES 1	9CC1967	0.00799	1	1 1552	SM 1	6CC1967	C.CC660	1
1 1550	MR 1	5OC1967	0.00391	1	1 1426	PS 2	29MY1967	C.CC0449	1	1 1351	PI 2	21AP1967	C.CC0621	1
1 1417	HD 2	22MY1967	0.01122	1	1 1418	SH 2	22MY1967	0.01555	1	1 1350	SH 2	19AP1967	C.CC354	1
1 1401	HC 2	6MY1967	0.01176	1	1 1402	TR 2	6MY1967	C.CC0707	1	1 1400	SH 2	6MY1967	C.CC4765	1
1 1356	GH 2	25AP1967	0.00173	1	1 1407	SP 2	14MY1967	C.CC1791	1	1 1406	GB 2	13MY1967	C.CC1078	1

Navicula cryptocephala var. *lancettula* (Schum.) Grun.

Navicula lancettula Schumann, Schrift. K. Phys.-Ökonom. Ges. Königsberg, 5:16, pl. 2, fig. 34. 1864.

Navicula cryptocephala var. *lancettula* (Schum.) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 8, fig. 11. 1880.

367. NACRYPTICT ICT NC OF STATICS 1

1 1279	E 1	16SE1964	0.00393	1
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Navicula cryptocephala var. *veneta* (Kütz.) Rabh.

Navicula veneta Kütz., Bacill., p. 95, pl. 30, fig. 76. 1844.

Navicula cryptocephala var. *veneta* (Kütz.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 198. 1864.

368 NACRYPVV TCT NO OF STATIONS 27

146915	CH	5JN1957	0.00152	1	146750	EV	24SE1957	0.00471	1	146748	EV	13SC1937	0.02135	1	
1	1344	C 3	25AP1967	0.00165	1	1346	C 7	21AP1967	0.00138	1	1348	E 5	23AP1967	0.00137	1
1	1382	GS 6	10MY1967	0.00278	1	1354	GS 1	30C1967	0.00356	1	1358	GS 5	40C1967	0.00396	1
1	1565	GS 13	50C1967	0.00107	1	1574	GS 22	60C1967	0.00315	1	1584	MU 1	20C1967	0.00238	1
1	1566	LU 1	20C1967	0.00402	1	1521	SM 1	18SE1967	0.00577	1	1526	MO 1	20SE1967	0.00451	1
1	1527	TR 1	20SE1967	0.022013	1	1528	SM 1	20SE1967	0.01444	1	1529	KW 1	20SE1967	0.00394	1
1	1530	FR 1	24SE1967	0.01000	1	1545	NL 1	20C1967	0.02123	1	1550	PR 1	50C1967	0.01607	1
1	1351	M1 2	21AP1967	0.00310	1	1350	SH 2	19AP1967	0.00759	1	1401	MO 2	4MY1967	0.01176	1
1	1400	SM 2	8MY1967	0.01191	1	1352	KW 2	21AP1967	0.00859	1	1407	SM 2	14MY1967	0.02586	1

Navicula cuspidata (Kütz.) Kütz.

Frustulia cuspidata Kützing, Linnaea, 8:549, pl. 4, fig. 26. 1833.

Navicula cuspidata (Kütz.) Kützing, Bacill., p. 94, pl. 3, figs. 24, 37. 1844.

369 NACUSPIO TCT NO OF STATIONS 6

1	1287	F 3	18SE1964	0.00590	1	1369	A 4	4MY1967	0.00373	1	1572	GS 20	60C1967	0.00590	1
1	1520	MO 1	18SE1967	0.00471	1	1417	MO 2	22MY1967	0.00374	1	1406	GA 2	13MY1967	0.00809	1

Navicula cuspidata var. *major* Meist.

Navicula cuspidata var. *major* Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):134, pl. 20, fig. 10. 1912.

371 NACUSPVM TCT NO OF STATIONS 1

1	1549	PQ 1	4CC1967	0.0137C	1
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Navicula decussis Østr.

Navicula decussis Østrup, Danske Diat., p. 77, pl. 2, fig. 50. 1910.

372 NAOECUSS TCT NO OF STATIONS 62

146910	CH	0C1545	0.00109	1	146521	CH	23NO1945	0.00065	1	146917	CH	12JA1946	0.00055	1	
146915	CH	20FE1946	0.00138	1	146518	CH	15AP1946	0.00320	1	146924	CH	10MY1946	0.00141	1	
146923	CH	22NO1946	0.00874	1	146520	CH	20DE1946	0.00082	1	146908	CH	MF1947	0.01821	1	
146916	CH	4MY1947	0.00102	1	146506	CH	MY1947	0.00133	1	146919	CH	5JN1947	0.00303	1	
146907	CH	C.00009	0.00009	1	146522	CH	21AU1947	0.00145	1	146758	EV	17AU1937	0.00417	1	
146743	EV	20JN1937	0.00428	1	146770	EV	9JL1937	0.01193	1	146764	EV	23AU1937	0.01215	1	
146757	EV	25JL1937	0.00370	1	146747	EV	14U1937	0.00590	1	146763	EV	23AU1937	0.01275	1	
146749	EV	30AU1937	0.00558	1	146752	EV	15JL1937	0.00354	1	146760	EV	22SE1937	0.00452	1	
146750	EV	24SE1937	0.01885	1	146744	EV	60C1937	0.00488	1	146748	EV	13OC1937	0.00153	1	
146745	EV	12MR1938	0.01214	1	146768	EV	16MR1938	0.00410	1	146751	EV	30MR1938	0.01117	1	
146759	EV	19MY1938	0.00338	1	146761	EV	27MY1938	0.00545	1	14240	O 6	10JN1944	0.00153	1	
1	1264	C* 1	10AU1964	0.00193	1	1341	A 3	15AP1967	0.00325	1	1504	A 3	28AU1967	0.00247	1
1	1540	C 5	40C1967	0.00496	1	1541	E 2	11OC1967	0.00532	1	1565	GS 13	50C1967	0.00507	1
1	1574	GS 22	60C1967	0.00288	1	1544	MU 1	20C1967	0.00238	1	1547	MS 1	20C1967	0.00158	1
1	1546	LU 1	20C1967	0.00401	1	1520	MO 1	18SE1967	0.00471	1	1521	SM 1	18SE1967	0.00577	1
1	1522	BM 1	18SE1967	0.02735	1	1527	TR 1	20SE1967	0.00176	1	1528	SM 1	20SE1967	0.00432	1
1	1530	FR 1	24SE1967	0.01000	1	1545	NL 1	20C1967	0.01693	1	1550	PR 1	50C1967	0.00496	1
1	1428	MU 2	24MY1967	0.00603	1	1426	MS 2	24MY1967	0.01350	1	1427	LU 2	24MY1967	0.00262	1
1	1417	MO 2	22MY1967	0.01122	1	1350	SH 2	19AP1967	0.00590	1	1399	PW 2	8MY1967	0.0068C	1
1	1402	TR 2	4MY1967	0.00541	1	1352	KW 2	21AP1967	0.00859	1	1404	PQ 2	10MY1967	0.01270	1
1	1407	SM 2	14MY1967	0.00597	1	1422	GA 2	23MY1967	0.00511	1					

Navicula diluviana Krasske

Navicula diluviana Krasske, Zeitschr. Geschiebforsh., 9(2):90, pl. 2, figs. 2a-b, pl. 3. 1933.

374 NADILUVI TCT NO OF STATIONS 1

1	1388	GS 12	12MY1967	0.00603	1
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Navicula elginensis (Greg.) Ralfs

Pinnularia elginensis Gregory, Quart. J. Micr. Sci., 4t9, pl. 1, fig. 33, 1856.

Navicula elginensis (Greg.) Ralfs in: Pritchard, Hist. Infusoria, 4th ed., p. 902. 1861.

375 NAEIGINE TCT NO OF STATIONS 1

1	1350	GA 2	15AP1967	0.00220	1
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Navicula exigua var. *capitata* Patr.

Navicula exigua var. *capitata* Patrick, Farlowia, 2(2):179, pl. 1, fig. 8. 1945.

377 NAEXIGVC TCT NO OF STATIONS 3
(1565 GS13 SCC1967 0.00057) (1571 GS19 60C1967 0.00059) (1527 TR 1 20SE1967 0.00629)

Navicula exiguaformis Hust.

Navicula exiguaformis Hustedt, Arch. Hydrobiol., 40(4):929, pl. 12, figs. 21-22. 1945.

376 NAEXIGUI TCT NO OF STATIONS 26
(146917 CH 12JUL1946 0.00028) (146924 CH 10MY1946 0.00071) (146923 CH 22NC1946 0.00219)
(146906 CH 9JUL1947 0.00046) (146758 EV 5JUN1937 0.11768) (146743 EV 20JUN1937 0.00428)
(146770 EV 9JUL1937 0.00296) (146764 EV 17JUL1937 0.21757) (146757 EV 25JUL1937 0.00963)
(146747 EV 18JUL1937 0.01485) (146763 EV 23JUL1937 0.16234) (146752 EV 15SE1937 0.15237)
(146750 EV 14SE1937 0.01885) (146768 EV 13SE1937 0.10075) (146767 EV 22JUL1937 0.01547)
(146768 EV 18MR1938 0.11760) (146762 EV 18MR1938 0.04411) (146751 EV 30MR1938 0.02233)
(146759 E 1 10SE1946 0.00193) (1565 GS13 5CC1967 0.00359) (1546 LU 1 20C1967 0.03551)
(1522 RH 1 10SE1967 0.00182) (1523 RA 1 19SE1967 0.00023) (1527 TW 1 20SE1967 0.00629)
(1545 ML 1 20C1967 0.01351) (1350 RH 2 19AF1967 0.00220)

Navicula explanata Hust.

Navicula explanata Hustedt, Schweizerische Zeitschr. Hydrobiol., 11:207, fig. 7-8. 1948.

378 NAEXPLAN TCT NO OF STATIONS 13
(146758 EV 5JUN1937 0.00713) (146768 EV 18MR1938 0.01470) (146762 EV 18MR1938 0.04411)
(146761 EV 27MY1938 0.00273) (1386 GS10 12MY1967 0.00287) (1388 GS12 12MY1967 0.01810)
(1389 GS13 12MY1967 0.00058) (1354 GS18 13MY1967 0.00112) (1512 GS13 5AF1967 0.00164)
(1574 GS22 6CC1967 0.00575) (155C PR 1 50C1967 0.01239) (1354 CP 2 25AP1967 0.00175)
(1404 PQ 2 10PT1967 0.01276)

Navicula farta Hust.

Navicula farta Hustedt, Bot. Not., 105:408. 1952.

375 NAFARIA TCT NO OF STATIONS 1
(1565 GS13 SCC1967 0.28355)

Navicula fracta Hust.

Navicula fracta Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(2):1: 127, fig. 1259. 1961.

380 NAFRACTA TCT NO OF STATIONS 6
(146763 EV 23JUL1937 0.02029) (1300 E 3 130C1564 0.00358) (1354 GS18 13MY1967 0.00172)
(1560 GS 8 60C1967 0.00472) (1565 GS13 50C1967 0.00057) (1422 GA 2 23MY1967 0.00511)

Navicula gastriformis Hust.

Navicula gastriformis Hustedt in: A. Schmidt, Atlas Diat., pl. 398, figs. 17-19. 1934.

381 NAGASTRI TCT NO OF STATIONS 1
(1396 GS20 13MY1967 0.00074)

Navicula gastrum (Ehr.) Kütz.

Pinnularia gastrum Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:421, pl. 3(7), fig. 23. 1843.

Navicula gastrum (Ehr.) Kütz., Bacill., p. 94, pl. 28, fig. 56. 1844.

382 NAGASTRU TCT NC OF STATIONS 23

146814	CH	19AP1966	0.00107	146820	CH	20DE1966	0.00031	146747	EV	18U1937	C.00495
14244	F 1	11JUN1966	0.00110	13257	E 3	14JUL1966	0.00389	13272	C* 1	10SE1966	0.00910
13341	A 3	19AP1967	0.00108	13504	A 3	28AUG1967	C.00247	13388	CS12	12MY1967	C.00603
13554	GS 1	36C1967	0.00156	13567	CS15	36C1967	0.00159	13570	CS18	36C1967	C.00992
13575	CS18	6C1967	0.00179	13520	FR 1	18SE1967	C.00971	13522	RM 1	18SE1967	C.00547
13527	TR 1	20SE1967	0.01258	13530	FR 1	24SE1967	C.01000	13545	ML 1	20C1967	C.00676
13550	RM 1	5C1967	0.02470	13350	RM 2	19AP1967	C.01562	13402	TR 2	6MY1967	C.00541
13400	SR 2	4MY1967	0.00590	13407	SR 2	14MY1967	0.00597				

Navicula gastrum var. *signata* Hust.

Navicula gastrum var. *signata* Hustedt in: A. Schmidt, Atlas Diat., pl. 403, figs. 27-28. 1936.

383 NAGASTVS TCT NO OF STATIONS 21

146973	CH	1876	0.04724	13540	CH	11MY1879	C.00466	146921	CH	23NOV1945	C.00045
146917	CH	12JUL1946	0.00055	146915	CH	20FE1946	0.01138	146914	CH	19AP1946	0.00107
146920	CH	18JUL1947	0.00490	146916	CH	4MY1947	C.00024	146919	CH	5JUN1947	C.00303
146764	EV	17JUL1937	0.00806	146767	EV	18JUL1937	0.00763	146768	EV	18NOV1938	C.01470
146762	EV	18MY1938	0.04411	146761	EV	27MY1938	C.00273	146779	E 1	16SE1966	C.00293
13550	GS13	5C1967	0.04562	13574	GS22	46C1967	0.00286	13520	MD 1	18SE1967	C.00471
13524	MD 1	20SE1967	0.01138	13527	TR 1	20SE1967	C.00531	13417	MD 2	22MY1967	C.00374

Navicula globosa Meist.

Navicula globosa Meister, Ber. Schweizerische Bot. Ges., 44:89, fig. 8. 1934.

384 NAGLCBCC TCT NC OF STATIONS 4

13527	TR 1	20SE1967	0.00629	13350	RM 2	19AP1967	C.00220	13354	CH 2	25AP1967	C.00173
13404	MD 2	10MY1967	0.03811								

Navicula gottlandica Grun.

Navicula gottlandica Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 8, fig. 8. 1880.

385 NACCTILA TCT NO OF STATIONS 2

13565	GS13	5C1967	0.07099	13404	MD 2	10MY1967	C.01270				
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Navicula graciloides A. Mayer

Navicula graciloides A. Mayer, Kryptog. Forsch., 1:203, pl. 7, fig. 60. 1919.

386 NACRACIL TCT AC CF STATIONS 15

146763	EV	23AUG1937	C.00209	13343	A 6	19AP1967	C.00069	13554	GS 1	30C1967	C.00712
13569	GS17	5C1967	0.00149	13571	CS19	66C1967	C.00590	13574	GS22	46C1967	C.01944
13544	MD 1	20C1967	0.00238	13546	LU 1	20C1967	C.00560	13556	MD 1	20SE1967	C.00568
13527	TR 1	20SE1967	0.01238	13525	RM 1	20SE1967	C.01199	13549	MD 1	4CC1967	C.01372
13350	RM 2	19AP1967	0.00661	13404	MD 2	10MY1967	C.00581	13407	SR 2	14MY1967	C.00597

Navicula gregaria Donk.

Navicula gregaria Donkin, Quart. J. Micr. Sci., New Ser., 1:10, pl. 1, fig. 10. 1861.

387 NAGRECAR TCT NC CF STATIONS 19

13236	C* 1	8JUN1964	0.00175	13264	C* 1	10AUG1964	0.00193	13345	C 5	25AP1967	C.00195
13368	A 3	4MY1967	0.00314	13542	E 3	11C1967	C.00509	13546	LU 1	20C1967	C.03801
13521	SR 1	18SE1967	0.02308	13522	RM 1	18SE1967	0.00365	13527	TR 1	20SE1967	C.01258
13331	CH 1	25SE1967	0.00855	13545	ML 1	20C1967	0.13514	13550	RM 1	5C1967	C.02717
13426	MS 2	29MY1967	0.05299	13427	LU 2	29MY1967	C.01211	13417	MD 2	22MY1967	C.02365
13418	SR 2	29MY1967	0.03110	13350	RM 2	19AP1967	C.11013	13354	CH 2	25AP1967	C.00345
13429	ML 2	29MY1967	0.01067								

Navicula grimmei Krasske

Navicula grimmei Krasske, Abh. Ber. Ver. Naturk. Cassel, 56:45, pl. 1, fig. 14. 1925.

388 NACRIME TCT AC CF STATIONS 5											
(1567	CS15	50C1967	C.CC155)	(1550	MR 1	50C1967	0.01239)	(1426	PS 2	29MY1567	C.C4195)
(1350	BH 2	19AP1967	0.01542)	(1404	MC 2	10MY1967	0.01270)				

Navicula hambergii Hust.

Navicula hambergii Husted in: Hamberg, Naturw. Untersuch. Sarekgebiet Schwedisch-Lappland, Bd. 3, Bot., p. 562, pl. 17, fig. 2. 1924.

Coll: ANSP 46763a.

Navicula hasta Pant.

Navicula hasta Pantocsek, Beitr. Kenntn. Foss. Bacill. Ungarns, Theil 3, p. 69, Beitr. 3, pl. 5, fig. 74. 1905.

Coll: 1813.

Navicula heufleri Grun.

Navicula heufleri Grunow, Verh. Zool.-Bot. Ges. Wien, 10:528, pl. 3, figs. 32a-b. 1860.

389 NAEUFLE TCT AC CF STATIONS 1											
(1350	BH 2	15AP1967	0.00661)								

Navicula heufleri var. *leptocephala* (Bréb.) Patr.

Navicula leptocephala de Brébisson ex Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 7, fig. 16. 1880.

Navicula cineta var. *leptocephala* (Bréb.) Van Heurck, Syn. Diat. Belgique, p. 82. 1885.

Navicula heufleri var. *leptocephala* (Bréb.) Patrick in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:515, pl. 49, fig. 7. 1966.

390 NAEUFVL TOT AC CF STATIONS 2											
(1522	BH 1	18SE1967	0.00182)	(1417	MC 2	22MY1967	0.00374)				

Navicula imbricata Bock

Navicula imbricata Bock, Nova Hedw., 5:228, pl. 3, figs. 150-160. 1963.

391 NAIMBRIC TCT AC CF STATIONS 1											
(146756	EV	27AP1938	0.00168)								

Navicula integra (Wm. Smith) Ralfs

Primularia integra Wm. Smith, Syn. British Diat., Vol. 2, p. 96. 1856.

Navicula integra (Wm. Smith) Ralfs in: Pritchard, Hist. Infusoria, 4th ed., p. 895. 1861.

393 NAINTEGR TOT AC CF STATIONS 7											
(1236	C1 1	8JN1964	0.00350)	(1342	A 4	19AP1967	0.00361)	(1564	A 3	28AU1967	C.CC247)
(1559	GS 7	40C1967	0.00350)	(1522	BH 1	18SE1967	0.00182)	(1417	MD 2	22MY1967	C.CC374)
(1350	BH 2	19AP1967	0.03304)								

Navicula jaernefeltii Hust.

Navicula jaernefeltii Husted, Arch. Hydrobiol., 39:111. 1942.

394 NAAJAEKNE TCT NO OF STATIONS 7											
(1395	CS19	13MY1967	0.00117)	(1560	GS 8	40C1967	0.00472)	(1565	CS13	50C1967	C.CC208)
(1569	GS17	50C1967	0.00149)	(1574	CS22	60C1967	0.00288)	(1575	CS28	60C1967	C.CC0129)
(1551	ES 1	50C1967	0.00795)								

Navicula lacustris Greg.

Navicula lacustris Gregory, Quart. J. Micr. Sci., 4:6, pl. 1, fig. 23. 1856.

396 NALACUST TCT NO OF STATIONS 16											
(3541	CH	1FE1881	0.01956	(46514	CH	15AP1946	0.00167	(46920	CH	20OE1946	C.00301
(46915	CH	5JN1947	0.00152	(46507	CH	JL1947	C.00049	(46764	EV	17JL1937	C.00806
(46747	EV	1AU1937	0.00743	(46765	EV	7SE1937	0.02171	(46760	EV	22SE1937	C.00492
(46767	EV	27OC1937	0.00387	(11258	F 1	6JL1964	0.00236	(13152	GS16	12MY1967	C.00208
(1526	MO 1	20SE1967	0.00569	(15945	ML 1	20C1967	C.00681	(1427	LU 2	29MY1967	C.01211
(1355	GH 2	25AP1967	0.00173								

495 NASPECK TCT NO OF STATIONS 1

(1254 O 2 15JL1964 0.00192) (

Navicula lanceolata (Agardh) Kütz.

Frustulia lanceolata Agardh, Flora, 10:626. 1827.

Navicula lanceolata (Agardh) Kütz., p. 94, pl. 28, fig. 38. 1844.

395 NALANCEO TCT NO OF STATIONS 67											
(460973	CH	1876	0.02362	(46621	CH	23NO1945	C.00065	(46915	CH	20FE1946	0.01138
(46614	CH	19AP1566	0.00167	(46920	CH	20OE1946	0.00331	(46955	CH	4JL1947	C.00123
(46906	CH	MY1947	0.00199	(46967	CH	JL1947	C.00049	(46922	CH	21AU1947	C.00048
(46758	EV	5JN1937	0.00357	(46743	EV	26JN1937	C.00428	(46764	EV	17JL1937	C.00429
(46757	EV	25JL1937	0.12099	(46767	EV	1AU1937	0.01218	(46763	EV	23AU1937	C.10263
(46765	EV	30AU1937	0.01115	(46752	EV	15SE1937	0.15237	(46760	EV	22SE1937	C.00492
(46750	EV	24SE1937	0.01414	(46764	EV	6OC1937	0.02439	(46748	EV	13OC1937	C.00470
(46767	EV	27OC1937	0.01160	(46745	EV	12ME1938	0.01214	(46768	EV	16ME1938	C.00410
(46762	EV	18ME1938	0.04411	(1232	E 5	16MY1964	0.00174	(1285	F 1	15SE1964	0.01165
(1305	F 2	15JL1967	0.00173	(1351	E 3	19AP1967	0.00168	(1375	F 3	7MY1967	C.00241
(1453	E 3	15JL1967	0.00253	(1377	GS 1	9MY1967	0.00386	(1380	GS13	12MY1967	C.00258
(1390	GS14	12MY1967	0.00587	(1391	GS15	12MY1967	0.00479	(1392	GS16	12MY1967	C.00616
(1394	GS18	13MY1967	0.00172	(1555	GS 2	3OC1967	0.00353	(1558	GS 5	4OC1967	C.00396
(1260	GS 8	4OC1967	0.00472	(1565	GS13	5OC1967	0.01521	(1572	GS20	6OC1967	C.00090
(1573	GS21	6OC1967	0.00112	(1574	GS22	6OC1967	0.00288	(1575	GS28	6OC1967	C.00129
(1566	ML 1	10C1967	0.00238	(1567	MS 1	25C1967	0.00798	(1546	LU 1	2OC1967	C.10003
(1520	MO 1	18SE1967	0.00471	(1521	SH 1	18SE1967	0.00577	(1522	BH 1	18SE1967	C.00370
(1527	TR 1	20SE1967	0.00503	(1529	KW 1	20SE1967	0.01139	(1545	ML 1	2OC1967	C.00370
(1552	SH 1	6OC1967	0.00640	(1550	MR 1	5OC1967	C.24019	(1553	SG 1	4OC1967	C.00734
(1426	MS 2	29MY1967	0.02100	(1351	ML 2	21AP1967	C.00621	(1427	LU 2	29MY1967	0.01211
(1350	BH 2	19AP1967	0.04405	(1401	MO 2	6MY1967	0.00326	(1402	TR 2	6MY1967	C.00747
(1400	SH 2	6MY1967	0.02361	(1454	MS 2	10MY1967	0.01270	(1456	GB 2	13MY1967	C.01076
(1423	MA 2	25MY1967	0.00428	(							

Navicula lanceolata var. *cymbula* (Donk.) Cleve

Navicula cymbula Donkin, Quart. J. Micr. Sci., 9:294, pl. 18, fig. 6. 1869.

Navicula lanceolata var. *cymbula* (Donk.) Cleve, K. Svenska Vet.-Akad. Handl., Ny F81jd, 27(3):22. 1895.

398 NALANCVC TCT NO OF STATIONS 4											
(1305	F 2	11OC1964	0.00173	(1565	GS13	5OC1967	0.00507	(1428	PU 2	29MY1967	C.00301
(1404	MO 2	10MY1967	0.01276	(							

Navicula latens Krasske

Navicula latens Krasske, Arch. Hydrobiol., 31:41. 1937.

395 NALATENS TCT NO OF STATIONS 12											
(46757	EV	25JL1937	0.00481	(1521	SH 1	18SE1967	0.00577	(1526	MO 1	20SE1967	C.00566
(1527	TR 1	20SE1967	0.02516	(1528	SH 1	20SE1967	0.01444	(1530	FR 1	24SE1967	C.01000
(1545	ML 1	2OC1967	0.15514	(1550	MR 1	5OC1967	C.01239	(1402	TR 2	6MY1967	C.00541
(1354	GH 2	25AP1967	0.00345	(1349	CI 2	19AP1967	0.00359	(1422	GA 2	23MY1967	C.00511

Navicula laterostrata Hust.

Navicula laterostrata Hustedt, Internat. Rev. Hydrobiol., 13:357, fig. 4. 1925.

Coll: 1404.

Navicula levanderi Hust.

Navicula levanderi Hustedt, Internat. Rev. Hydrobiol., 43:174. 1943.

400 NALEVAND TCT NO OF STATIONS 2									
(46757	EV	25JL1937	0.00481	(46763	EV	23AU1937	C.04058	(	

Navicula menisculus Schum.

Navicula menisculus Schumann, Schrift. K. Phys.-Ökonom. Ges. Königsberg, 8:56, pl. 2, fig. 33. 1867.

401 NAWENISC TCT NO OF STATIONS 4									
(1240	D 6	10JUN1964	0.00152	(1305	F 2	11GCI1964	C.00175	(1337	C 3
(1341	B 3	15APR1967	C.00108	(					2MP1967 C.00147)

Navicula menisculus var. *obtusa* Hust.

Navicula menisculus var. *obtusa* Hustedt, Arch. Hydrobiol., Suppl. 15:271, pl. 20, figs. 12-14. 1938.

402 NAWENISC TCT NO OF STATIONS 9									
(46758	EV	5JUN1937	0.00357	(46757	EV	25JUL1937	0.00481	(46763	EV
(46752	EV	15SE1937	0.00530	(46768	EV	16MR1938	0.02940	(46762	EV
(1364	MU 1	20C1967	0.00238	(1345	ML 1	20C1967	0.00678	(1350	BH 2
									19APR1967 C.00226)

Navicula menisculus var. *upsaliensis* Grun.

Navicula (menisculus Schum. var.?) *upsaliensis* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):33. 1880.

Navicula menisculus var. *upsaliensis* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 8, figs. 23-24. 1880.

403 NAWENIVU TCT AC OF STATIONS 40									
(46905	CH	MR1947	0.00455	(46512	CH	AP1947	C.01190	(46907	CH
(46758	EV	5JUN1937	0.00357	(46771	EV	11JUN1937	0.00238	(46763	EV
(46752	EV	15SE1937	0.00530	(46767	EV	27GCI1937	0.00774	(46762	EV
(1308	GS12	12MY1967	0.00603	(1389	GS13	12MY1967	0.00258	(1390	GS14
(1391	GS15	12MY1967	0.00575	(1392	GS16	12MY1967	C.00309	(1394	GS18
(1397	GS21	13MY1967	0.00065	(1394	GS 1	30C1967	C.00356	(1397	GS 4
(1398	GS 5	4CC1967	C.00356	(1395	GS13	5CC1967	C.00578	(1397	GS15
(1391	GS16	60C1967	C.00096	(1373	GS21	60C1967	C.00112	(1374	GS22
(1344	MU 1	20C1967	0.00477	(1346	LU 1	20C1967	C.00802	(1322	BH 1
(1326	MU 1	20SE1967	0.01138	(1327	TR 1	20SE1967	C.00918	(1328	SB 1
(1329	MU 1	20SE1967	0.00197	(1345	WL 1	20C1967	C.39192	(1350	MR 1
(1428	MU 2	24MY1967	C.00904	(1417	MO 2	22MY1967	0.01122	(1350	BH 2
(1354	CH 2	25APR1967	0.00172	(1454	PR 2	10MY1967	C.01270	(1420	HE 2
(1423	HA 2	25MY1967	0.00408	(					23MY1967 C.01511)

Navicula micropupula Chohn.

Navicula micropupula Chohnoky, Bot. Not., 110(3):353, fig. 61-63. 1957.

404 NAWICROP TCT AC OF STATIONS 3									
(1258	F 1	6JUL1964	0.00236	(1528	SB 1	20SE1967	0.01444	(1545	WL 1
									20C1967 C.00227)

Navicula minima Grun.

Navicula minima Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 14, fig. 15. 1880.

405 NAWIMINA TCT NO OF STATIONS 8									
(46905	CH	MR1947	0.00455	(46764	EV	13JUL1937	0.01612	(46767	EV
(1291	CH 2	16CC1964	0.00045	(1361	B 3	19APR1967	0.00108	(1345	C 5
(1308	GS12	12MY1967	0.01207	(1350	MR 1	5CC1967	0.39648	(	
									27GCI1937 C.00774)
									25APR1967 C.00105)

Navicula minima var. *okamurae* Skv.

Navicula minima var. *okamurae* Skvortzow, Phillipine J. Sci., 62:203, pl. 1, fig. 23. 1937.

406 NAWIMINU TCT AC OF STATIONS 1									
(1550	MR 1	5CC1967	0.03717	(					

Navicula minuscula Grun.

Navicula minuscula Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 14, fig. 3. 1880.

392 NAWIMINU TCT NO OF STATIONS 4									
(1244	F 1	11JUN1964	0.00110	(1565	GS13	50C1967	C.02028	(1527	TR 1
(1550	MR 1	5CC1967	0.01235	(					20SE1967 C.01258)

Navicula monoculata Hust.

Navicula monoculata Hustedt, Arch. Hydrobiol., 40:921, pl. 41, fig. 4. 1945.

407 NAMONDCU TCT AC CF STATIONS 2

(1571 GS19 40C1967 0.00059) (135C BH 2 19AP1967 0.00441) (

Navicula muraliformis Hust.

Navicula muraliformis Hustedt ex Brendemühl, Arch. Mikrobiol., 14:440, fig. 5. 1949.

408 NAMURALI TOT NO CF STATIONS 3

(1268 E 2 15AU1964 0.00274) (1348 E 5 23AP1967 0.00137) (1451 C 7 16JL1967 C.00197)

Navicula mutica Kütz.

Navicula mutica Kützing, Bacill., p. 93, pl. 3, fig. 32. 1844.

Coll: 1734.

Navicula mutica var. *cohnii* (Hilse) Grun.

Stauroneis cohnii Hilse, Jahres-Ber. Schlesische Ges. Vaterl. Kult., 38:83. 1860.

Navicula mutica var. *cohnii* (Hilse) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 10, fig. 17. 1880.

409 NAMUTIVC TOT AC CF STATIONS 3

(46916 CH 4PY1947 0.00068) (46522 CH 21AU1947 C.00097) (1241 E 2 13JN1964 C.CC148)

Navicula mutica var. *tropica* Hust.

Navicula mutica var. *tropica* Hustedt, Arch. Hydrobiol., Suppl. 15:233, pl. 17, fig. 6. 1937.

410 NAMUTIVI TCT NO CF STATIONS 4

(46921 CH 23ND1945 C.00065) (46522 CH 21AU1947 C.00097) (1342 A 4 19AP1967 C.CC180)
(1350 BH 2 19AP1967 C.00220) (

Navicula muticoides Hust.

Navicula muticoides Hustedt, Instit. Parcs Nat. Congo Belge, Expl. Parc Nat. Albert, Mission H. Damas (1935-1936), Fasc. 8, p. 82, pl. 4, figs. 33-36. 1949.

411 NAMUTICS TOT NO CF STATIONS 1

(46758 EV 5JN1937 C.CC357) (

Navicula muticopsis V. H.

Navicula muticopsis Van Heurck, Exped. Antartic Belge, Bot., Diat., p. 12, pl. 2, fig. 181. 1909.

412 NAMUTICS TCT AC CF STATIONS 2

(46924 CH 10MY1946 0.00071) (1542 E 3 11OC1967 C.00509) (

Navicula nyassensis fo. *minor* O. Müll.

Navicula nyassensis fo. *minor* O. Müller, Bot. Jahrb., 45:83, pl. 1, fig. 6. 1911.

430 NAPUEW TCT NO OF STATIONS 13

146758	EV	5JN1937	0.04638	146764	EV	17JUL1937	0.12087	146757	EV	25JUL1937	C.02080
146747	EV	1AUL1937	0.00248	146763	EV	23AUL1937	0.08117	146752	EV	15SE1937	C.06530
146750	EV	24SE1937	0.01414	146767	EV	27OC1937	0.00387	146762	EV	18MR1938	C.02206
146761	EV	22MY1937	0.00365	146765	WL	20C1967	0.0076	146750	MR	5CC1967	C.01239
146742	HD 2	22MY1967	0.00375								

Navicula oblonga (Kütz.) Kütz.

Frustulia oblonga Kütz., Linnaea, 8:548, pl. 14, fig. 24. 1833.

Navicula oblonga (Kütz.) Kütz., Bacill., p. 97, pl. 4, fig. 21. 1844.

413 NAOBLONE TCT NO OF STATIONS 4

13541	CH	1FEL1981	0.00078	13538	E 5	23SE1967	0.00552	13588	GS12	12MY1967	C.00663
13569	GS17	5CC1967	0.00145								

Navicula odiosa Wallace

Navicula odiosa Wallace, Not. Nat. Acad. Nat. Sci. Philadelphia, 331:5, pl. 2, fig. 4. 1960.

414 NAODIOSA TCT NO OF STATIONS 17

146923	CH	22NO1946	0.00219	146919	CH	5JN1947	0.00303	146757	EV	25JUL1937	C.00663
146752	EV	15SE1937	0.04394	146750	EV	24SE1937	0.00471	146759	EV	19MY1938	C.00338
146756	E 2	14JUL1946	0.00183	146768	E 2	15AUL1946	C.02174	146760	F 1	10AUL1964	C.00272
146765	F 1	15SE1964	0.02512	146767	GS21	13MY1967	0.00065	146757	GS 4	5CC1967	C.00374
146763	GS21	6CC1967	0.00224	146764	GS22	6CC1967	C.00575	146759	MR 1	20SE1967	C.02398
146761	HD 2	6MY1967	0.00189	146769	HL 2	25MY1967	C.01042				

Navicula oppugnata Hust.

Navicula oppugnata Husted, Arch. Hydrobiol., 40(4):925, pl. 42, fig. 1. 1945.

415 NAOPPUGA TCT NO OF STATIONS 37

146917	CH	12JUL1946	0.00028	146923	CH	22NO1946	0.00219	146920	CH	20SE1946	C.00092
146916	CH	4MY1947	0.00170	146919	CH	5JN1947	0.01062	146922	CH	21AUL1947	C.00533
146758	EV	5JN1937	0.00712	146771	EV	11JN1937	0.00475	146749	EV	20JN1937	C.01289
146764	EV	17JUL1937	0.00292	146757	EV	25JUL1937	0.00889	146747	EV	1AUL1937	C.00446
146763	EV	23AUL1937	0.08117	146752	EV	15SE1937	0.06530	146760	EV	22SE1937	C.00085
146750	EV	24SE1937	0.01414	146764	EV	6CC1937	0.00975	146761	EV	27OC1937	C.00774
146765	EV	12MR1938	0.01216	146768	EV	16MY1938	0.01410	146762	EV	18MR1938	C.00617
146751	EV	30MR1938	0.02233	146756	EV	19MY1938	0.00388	146766	EV	14OCT1938	C.01584
146760	O 6	16JUL1964	0.00153	146768	O 6	18SE1964	0.00384	146767	O 6	14OCT1964	C.00190
146763	GS12	12MY1967	0.01007	146764	GS16	12MY1967	0.00300	146765	GS18	13MY1967	C.00172
146761	GS22	6CC1967	0.00288	146764	LU 1	20C1967	0.00500	146762	TR 1	20SE1967	C.00629
146765	HL 1	20C1967	0.00379	146769	LU 2	25MY1967	0.01211	146761	HD 2	6MY1967	C.00588
146762	TR 2	6MY1967	0.00541								

Navicula ordinaria Hust.

Navicula ordinaria Husted, Arch. Hydrobiol., 43:352, pl. 37, figs. 27-28. 1950.

83 ANSPUGA TCT NO OF STATIONS 2

146758	F 1	15SE1964	0.00582	146765	GS13	5CC1967	C.01014				
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Navicula paca Hohn and Hellerm.

Navicula paca Hohn and Hellerman, Trans. American Micr. Soc., 82(3):307, pl. 3, fig. 11. 1963.

482 NASPECOB TCT NO OF STATIONS 1

146768	E 2	15AUL1964	0.00021								
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Navicula paludosa Hust.

Navicula paludosa Hustedt, Abh. Naturw. Ver. Bremen, 34:286. 1957.

416 NAPALUDD TCT NO OF STATIONS 12

(46764	EV	17J11937	0.00806	(1304	F 1	115C1964	C.00247	(1546	LU 1	20C1967	C.C1000
(1527	TR 1	2C5E1967	0.01887	(1530	FR 1	245E1967	C.01000	(1545	WL 1	20C1967	C.00476
(1550	MR 1	50C1967	0.12390	(1428	MS 2	29M11967	C.01052	(1527	LU 2	29M11967	C.01421
(1350	BH 2	19AP1967	0.03524	(1354	GH 2	25AP1967	0.00690	(1404	MQ 2	10M11967	C.C1270

Navicula pelliculosa (Bréb.) Hilse

Synedra minutissima var. *pelliculosa* Kützting, Sp. Alg., p. 40. 1849.
(=*Frustulia pelliculosa* de Brébisson in litt. fide Kützting.).

Navicula pelliculosa (Bréb.) Hilse, Abh. Schleische Ges. Vaterl. Kult., 2(2):68. 1863.

Coll: 1712.

Navicula peratomus Hust.

Navicula peratomus Hustedt, Abh. Naturw. Ver. Bremen, 34(3):277, fig. 26. 1957.

417 NAPERATO TCT NO OF STATIONS 1

(1350	BH 2	15AP1967	0.01101	(
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Navicula perpusilla Grun.

Navicula perpusilla Grunow, Verh. Zool.-Bot. Wien, 10:552, pl. 4, fig. 7. 1860.

418 NAPERFUS TCT NO OF STATIONS 1

(1550	MR 1	50C1967	0.01235	(
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Navicula placentula (Ehr.) Kütz.

Pinnularia placentula Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:421, pl. 3(7), fig. 22. 1843.

Navicula placentula (Ehr.) Kützting, Bacill., p. 94. 1844.

419 NAPLACEN TCT NO OF STATIONS 13

(46917	CH	12J11946	0.00055	(46514	CH	19AP1946	0.00107	(46505	CH	18J1947	C.CC123
(46916	CH	4MY1947	0.00034	(46770	EV	9J11937	C.01103	(46757	EV	25J11937	C.00763
(46747	EV	14U1937	0.00248	(46763	EV	23AU1937	C.00229	(46752	EV	15SE1937	C.02177
(46756	EV	27AP1938	0.00168	(46761	EV	27MY1938	0.00273	(1275	D 2	17SE1964	C.00645
(1568	GS10	50C1967	0.00144	(							

Navicula placentula var. *rostrata* A. Mayer

Navicula placentula var. *rostrata* A. Mayer, Kryptog. Forsch., 3:125, pl. 3, figs. 27a-b. 1918.

420 NAPLACVR TCT NO OF STATIONS 20

(46924	CH	10MY1946	0.00071	(46919	CH	5JN1947	0.00152	(46922	CH	21AU1947	C.00154
(46758	EV	5JN1937	0.00257	(46771	EV	11JN1937	0.00238	(46743	EV	20JN1937	C.00854
(46764	EV	17J11937	0.01612	(46757	EV	25J11937	C.00481	(46752	EV	15SE1937	C.04354
(46768	EV	10MY1938	0.01670	(1236	C 1	9J11964	0.00175	(1136	GS20	13MY1967	C.00074
(1554	GS 1	30C1967	0.00356	(1565	GS13	50C1967	0.00507	(1520	H 0 1	18SE1967	C.00471
(1527	JR 1	20SE1967	0.00629	(1401	MC 2	6MY1967	0.00388	(1419	BU 2	23MY1967	C.C1831
(1422	GA 2	23MY1967	0.00511	(1423	MG 2	25MY1967	0.00428	(			

Navicula platycephala O. Müll.

Navicula platycephala O. Müller, Bot. Jahrb., 45:84, pl. 1, fig. 12. 1911.

Coll: 1574.

Navicula platystoma var. *pantocsekii* Wisl. and Kolbe

Navicula platystoma var. *pantocsekii* Wislouch and Kolbe, Trav. Exped. Sci. Olenetz, Part 5, Livr. 1, p. 73, fig. 10. 1927.

421 NAPLATVP TCT NO OF STATICS 30

(3541	CH	1FE1881	0.00078	(446521	CH	23NO1945	0.00129	(46914	CH	19AP1946	0.00107
146924	CH	10MY1946	0.00141	(446520	CH	20OE1946	0.00123	(46955	CH	JAI1947	0.00123
(446904	CH	W11947	0.00204	(446922	CH	21AU1947	0.00201	(46758	EV	4JN1937	0.00235
146771	EV	11JN1937	0.00238	(46764	EV	17JL1937	0.00223	(46757	EV	25JL1937	0.00226
(46747	EV	1AU1937	0.01980	(46763	EV	23AU1937	0.06088	(46752	EV	15SE1937	0.02177
(46760	EV	22SE1937	0.00985	(46750	EV	26SE1937	0.00943	(46714	EV	6OC1937	0.00488
(46748	EV	13OC1937	0.02135	(46768	EV	16MR1938	0.01470	(46762	EV	16MR1938	0.04411
(1279	E 1	16SE1968	0.00393	(1394	GS18	13MY1967	0.00172	(1567	CS12	5OC1967	0.00318
(1546	LU 1	20CI1967	0.00500	(1526	HO 1	20SE1967	0.00549	(1527	TR 1	20SE1967	0.01258
(1555	ML 1	20CI1967	0.00676	(1550	MR 1	20CI1967	0.01239	(1549	ML 2	25MY1967	0.01062

Navicula potageri Reim.

Navicula potageri Reimer, Proc. Indiana Acad. Sci., 71:315, pl. 1, fig. 5. 1962.

Coll: 1808.

Navicula protracta Grun.

Navicula (crucicula var.?) *protracta* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):35, pl. 2, fig. 38. 1880.

422 NAPROCTA TCT NO OF STATICS 8

(46924	CH	10MY1946	0.00071	(446522	CH	21AU1947	0.00145	(46749	EV	12MR1938	0.01214
(1546	LU 1	20CI1967	0.01000	(1521	SH 1	18SE1967	0.00577	(1550	PR 1	5OC1967	0.02478
(1350	BH 2	15AP1967	0.00661	(1456	ES 2	12MY1967	0.00645	(			

Navicula protracta fo. *subcapitata* (Wisl. and Por.) Hustedt

Navicula lundstromii var. *subcapitata* Wislouch and Poretzky, Trav. Soc. Natural. Leningrad, 47-53:139, fig. 2. 1924.

Navicula protracta var. *subcapitata* (Wisl. and Por.) Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschlands, 7(3)2:316, fig. 1434. 1962.

423 NAPROCTES TCT NO OF STATICS 2

(1388	GS12	12MY1967	0.00403	(1565	GS12	5OC1967	0.01521	(			
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Navicula protracta var. *elliptica* Gallik

Navicula protracta var. *elliptica* Gallik, Pannonhalmi Szmlé, 10:65, fig. 7. 1935.

424 NAPROCTE TCT NO OF STATICS 24

146917	CH	12JAI1946	0.00028	(46771	EV	11JN1937	0.00238	(46764	EV	17JL1937	0.03223
(46759	EV	25JL1937	0.01926	(46747	EV	1AU1937	0.00980	(46763	EV	23AU1937	0.00209
(46752	EV	15SE1937	0.10591	(46765	EV	22SE1937	0.00385	(46750	EV	24SE1937	0.00543
(46744	EV	6OC1937	0.01463	(46748	EV	13OC1937	0.06405	(46761	EV	27MY1938	0.00273
(1286	E 1	16SE1968	0.00193	(1563	GS11	5OC1967	0.00524	(1546	LU 1	20CI1967	0.01000
(1520	HO 1	18SE1967	0.00471	(1527	TR 1	20SE1967	0.03145	(1545	ML 1	20CI1967	0.04054
(1626	PS 2	25MY1967	0.01050	(1627	LU 2	25MY1967	0.01211	(1617	HO 2	22MY1967	0.00374
(1350	BH 2	15AP1967	0.00220	(1402	TR 2	6MY1967	0.00541	(1423	MA 2	25MY1967	0.00428

Navicula pseudoclementis Hust.

Navicula pseudoclementis Hustedt, Bot. Not., 1952(4):400, fig. 107. 1952.

Coll: ANSP 46920a.

Navicula pseudoscutiformis Hust.

Navicula pseudoscutiformis Hustedt in: Pascher, "Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 291, fig. 495. 1930.

425 NAPSCUTI TCT AC CF STATIONS 10

(1346	C 7	21AP1967	0.00134	(1541	E 2	110C1967	C.00532	(1388	GS12	12MY1967	C.00603	(
(1390	GS14	12MY1967	0.00587	(1396	GS20	13MY1967	C.00074	(1555	GS 2	30C1967	C.00706	(
(1556	GS 3	30C1967	0.00521	(1550	MR 1	50C1967	0.04956	(1354	Ch 2	25AP1967	C.00173	(
(1404	MR 2	10MY1967	0.01270	(								

Navicula pseudoventralis Hust.

Navicula pseudoventralis Hustedt in: A. Schmidt, Atlas Diat., pl. 401, figs. 116-118. 1934.

426 NAPVENTR TCT AC CF STATIONS 1

(1350	RM 2	15AP1967	0.00220	(								
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Navicula pupula Kütz.

Navicula pupula Kützing, Bacill., p. 93, pl. 30, fig. 40. 1844.

427 NAPUPILLA TCT AC CF STATIONS 56

(46073	CH	1876	0.02362	(46523	CH	22NO1566	0.00656	(46905	CH	JL1947	C.00245	(
(46909	CH	MR1947	0.00455	(46966	CH	MY1947	0.00398	(46907	CH	JL1947	0.00049	(
(46922	CH	21AU1567	0.00507	(46958	EV	5JN1937	0.01209	(46743	EV	20JN1937	C.01285	(
(46745	EV	3JL1937	0.02090	(46770	EV	9JL1937	0.01193	(46764	EV	17JL1937	C.02562	(
(46757	EV	25JL1937	0.02370	(46747	EV	18JL1937	0.0074	(46763	EV	23JL1937	C.01634	(
(46752	EV	15SE1937	0.00707	(46750	EV	24SE1937	0.0187	(46767	EV	27OC1937	C.00774	(
(46768	EV	16MR1938	0.01470	(46762	EV	18MR1938	0.00822	(46756	EV	27AP1538	C.00168	(
(46755	EV	19MY1938	0.00338	(1246	F 3	11JN1964	0.00598	(1279	E 1	16SE1564	C.00393	(
(1285	F 1	0.00584	(1298	F 1	12OC1564	0.00265	(1387	GS11	12MY1967	C.00396	(	
(1388	GS12	12MY1967	0.00603	(1389	GS13	12MY1967	0.00258	(1565	GS13	5C1967	C.07606	(
(1566	GS14	5C1967	0.00183	(1568	GS16	5C1967	0.00144	(1574	GS22	6C1967	C.01726	(
(1547	MS 1	20C1967	0.01997	(1546	LU 1	12C1967	0.01000	(1520	MO 1	18SE1967	C.00471	(
(1521	SM 1	18SE1967	0.00577	(1522	RM 1	18SE1967	0.00729	(1526	MO 1	25SE1967	C.00549	(
(1527	TR 1	20SE1967	0.03774	(1529	KW 1	20SE1967	0.01199	(1545	WL 1	20C1967	C.00676	(
(1550	MR 1	50C1967	0.00912	(1553	SG 1	60C1967	0.00734	(1426	MS 2	29MY1967	0.01050	(
(1427	LU 2	29MY1967	0.01211	(1417	HO 2	22MY1967	0.00374	(1330	RM 2	19AP1967	C.00506	(
(1400	SB 2	6MY1967	0.00556	(1352	KW 2	21AP1967	0.00859	(1354	HM 2	25AP1967	C.00173	(
(1429	WL 2	29MY1967	0.01062	(1404	MO 2	10MY1967	C.00081	(1405	ES 2	12MY1967	C.01935	(
(1407	SM 2	14MY1967	0.00597	(1422	GA 2	23MY1967	0.00511	(				

Navicula pupula var. *aquaeductae* (Krasske) Hust.

Navicula aquaeductae Krasske, Bot. Arch., 3:197, fig. 4. 1923.

Navicula pupula var. *aquaeductae* (Krasske) Hustedt in: Pascher, Süßw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 282. 1930.

432 NAPUPUVA TCT AC CF STATIONS 1

(1350	MR 1	50C1967	0.01239	(								
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Navicula pupula var. *capitata* Skv. and Meyer

Navicula pupula var. *capitata* Skvortzow and Meyer, Proc. Sungaree River Biol. Sta., 1(5):15, pl. 1, fig. 40. 1928.

428 NAPUPUEC TCT AC CF STATIONS 7

(46758	EV	5JN1937	0.00357	(46763	EV	23AU1937	C.04058	(46752	EV	15SE1937	C.02177	(
(46760	EV	22SE1937	0.00442	(1565	GS13	5CC1967	0.00507	(1417	HO 2	22MY1967	C.00374	(
(1350	RM 2	15AP1967	0.00541	(								

Navicula pupula var. *elliptica* Hust.

Navicula pupula var. *elliptica* Hustedt, Abh. Naturw. Ver. Bremen, 20:291, pl. 3, fig. 40. 1911.

429 NAPUPUEF TCT AC CF STATIONS 2

(46915	CH	20FE1946	0.00565	(46764	EV	17JL1937	0.00806	(				
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Navicula pupula var. *rectangularis* (Greg.) Grun.

Stauroneis rectangularis Gregory, Quart. J. Micr. Sci., 2:96, pl. 4, fig. 17. 1854.

Navicula pupula var. *rectangularis* (Greg.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):45. 1880.

431 NAPUFEUF TCT NO OF STATIONS 3									
146766	EV	17JL1937	0.00806	(1565	GS13	50C1967	0.00507	(1423	MA 2
									25MY1967 C.CC428)

Navicula pupula var. *rostrata* Hust.

Navicula pupula var. *rostrata* Hustedt, Abh. Naturw. Ver. Bremen, 20:211, pl. 3, fig. 39. 1911.

433 NAPUPUVR TCT NO OF STATIONS 13									
146973	CH	1876	0.02342	(146524	CH	10MY1966	0.00071	(146916	CH
146922	CH	21AU1947	0.00463	(146747	EV	18AU1937	0.00743	(146750	EV
11388	GS12	12MY1967	0.00603	(11526	MO 1	20SE1967	0.00569	(11551	ES 1
11550	MR 1	50C1967	0.01239	(11350	BR 2	19AP1967	0.00220	(11407	SM 2
11421	CH 2	23MY1967	0.01715	(					14MY1967 C.CC597)

Navicula pygmaea Kütz.

Navicula pygmaea Klitzing, Sp. Alg., p. 77. 1849.

434 NAPIYGAE TCT NO OF STATIONS 3									
11264	C 1	10AU1964	0.00193	(11565	GS12	50C1967	0.00507	(11522	BM 1
									18SE1967 C.CC182)

Navicula quadripartita Hust.

Navicula quadripartita Hustedt, Arch. Hydrobiol., Suppl. 15:263, pl. 18, figs. 35-37. 1937.

436 NARAPART TCT NO OF STATIONS 1									
11545	WL 1	20C1157	0.00676	(					

Navicula radiosa Kütz.

Navicula radiosa Kützing, Bacill., p. 91, pl. 4, fig. 23. 1844.

437 NARADIOS TCT NO OF STATIONS 101									
146973	CH	1876	0.02342	(13540	CH	11MY1875	0.00523	(13541	CH
13507	CH	19FE1881	0.04528	(146510	CH	0C1945	0.00218	(146921	CH
146917	CH	12JL1966	0.00527	(146915	CH	20FE1966	0.01707	(146914	CH
146924	CH	10MY1966	0.00423	(146923	CH	23NO1946	0.03716	(146920	CH
146905	CH	18JL1947	0.00123	(146509	CH	MR1947	0.02277	(146912	CH
146916	CH	4MY1947	0.02409	(146506	CH	MY1947	0.01858	(146919	CH
146907	CH	18JL1947	0.01185	(146522	CH	21JL1947	0.05057	(146798	CH
146771	EV	11JL1937	0.00475	(146743	EV	20JL1937	0.02141	(146770	EV
146765	EV	17JL1937	0.00551	(146757	EV	25JL1937	0.02399	(146747	EV
146763	EV	23AU1937	0.00408	(146752	EV	15SE1937	0.02177	(146744	EV
146748	EV	13SE1937	0.00138	(146767	EV	27OC1937	0.00774	(146758	EV
146762	EV	18MR1938	0.00417	(146751	EV	30MR1938	0.01117	(146772	EV
146755	EV	19PY1938	0.00238	(146766	EV	14OE1938	0.01584	(11232	E 5
11240	D 6	10JL1964	0.00193	(11241	E 2	13JL1964	0.00148	(11243	E 6
11244	F 1	11JL1964	0.00165	(11245	F 2	11JL1964	0.02766	(11246	F 3
11258	F 1	6JL1964	0.00708	(11259	F 2	6JL1964	0.00310	(11260	F 3
11268	F 2	15AU1964	0.00547	(11279	E 1	16SE1964	0.01178	(11285	F 1
11286	F 2	15SE1964	0.01055	(11290	C 1	14OC1964	0.00379	(11304	F 1
11305	F 2	11OC1964	0.00345	(11306	F 3	11OC1964	0.00832	(11341	A 3
11345	C 5	25AP1967	0.00195	(11379	GS 3	5MY1967	0.00928	(11380	GS 4
11382	GS 6	10MY1967	0.01645	(11383	GS 7	10MY1967	0.00267	(11384	GS 8
11385	GS 9	10MY1967	0.00706	(11386	GS10	12MY1967	0.00287	(11387	GS11
11388	GS12	12MY1967	0.02529	(11389	GS13	12MY1967	0.00368	(11390	GS14
11391	GS15	12MY1967	0.01933	(11392	GS16	12MY1967	0.01541	(11393	GS17
11394	GS18	12MY1967	0.01109	(11395	GS19	13MY1967	0.00332	(11396	GS20
11398	GS22	14MY1967	0.00407	(11558	GS 5	4OC1967	0.00793	(11563	GS11
11564	GS12	5OC1967	0.00165	(11565	GS13	3OC1967	0.01521	(11566	GS14
11567	GS15	5OC1967	0.00891	(11568	GS16	5OC1967	0.00289	(11569	GS17
11570	GS18	5OC1967	0.01817	(11571	GS19	6OC1967	0.00117	(11572	GS20
11574	GS22	6OC1967	0.01438	(11575	GS28	4OC1967	0.00367	(11572	BM 1
11549	MO 1	4OC1967	0.01370	(11551	ES 1	5OC1967	0.00799	(11552	SM 1
11550	MR 2	5OC1967	0.02478	(11426	MS 2	29MY1967	0.01050	(11350	BM 2
11402	IR 1	5MY1967	0.00541	(11403	CA 2	10MY1967	0.00154	(11404	PG 2
11405	ES 2	12MY1967	0.01935	(11407	SM 2	14MY1967	0.00597	(	

Navicula radiosa var. *parva* Wallace

Navicula radiosa var. *parva* Wallace, Not. Nat. Acad. Nat. Sci. Philadelphia, 331:3, pl. 1, fig. 5. 1960.

438 NARADIVP TCT NO OF STATIONS 2									
146922	CH	21AU1947	0.00048	(11285	F 1	15SE1964	0.01165	(	

Navicula radiosa var. *tenella* (Bréb.) Grun.

Navicula tenella de Brébisson ex Kützting, Sp. Alg., p. 74. 1849.

Navicula radiosa var. *tenella* (Bréb.) Grunow in: Van Heurck, Syn. Diat. Belgique, p. 84. 1885.

439 NARADIVIT TOT NO OF STATIONS 57

146915	CH	20FE1946	0.00569 J	146520	CH	20DE1946	C.00031 J	146919	CH	5JN1947	C.CC303 J
146764	EV	17JL1937	C.00429 J	146757	EV	25JL1937	0.01926 J	146763	EV	23AU1937	C.00458 J
146766	EV	14OC1938	0.01584 J	14229	D 3	14MY1964	0.00211 J	14231	E 3	10MY1964	C.CC245 J
14240	D 6	10MY1964	0.00153 J	14243	E 6	13JN1964	0.00209 J	14244	F 1	11JN1964	0.00435 J
14256	E 2	14JL1964	0.00183 J	14258	F 1	6JL1964	0.00944 J	14268	E 2	15AU1964	C.CC1094 J
14270	F 1	10JN1964	0.01334 J	14275	G 2	11SE1964	0.00245 J	14278	E 1	16SE1964	0.01128 J
14285	F 1	15SE1964	0.02296 J	14286	F 2	15SE1964	C.01C95 J	14304	F 1	11OC1964	C.00C494 J
14320	E 4	7JUL1967	0.01C207 J	14340	C 7	28PP1967	C.000773 J	14341	A 3	19AP1967	C.00C325 J
14452	E 2	14JL1967	0.00082 J	14536	E 2	24SE1967	0.00945 J	14541	E 2	11C1967	C.01004 J
14542	E 3	11OC1967	0.00509 J	14387	GS11	12PY1967	0.00396 J	14388	GS12	12MY1967	C.00C603 J
14389	GS13	12MY1967	0.00258 J	14390	GS14	12MY1967	0.00587 J	14394	GS18	13MY1967	C.00344 J
14395	GS19	13MY1967	0.00117 J	14554	GS 1	30C1967	0.00712 J	14555	GS 2	30C1967	C.00C705 J
14557	GS 4	30C1967	0.01121 J	14558	GS 5	40C1967	0.00793 J	14560	GS 8	40C1967	C.00C945 J
14574	GS22	60C1967	0.00C863 J	14546	MU 1	25C1967	0.00477 J	14547	PS 1	20C1967	C.CC1798 J
14522	SH 1	18SE1967	0.00182 J	14530	FR 1	24SE1967	0.11001 J	14549	PG 1	40C1967	C.01370 J
14552	SM 1	60C1967	0.00C640 J	14550	MR 1	30C1967	0.04556 J	14553	SG 1	6C1967	C.CC1469 J
14428	MU 2	29MY1967	0.00301 J	14426	MS 2	29MY1967	0.02100 J	14350	8M 2	19AP1967	C.00C388 J
14402	TR 2	6MY1967	0.00541 J	14352	KV 2	21AP1967	0.00895 J	14354	GH 2	25AP1967	C.00C345 J
14403	CA 2	10MY1967	0.22535 J	14404	MC 2	10MY1967	0.00892 J	14405	ES 2	12MY1967	C.CC1290 J

Navicula reinhardtii (Grun.) Grun.

Stauroneis reinhardtii Grunow, Verh. Zool.-Bot. Ges. Wien, 10:566, pl. 6, fig. 19. 1860.

Navicula reinhardtii (Grun.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Förlag, 17(2):32. 1880.

440 NAREINHA TCT NO OF STATIONS 41

146973	CH	1876	0.04724 J	143540	CH	11MY1879	0.00932 J	143541	CH	1FE1881	C.CC978 J
146910	CH	0C1545	0.00109 J	146521	CH	23NO1945	C.00122 J	146917	CH	12A1946	C.CC055 J
146924	CH	1MY1946	0.00071 J	146520	CH	20DE1946	0.00246 J	146918	CH	6MY1967	C.CC028 J
146806	CH	1MY1947	C.00E08 J	146527	CH	1JL1947	0.00148 J	146922	CH	21AU1947	C.CC097 J
146758	EV	5JN1937	0.00713 J	146752	EV	15SE1937	0.00530 J	146750	EV	24SE1937	C.CC943 J
146764	EV	6MY1967	C.00A088 J	146748	EV	13C1967	C.00123 J	146747	EV	27EC1937	C.CC074 J
146745	EV	12MY1938	C.01214 J	146751	EV	30MR1938	C.01117 J	146761	EV	27PY1938	C.CC273 J
14236	C 1	8JUL1964	0.00175 J	14245	F 2	11JN1964	C.00346 J	14258	F 1	6JL1964	C.00236 J
14285	F 1	15SE1964	C.00592 J	14541	F 2	11OC1967	0.00532 J	14387	GS11	12MY1967	C.CC194 J
14391	GS15	12MY1967	0.00479 J	14396	GS20	13MY1967	0.00148 J	14398	GS22	14MY1967	C.00304 J
14574	GS22	60C1967	0.00575 J	14575	GS28	60C1967	0.00387 J	14544	MU 1	20C1967	C.CC238 J
14565	ML 1	20C1967	0.00570 J	14550	MR 1	30C1967	0.01239 J	14626	MS 2	29MY1967	C.CC100 J
14354	GH 2	25AP1967	0.00345 J	14429	WL 2	29MY1967	C.01062 J	14404	MC 2	10MY1967	C.CC127 J
14545	ES 2	12MY1967	0.00845 J	14407	SM 2	14MY1967	0.00597 J				

Navicula reinhardtii var. *elliptica* Hérub.

Navicula reinhardtii var. *elliptica* Hérubaud, Diat. Foss. Auvergne, Vol. 2, p. 8. 1903.

441 NAREINHA TCT NO OF STATIONS 7

146925	CH	18JUL1947	0.00245 J	146915	CH	5JN1947	0.00152 J	14344	MU 1	20C1967	C.CC238 J
14528	SH 1	20SE1967	0.01444 J	14428	MU 2	29MY1967	0.00301 J	14427	LU 2	29MY1967	C.00C632 J
14354	GH 2	25AP1967	0.00312 J								

Navicula rhynchocephala Kütz.

Navicula rhynchocephala Kützting, Bacill., p. 152, pl. 30, fig. 35. 1844.

442 NARHYNCH TCT NO OF STATIONS 7

146915	CH	20FE1946	0.00569 J	146920	CH	20DE1946	C.00031 J	146916	CH	4MY1947	C.CC054 J
146764	EV	17JL1937	0.00806 J	146757	EV	25JL1937	0.00461 J	146763	EV	23AU1937	C.00209 J
146768	EV	16MR1938	0.01470 J								

Navicula rotunda Hust.

Navicula rotunda Hustedt, Arch. Hydrobiol., 40:916, pl. 41, fig. 29. 1945.

443 NAROTUND TCT NO OF STATIONS 10

14565	GS13	30C1967	0.00563 J	14575	GS28	60C1967	0.00129 J	14546	LU 1	20C1967	C.01000 J
14525	PM 1	20SE1967	0.01393 J	14526	MU 1	20SE1967	0.00549 J	14527	TR 1	20SE1967	C.01087 J
14549	PM 1	40C1967	0.01370 J	14550	MR 1	30C1967	0.01239 J	14550	8M 2	29MY1967	C.CC661 J
14402	TR 2	6MY1967	0.00541 J								

Navicula salinarum Grun.

Navicula salinarum Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):33, pl. 2, fig. 34. 1880.

444	NASALINA	TCT NO OF STATIONS	1
(146916	CH	ANY1547	C.00C34) (

Navicula schoenfeldii Hust.

Navicula schoenfeldii Hustedt in: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 301, fig. 520. 1930.

455	NASCHONG	TCT NO OF STATIONS	1
(15550	PR 1	SCC1967	0.01239) (

Navicula scutelloides Wm. Smith

Navicula scutelloides Wm. Smith ex Gregory, Quart. J. Micr. Sci., 4:4, pl. 1, fig. 15. 1856.

445	NASCUTEL	TCT NO OF STATIONS	38
(60973	CH	1876	0.02362) (3540 CH 11MY1879 0.00446) (46920 CH 20DE1946 C.00C31)
(146767	EV	18U137	0.02348) (1245 F 2 11JN1964 0.00346) (1267 O 6 18AU1964 C.00216)
(1274	D 1	17SE1964	0.00469) (1279 E 1 16SE1964 0.01571) (1304 F 1 11OC1967 C.00247)
(1320	E 4	7NG1964	0.00207) (1541 E 2 11OC1967 0.00532) (1542 E 3 11OC1967 C.01617)
(1382	GS 6	10MY1967	0.00278) (1395 GS19 13MY1967 0.00117) (1396 GS20 13MY1967 C.00222)
(1536	GS 1	3GC1967	0.00712) (1555 GS 2 3GC1967 0.00726) (1556 GS 3 3GC1967 C.00521)
(1557	GS 4	3GC1967	0.00374) (1558 GS 5 4CC1967 0.00396) (1565 GS13 5CC1967 L.29804)
(1561	GS15	5CC1967	0.00794) (1565 GS17 5CC1967 0.00149) (1571 GS19 6CC1967 C.00059)
(1572	GS20	6CC1967	0.00721) (1573 GS21 6CC1967 0.00448) (1574 GS22 6CC1967 C.01438)
(1575	GS28	6CC1967	0.00387) (1586 LU 1 20C1967 0.00590) (1520 HO 1 18SE1967 C.00471)
(1590	PR 1	24SE1967	0.03000) (1550 MR 1 5CC1967 C.11151) (1553 SG 1 6CC1967 C.02938)
(1626	MS 2	25MY1967	0.01050) (1627 LU 2 29MY1967 0.08475) (1350 BH 2 19AP1967 C.00C81)
(1354	GH 2	25AP1967	0.00172) (1404 MC 2 10MY1967 0.03611) (

Navicula semenoides Hust.

Navicula semenoides Hustedt, Arch. Hydrobiol., 18:163, pl. 5, fig. 8. 1927.

373	NADEUSC	TCT NO OF STATIONS	6
(1279	E 1	16SE1964	0.00393) (1319 E 3 7NG1964 C.00262) (1343 A 6 19AP1967 C.00C69)
(1388	GS12	12MY1967	0.01810) (1565 GS13 5CC1967 0.29916) (1573 GS21 6CC1967 C.00C112)

Navicula seminuloides Hust.

Navicula seminuloides Hustedt in: A. Schmidt, Atlas Diat., pl. 401, figs. 68-71. 1936.

448	NASEMIN	TCT NO OF STATIONS	5
(1286	F 2	15SE1964	C.01095) (1325 F 3 6ND1964 0.00252) (1348 E 5 23AP1967 C.00C137)
(1352	GS13	5CC1967	0.00318) (1521 SM 1 18SE1967 0.00277) (

Navicula seminum Grun.

Navicula seminum Grunow, Verh. Zool.-Bot. Ges. Wien, 10:552, pl. 4, fig. 3. 1860.

446	NASEMINU	TCT NO OF STATIONS	26
(14692C	CH	20DE1946	0.00031) (44650 CH MR1847 0.00455) (1278 O 6 18SE1964 C.00C84)
(1279	E 1	16SE1964	0.01178) (1285 F 1 15SE1964 C.00282) (1318 E 2 7NG1964 C.00C190)
(1348	E 5	23AP1967	0.00137) (1565 GS13 5CC1967 E.81840) (1566 GS14 5CC1967 C.00C183)
(1367	GS15	5CC1967	0.00476) (1567 GS17 5CC1967 0.00149) (1574 GS22 6CC1967 C.01438)
(1546	LU 1	20C1967	0.01501) (1521 SH 1 18SE1967 0.00577) (1522 BH 1 18SE1967 C.00C547)
(1523	RA 1	15SE1967	0.00923) (1526 MO 1 20SE1967 0.00569) (1527 TR 1 20SE1967 C.03774)
(1524	KW 1	20SE1967	0.01199) (1545 ME 1 2CC1967 0.00676) (1551 ES 1 5CC1967 C.00C709)
(1532	SM 1	6CC1967	0.00660) (1550 MR 1 5CC1967 C.49960) (1553 SG 1 6CC1967 C.02202)
(1350	BH 2	19AP1967	0.07048) (1354 GH 2 25AP1967 0.00173) (

Navicula seminulum var. *intermedia* Hust.

Navicula seminulum var. *intermedia* Hustedt, Arch. Hydrobiol., 39:110, figs. 25-28. 1942.

447 NASEMIVI TCT NO OF STATIONS 1
(1264 C 1 10AUI964 0.00193) (

Navicula similis Krasske

Navicula similis Krasske, Bot. Arch., 27:254, fig. 15. 1929.

450 NASIMILI TCT NO OF STATIONS 3
(1388 GS12 12MY1967 0.00663) (1365 GS13 5CC1967 0.01521) (1350 BH 2 15AP1967 0.00226) (

Navicula simplex Krasske

Navicula simplex Krasske, Abh. Ber. Ver. Naturk. Cassel, 56:112, pl. 1, fig. 16. 1925.

459 NASIMPLE TCT NO OF STATIONS 1
(1350 BH 2 15AP1967 0.00226) (

Navicula skabitschewskyi Kiselev

Navicula skabitschewskyi Kiselev (original description not available, cited in Zabelina et al, Opred, Presn. Vod. USSR, p. 279. 1951).

452 NASKABIO TCT NO OF STATIONS 1
(1369 C1 2 15AP1967 0.00359) (

Navicula stroesei A. Cleve

Stauroneis dilatata Wm. Smith sensu Ströse, Festschr. XXXVII Versamml. Deutsch. Philog. Schulm. Dessau, p. 11, pl. 1, fig. 28. 1884. (non Wm. Smith 1853).

Navicula tuscula var. *strösei* Østrup, Danske Diat., p. 84, pl. 1, fig. 28. 1910.

Navicula strösei A. Cleve, Acta Forest. Fennica, 22(4):63. 1922.

Navicula pseudotuscula Hustedt, Internat. Rev. Hydrobiol., 43:170. 1943.

452 NASTROES TCT NO OF STATIONS 9
(146208 EV 5JUL1937 0.01426) (146366 EV 17JUL1937 0.04629) (146757 EV 25JUL1937 0.00963)
(1382 GS 6 10MY1967 0.00278) (1388 GS12 12MY1967 0.01207) (1391 GS15 12MY1967 0.00479)
(1565 GS13 5CC1967 0.00507) (1569 GS17 5CC1967 0.00149) (1574 GS22 6CC1967 0.00288)

Navicula stroemii Hust.

Navicula strömi Hustedt, Arch. Hydrobiol., 22:544, fig. 3. 1931.

453 NASTROMC TCT NO OF STATIONS 3
(146915 CH 5JUL1937 0.00910) (146747 EV 14JUL1937 0.00248) (1565 GS13 5CC1967 0.00208)

Navicula subcostulata Hust.

Navicula subcostulata Hustedt, Abh. Bremen Wiss. Ges., 8/9:386, fig. 13. 1934.

457 NASCCSTU TCT NO OF STATIONS 1
(1433 C 3 17JUN1967 0.00646) (

Navicula subhamulata Grun.

Navicula subhamulata Grunow in: Van Heurck, Syn. Diat. Belgique, p. 106, pl. 13, fig. 14. 1885.

450 NASHAMUL TCT KC CF STATIONS 5									
(1974	GS22	6CC1967	0.00288)	(1549	WL 1	20C1967	0.00676)	(1549	MG 1
(1350	BH 2	19AP1967	0.00431)	(1453	CH 2	10MY1967	0.01304)	(	40C1967 C.C0370)

Navicula subrhynchocephala Hust.

Navicula subrhynchocephala Hustedt, Arch. Hydrobiol., Suppl. 14:156, pl. 1, fig. 11. 1935.

487 NASPECCI TCT KC CF STATIONS 19									
(60973	CH	1876	0.04724)	(46515	CH	20FE1966	0.00569)	(46758	EV
(46743	EV	20JUN1937	0.00428)	(46770	EV	9JL1937	0.01789)	(46764	EV
(46757	EV	25JL1937	0.01370)	(46763	EV	23AUL1937	0.01175)	(46752	EV
(46760	EV	22SE1937	0.00492)	(46768	EV	16MR1938	0.04410)	(46762	EV
(46766	EV	14OE1938	0.01584)	(1306	F 3	11CC1964	0.00277)	(1557	OS 4
(1546	LI 1	20C1967	0.00501)	(1350	BH 2	19AP1967	0.00861)	(1454	MG 2
(1407	SM 2	14MY1967	0.00557)	(					

Navicula subrotundata Hust.

Navicula subrotundata Hustedt, Arch. Hydrobiol., 40:917, pl. 41, figs. 30-33. 1945.

460 NASROTUR TOT NO CF STATIONS 12									
(46914	CH	4MY1967	0.00034)	(1274	C 1	17SE1964	0.00469)	(1275	O 2
(1348	E 5	23JUL1967	0.00137)	(1449	C 3	14JL1967	0.00362)	(1538	E 5
(1384	GS 8	10MY1967	0.00185)	(1565	GS13	30C1967	0.00506)	(1576	GS22
(1545	WL 1	20C1967	0.00676)	(1350	BH 2	19AP1967	0.00861)	(1354	GH 2
									25AP1967 C.CC345)

Navicula subsulcata Hust.

Navicula subsulcata Hustedt, Arch. Hydrobiol., Suppl 15:261, pl. 18, fig. 7. 1938.

526 NASPEGAR TCT NO CF STATIONS 1									
(1350	BH 2	19AP1967	0.00220)	(					

Navicula tantula Hust.

Navicula tantula Hustedt, Internat. Rev. Hydrobiol., 43:162. 1943.

461 NATANTUS TCT KC CF STATIONS 27									
(46763	EV	23AUL1937	0.00229)	(1272	C 1	10SE1964	0.00410)	(1274	O 1
(1275	D 2	17SE1964	0.00584)	(1268	D 6	18SE1964	0.00394)	(1274	O 1
(1281	E 3	16SE1964	0.00392)	(1262	E 4	16SE1964	0.01108)	(1284	E 6
(1285	F 1	15SE1964	0.01747)	(1287	F 3	12SE1964	0.00500)	(1303	E 6
(1322	E 6	7NOV1964	0.00332)	(1323	F 1	6NOV1964	0.00139)	(1324	F 2
(1365	A 6	19AP1967	0.00605)	(1534	A 6	19SE1967	0.00310)	(1538	E 5
(1565	GS13	30C1967	0.00507)	(1567	GS15	30C1967	0.00476)	(1571	GS19
(1523	RA 1	15SE1967	0.00923)	(1525	PA 1	20SE1967	0.01393)	(1545	WL 1
(1551	ES 1	30C1967	0.00799)	(1550	MR 1	30C1967	0.03717)	(1417	HO 2
									22MY1967 C.C0748)

Navicula tridentula var. *parallela* Krasske

Navicula tridentula var. *parallela* Krasske, Abh. Ver. Naturk. Cassel, 56:46, pl. 2, fig. 35. 1926.

462 NATRIOPP TCT KC CF STATIONS 2									
(1550	MR 1	30C1967	0.01235)	(1404	MC 2	10PY1967	0.01270)	(	

Navicula tripunctata (O. F. Müll.) Bory

Vibrio tripunctata O. F. Müller, Animal. Infus., p. 52, pl. 7, fig. 2. 1786.

Navicula tripunctata (O. F. Müll.) Bory, Encyclop. Method., p. 563. 1824.

463 NATIPUN TCT NO OF STATIONS 77

(3540	CH	11MY1879	0.00932	(3541	CH	1FE1881	0.00978	(466910	CH	OC1945	C.0C109
(466921	CH	22NO1945	0.00665	(466517	CH	12JA1946	0.00083	(466914	CH	19AP1946	C.00107
(466955	CH	JA1947	0.00123	(466549	CH	MR1947	0.00455	(466956	CH	MY1947	C.00086
(466758	EV	5AN1937	0.01010	(466766	EV	17JL1937	0.01512	(466768	EV	16MR1938	C.01470
(466762	EV	10MR1938	0.06617	(1232	E 5	16MY1964	0.00174	(1236	C* 1	8JN1964	C.00525
(1240	D 6	10JN1964	0.02747	(1243	E 6	13JN1964	0.02029	(1264	C* 1	10AU1964	C.00386
(1272	C* 1	10SE1964	0.00410	(1273	C* 2	10SE1964	0.01075	(1285	F 1	15SE1964	C.01185
(1301	E 4	13OC1964	0.00442	(1324	F 2	6NO1964	0.00233	(1341	A 3	19AP1967	C.04344
(1345	C 5	25AP1967	0.00195	(1375	E 3	7MY1967	C.00241	(1435	C 7	13JN1967	C.0C316
(1504	A 3	28AU1967	0.00267	(1533	A 4	15SE1967	C.00464	(1534	A 6	15SE1967	C.00210
(1536	E 2	24SE1967	0.00273	(1578	GS 2	9MY1967	0.00421	(1579	GS 3	9MY1967	C.0C309
(1597	GS21	13MY1967	0.00111	(1595	GS 2	30C1967	C.00353	(1599	GS 7	4OC1967	C.0C099
(1565	GS13	5OC1967	0.00507	(1567	GS15	5OC1967	0.00159	(1569	GS17	5OC1967	C.0C297
(1570	GS18	5OC1967	0.01983	(1571	GS19	6C1967	C.00117	(1572	GS20	6C1967	C.0C090
(1574	GS22	6OC1967	0.01438	(1575	GS28	6C1967	C.00254	(1576	W 1	25SE1967	C.04378
(1596	LU 1	20C1967	0.01501	(1520	HC 1	18SE1967	0.00471	(1521	SH 1	18SE1967	C.01731
(1522	SH 1	18SE1967	0.02918	(1523	RA 1	19SE1967	C.00923	(1526	MD 1	20SE1967	C.06258
(1527	TR 1	20SE1967	0.00629	(1529	KW 1	20SE1967	C.02398	(1531	CH 1	25SE1967	C.04227
(1545	WL 1	20C1967	0.02027	(1548	CA 1	30C1967	0.02544	(1549	PQ 1	4OC1967	C.01370
(1551	SS 1	5OC1967	0.00795	(1556	CH 1	5OC1967	C.02377	(1553	SE 1	4OC1967	C.0C734
(1428	MD 2	29MY1967	0.03314	(1426	MS 2	29MY1967	0.04190	(1427	LU 2	29MY1967	C.01211
(1417	HQ 2	22PY1967	0.02617	(1418	SH 2	22PY1967	0.01555	(1450	HQ 2	15AP1967	C.14097
(1390	PA 2	6PY1967	0.00646	(1401	MC 2	6PY1967	0.00648	(1402	TR 2	6PY1967	C.01624
(1400	SB 2	6PY1967	0.03748	(1352	KW 2	21AP1967	0.00859	(1354	CH 2	25AP1967	C.00863
(1429	ML 2	25PY1967	0.05508	(1403	CA 2	18PY1967	0.02615	(1406	GB 2	13MY1967	C.0C809
(1422	GA 2	23MY1967	0.01022	(1423	MA 2	23MY1967	0.00528	(			

Navicula tripunctata var. *cuneata* (Lauby) comb. nov.

Navicula gracilis var. *cuneata* Lauby, Bull. Serv. Carte Geol. France, 125:145, pl. 10, fig. 8. 1910.

464 NATIPVC TOT HC CF STATIONS 6

(46915	CH	20FE1946	0.01707	(46919	CH	5JN1947	C.00455	(1272	C* 1	10SE1964	C.0C414
(1575	GS28	6OC1967	0.00129	(1524	MA 1	20SE1967	0.00567	(1350	SH 2	19AP1967	C.0C661

Navicula tripunctata var. *schizonemoides* (V. H.) Patr.

Schizonema neglectum Thwaites, Annals Mag. Nat. Hist., Ser. 2, 1:171, pl. 12(J), figs. 1-4. 1848.

Navicula gracilis var. *schizonemoides* Van Heurck, Syn. Diat. Belgique, p. 83. 1885.

Navicula tripunctata var. *schizonemoides* (V. H.) Patrick, Proc. Acad. Nat. Sci. Philadelphia, 111:106, pl. 7, fig. 2. 1959.

465 NATIPVS TCT AC CF STATIONS 5

(46922	CH	21AU1947	0.00091	(1279	E 1	16SE1964	C.00393	(1346	C 7	21AP1967	C.0C134
(1557	GS 4	30C1967	0.00374	(1528	GS 5	4OC1967	C.00358	(			

Navicula tuscula Ehr.

Navicula tuscula Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:215. 1840.

466 NATUSCUL TCT AC CF STATIONS 25

(460973	CH	1876	0.02252	(3541	CH	1FE1881	0.03513	(46521	CH	23MC1945	C.0C065
(466917	CH	12JA1946	0.00078	(466514	CH	19AP1946	0.00107	(466924	CH	10MY1946	C.00071
(466923	CH	22NO1946	0.00437	(466520	CH	20C1946	C.00C31	(466922	CH	21AU1947	C.0C291
(466743	EV	20JN1937	0.00428	(466745	EV	3JL1937	0.00290	(466757	EV	25JL1937	C.00481
(466747	EV	18JL1937	0.01238	(466763	EV	23AU1937	C.04C58	(466752	EV	15SE1937	C.04354
(466750	EV	24SE1937	0.00943	(1244	F 1	11JN1964	0.00110	(1266	D 3	18AU1964	C.0C351
(1551	E 2	11JL1964	0.00505	(1516	GS13	5OC1967	C.00353	(1517	GS14	6OC1967	C.00572
(1527	TR 1	18SE1967	0.00629	(1545	WL 1	22C1967	0.00676	(1550	MR 1	5OC1967	C.01239
(1401	PD 2	6PY1967	0.00588	(							

Navicula tuscula fo. *obtusa* Hust.

Navicula tuscula fo. *obtusa* Husted in: Pascher, Süsw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 309. 1930.

467 NATUSCV TCT NC CF STATIONS 17

(3540	CH	11PY1879	0.00466	(46763	EV	23AU1937	0.02629	(1268	E 2	15AU1964	0.00274	)
(1285	F 1	15SE1964	0.00582	(1561	E 2	11OC1967	0.00532	(1394	GS18	13MY1967	0.00172	)
(1555	GS 2	3CC1967	0.00393	(1564	GS 8	4QC1967	0.00472	(1567	GS15	3CC1967	0.00159	)
(1574	GS22	4QC1967	0.00863	(1530	FR 1	24SE1967	0.03000	(1545	WL 1	2OC1967	0.00676	)
(1553	SC 1	4QC1967	0.00734	(1426	MS 2	29MY1967	0.01050	(1403	CA 2	10MY1967	0.00188	)
(1404	MO 2	10MY1967	0.01270	(1405	ES 2	12MY1967	0.00645	(				)

Navicula tuscula fo. *rostrata* Hust.

Navicula tuscula fo. *rostrata* Husted in: Pascher, Süßw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 308. 1930.

469 NATUSCVB TOT NC CF STATIONS 1

(1404	MO 2	10MY1967	0.01270	(								)
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Navicula vanheurnkii Patr.

Navicula vanheurnkii Patrick in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:491, pl. 46, fig. 22. 1966.

472 NAVANHEU TCT NC OF STATIONS 7

(1275	D 2	17SE1964	0.00645	(1388	GS12	12PY1967	0.01207	(1389	GS13	12PY1967	0.00516	)
(1392	GS16	10MY1967	0.00925	(1350	GS20	13MY1967	0.00074	(1354	GS 1	3CC1967	0.00356	)
(1545	WL 1	2CC1967	0.00676	(								)

Navicula ventosa Hust.

Navicula ventosa Husted, Abh. Naturw. Ver. Bremen, 34:281, fig. 28-31. 1957.

473 NAVENTCS TCT NC OF STATIONS 4

(1544	MU 1	20C1967	0.00238	(1527	TR 1	20SE1967	0.00629	(1550	PR 1	30C1967	0.01239	)
(1354	GH 2	25AP1967	0.00173	(								)

Navicula ventralis Krasske

Navicula ventralis Krasske, Bot. Arch., 3:197, fig. 3. 1923.

474 NAVENTRA TCT NC OF STATIONS 2

(1550	MR 1	3CC1967	0.00155	(1404	MO 2	10PY1967	0.01270	(				)
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Navicula viridula (Kütz.) Kütz.

Frustulia viridula Kütz., Linnaea, 8:551, pl. 13, fig. 12. 1833.

Navicula viridula (Kütz.) Kütz., Bacill., p. 91, pl. 30, fig. 47. 1844.

475 NAVIRIDU TCT NC OF STATIONS 25

(46917	CH	12JA1946	0.00028	(46523	CH	22NO1946	0.00219	(46920	CH	20CE1946	0.00031	)
(46907	CH	3L1947	0.00099	(46757	EV	25JL1937	0.00481	(46747	EV	1AU1937	0.00248	)
(1341	A 3	19AP1967	0.00108	(1498	A 6	10JL1967	0.00396	(1933	A 4	15SE1967	0.00646	)
(1566	GS14	3OC1967	0.00183	(1567	GS15	30C1967	0.00159	(1569	GS17	3CC1967	0.00149	)
(1522	BH 1	18SE1967	0.00729	(1531	GH 1	25SE1967	0.01657	(1545	WL 1	2OC1967	0.00676	)
(1550	MR 1	30C1967	0.00173	(1553	SG 1	4QC1967	0.01049	(1526	MS 2	29MY1967	0.00549	)
(1427	LU 2	29MY1967	0.01211	(1417	MO 2	22PY1967	0.00748	(1350	BH 2	19AP1967	0.01082	)
(1401	MO 2	3MY1967	0.00580	(1354	GH 2	25AP1967	0.00516	(1349	CI 2	19AP1967	0.00359	)
(1422	GA 2	23MY1967	0.00531	(								)

Navicula viridula var. *avenacea* (Bréb.) V. H.

Navicula (*viridula* Kg. var.?) *avenacea* de Brébisson ex Grunow in: Schneider, Naturw. Beitr. Kenntn. Kaukasusländer, p. 112, pl. 4, fig. 23. 1878.

Navicula viridula var. *avenacea* (Bréb.) Van Heurck, Syn. Diat. Belgique, p. 84. 1885.

476 NAVIRIVA TCT NC OF STATIONS 8											
146924	CH	10MY1966	0.00071	146922	CH	21AU1967	0.00048	1559	GS 7	40C1967	0.00350
1554	LU 1	20C1967	0.00500	1427	LU 2	29MY1967	0.01211	1350	SH 2	19AP1967	0.00081
1354	GH 2	25AP1967	0.00173	1422	GA 2	29MY1967	0.02044				

Navicula viridula var. *linearis* Hust.

Navicula viridula var. *linearis* Husted, Arch. Hydrobiol., Suppl. 15:264, pl. 19, figs. 1-2. 1937.

478 NAVIRIVL TCT NC OF STATIONS 6											
1316	D 4	9NO1964	0.00378	1395	GS15	13MY1967	0.00117	1571	GS19	60C1967	0.00059
1573	GS28	60C1967	0.00129	1520	HO 1	18SE1967	0.00271	1427	LU 2	29MY1967	0.01211

Navicula viridula var. *rostellata* (Kütz.) Cleve

Navicula rostellata Kützling, Bacill., p. 95, pl. 3, fig. 65. 1844.

Navicula viridula var. *rostellata* (Kütz.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 27(3):15. 1895.

479 NAVIRIVL TCT NC OF STATIONS 5											
146758	EV	3JN1937	0.00357	1571	GS15	60C1967	0.00059	1550	MR 1	50C1967	0.01239
1350	SH 2	19AP1967	0.00220	1421	CH 2	29MY1967	0.01755				

Navicula vulpina Kütz.

Navicula vulpina Kützling, Bacill., p. 92, pl. 3, fig. 43. 1844.

480 NAVULPIN TCT NC OF STATIONS 2											
1388	GS12	12MY1967	0.00603	1403	CA 2	10MY1967	0.01308				

Navicula wittrockii (Lagerst.) A. Cleve

Stauroneis wittrockii Lagerstedt, Bih. K. Svenska Vet.-Akad. Handl., 1(14):38, pl. 2, fig. 15. 1873.

Navicula wittrockii (Lagerst.) A. Cleve, Soc. Sci. Fennica Comm. Biol., 4(14):86. 1934.

481 NAVITRO TCT NC OF STATIONS 7											
1285	F 1	15SE1964	0.00582	1389	GS13	12MY1967	0.00258	1396	GS20	13MY1967	0.00074
1565	GS13	50C1967	0.01014	1567	GS15	50C1967	0.00129	1571	GS19	60C1967	0.00059
1550	MR 1	50C1967	0.01239								

Navicula zanoni Hust.

Navicula zanoni Husted, Inst. Parcs Nat. Congo Belge, Expl. Parc. Nat. Albert, (Damas 1935-1936), Facs. 8:92, pl. 5, figs. 1-5. 1949.

485 NASPEGGE TCT NC OF STATIONS 35											
146923	CH	22NO1966	0.00219	1229	C 5	14MY1964	0.00423	1439	B 6	5JN1964	0.00200
1244	F 1	11JN1964	0.00587	1245	F 2	11JN1964	0.01383	1246	F 3	11JN1964	0.01793
1256	E 2	14JL1964	0.01282	1258	F 1	6JL1964	0.00944	1259	F 2	6JL1964	0.00478
1260	F 3	6JL1964	0.02674	1268	E 2	15AU1964	0.00274	1284	E 6	17SE1964	0.00635
1285	F 1	15SE1964	0.01747	1287	F 3	15SE1964	0.00900	1302	E 5	13OC1964	0.00405
1305	F 2	11OC1964	0.00173	1323	F 1	6NO1964	0.00418	1324	F 2	6NO1964	0.00466
1346	C 7	21AP1967	0.00134	1381	GS 5	10MY1967	0.00239	1383	GS 7	10MY1967	0.00059
1388	GS12	12MY1967	0.02413	1390	GS14	12MY1967	0.02936	1393	GS17	13MY1967	0.01094
1394	GS18	18MY1967	0.00988	1564	GS12	50C1967	0.00165	1566	GS14	50C1967	0.01183
1367	GS15	50C1967	0.01239	1567	MS 1	20C1967	0.00758	1546	LU 1	20C1967	0.00500
1520	HO 1	18SE1967	0.00471	1527	TR 1	20SE1967	0.00629	1545	HL 1	20C1967	0.00676
1426	MS 2	29MY1967	0.01050	1403	CA 2	10MY1967	0.00231				

Species incertae sedis

Navicula (viridula var.?)

477 NAVIRIVB TCT NC OF STATIONS 4
 (1521 SH 1 185E1967 0.00537) (1522 BH 1 185E1967 0.02370) (1550 MR 1 50C1967 C.01239)
 (1417 HD 2 22MY1967 0.00374) (

Navicula (tuscula var. 1)

468 NATUSCVA TCT NC OF STATIONS 1
 (1388 GS12 12MY1967 0.00603) (

Navicula (tuscula var. 3)

471 NATUSCFR TCT NC OF STATIONS 5
 (146758 EV 5JN1937 0.00357) (146764 EV 17JL1937 C.01612) (1574 GS22 60C1967 C.00288)
 (1527 TR 1 20SE1967 0.00625) (1350 BH 2 19AP1967 0.00220) (

Navicula sp. (aff. N. lacustris)

397 NALACUSG TCT NC OF STATIONS 12
 (146924 CH 10MY1946 0.00071) (146520 CH 20SE1546 C.00031) (146916 CH 4MY1947 C.00034)
 (146908 CH MY1947 0.00133) (146522 CH 21JL1947 0.00388) (1344 MU 1 20C1967 0.00238)
 (1556 LU 1 20C1567 0.0100C) (1521 SH 1 185E1567 0.00577) (1527 TR 1 20SE1967 C.06518)
 (1529 KW 1 20SE1967 0.01199) (1402 TR 2 6MY1967 0.00541) (1429 ML 2 24MY1967 C.01062)

Navicula "pygmaea var. producta" (not validly described)

435 NAPIYKVP TCT NC OF STATIONS 3
 (1264 C* 1 10AU1964 0.00193) (1533 A 4 19SE1967 0.00444) (1396 GS20 13MY1967 C.00074)

Navicula sp. #3.

483 NASPECOC TCT NC OF STATIONS 1
 (1265 C* 2 10AU1964 0.00224) (

Navicula sp. #4.

484 NASPECOC TOT NC OF STATIONS 3
 (1388 GS12 12MY1967 0.00603) (1565 GS13 50C1967 C.00208) (1566 GS14 50C1967 C.00183)

Navicula sp. #8.

486 NASPECOH TCT NC OF STATIONS 11
 (146907 CH 1JL1947 0.00049) (1304 F 1 11OC1564 C.00247) (1356 GS20 13MY1967 C.00074)
 (1545 ML 1 20C1967 0.10812) (1552 SP 1 40C1567 0.01321) (1550 MR 1 50C1967 C.03171)
 (1428 MU 2 25MY1967 0.00301) (1426 MS 2 29MY1967 C.01050) (1427 LU 2 25MY1967 C.00553)
 (1350 BH 2 19AP1967 0.01942) (14C2 TR 2 6MY1967 0.02707) (

Navicula sp. #10.

488 NASPECOJ TCT NC OF STATIONS 1
 (1343 A 6 15AP1967 C.00C65) (

Navicula sp. #12.

49C NASPECL TCT NC OF STATIONS 37
 (146915 CH 5JN1947 0.27102) (146758 EV 5JN1937 C.00713) (146743 EV 20JN1937 C.00428)
 (14677C EV 5JL1937 0.02385) (146765 EV 17JL1937 0.20951) (146757 EV 25JL1937 C.12C36)
 (146747 EV 14JL1937 0.00743) (146763 EV 23AU1937 0.16234) (146752 EV 15SE1937 C.17414)
 (146750 EV 24SE1937 0.01414) (146748 EV 13OC1937 C.10575) (146747 EV 27OC1937 C.01160)
 (146749 EV 12MR1938 0.01214) (146768 EV 16MR1938 0.10290) (146762 EV 18MR1938 C.02206)
 (146751 EV 30MR1938 0.01117) (146761 EV 27MY1538 0.00818) (1258 F 1 4JL1964 0.00472)
 (1260 F 3 6JL1964 0.00191) (1540 C 5 40C1967 C.00496) (1541 E 2 11C1967 C.1597)

(1387 GS11 12PV1567 0.00396)	(1384 GS18 13PV1567 0.00172)	(1554 GS 1 30C1967 C.CC256)
(1559 GS 7 40C1967 0.00350)	(1545 GS13 50C1967 0.01014)	(1574 GS22 40C1967 C.CC083)
(1544 MU 1 20C1567 0.00715)	(1547 MS 1 20C1967 0.00798)	(1546 LU 1 20C1967 C.CC001)
(1526 MO 1 20E1967 0.01138)	(1527 TR 1 20E1967 0.00629)	(1529 RM 1 20E1967 0.02398)
(1545 WL 1 20C1567 0.02703)	(1551 ES 1 50C1967 0.01598)	(1552 SH 1 40C1967 C.CC060)
(1550 MR 1 50C1967 0.02478)		

Navicula sp. #13.

491 NASPECCP TCT NO OF STATIONS 5

(46747 EV 14U1937 0.00248)	(1285 F 1 155E1964 0.00582)	(1565 GS13 50C1967 C.C1521)
(1527 TR 1 20E1967 0.00629)	(1403 CA 2 10W1967 0.01308)	

Navicula sp. #14.

492 NASPECCN TCT NO OF STATIONS 2

(1286 F 2 155E1964 0.01095)	(1527 TR 1 20E1967 0.01258)
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Navicula sp. #15.

493 NASPECCD TCT NO OF STATIONS 1

(1522 BH 1 18E1967 0.00547)

Navicula sp. #18.

495 NASPECCP TCT NO OF STATIONS 1

(1545 WL 1 20C1567 0.00676)

Navicula sp. #19.

496 NASPECCN TCT NO OF STATIONS 27

(46521 CH 23NO1945 0.00065)	(46517 CH 12JA1946 0.00166)	(46915 CH 20FE1946 C.CC565)
(46914 CH 19AP1946 0.00107)	(46524 CH 10W1946 0.00141)	(46923 CH 22NO1946 0.00219)
(46922 CH 20DE1946 0.00292)	(46519 CH 5JA1947 0.00455)	(46922 CH 21AU1947 0.00145)
(46764 EV 17JL1937 0.00806)	(46747 EV 14U1937 0.00248)	(46763 EV 23AU1937 C.CC029)
(46746 EV 60C1537 0.00975)	(46768 EV 16MR1938 0.01470)	(46762 EV 18MR1938 C.CC206)
(1387 GS11 12PV1567 0.00396)	(1388 GS12 12W1967 0.00603)	(1556 GS 3 30C1967 C.CC0521)
(1545 GS13 50C1567 0.02028)	(1546 GS14 50C1967 0.00183)	(1567 GS15 50C1967 C.CC155)
(1574 GS22 60C1967 0.01151)	(1546 LU 1 20C1967 C.CC0201)	(1531 GH 1 25SE1967 0.00845)
(1550 MR 1 50C1967 0.02235)	(1351 PI 2 21AP1967 0.00310)	(1350 BH 2 19AP1967 C.CC220)

Navicula sp. #22.

498 NASPECCV TCT NO OF STATIONS 2

(46906 CH PY1947 0.00066)	(1285 F 1 155E1964 0.00582)
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Navicula sp. #23.

499 NASPECCN TCT NO OF STATIONS 15

(46758 EV 5JN1937 0.00713)	(46764 EV 17JL1937 C.CC086)	(46763 EV 23AU1937 C.CC146)
(46750 EV 24SE1537 0.00471)	(46767 EV 27EC1937 0.00387)	(46762 EV 18MR1938 0.00617)
(1451 C 7 16JL1967 C.CC197)	(1542 E 3 11CC1967 C.CC050)	(1546 LU 1 20C1967 C.CC1000)
(1545 WL 1 20C1967 0.00109)	(1555 ME 1 50C1967 0.01235)	(1526 MS 2 20W1967 C.CC100)
(1354 GH 2 25AP1967 0.00173)	(1407 SP 2 14W1967 C.CC059)	(1423 WA 2 25W1967 C.CC428)

Navicula sp. #24.

500 NASPECCX TCT NO OF STATIONS 5

(46917 CH 12JA1946 0.00028)	(46507 CH JL1947 C.CC049)	(46743 EV 20JN1937 C.CC428)
(1537 E 3 24SE1967 0.00431)	(1541 E 2 11OC1967 C.CC032)	

Navicula sp. #25.

501 NASPECCY TCT NO OF STATIONS 1
(1541 EV 2 110C1967 0.00532) (

Navicula sp. #26.

502 NASPECOZ TCT NO OF STATIONS 1
(46906 CH MY1947 C.00066) (

Navicula sp. #27.

503 NASPECAA TCT NO OF STATIONS 5
(46910 CH DC1245 0.00109) (46764 EV 17JUL1937 C.01612) (46763 EV 23AUL1937 C.04058)
(1350 GS14 12MY1567 0.00587) (1545 WL 1 20C1967 0.00676) (

Navicula sp. #29.

504 NASPECAF TCT NO OF STATIONS 4
(46757 EV 25JUL1937 0.00481) (46752 EV 195E1937 C.02177) (46768 EV 16MR193E C.C147C)
(1544 MU 1 20C1567 0.00952) (

Navicula sp. #30.

505 NASPECAE TCT NO OF STATIONS 1
(46757 EV 25JUL1937 C.C481) (

Navicula sp. #31.

506 NASPECAE TCT NO OF STATIONS 1
(46758 EV 5JUL1937 0.00357) (

Navicula sp. #32.

507 NASPECAF TCT NO OF STATIONS 1
(46767 EV 27CC1937 0.00387) (

Navicula sp. #33.

508 NASPECAE TCT NO OF STATIONS 1
(46763 EV 23AUL1937 0.02529) (

Navicula sp. #34.

509 NASPECAH TCT NO OF STATIONS 6
(1389 GS13 12MY1567 0.00258) (1574 GS22 80C1967 0.00288) (1250 MR 1 50C1967 C.C1239)
(1350 BH 2 19MR1967 0.00220) (1400 SR 2 4MY1967 0.00596) (1429 WL 2 29MY1967 C.01062)

Navicula sp. #35.

510 NASPECAJ TCT NO OF STATIONS 1
(1554 GS 1 3CC1967 0.00356) (

Navicula sp. #36.

511 NASPECAJ TCT NO OF STATIONS 2
(1565 GS13 50C1967 0.01014) (1546 LU 1 20C1967 C.00500) (

Navicula sp. #37.

512 NASPECAC TCT NO OF STATIONS 1
(1565 GS13 SCC1967 C.00507) (

Navicula sp. #38.

513 NASPECAL TCT NO OF STATIONS 2
(1565 GS13 SCC1967 C.04056) (1350 BH 2 19AP1967 C.00661) (

Navicula sp. #39.

514 NASPECAM TCT NO OF STATIONS 2
(1565 GS13 SCC1967 C.01521) (1350 BH 2 19AP1967 C.00441) (

Navicula sp. #40.

515 NASPECAN TCT NO OF STATIONS 3
(1567 GS15 SCC1967 C.00159) (1426 MS 2 29MY1967 C.01050) (1354 GH 2 25AP1967 C.00173)

Navicula sp. #41.

516 NASPECAC TCT NO OF STATIONS 1
(1574 GS22 SCC1967 C.00288) (

Navicula sp. #42.

517 NASPECAP TCT NO OF STATIONS 1
(1546 LU 1 SCC1967 C.00500) (

Navicula sp. #43.

518 NASPECAQ TCT NO OF STATIONS 6
(1526 MC 1 20SE1967 C.00549) (1527 TR 1 2CSE1967 C.00629) (1550 PR 1 SCC1967 C.03717)
(1517 HD 2 22MY1967 C.00374) (1350 BH 2 19AP1967 C.00220) (1402 TR 2 29MY1967 C.00541)

Navicula sp. #44.

519 NASPECAR TCT NO OF STATIONS 2
(1545 WL 1 SCC1967 C.10136) (1350 BH 2 19AP1967 C.00220) (

Navicula sp. #45.

520 NASPECAS TCT NO OF STATIONS 1
(1545 WL 1 SCC1967 C.00676) (

Navicula sp. #46.

521 NASPECAT TCT NO OF STATIONS 2
(1545 WL 1 SCC1967 C.00676) (1350 BH 2 19AP1967 C.00220) (

Navicula sp. #47.

522 NASPECAU TCT NO OF STATIONS 1
(1550 PR 1 SCC1967 C.01239) (

Navicula sp. #48.

523 NASPECAV TCT NO OF STATIONS 1
(1550 PR 1 SCC1967 C.01239) (

Navicula sp. #49.

524 NASPECAN TCT NO OF STATIONS 1
(1550 MR 1 5GC1967 0.64556) (

Navicula sp. #50.

525 NASPECAX TCT NO OF STATIONS 1
(1550 MR 1 5GC1967 0.61236) (

Navicula sp. #53.

527 NASPECBA TCT NO OF STATIONS 1
(1350 RH 2 15AP1967 0.00441) (

Navicula sp. #54.

528 NASPECBR TCT NO OF STATIONS 2
(1350 RH 2 15AP1967 0.00220) (1405 ES 2 12MY1967 0.00645) (

Navicula sp. #55.

529 NASPECBC TCT NO OF STATIONS 2
(1422 GA 2 23MY1967 0.01022) (1423 WA 2 25MY1967 0.00428) (

Genus *Neidium* Pfitz.
Pfitzer, Bot. Abh. Geb. Morph. Physiol., 1(2):39. 1871.

In most instances members of the genus *Neidium* comprise a minor component of epipelagic communities in freshwater. Probably none of the species may be classified as euplanktonic but occasional specimens are found in plankton collections. Members of the genus are very rare in our collections, and those noted come from nearshore localities.

Neidium affine (Ehr.) Pfitz.

Navicula affinis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:417, pl. 2(2), fig. 7. 1843.

Neidium affine (Ehr.) Pfitzer, Bot. Abh. Geb. Morph. Physiol., 1(2):39. 1871.

530 NEAFFINE ICT NO OF STATIONS									
146905	CH	ME1947	0.00645	146506	CH	PI1947	0.00666	146758	EV
146747	EV	SAU1937	0.00248	146752	EV	15SE1937	0.04354	146762	EV
146750	EV	19PY1938	0.00338					18MR1938	0.02206

Neidium affine var. *humerus* Reim.

Neidium affine var. *humerus* Reimer, Proc. Acad. Nat. Sci. Philadelphia, 111:12, pl. 4, fig. 3. 1959.

531 NEAFFIVH ICT NO OF STATIONS									
146764	EV	17JL1937	0.00806	146765	EV	3CAU1937	0.00558	146762	EV
146765	GS13	SCU1967	0.00507					18MR1938	0.02206

Neidium binode (Ehr.) Hust.

Navicula binodis Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:212. 1840.

Neidium binodis (Ehr.) Hustedt, Arch. Hydrobiol., 40:933. 1945.

532 NEBINODE ICT NO OF STATIONS									
146757	EV	25JL1937	0.00481						

Neidium bisulcatum (Lagerst.) Cleve

Navicula bisulcata Lagerstedt, Bih. K. Svenska Vet.-Akad. Handl., 1(14):31, pl. 1, fig. 8. 1873.

Neidium bisulcatum (Lagerst.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Föjd, 26(2):68. 1894.

533 NEBISULC ICT NO OF STATIONS									
146750	UM 2	16AP1967	0.00220						

Neidium bisulcatum var. *baicalense* (Skv. and Meyer) Reim.

Neidium bisulcatum fo. *baicalensis* Skvortzow and Meyer, Proc. Sungaree River Biol. Sta., 1(5):14, pl. 1, fig. 50. 1928.

Neidium bisulcatum var. *baicalensis* (Skv. and Meyer) Reimer, Proc. Acad. Nat. Sci. Philadelphia, 111:18, pl. 2, fig. 2. 1959.

534 NEBISULC TOT NO OF STATIONS									
146750	EV	5JN1937	0.00357						

Neidium calvum Østr.

Neidium calvum Østrup, Danske Diat., p. 20, pl. 1, fig. 11. 1910.

535	NECALVUM	TCT AC CF STATIONS	1
146760	EV	22SE1937	0.00452) (

Neidium dubium (Ehr.) Cleve

Navicula dubia Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:418, pl. 2(2), fig. 8. 1843.

Neidium dubium (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):70. 1894.

536	NEQUIUM	TCT AC CF STATIONS	3
146905	CH	MR1547	0.00455) (1258 F 1 6JL1564 C.00236) (1522 BR 1 18SE1567 C.00182)

Neidium dubium fo. *constrictum* Hust.

Neidium dubium fo. *constricta* Hustedt in: Pascher, Süsw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 246, fig. 384b. 1930.

537	NEUDIFC	TOT NO OF STATIONS	5
(3540	CH	11MY1870	0.00466) (46758 EV 5JN1937 0.00713) (46768 EV 14MR1538 C.01470)
(46756	EV	27AP1538	0.00368) (1240 D 6 10JN1964 0.00193) (1568 GS16 50C1567 C.00144)
(1574	GS22	6CC1967	0.01151) (1427 LU 2 25PY1967 0.01211) (1467 SM 2 14MY1567 0.00597)

Neidium iridis (Ehr.) Cleve

Navicula iridis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:418, pl. 4(1), fig. 2. 1843.

Neidium iridis (Ehr.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Följd, 26(2):69. 1894.

538	NEIRICIS	TCT NO CF STATIONS	1
(1426	MS 2	25MY1967	0.01050) (

Neidium iridis var. *amphigomphus* (Ehr.) A. Mayer

Navicula amphigomphus Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:417, pl. 3(1), fig. 8. 1843.

Neidium iridis var. *amphigomphus* (Ehr.) A. Mayer. Denkschr. Bayer. Bot. Ges. Regensburg, 13:30. 1917.

539	NEIRICVA	TCT NO CF STATIONS	1
(1567	GS15	50C1567	0.00195) (

Neidium iridis var. *vernalis* Reichelt

Neidium iridis var. *vernalis* Reichelt, Sitzungsber. Naturf. Ges. Leipzig, 24:8. 1897.

540	NESPECCB	TCT AC CF STATIONS	8
(46915	CH	20FE1946	0.00569) (46758 CH MR1547 0.00591) (46967 CH JL1947 C.00049)
(46758	EV	5JN1937	0.00357) (46764 EV 17JL1937 0.00800) (46757 EV 25JL1937 C.00481)
(46747	EV	1AU1937	0.00743) (1565 GS12 50C1567 C.00507) (

Neidium koslowi Mereschk.

Neidium koslowi Mereschkowsky, Arb. Exped. Kais. Russischen Geogr. Ges., 1899-1901, Vol. 8, p. 16, fig. 7. 1906.

544	NESPECCF	TCT NO CF STATIONS	1
(1388	GS12	12MY1567	0.00003) (

Neidium ladogensense (Cleve) comb. nov.

Navicula ladogensis Cleve, Acta Soc. Fauna Fl. Fennica, 8(2):35, pl. 2, fig. 3. 1891.

Coll: 1388.

Neidium saccoense Reim.

Neidium saccoense Reimer in: Patrick and Reimer, Acad. Nat. Sci. Philadelphia Monogr., 13:402, pl. 37, fig. 3. 1966.

Coll: 1813.

Species incertae sedis

Neidium sp. #3.

541 NESPECCE TCT NO CF STATIONS 18																	
(60973	CH	1876	0.04724	(	13541	CP	1FE1881	C.00578	(	46523	CH	22N01946	C.CC219	)			
(46822	CH	20JL1946	0.00031	(	46758	EV	5JN1537	C.00713	(	46770	EV	5JL1937	C.00596	)			
(46757	EV	25JL1937	0.00481	(	46763	EV	23AU1537	C.04058	(	46752	EV	15SE1937	C.02177	)			
(1541	E	11GC1967	0.00532	(	1521	GS19	60C1967	C.00059	(	1575	GS28	60C1967	C.00129	)			
(1544	MU	1	2CC1967	0.00238	(	1521	SM	18SE1967	C.00377	(	1527	TR	1	2CE1967	C.00216	)	
(1530	FR	1	74SE1967	C.01005	(	1525	ML	1	2CC1967	C.00876	(	1553	SG	1	6EC1967	C.CC734	)

Neidium sp. #4.

542. NESPECCO ICT NO OF STATIONS 2											
(46747	EV	1AU1937	0.00248)	(46768	EV	16MR1538	C.C1470)				

Neidium sp. #5.

543 NESPECCE TOT AC CF STATIONS 1											
(46764	EV	17JL1937	C.00856	(							

Genus *Nitzschia* Hass.

Hassall, Hist. British Freshw. Alg., Vol. 1, p. 435. 1845.

The members of the genus *Nitzschia* occurring in Lake Michigan are found in a variety of habitats. Although the greatest number of species are found in benthic environments, a number of species are apparently euplanktonic. Besides the euplanktonic species, many of the entities that find their primary habitat in epipelagic communities are successful facultative planktonic and are regularly taken in plankton collections, usually in low numbers.

Nitzschia acicularis (Kütz.) Wm. Smith

Synedra acicularis Kütz., Bacill., p. 63, pl. 4, fig. 3. 1844.

Nitzschia acicularis (Kütz.) Wm. Smith, Syn. British Diat., Vol. 1, p. 39, pl. 13, fig. 108. 1853.

545 NIACICUL TOT NO OF STATIONS 25																	
(46906	CH	7Y1947	0.00066	(	46764	EV	17JL1937	0.02417	(	1231	E	3	16Y1964	C.CC485	)		
(1439	D	6	5JN1964	0.00799	(	1238	D	3	11JN1964	C.00400	(	1241	E	2	13JN1964	0.00148	)
(1243	E	6	13JN1964	0.00205	(	1246	F	3	11JN1964	C.CC598	(	1252	C	1	16JL1964	C.00279	)
(1257	E	3	14JL1964	0.00679	(	1258	F	1	6JL1964	0.00944	(	1259	F	2	6JL1964	0.01545	)
(1260	F	3	6JL1964	0.00191	(	1340	C	7	28MR1967	C.00073	(	1449	C	3	16JL1967	C.00382	)
(1450	C	5	16JL1967	0.00190	(	1546	LU	1	20C1967	0.00500	(	1551	ES	1	50C1967	C.00799	)
(1550	MR	1	50C1967	0.01717	(	1626	MS	2	29MR1967	C.01050	(	1350	BH	2	15AP1967	C.CC226	)
(1401	MO	2	6MY1967	0.01176	(	1353	FR	2	23AP1967	C.01055	(	1354	GH	2	25AP1967	C.CC345	)
(1345	CI	2	19AP1967	0.00359	(												)

Nitzschia acuta Hantz.

Nitzschia acuta Hantzsch ex Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):90. 1880.

546 NIACUTA TCT NO CF STATIONS 124

46927	CH	1876	0.04724	(3541	CH	1FE1884	0.00578	(46910	CH	0C1945	0.00109			
46921	CH	23NO1945	0.00388	(46917	CH	12J11945	0.00111	(46911	CH	20E11945	0.00138			
46914	CH	19AP1946	0.00767	(46904	CH	10RY1946	0.00282	(46923	CH	22NO1946	0.00219			
46920	CH	20OE1946	0.00031	(46905	CH	JA1947	0.00123	(46909	CH	PR1947	0.00366			
46916	CH	4MY1947	0.00507	(46906	CH	PI1947	0.00066	(46919	CH	5JN1947	0.00366			
46907	CH	11JN1937	0.01665	(46743	EV	21AU1947	0.00145	(46758	EV	5JN1937	0.00396			
46771	EV	25JL1937	0.00481	(46747	EV	20JN1937	0.00297	(46770	EV	9JL1937	0.00596			
46755	EV	19MY1938	0.01013	(46761	EV	1AU1937	0.00249	(46756	EV	27AP1938	0.00336			
1439	8	5JN1964	0.02198	(1441	8	24JL1964	0.00441	(1250	0	10JL1964	0.00233			
1252	C	1	16JL1964	0.00279	(1255	5	15JL1964	0.00233	(1254	2	24JL1964	0.00563		
1297	E	3	6JL1964	0.00718	(1258	F	6	6JL1964	0.01180	(1259	F	6JL1964	0.00930	
1760	F	1	6JL1964	0.01528	(1271	C	7	22SE1964	0.00053	(1284	E	17FX1964	0.00794	
1285	F	1	15SE1964	0.01747	(1286	F	2	15SE1964	0.01099	(1290	C	1	16C1964	0.00319
1297	D	6	14C1964	0.00100	(1302	E	5	13C1964	0.00249	(1304	F	1	11C1964	0.00988
1305	F	2	11C1964	0.01035	(1306	F	3	11C1964	0.01940	(1311	0	1	8M1964	0.00258
1319	E	3	7PY1967	0.00526	(1321	E	5	7NO1964	0.00633	(1322	E	6	7NO1964	0.00500
1323	F	1	6NO1964	0.00279	(1337	C	3	2MR1967	0.00147	(1338	C	3	2MR1967	0.00529
1339	C	5	28PR1967	0.00624	(1340	C	7	28MR1967	0.00436	(1341	A	3	15AP1967	0.00542
1342	A	4	19AP1967	0.00361	(1343	A	4	19AP1967	0.00208	(1346	C	7	21AP1967	0.00938
1348	E	5	23AP1967	0.00360	(1368	A	3	4RY1967	0.00315	(1369	A	4	4RY1967	0.00373
1370	A	6	3PY1967	0.01151	(1372	C	5	5PY1967	0.00395	(1374	E	2	7PY1967	0.00299
1375	E	3	7PY1967	0.00261	(1376	E	4	6PY1967	0.00281	(1408	A	3	23PY1967	0.01364
1410	A	6	24MY1967	0.03383	(1412	C	5	31MY1967	0.00421	(1415	E	3	28MY1967	0.00225
1431	A	3	12JN1967	0.00257	(1432	A	4	13JN1967	0.00766	(1435	C	7	13JN1967	0.00631
1440	A	6	10JL1967	0.00354	(1536	E	2	24SE1967	0.00273	(1379	CS	3	9MY1967	0.00309
1381	GS	5	10MY1967	0.00477	(1382	GS	6	10PY1967	0.00833	(1383	GS	7	10PY1967	0.00404
1386	GS10	12MY1967	0.00287	(1387	CS11	12PY1967	0.00516	(1388	GS12	12MY1967	0.00603			
1388	GS13	12PY1967	0.00516	(1390	CS16	12PY1967	0.00587	(1391	CS15	12MY1967	0.00479			
1393	GS17	13MY1967	0.01096	(1394	GS18	13MY1967	0.02580	(1395	GS19	13PY1967	0.00705			
1397	GS21	13MY1967	0.00327	(1555	GS	2	3C1967	0.00353	(1557	GS	4	3C1967	0.00747	
1559	GS	7	6C1967	0.00350	(1560	GS	8	4C1967	0.00472	(1568	GS16	5C1967	0.00289	
1569	GS21	5C1967	0.00149	(1564	MU	1	2C1967	0.00477	(1520	HD	1	18SE1967	0.00471	
1528	SB	1	2CSE1967	0.01444	(1551	ES	1	5C1967	0.00508	(1552	SM	1	6C1967	0.00660
1550	ME	1	5C1967	0.01585	(1553	SG	1	6C1967	0.00734	(1426	MS	2	29MY1967	0.00210
1427	LU	2	29MY1967	0.01211	(1417	HO	2	22PY1967	0.01495	(1425	RS	2	25MY1967	0.01768
1358	PK	2	5PY1967	0.00500	(1401	MC	2	6PY1967	0.00508	(1462	TR	2	6PY1967	0.00561
1400	SR	2	02363	(1352	8V	2	21AP1967	0.02577	(1429	ML	2	25MY1967	0.03185	
1403	GA	2	10RY1967	0.01700	(1404	MC	2	10MY1967	0.01270	(1405	ES	2	12MY1967	0.00280
1407	SM	2	14RY1967	0.00454	(1348	CF	2	14RY1967	0.00454	(1349	F	2	14RY1967	0.00454
1421	CH	2	23MY1967	0.01735	(1422	GA	2	23RY1967	0.04598	(1423	NA	2	23RY1967	0.00428
1424	KN	2	25MY1967	0.01332	(1425	NA	2	25MY1967	0.00428					

Nitzschia amphibia Grun.

Nitzschia amphibia Grunow, Verh. Zool.-Bot. Ges. Wien, 12:574, pl. 18, fig. 23. 1862.

547 NEAPHOB TCT NO CF STATIONS 52

(46910) CH	0C1945	0.00328	(46921) CH	23NO1945	0.00388	(46915) CH	20FE1946	0.00845						
(46914) CH	19AP1946	0.00320	(46924) CH	10RY1946	0.00141	(46923) CH	22NO1946	0.00530						
(46920) CH	20OE1946	0.00185	(46905) CH	JA1947	0.00123	(46909) CH	PR1947	0.00366						
(46916) CH	4MY1947	0.00066	(46906) CH	PI1947	0.00066	(46919) CH	5JN1947	0.00366						
(46907) CH	11JN1937	0.00507	(46922) CH	21AU1947	0.00145	(46958) EV	5JN1937	0.00396						
(46755) EV	20JN1937	0.00428	(46747) EV	20JN1937	0.00297	(46770) EV	9JL1937	0.00596						
(46755) EV	19MY1938	0.01013	(46761) EV	1AU1937	0.00249	(46756) EV	27AP1938	0.00336						
(46762) EV	16MR1938	0.01549	(46766) EV	14JL1938	0.00319	(1243	E	6	13JL1964	0.00209				
(1252	C	1	16JL1964	0.00279	(1279	E	1	16SE1964	0.00393	(1284	E	6	17SE1964	0.00794
(1343	A	6	19AP1967	0.00361	(1343	GS	7	4C1967	0.00350	(1346	C	7	21AP1967	0.00938
(1559	GS	7	4C1967	0.00350	(1566	CS14	5C1967	0.00183	(1573	GS21	6C1967	0.00112		
(1546	LU	1	2C1967	0.00500	(1522	8V	1	18SE1967	0.00365	(1527	TR	1	2CSE1967	0.01259
(1549	ME	1	2C1967	0.00500	(1549	MC	2	4C1967	0.01370	(1560	MS	2	9C1967	0.01151
(1553	SG	1	6C1967	0.01465	(1428	MU	2	29MY1967	0.00301	(1426	PS	2	29MY1967	0.00500
(1417	HO	2	22MY1967	0.00374	(1350	8V	2	19AP1967	0.07048	(1407	SM	2	14PY1967	0.00597
(1406	GR	2	13PY1967	0.00270										

Nitzschia amphibia var. fossilis Grun.

Nitzschia amphibia var. *fossilis* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):98. 1880.

549 NIAPHOB TCT NO CF STATIONS 3

(46757) EV	1AU1937	0.00249	(1574	GS22	6C1967	0.00288	(1550	MR	1	5C1967	0.00239	
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Nitzschia angustata (Wm. Smith) Grun.

Tryblionella angustata Wm. Smith, Syn. British Diat., Vol. 1, p. 36, suppl. pl. 30, fig. 262. 1853.

Nitzschia angustata (Wm. Smith) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):70. 1880.

55C NIANGUWU TCT NO OF STATIONS 75

(460973	CH	1876	0.11805	(13540	CH	11MY1875	0.02796	(13541	CH	1FE1881	0.28367
(13507	CH	19FE1881	0.03996	(466521	CH	23NO1945	0.02199	(466517	CH	12J1946	0.00471
(466915	CH	20FE1946	0.01707	(466516	CH	15M1947	0.00747	(466528	CH	10MY1946	0.05964
(466923	CH	22NO1946	0.06038	(466520	CH	20CE1946	0.01356	(466955	CH	J11947	0.00735
(466909	CH	MR1947	0.01621	(466516	CH	MY1947	0.00810	(466508	CH	MY1947	0.05956
(466915	CH	5JUN1947	0.02731	(466507	CH	J11947	0.01183	(466522	CH	21JUN1947	0.01648
(466758	EV	5JUN1937	0.00357	(466743	EV	20JUN1937	0.00856	(466766	EV	17JUL1937	0.02423
(466757	EV	25JUL1937	0.00563	(466747	EV	18JUL1937	0.00950	(466763	EV	23AUG1937	0.10438
(466752	EV	15SE1937	0.00807	(466760	EV	22SE1937	0.01477	(466750	EV	24SE1937	0.04713
(466746	EV	60C1937	0.01463	(466768	EV	13C1937	0.04270	(466767	EV	27OC1937	0.04295
(466768	EV	15C1937	0.01176	(466762	EV	18M1938	0.28672	(466756	EV	27AP1938	0.05168
(11258	C 2	14MY1964	0.02195	(11258	F 1	6JL1964	0.00236	(11259	F 2	6JL1964	0.00310
(11264	C 1	10AUG1964	0.00193	(11276	E 1	16SE1964	0.00393	(11284	E 6	17SE1964	0.00318
(11285	F 1	15APR1967	0.00241	(11259	F 1	14C1964	0.00190	(11300	E 3	11JUL1964	0.00581
(11303	E 6	13C1964	0.00560	(11304	F 1	11OC1964	0.00494	(11322	E 6	7MC1964	0.00333
(11337	C 3	2MR1967	0.00147	(11307	GS11	12MY1967	0.00396	(11388	GS12	12MY1967	0.00603
(11390	GS14	6C1967	0.01176	(11301	GS15	12MY1967	0.00478	(11398	GS22	14MY1967	0.00304
(11557	GS 4	30C1967	0.00374	(11567	GS15	5CC1967	0.00159	(11572	GS20	6DC1967	0.00060
(11574	GS22	46C1967	0.00063	(11526	MC 1	20SE1967	0.00549	(11527	TP 1	20SE1967	0.00549
(11529	KW 1	20SE1967	0.01199	(11549	MC 1	40C1967	0.01370	(11552	SW 1	40C1967	0.00581
(11550	MR 1	50C1967	0.02478	(11553	SG 1	8C1967	0.01469	(11626	MS 2	20MY1967	0.02100
(11350	BR 2	15APR1967	0.00228	(11401	MD 2	6MY1967	0.00588	(11402	TR 2	6MY1967	0.00581
(11400	SB 1	6MY1967	0.00556	(11403	CA 2	10MY1967	0.00535	(11404	MC 2	10MY1967	0.00535
(11407	SM 2	14MY1967	0.01191	(11349	C1 2	15APR1967	0.00359	(11419	B 2	23MY1967	0.00831
(11421	CH	23MY1967	0.01735	(11422	GA 2	23MY1967	0.00511	(11423	WA 2	23MY1967	0.00831

Nitzschia angustata var. *acuta* Grun.

Nitzschia angustata var. *acuta* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):70. 1880.

551 NIANGUWU TCT NO OF STATIONS 5

(466920	CH	20CE1946	0.00862	(466519	CH	5JUN1947	0.00303	(11244	F 1	11JUN1964	0.00215
(13541	CH	11OC1967	0.00532	(11556	GS 3	30C1967	0.00521	(			

Nitzschia apiculata (Grun.) Grun.

Tryblionella apiculata Gregory, Trans. Micr. Soc. (London), n. s., 4:79, pl. 1, fig. 43. 1857.

Nitzschia apiculata (Grun.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):73. 1880.

552 NIAPICUL TCT NO OF STATIONS 1

(11406	GB 2	13MY1967	0.00272	(							
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Nitzschia bacata Hust.

Nitzschia bacata Hustedt, Arch. Hydrobiol. Suppl., 15(3):485, pl. 41, figs. 30-33. 1938.

553 NIABACATA TCT NO OF STATIONS 188

(466973	CH	1876	0.02362	(466516	CH	0C1945	0.00218	(466921	CH	23NO1945	0.00333
(466917	CH	12JUN1946	0.00166	(466515	CH	20FE1946	0.01707	(466918	CH	19APR1946	0.00441
(466924	CH	10MY1946	0.00141	(466520	CH	20CE1946	0.00031	(466909	CH	MR1947	0.00911
(466916	CH	MR1947	0.00204	(466506	CH	MY1947	0.01180	(466915	CH	JUN1947	0.01412
(466907	CH	JL1947	0.30352	(466522	CH	21AUG1947	0.00436	(466758	EV	5JUN1937	0.00337
(466771	EV	11JUN1937	0.02140	(466743	EV	20JUN1937	0.03426	(466766	EV	17JUL1937	0.05250
(466757	EV	25JUL1937	0.01926	(466747	EV	18JUL1937	0.00950	(466763	EV	23AUG1937	0.01117
(466746	EV	60C1937	0.01463	(466768	EV	13C1937	0.04215	(466750	EV	24SE1937	0.00387
(466745	EV	12MR1938	0.01214	(466756	EV	27APR1938	0.00672	(466759	EV	19MY1938	0.00338
(466761	EV	27MY1938	0.00273	(466756	EV	14OC1938	0.00169	(11226	E 4	10MY1964	0.00581
(11225	C 6	15MY1964	0.02552	(11226	F 7	16MY1964	0.00327	(11227	C 2	13MY1964	0.00548
(11228	D 2	14MY1964	0.00460	(11229	O 5	14MY1964	0.01120	(11230	E 2	16MY1964	0.01488
(11231	E 3	16MY1964	0.02423	(11232	S 5	14MY1964	0.03040	(11233	B 3	5JUN1964	0.00602
(11234	B 3	18JUN1964	0.00562	(11235	C 7	16JUN1964	0.00847	(11439	B 6	5JUN1964	0.01287
(11236	C 1	8JUN1964	0.01050	(11237	C 2	8JUN1964	0.00445	(11238	O 1	11JUN1964	0.00602
(11239	O 4	11JUN1964	0.00046	(11240	O 6	10JUN1964	0.00505	(11241	F 2	13JUN1964	0.00602
(11242	E 3	13JUN1964	0.01045	(11243	E 6	13JUN1964	0.01541	(11244	F 1	11JUN1964	0.00602
(11245	F 2	11JUN1964	0.01202	(11246	F 3	11JUN1964	0.01250	(11248	B 3	24JUL1964	0.00317
(11440	B 6	01JUL1964	0.01106	(11441	B 6	24JUL1964	0.00436	(11250	C 6	10MY1964	0.00581
(11252	C 1	16JUL1964	0.00279	(11253	C 2	16JUL1964	0.00436	(11254	O 2	15JUL1964	0.00404
(11255	O 5	15JUL1964	0.00253	(11256	C 2	14AUG1964	0.00185	(11257	B 3	15JUL1964	0.00404
(11258	F 1	15JUL1964	0.00101	(11259	F 2	9JUL1964	0.02165	(11260	F 3	6JUL1964	0.00201
(11261	O 5	24AUG1964	0.00196	(11265	C 2	10AUG1964	0.00224	(11266	O 3	18AUG1964	0.00351
(11268	E 2	24AUG1964	0.00196	(11269	E 2	15AUG1964	0.00224	(11270	F 3	18AUG1964	0.00351
(11271	C 2	22SE1964	0.00136	(11280	E 2	16SE1964	0.00681	(11281	E 3	16SE1964	0.00795
(11284	E 6	17SE1964	0.00318	(11285	F 1	15SE1964	0.00582	(11286	F 2	15SE1964	0.00602
(11287	F 1	15SE1964	0.00500	(11297	O 4	14OC1964	0.00190	(11298	E 1	12OC1964	0.00249
(11299	E 2	12OC1964	0.00628	(11300	E 3	13OC1964	0.00158	(11302	E 5	13OC1964	0.00610
(11303	E 6	13OC1964	0.01679	(11304	F 1	11OC1964	0.00494	(11305	F 2	11OC1964	0.00313
(11306	F 3	11C1964	0.00637	(11307	B 6	NO1964	0.00361	(11308	C 7	6NO1964	0.00304

(1313	O 3	9ND1964	C.00193	(1318	E 2	7ND1964	C.00190	(1319	E 3	7ND1964	C.C5524
(1322	E 4	7ND1964	C.00166	(1326	C 3	27JA1967	C.00385	(1337	C 3	2MR1967	C.03674
(1338	C 3	28MR1967	C.00385	(1339	C 5	28MR1967	C.13095	(1340	C 7	28MR1967	C.C4581
(1341	A 3	1AP1967	C.05882	(1342	A 4	1AP1967	C.10647	(1343	A 6	1AP1967	C.03747
(1344	C 3	23AP1967	C.01158	(1345	C 5	23AP1967	C.04355	(1346	C 7	23AP1967	C.00534
(1367	E 2	23AP1967	C.00178	(1368	E 5	23AP1967	C.02467	(1368	A 3	4MY1967	C.C2195
(1370	A 6	3MY1967	C.00460	(1372	C 5	3MY1967	C.01064	(1374	E 2	3MY1967	C.C0598
(1375	E 3	7MY1967	C.00241	(1376	E 5	7MY1967	C.00843	(1408	A 3	23MY1967	C.C6447
(1408	A 4	23MY1967	C.00128	(1410	A 6	23MY1967	C.01128	(1412	C 3	23MY1967	C.C0183
(1415	E 3	28MY1967	C.00225	(1416	E 5	28MY1967	C.00437	(1432	A 4	13JN1967	C.C0225
(1434	C 5	13JN1967	C.00146	(1435	C 7	13JN1967	C.00146	(1438	E 5	14JN1967	C.C0363
(1437	A 4	14JN1967	C.00234	(1449	C 3	16JL1967	C.01146	(1450	C 5	16JL1967	C.C5731
(1451	C 7	16JL1967	C.00591	(1452	E 2	14JL1967	C.00213	(1511	E 2	15E1967	C.00307
(1536	E 2	25E1967	C.00109	(1537	E 3	25E1967	C.00109	(1538	C 3	25E1967	C.C0109
(1581	GS 5	10MY1967	C.01431	(1383	GS 7	10MY1967	C.01337	(1384	GS 8	10MY1967	C.C0110
(1386	GS10	12MY1967	C.01149	(1387	GS11	12MY1967	C.00792	(1391	GS15	12MY1967	C.C0598
(1393	GS17	13MY1967	C.00330	(1394	GS18	13MY1967	C.00505	(1395	GS14	13MY1967	C.C0100
(1397	GS21	13MY1967	C.00031	(1398	GS22	14MY1967	C.00607	(1555	GS 2	30C1967	C.C0533
(1557	GS 4	30C1967	C.00174	(1566	GS14	50C1967	C.00183	(1569	GS17	50C1967	C.C0149
(1572	GS20	60C1967	C.00090	(1564	ML 1	20C1967	C.00238	(1566	ML 1	20C1967	C.C0100
(1521	SH 1	1E5E1967	C.01154	(1522	8H 1	1E5E1967	C.00182	(1526	ML 1	20E5E1967	C.14223
(1527	TR 1	2E5E1967	C.00440	(1530	FR 1	24E5E1967	C.01000	(1545	ML 1	20C1967	C.02703
(1549	MQ 1	40C1967	C.01370	(1551	ES 1	50C1967	C.03195	(1552	SH 1	60C1967	C.01681
(1550	MR 1	60C1967	C.05667	(1553	SG 1	60C1967	C.14512	(1428	PW 2	29MY1967	C.C0188
(1426	MS 2	29MY1967	C.13648	(1351	MT 2	21AP1967	C.06206	(1427	LU 2	29MY1967	C.C7264
(1417	HO 2	22MY1967	C.00859	(1418	SH 2	22MY1967	C.01595	(1350	BU 2	19AP1967	C.C0084
(1399	PW 2	5MY1967	C.01360	(1401	MO 2	6MY1967	C.03528	(1402	TR 2	6MY1967	C.02707
(1400	SR 2	6MY1967	C.01765	(1352	KW 2	21AP1967	C.064295	(1353	FR 2	23AP1967	C.C1015
(1354	GR 2	25AP1967	C.01723	(1429	MA 2	14MY1967	C.14864	(1403	CA 2	10MY1967	C.01385
(1404	MQ 2	10MY1967	C.02551	(1405	ES 2	12MY1967	C.01935	(1407	SW 2	14MY1967	C.C0286
(1349	CI 2	19AP1967	C.06446	(1406	GG 2	13MY1967	C.00539	(1419	BU 2	23MY1967	C.05662
(1420	HR 2	23MY1967	C.03021	(1421	CH 2	23MY1967	C.03205	(1422	GA 2	23MY1967	C.C0065
(1423	WA 2	25MY1967	C.C0856	(1424	KN 2	25MY1967	C.05329	(			

Nitsochia bulnheimiana (Rabh.) H. L. Smith

Homoeocladia bulnheimiana Rabenhorst, Alg. Sachsens resp. Mitteleuropas, No. 1301. 1871.

Nitsochia bulnheimiana (Rabh.) H. L. Smith, Diat. Sp. Typ., No. 689. 1874.

554 NIBULNHC TOT NO OF STATIONS											
(46764	EV	17JL1937	C.05641	(46677	EV	27OC1937	C.00774	(1536	E 2	24SE1967	C.C0273
(1551	ES 1	30C1967	C.00799	(1550	MR 1	50C1967	C.01239	(			

Nitsochia capitellata Hust.

Nitsochia capitellata Husted in: A. Schmidt, Atlas Diat., pl. 349, figs. 57-59. 1922.

555 NICAPITE TCT NO OF STATIONS											
(1531	GH 1	25SE1967	C.00381	(1545	ML 1	20C1967	C.01351	(1417	MO 2	22MY1967	C.C6374

Nitsochia confinis Hust.

Nitsochia confinis Husted, Inst. Parcs Nat. Congo Belge, Expl. Parc. Nat. Albert, Miss. Damas (1935-1936), Fasc. 8, p. 145, pl. 11, figs. 49-54; pl. 13, figs. 84-90. 1949.

556 NICONFIN TOT NO OF STATIONS											
(46910	CH	0C1945	C.00109	(46521	CH	23NO1945	C.03816	(46908	CH	0E1945	C.02014
(46917	CH	12JL1946	C.00446	(46515	CH	23NO1946	C.07398	(46909	CH	0E1946	C.00844
(46924	CH	10MY1946	C.00494	(46523	CH	22NO1946	C.10928	(46908	CH	MR1947	C.C0375
(46916	CH	4MY1947	C.00407	(46506	CH	7MY1947	C.00796	(46919	CH	5JN1947	C.08770
(46907	CH	0C1950	C.00453	(46513	CH	60C1967	C.01046	(46922	CH	21AU1947	C.15648
(46918	EV	5JN1937	C.00415	(46474	EV	20JN1937	C.04710	(46475	EV	3JL1937	C.02090
(46470	EV	9JL1937	C.01193	(46764	EV	17JL1937	C.04960	(46757	EV	25JL1937	C.13370
(46474	EV	14JL1937	C.00446	(46763	EV	23JUL1937	C.00351	(46765	EV	30AP1937	C.C0513
(46472	EV	15SE1937	C.03182	(46760	EV	22SE1937	C.02462	(46750	EV	24SE1937	C.14174
(46474	EV	06C1937	C.01951	(46748	EV	13OC1937	C.10675	(46767	EV	27OC1937	C.03095
(46465	EV	12MR1938	C.01216	(46768	EV	14MR1938	C.01470	(46762	EV	18MR1938	C.0447
(46751	EV	30MR1938	C.01117	(46759	EV	19MY1938	C.00675	(46766	EV	14MR1938	C.11090
(12229	D 5	14MR1964	C.00241	(12473	E 6	13MR1964	C.00209	(1252	C 1	16JL1964	C.01116
(1255	O 5	15JL1964	C.00913	(1256	E 3	14JL1964	C.00183	(1257	E 3	14JL1964	C.C0718
(1258	F 1	6JL1964	C.03304	(1259	F 2	6JL1964	C.00310	(1260	F 3	5JL1964	C.C6382
(1266	D 3	18AU1964	C.00351	(1268	E 2	15AU1964	C.00131	(1271	C 7	23SE1964	C.C0513
(1275	C 2	17SE1964	C.00645	(1279	E 1	16SE1964	C.00393	(1284	E 6	17SE1964	C.C0318
(1285	F 1	15SE1964	C.00204	(1288	E 3	15OC1964	C.00218	(1445	E 6	14OC1964	C.C0652
(1297	D 6	14C1964	C.01910	(1303	E 6	13C1964	C.00506	(1304	E 1	18MC1964	C.C5267
(1307	E 6	1NO1964	C.00361	(1340	C 7	28MR1967	C.00145	(1341	A 3	19AP1967	C.00108
(1350	A 3	19AP1967	C.00145	(1353	E 6	15JL1967	C.00055	(1354	E 2	23AP1967	C.C5135
(1348	E 5	23AP1967	C.00137	(1373	C 7	5MY1967	C.00285	(1374	E 2	7MY1967	C.C0299
(1469	C 3	16JL1967	C.00704	(1455	C 5	16JL1967	C.00381	(1453	E 3	15JL1967	C.C6253
(1454	EV	15E1967	C.00126	(1456	EV	29E1967	C.00183	(1458	EV	10MY1967	C.00267
(1384	GS 8	10MY1967	C.00373	(1387	GS11	12MY1967	C.00396	(1391	GS15	12MY1967	C.C0479
(1394	GS18	13MY1967	C.00688	(1394	GS 1	50C1967	C.00712	(1557	GS 4	30C1967	C.C0495
(1560	GS 8	40C1967	C.00472	(1562	GS1C	50C1967	C.00247	(1569	GS11	50C1967	C.C0234

1546	GS14	50C1967	0.00183	1549	GS17	50C1967	0.00140	1551	GS19	20C1967	0.00089
1573	GS21	60C1967	0.00112	1574	GS22	60C1967	0.00208	1576	MO	20S1967	0.00138
1579	KW1	20S1967	0.00199	1585	WL1	20C1967	0.00076	1551	ES1	50C1967	0.00296
1550	MO	60C1967	0.00512	1551	GS2	21A1967	0.00310	1517	MO	22M1967	0.00374
1552	KW2	21A1967	0.00059	1553	CA2	10M1967	0.00154	1504	MO2	10M1967	0.00152
1505	ES2	12M1967	0.00135	1545	C12	15A1967	0.00359	1522	GA2	23M1967	0.00511

Nitzschia denticula Grun.

Nitzschia denticula Grunow in: Cleve and Grunow, K. Svenska Vet.-Åkad. Handl., Ny Följd, 17(2):82. 1880.

558 NITZSCHIA TCT NO OF STATIONS 54

146921	CH	23NO1946	0.00129	146517	CH	12JA1946	0.00028	146924	CH	10MY1946	0.00141
146923	CH	22NO1946	0.00219	146920	CH	20NO1946	0.00062	146905	CH	JA1947	0.00245
146516	CH	4M1947	0.00034	146558	CH	MY1947	0.00133	146919	CH	5JUN1947	0.00152
146907	CH	JI1947	0.00148	146522	CH	21AUI1947	0.00097	146758	EV	5JUN1937	0.00713
146743	EV	20JUN1937	0.00584	146748	EV	17JUL1937	0.00446	146757	EV	25JUL1937	0.00414
146747	EV	14AUI1937	0.01733	146763	EV	23AUI1937	0.00117	146765	EV	30AUI1937	0.01115
146748	EV	13OC1937	0.00420	146767	EV	27COC1937	0.00774	146768	EV	16MR1938	0.00580
146762	EV	18MR1938	0.00822	12243	E4	13JUN1944	0.00209	12246	F3	11JUN1944	0.00598
12258	F1	6JUL1944	0.00708	12260	F3	6JUL1944	0.00191	12270	F1	10JUL1944	0.00189
12279	E1	16SE1944	0.00393	12285	F1	13SE1944	0.00766	1304	F1	11OC1964	0.00247
1306	E1	0.00283	1308	F4	0.00133	1308	F4	0.00133	1308	F4	0.00133
1309	GS13	12MY1967	0.00258	1309	GS22	14MY1967	0.00304	1557	GS4	30C1967	0.00374
1558	GS5	40C1967	0.00356	1564	GS12	50C1967	0.00165	1574	GS22	60C1967	0.00213
1526	MO1	20S1967	0.00369	1527	FR1	20S1967	0.00168	1529	KW1	20S1967	0.00195
1504	MO2	10M1967	0.01276	1507	SP2	14MY1967	0.00597				

Nitzschia dissipata (Kütz.) Grun.

Synedra dissipata Kütz., Bacill., p. 64, pl. 14, fig. 3. 1844.
Nitzschia dissipata (Kütz.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12(2):17. 1862.

559 NITZSCHIA TCT NO OF STATIONS 178

146921	CH	23NO1946	0.00129	146514	CH	19AUI1946	0.00107	146924	CH	10MY1946	0.00141
146923	CH	22NO1946	0.00219	146558	CH	JA1947	0.00245	146909	CH	MR1947	0.00911
146516	CH	4M1947	0.00034	146558	CH	MY1947	0.00205	146919	CH	5JUN1947	0.00152
146907	CH	21AUI1947	0.00097	146758	EV	17JUL1937	0.00433	146747	EV	10AUI1937	0.01238
146743	EV	23AUI1937	0.00117	146752	EV	15SE1937	0.00707	146767	EV	27COC1937	0.00787
146747	EV	18MR1938	0.00822	146756	EV	27AUI1938	0.00161	146759	EV	10M1938	0.00138
146762	EV	13OC1937	0.00420	12223	B3	18MY1964	0.00156	12224	B4	18MY1964	0.01176
12225	C6	15MY1964	0.00784	12226	C7	16MY1964	0.00761	12227	C1	13MY1964	0.00768
12228	D2	14MY1964	0.00214	12229	E3	14MY1964	0.00193	12230	E2	10MY1964	0.00740
12231	E3	16MY1964	0.00333	12232	E5	16MY1964	0.00266	12233	C7	16MY1964	0.00282
12234	E3	16JUN1964	0.00397	12236	C*1	16JUN1964	0.00175	12238	B3	13JUN1964	0.01800
12239	D4	11JUN1964	0.00116	12240	O6	10JUN1964	0.00767	12241	E2	13JUN1964	0.01626
12242	E3	13JUN1964	0.00395	12243	E6	13JUN1964	0.00209	12244	F1	13JUN1964	0.00658
12245	F2	11JUN1964	0.00692	12246	F3	11JUN1964	0.01793	12248	B6	11JUN1964	0.00365
12249	B6	24JUL1964	0.00220	12251	C7	16JUL1964	0.00290	12255	O5	15JUL1964	0.00257
12256	F2	14JUL1964	0.00281	12257	E3	14JUL1964	0.01124	12258	F1	6JUL1964	0.00708
12259	F2	6JUL1964	0.00310	12260	F3	6JUL1964	0.00764	12262	B3	17AUL1964	0.00210
12264	C*1	10AUL1964	0.00386	12268	E2	15AUL1964	0.00281	12269	E3	15AUL1964	0.01056
12270	A1	0.00272	12280	E2	0.00061	12285	E2	0.00061	12285	E2	0.00061
12288	B3	15OC1964	0.00218	1445	B6	14OC1964	0.00326	14292	O1	15OC1964	0.00373
1300	E3	13OC1964	0.00206	1301	E4	13OC1964	0.00442	1302	E5	13OC1964	0.00810
1304	E5	0.00741	1305	E5	0.00515	1306	E5	0.00515	1306	E5	0.00515
1315	O5	9NO1964	0.00910	1317	E1	6NO1964	0.00383	1318	E2	7NO1964	0.00761
1320	E4	7NO1964	0.00920	1322	E6	7NO1964	0.00533	1323	F1	6NO1964	0.00418
1336	C3	21AUI1967	0.00193	1337	C3	28M1967	0.00258	1338	C3	28M1967	0.00933
1339	C3	28M1967	0.00512	1340	C7	28M1967	0.00635	1341	A1	19AUI1967	0.01295
1342	A4	19AUI1967	0.01475	1343	A4	19AUI1967	0.00739	1344	C3	25AUI1967	0.01224
1345	S5	8JUL1967	0.01867	1346	E2	21AUI1967	0.00744	1347	E2	21AUI1967	0.00553
1348	E5	23AUI1967	0.03093	1368	A3	4M1967	0.00251	1369	A4	4M1967	0.01118
1370	A6	15E1967	0.01151	1372	S2	9M1967	0.00465	1373	C7	9M1967	0.00414
1374	E2	7M1967	0.00744	1375	E5	7M1967	0.00681	1376	E5	6M1967	0.00779
1408	A3	23M1967	0.00894	1410	A6	24M1967	0.00264	1411	C3	31M1967	0.00410
1412	E5	0.0052	1424	A6	29M1967	0.00056	1422	A4	13JUN1967	0.00511	
1433	C3	17JUN1967	0.01292	1434	C5	17JUN1967	0.00299	1438	E5	14JUN1967	0.00363
1446	A3	11JUL1967	0.00245	1449	C3	16JUL1967	0.01757	1450	C5	16JUL1967	0.00237
1452	E5	0.00231	1453	E3	15AUI1967	0.00421	1454	E5	15AUL1967	0.00200	
1509	C5	25E1967	0.00505	1512	E2	15E1967	0.00393	1532	A5	18E1967	0.00329
1533	A4	19E1967	0.00448	1539	C3	4OC1967	0.01510	1540	C5	4OC1967	0.00496
1541	E5	15C1967	0.01164	1543	GS2	9M1967	0.00421	1579	GS3	9M1967	0.00415
1380	GS4	9M1967	0.01345	1381	GS5	10M1967	0.01193	1382	GS5	10M1967	0.00278
1383	GS7	10M1967	0.02139	1384	GS8	10M1967	0.02588	1386	GS10	12M1967	0.02585
1387	GS11	12M1967	0.01384	1393	GS15	12M1967	0.01437	1392	GS16	12M1967	0.00298
1393	GS17	13M1967	0.01096	1394	GS18	13M1967	0.01610	1395	GS19	13M1967	0.00822
1397	GS21	13M1967	0.00085	1555	GS2	30C1967	0.00705	1556	GS3	30C1967	0.00521
1557	GS4	30C1967	0.00848	1558	GS5	40C1967	0.00367	1559	GS7	40C1967	0.00350
1560	GS8	40C1967	0.00674	1562	GS10	50C1967	0.00247	1565	GS13	50C1967	0.00507
1568	GS16	40C1967	0.00288	1570	GS18	50C1967	0.00992	1571	GS21	60C1967	0.00511
1584	MO1	20C1967	0.01430	1522	M1	20S1967	0.02185	1546	LO	20C1967	0.28510
1521	M1	18S1967	0.00865	1522	B1	18S1967	0.00847	1525	PM1	20S1967	0.01393
1526	MO2	20S1967	0.01138	1527	FR1	20S1967	0.00154	1528	FR1	20S1967	0.00154
1529	KW1	20S1967	0.00298	1530	FR1	24S1967	0.00300	1545	WL1	20C1967	0.11362
1551	ES1	50C1967	0.00296	1550	NR1	50C1967	0.00019	1553	GS1	60C1967	0.00734

(1428	MU 2	29MV1967	0.01808	(1426	MS 2	29MV1967	C.29396	(1351	MI 2	21AP1967	C.03241
(1427	LU 2	29MV1967	0.00953	(1417	HD 2	29MV1967	0.03365	(1350	BU 2	10AP1967	C.03744
(1399	PH 2	5MV1967	0.01360	(1400	SB 2	6MV1967	0.02978	(1352	KM 2	10MV1967	C.00859
(1354	GH 2	25AP1967	0.01173	(1429	ML 2	29MV1967	0.02123	(1403	CA 2	10MV1967	C.14385
(1404	MG 2	10MV1967	0.02545	(1405	ES 2	19AP1967	0.01290	(1349	CI 2	19AP1967	C.05718
(1406	GB 2	13MV1967	0.05270	(1419	BU 2	23MV1967	0.01831	(1423	WA 2	25MV1967	C.02957
(1424	RN 2	25MV1967	0.01332	(1425	RA 1	19SE1967	0.04613	(1526	MO 1	20SE1967	C.03982

Nitzschia dissipata var. *media* (Hantz.) Grun.

Nitzschia media Hantzsch, Hedwigia, 2:40, pl. 6, fig. 9. 1853.

Nitzschia dissipata var. *media* Grunow in: Van Heurck, Syn. Diat. Belgique, p. 178, pl. 63, fig. 4. 1885.

560 NIDISSVM TGT NO OF STATIONS 40

(46770	EV	9JL1937	0.01193	(46768	EV	16MR1938	0.01760	(1389	GS13	12MV1967	C.00258
(1555	GS 2	30C1967	0.00353	(1557	GS 4	30C1967	0.00374	(1560	GS 8	40C1967	0.00472
(1545	GS13	30C1967	0.01019	(1544	MU 1	20C1967	0.00238	(1547	MS 1	20C1967	C.01557
(1524	MI 1	2CSE1967	0.04378	(1546	LU 1	20C1967	0.02001	(1521	SH 1	18SE1967	C.02885
(1522	SH 1	18SE1967	0.00182	(1523	RA 1	19SE1967	0.04613	(1526	MO 1	20SE1967	C.03982
(1527	TR 1	20SE1967	0.06289	(1529	RN 1	20SE1967	0.07195	(1530	FR 1	24SE1967	C.01000
(1531	GH 1	25SE1967	0.00845	(1545	ML 1	20C1967	0.03351	(1548	CA 1	24SE1967	C.01272
(1551	ES 1	30C1967	0.00799	(1552	M 1	40C1967	0.01321	(1550	MR 1	30C1967	C.06673
(1553	SG 1	40C1967	0.00734	(1428	MU 2	29MV1967	0.00603	(1426	MS 2	29MV1967	C.02150
(1351	MI 2	21AP1967	0.00621	(1427	LU 2	29MV1967	0.01213	(1417	HE 2	24MV1967	0.00746
(1418	SH 2	22MV1967	0.03110	(1350	BU 2	19AP1967	0.00388	(1401	MO 2	EMV1967	C.01764
(1402	TR 2	6MV1967	0.00551	(1354	GH 2	25AP1967	0.01036	(1403	CA 2	10MV1967	C.13086
(1407	SM 2	14MV1967	0.01194	(1349	CI 2	19AP1967	0.00359	(1406	GB 2	13MV1967	C.02270
(1423	WA 2	25MV1967	0.00518	(1425	RA 1	19SE1967	0.04613	(1526	MO 1	20SE1967	C.03982

Nitzschia filiformis (Wm. Smith) Schutt

Homoeocladia filiformis Wm. Smith, Syn. British Diat., Vol. 2, p. 80, pl. 55. fig. 348. 1856.

Nitzschia filiformis (Wm. Smith) Schutt in: Engler and Prantl, Natürl. Pflanzenfam., Teil 1, Abt. lb, p. 144, figs. 261a-c. 1896.

561 NIFILIF TGT NO OF STATIONS 1

(46905	CH	MR1947	0.00455	(1
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Nitzschia fonticola Grun.

Nitzschia fonticola Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 69, figs. 15-20. 1881.

562 NIFONTIC TGT NO OF STATIONS 104

(46610	CH	OC1965	0.00328	(46521	CH	23NO1945	C.00259	(46915	CH	20FE1946	C.01707
(46914	CH	19AP1946	0.00107	(46924	CH	10MY1946	0.00071	(46923	CH	22NO1946	C.01748
(46905	CH	JAL1947	0.00245	(46503	CH	MR1947	0.00435	(46916	CH	APR1947	C.01012
(46906	CH	MY1947	0.00199	(46519	CH	5JN1947	0.01973	(46907	CH	JL1947	C.01148
(46922	CH	21AU1947	0.00291	(46758	EV	5JN1937	0.08915	(46743	EV	20JN1937	C.00133
(46770	EV	0.141937	0.01137	(46759	EV	17JL1937	0.15745	(46757	EV	25JL1937	C.26961
(46767	EV	1AU1937	0.13862	(46763	EV	23AU1937	1.56250	(46765	EV	30AU1937	C.03558
(46752	EV	15SE1937	2.04615	(46760	EV	22SE1937	0.02462	(46750	EV	24SE1937	C.08012
(46744	EV	40C1937	0.02614	(46748	EV	13C3C1937	0.00540	(46767	EV	27OC1937	C.11951
(46749	EV	12MR1938	0.03641	(46769	EV	16MR1938	0.13229	(46762	EV	16MR1938	C.149578
(46751	EV	30MR1938	0.03350	(46756	EV	21AP1938	0.00336	(46759	EV	19MY1938	C.00338
(46761	EV	15OC1964	0.00435	(1251	C 7	8JN1964	0.00111	(1258	E 6	10JN1964	C.00200
(1236	C* 1	8JN1964	0.00175	(1237	C* 2	8JN1964	0.00258	(1240	O 6	10JN1964	C.00153
(1241	E 2	13JN1964	0.00444	(1242	E 3	13JN1964	0.00300	(1243	E 6	13JN1964	C.00209
(1245	E 3	16JN1964	0.00290	(1246	E 2	16JN1964	0.00206	(1247	E 2	16JN1964	C.00366
(1264	C* 1	10AU1964	0.01545	(1265	C* 2	10AU1964	0.00447	(1268	E 2	15AU1964	C.00547
(1269	E 3	15AU1964	0.00274	(1272	C* 1	10SE1964	0.00410	(1285	F 1	15SE1964	C.00582
(1288	E 3	15OC1964	0.00435	(1295	O 4	15OC1964	0.00395	(1298	E 1	12OC1964	C.00539
(1299	E 2	12OC1964	0.00943	(1300	E 3	13OC1964	0.00716	(1301	E 4	13OC1964	C.00442
(1302	E 5	13OC1964	0.00405	(1312	O 2	8ND1964	0.00310	(1315	O 5	9ND1964	C.00445
(1318	E 2	7ND1964	0.00190	(1320	E 4	7ND1964	0.00620	(1346	C 7	21AP1967	C.00134
(1416	E 5	28MV1967	0.00219	(1452	E 2	14JL1967	0.00213	(1511	E 2	15E1967	C.00307
(1539	C 2	40C1967	0.00203	(1551	E 2	11OC1967	0.00532	(1562	E 3	11OC1967	C.00792
(1543	E 5	10OC1967	0.01437	(1553	GS 7	10MY1967	0.00267	(1387	GS11	12MV1967	C.00792
(1389	GS13	12MV1967	0.00258	(1554	GS 1	30C1967	0.01423	(1555	GS 2	30C1967	C.00393
(1558	GS 5	40C1967	0.00396	(1559	GS 7	40C1967	0.00390	(1560	GS 8	40C1967	C.00945
(1563	GS11	50C1967	0.00234	(1565	GS13	50C1967	0.01521	(1571	GS19	40C1967	C.00059
(1572	GS20	60C1967	0.00180	(1574	GS22	60C1967	0.00575	(1544	MU 1	20C1967	C.02859
(1547	MS 1	20C1967	0.01191	(1546	LU 1	20C1967	0.01191	(1526	MO 1	20SE1967	C.03982
(1527	TR 1	2CSE1967	0.01887	(1529	RN 1	20SE1967	0.03598	(1530	FR 1	24SE1967	C.07001
(1545	ML 1	2CSE1967	1.18924	(1549	MG 1	40C1967	0.02741	(1551	ES 1	30C1967	C.00541
(1552	SH 1	18SE1967	0.01321	(1550	MR 1	30C1967	0.00912	(1553	SG 1	40C1967	C.01449
(1350	BU 2	19AP1967	0.01374	(1401	MO 2	6MV1967	0.00588	(1402	TR 2	6MV1967	C.00251
(1354	GH 2	25AP1967	0.00345	(1429	ML 2	29MV1967	0.01008	(1403	CA 2	10MV1967	C.02615
(1404	MG 2	10MV1967	0.01270	(1407	SM 2	14MV1967	0.01194	(1423	WA 2	25MV1967	C.02957

Nitzschia fonticola var. *pelagica* Hust.

Nitzschia fonticola var. *pelagica* Hustedt in: A. Schmidt, Atlas Diat., pl. 349, figs. 15-16. 1922.

563 NIFONTVP TCT NO OF STATIONS 6

(1316 0 6 9NO1967 0.00378) (1544 MU 1 20C1967 0.00238) (1550 PR 1 50C1967 0.07434)
(1350 BH 2 19AP1967 0.01101) (1400 SB 2 6MY1967 0.00596) (1407 SM 2 14MY1967 0.01194)

Nitzschia fonticoloides Sov.

Nitzschia fonticoloides Sovereign, Trans. American Micr. Soc., 77(2):130, pl. 4, figs. 58-62. 1958.

564 NIFCNEC TCT NO OF STATIONS 8

(46757 EV 25JL1937 0.00481) (1387 GS11 12MY1967 0.00396) (1575 GS28 60C1967 0.00298)
(1544 MU 1 20C1967 0.00676) (1545 WK 1 20C1967 0.00676) (1550 PR 1 50C1967 0.07417)
(1400 SB 2 6MY1967 0.00596) (1403 CA 2 10MY1967 0.05231) ()

Nitzschia frustulum (Kütz.) Grun.

Synedra frustulum Kütz., Bacill., p. 63, pl. 30, fig. 77. 1844.

Nitzschia frustulum (Kütz.) Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):98. 1880.

565 NIFRUSTO TCT NO OF STATIONS 4

(1573 GS21 60C1967 0.00112) (1574 GS22 60C1967 0.00288) (1417 HO 2 22MY1967 0.00374)
(1401 MO 2 6MY1967 0.00588) ()

Nitzschia frustulum var. *perminuta* Grun.

Nitzschia frustulum var. *perminuta* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 68, fig. 31. 1881.

566 NIFRUSVP TCT NO OF STATIONS 7

(1565 GS13 50C1967 0.01014) (1567 GS15 50C1967 0.00129) (1568 GS16 50C1967 0.00144)
(1523 RA 1 15SE1967 0.00923) (1553 SB 1 60C1967 0.01469) (1417 HO 2 22MY1967 0.00748)
(1350 BH 2 19AP1967 0.03924) ()

Nitzschia hungarica Grun.

Nitzschia hungarica Grunow, Verh. Zool.-Bot. Ges. Wien, 12:568, pl. 18, figs. 31a-b. 1862.

568 NIHUNGAR TCT NO OF STATIONS 9

(1264 C* 1 10AU1964 0.00193) (1504 A 3 28AU1967 0.00247) (1556 GS 3 30C1967 0.00521)
(1567 GS15 50C1967 0.00159) (1417 HO 2 22MY1967 0.00374) (1390 BH 2 19AP1967 0.00220)
(1401 MO 2 6MY1967 0.01164) (1400 SB 2 6MY1967 0.00596) (1422 CA 2 23MY1967 0.00511)

Nitzschia insecta Hust.

Nitzschia insecta Hustedt, Internat. Rev. Hydrobiol., 42:141, fig. 348. 1942.

569 NIINSECQ TCT NO OF STATIONS 2

(46924 CH 10MY1966 0.00071) (1572 GS20 60C1967 0.00090) ()

Nitzschia interrupta (Reich.) Hust.

Denticula interrupta Reichelt ex Kuntze, Rev. Gen. Plant., 3:392. 1891.

Nitzschia interrupta (Reich.) Hustedt, Arch. Hydrobiol., 18:168. 1927.

570 NIINTERR TCT NO OF STATIONS 1

(44763 EV 23AU1937 0.02025) ()

Nitzschia luzonensis Husted.

Nitzschia luzonensis Husted, Internat. Rev. Hydrobiol., 42:137, figs. 331-336. 1942.

571 NILUZON TCT NC OF STATIONS 29

(46910 CH	GC1545	0.00109	(46521 CH	23ND1945	C.00065	(46917 CH	12JA1946	C.00208
(46915 CH	20FE1946	0.00549	(46916 CH	19AP1946	0.00107	(46916 CH	46VI1947	C.00068
(46913 CH	5JA1937	0.001937	(46757 EV	25JL1937	0.00387	(46757 EV	27OC1937	C.00386
(46764 EV	17JL1937	0.07252	(46757 EV	25JL1937	0.00963	(46767 EV	46VI1947	C.00387
(46766 EV	14DE1938	0.01584	(14460 B & A	11JL1964	0.00369	(14256 E 2	14JL1964	0.00183
(14257 E 3	18JL1964	0.00223	(14258 C 2	6JL1964	0.00136	(14258 C 2	10AU1964	0.00224
(14258 E 2	15AU1964	0.00547	(14275 C 2	17SE1964	0.00045	(14276 0 3	18SE1964	C.01118
(14284 E 6	17FE1964	0.00318	(14285 F 1	15SE1964	0.00582	(14445 B 4	14OC1964	C.00652
(14289 C 2	14OC1964	0.00140	(1302 E 5	13OC1964	0.00405	(13139 C 1	11OC1964	C.00161
(1569 GS17	5OC1967	0.00149	(1573 GS21	6OC1967	0.00112	(		

Nitzschia macilenta Grev.

Nitzschia macilenta Greville, Quart. J. Micr. Sci., 7:83, pl. 6, figs. 8-9. 1859.

572 NIMACILQ TCT NC OF STATIONS 86

(460973 CH	1876	0.02362	(3541 CH	1FE1881	0.07825	(46921 CH	23ND1945	C.00388
(46097 CH	12JA1946	0.00508	(46523 CH	22NO1946	0.00537	(46920 CH	20GE1946	C.00277
(46095 CH	JA1947	0.00123	(46760 CH	MY1947	0.00066	(46957 CH	1JL1947	C.02146
(46092 CH	21AU1947	0.00097	(46747 EV	1AU1937	0.00090	(46747 EV	30AU1937	C.00558
(46078 EV	46VI1947	0.00125	(46751 EV	19MR1938	0.00455	(46751 EV	30MR1938	C.01111
(1444 F 1	11JN1964	0.00310	(1245 F 2	11JN1964	0.00346	(1246 F 3	11JN1964	0.01195
(1279 E 1	16SE1964	0.00393	(1285 F 1	15SE1964	0.00147	(1286 F 2	15SE1964	C.01095
(1302 F 3	13OC1964	0.00310	(1304 C 3	14SE1964	0.00179	(1305 F 2	11OC1964	C.00683
(1304 F 3	11OC1964	0.00332	(1323 F 1	6NO1964	0.00697	(1324 F 2	6NO1964	C.00466
(1325 F 3	6NO1964	0.00504	(1337 C 3	2MR1967	0.00441	(1338 C 3	2MR1967	C.00132
(1340 C 7	2MR1967	0.00073	(1344 C 3	23AP1967	0.00145	(1345 C 5	23AP1967	0.00390
(1346 C 7	21AP1967	0.00134	(1347 E 2	23AP1967	0.00325	(1348 E 5	23AP1967	C.00274
(1374 E 2	7MY1967	0.00299	(1414 A 6	24MY1967	0.00564	(1415 E 3	28MY1967	C.00225
(1437 E 5	16JL1967	0.00131	(1438 GS12	14MY1967	0.00124	(1438 GS 5	28AU1967	C.00174
(1377 GS 1	8MY1967	0.00396	(1382 GS 6	10MY1967	0.01110	(1383 GS 7	10MY1967	C.00267
(1384 GS 8	10MY1967	0.00185	(1385 GS 9	10MY1967	0.00471	(1387 GS11	12MY1967	C.01940
(1388 GS12	12MY1967	0.00446	(1389 GS13	12MY1967	0.00434	(1390 GS14	12MY1967	C.01174
(1391 GS15	12MY1967	0.00273	(1392 GS16	12MY1967	0.00407	(1393 GS17	13MY1967	C.02192
(1394 GS18	13MY1967	0.00236	(1395 GS19	13MY1967	0.00352	(1396 GS20	13MY1967	C.00222
(1397 GS21	13MY1967	0.00131	(1398 GS22	14MY1967	0.00124	(1398 GS 5	4CE1967	C.00793
(1559 GS 7	4OC1967	0.00350	(1561 GS 9	4OC1967	0.00587	(1563 GS11	5OC1967	C.00395
(1564 GS12	5OC1967	0.00165	(1565 GS13	5OC1967	0.00507	(1566 GS14	5OC1967	C.00917
(1567 GS15	5OC1967	0.00299	(1568 GS16	5OC1967	0.00199	(1569 GS17	5OC1967	C.03122
(1570 GS18	5OC1967	0.00508	(1571 GS19	6OC1967	0.00509	(1573 GS21	6OC1967	C.00112
(1574 GS22	6OC1967	0.00288	(1575 GS28	6OC1967	0.00258	(1576 MO 1	20SE1967	C.00596
(1577 TR 2	20SE1967	0.00529	(1578 SM 1	20SE1967	0.01444	(1579 MW 1	20SE1967	C.00747
(1551 ES 1	5OC1967	0.00799	(1552 SM 1	6OC1967	0.001321	(1550 MR 1	5OC1967	C.01239
(1553 SG 1	6OC1967	0.00469	(1554 MS 2	25MY1967	0.001050	(1404 PC 2	10MY1967	C.02541
(1407 SM 2	14MY1967	0.00597	(1406 C8 2	13MY1967	0.00270	(		

Nitzschia palea (Kütz.) Wm. Smith

Synedra palea Kützeng, Bacill., p. 63, pl. 3, fig. 27, pl. 4, fig. 2. 1844.

Nitzschia palea (Kütz.) Wm. Smith, Syn. British Diat., Vol. 2, p. 89. 1856.

573 NIPALEA TCT NC OF STATIONS 70

(46910 CH	GC1545	0.00218	(46521 CH	23ND1945	C.00065	(46917 GH	12JA1946	C.00208
(46915 CH	20FE1946	0.00549	(46916 CH	19AP1946	0.00107	(46916 GH	46VI1947	C.00068
(46913 CH	5JA1937	0.001937	(46757 CH	HR1947	0.00455	(46916 CH	12JA1946	C.00208
(46758 EV	21AU1947	0.00097	(46747 EV	1AU1937	0.00090	(46747 CH	30AU1937	C.00558
(46764 EV	46VI1947	0.00125	(46751 EV	19MR1938	0.00455	(46751 EV	30MR1938	C.01111
(46763 EV	23AU1937	0.00117	(46752 EV	15SE1937	0.00707	(46750 EV	24SE1937	C.04242
(46764 EV	5OC1967	0.00249	(46767 EV	27OC1937	0.00516	(46768 EV	14MR1938	C.0167C
(46762 EV	18MR1938	0.08822	(46761 EV	27MY1938	0.00273	(1252 G 1	16JL1964	C.00558
(14254 D 2	15JL1964	0.00383	(1256 E 2	14JL1964	0.00143	(1258 F 1	6JL1964	C.00472
(14260 F 3	24JL1964	0.00382	(1272 C 1	15SE1964	0.00831	(1276 E 1	16SE1964	C.00785
(1285 F 1	15SE1964	0.00582	(1302 E 5	13OC1964	0.00405	(1452 E 2	14JL1967	C.00426
(1454 E 5	15JL1967	0.00200	(1532 A 3	18SE1967	0.00057	(1538 E 5	23SE1967	C.00374
(1591 E 2	11OC1967	0.00116	(1592 E 3	11OC1967	0.00117	(1595 GS 2	5OC1967	C.00553
(1559 GS 7	4OC1967	0.00350	(1565 GS13	5OC1967	0.00507	(1544 MU 1	20G1967	C.00398
(1546 LU 1	20C1967	0.00803	(1520 HC 1	18SE1967	0.00671	(1521 SH 1	18SE1967	C.25964
(1522 MR 1	18SE1967	0.00547	(1523 RA 1	19SE1967	0.00923	(1526 MO 1	20SE1967	C.00845
(1527 TR 1	20SE1967	0.01003	(1528 SB 1	20SE1967	0.00432	(1529 MW 1	25SE1967	C.01199
(1530 PR 1	25JL1967	0.00382	(1531 C 1	15SE1964	0.00831	(1536 E 1	16SE1964	C.00785
(1531 ES 1	5OC1967	0.001598	(1552 SM 1	6OC1967	0.00660	(1550 PR 1	5OC1967	C.00591
(1593 SG 1	6OC1967	0.00734	(1426 MS 2	29MY1967	0.00150	(1417 HO 2	22MY1967	C.00374
(1350 RH 2	19MR1967	0.00161	(14NC1 MO 40 2	01JL1966	0.001766	(1418 MO 2	25AP1967	C.00552
(1400 SB 2	4MY1967	0.01191	(1352 KM 2	21AP1967	C.01718	(1354 CH 2	25AP1967	C.00690
(1423 HA 2	25MY1967	0.00428	(					

Nitzschia palea var. *sumatrana* Hust.

Nitzschia palea var. *sumatrana* Hustedt, Arch. Hydrobiol. Suppl. Bd., 15:483, pl. 41, fig. 10. 1938.

575 NIPALEVS TOT NO OF STATIONS. 1

(1323 F 1 6N01964 0.0C139)

Nitzschia paleacea Grun.

Nitzschia paleacea Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 68, figs. 9-10. 1881.

574 NIPALEAC TCT NC OF STATIONS

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( 1544      MU 1      20C1567      0.02859 )
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Nitzschia parvula Wm. Smith

Nitzschia parvula Wm. Smith, Syn. British Diat., Vol. 1, p. 41, pl. 13, fig. 106. 1853.

576 NIPARVUL TCT NO CF STATICS

(1426 PS 2 29MY1967 0.C21CC)

Nitzschia recta Hantz.

Nitzschia recta Hantzsch ex Rabenhorst, Alg. Sachsens resp. Mitteleuropas
Exsicc., No. 1283. 1860.

577 NIRECTA TCT NO OF STATIONS 198

49073	CH	1975	1876	0.05724	E	1350	CH	1971	1879	0.0398	E	3541	CH	12F181	GA	0.04491	E		
49073	CH	1975	1876	0.05724	E	1350	CH	1971	1879	0.0398	E	3541	CH	12F181	GA	0.04491	E		
46015	CH	201E1946	0.02845	E	146314	CH	150P1966	0.00453	E	146524	CH	12J1946	GA	0.00282	E	146524	CH	0.00282	E
46015	CH	220N1946	0.002719	E	146519	CH	150P1966	0.00453	E	146524	CH	12J1946	GA	0.00282	E	146524	CH	0.00282	E
46005	CH	201E1946	0.00545	E	146516	CH	47Y1567	0.00563	E	146919	CH	5J1947	GA	0.00545	E	146919	CH	0.00545	E
46057	CH	13J1947	0.01381	E	146522	CH	21A1947	0.01502	E	146758	EV	5J1937	GA	0.00537	E	146758	EV	0.00537	E
46057	CH	11J1947	0.00529	E	146752	CH	25J1937	0.00529	E	146758	EV	5J1937	GA	0.00537	E	146758	EV	0.00537	E
46764	EV	17J1937	0.01612	E	146757	EV	25J1937	0.00740	E	146747	EV	1A1937	GA	0.01612	E	146747	EV	0.01612	E
46750	EV	24E51337	0.00471	E	146747	EV	27D1337	0.00387	E	146768	EV	16M1936	GA	0.00471	E	146768	EV	0.00471	E
46750	EV	30M1936	0.01117	E	146752	CH	16Y1964	0.01359	E	146758	EV	16M1936	GA	0.01117	E	146758	EV	0.01117	E
1225	C	14WY1964	0.00880	E	1226	C	16Y1964	0.01359	E	1227	C	13Y1964	GA	0.00880	E	1227	C	0.00880	E
1228	C	14WY1964	0.02748	E	1229	D	14WY1964	0.03525	E	1230	E	16M1964	GA	0.02748	E	1230	E	0.02748	E
1228	C	14WY1964	0.02748	E	1229	D	14WY1964	0.03525	E	1230	E	16M1964	GA	0.02748	E	1230	E	0.02748	E
1235	C	16J1964	0.00282	E	1239	B	5J1964	0.00297	E	1236	C	8J1964	GA	0.00282	E	1236	C	0.00282	E
1237	C	8J1964	0.00369	E	1238	D	11J1964	0.00370	E	1239	D	11J1964	GA	0.00369	E	1239	D	0.00369	E
1237	C	8J1964	0.00369	E	1238	D	11J1964	0.00370	E	1239	D	11J1964	GA	0.00369	E	1239	D	0.00369	E
1243	E	13J1964	0.01616	E	1244	F	11J1964	0.01404	E	1245	F	11J1964	GA	0.01616	E	1245	F	0.01616	E
1246	F	11J1964	0.00576	E	1245	C	8J1964	0.00272	E	1252	C	16J1964	GA	0.00576	E	1252	C	0.00576	E
1246	F	11J1964	0.00576	E	1245	C	8J1964	0.00272	E	1252	C	16J1964	GA	0.00576	E	1252	C	0.00576	E
1258	F	6J1964	0.01180	E	1259	F	6J1964	0.00930	E	1260	F	6J1964	GA	0.01180	E	1260	F	0.01180	E
1268	E	15J1964	0.00547	E	1270	F	16J1964	0.00272	E	1271	C	22E1964	GA	0.00547	E	1271	C	0.00547	E
1268	E	15J1964	0.00547	E	1270	F	16J1964	0.00272	E	1271	C	22E1964	GA	0.00547	E	1271	C	0.00547	E
1285	F	15E1964	0.00345	E	1288	B	15D1964	0.00218	E	1289	C	14G1964	GA	0.00345	E	1289	C	0.00345	E
1290	C	16D1964	0.00379	E	1292	C	15D1964	0.01118	E	1294	C	15D1964	GA	0.00379	E	1294	C	0.00379	E
1290	C	16D1964	0.00379	E	1292	C	15D1964	0.01118	E	1294	C	15D1964	GA	0.00379	E	1294	C	0.00379	E
1299	E	12D1964	0.01571	E	1300	E	13D1964	0.01074	E	1302	E	13D1964	GA	0.01571	E	1302	E	0.01571	E
1303	E	13D1964	0.00566	E	1304	F	11D1964	0.00176	E	1305	F	11D1964	GA	0.00566	E	1305	F	0.00566	E
1304	F	11D1964	0.00176	E	1305	F	11D1964	0.00176	E	1306	F	11D1964	GA	0.00176	E	1306	F	0.00176	E
1316	D	9M1964	0.00378	E	1317	D	9M1964	0.00287	E	1318	E	7M1964	GA	0.00378	E	1318	E	0.00378	E
1316	D	9M1964	0.00378	E	1317	D	9M1964	0.00287	E	1318	E	7M1964	GA	0.00378	E	1318	E	0.00378	E
1322	E	6M1964	0.01333	E	1323	F	6M1964	0.00139	E	1324	F	6M1964	GA	0.01333	E	1324	F	0.01333	E
1325	F	6M1964	0.00252	E	1326	C	0.00000	0.00000	E	1327	C	28M1964	GA	0.00252	E	1327	C	0.00252	E
1325	F	6M1964	0.00252	E	1326	C	0.00000	0.00000	E	1327	C	28M1964	GA	0.00252	E	1327	C	0.00252	E
1328	E	18M1964	0.00512	E	1339	S	28M1964	0.00686	E	1340	C	28M1964	GA	0.00512	E	1340	C	0.00512	E
1341	A	19M1967	0.00448	E	1342	A	19M1967	0.00462	E	1343	A	19M1967	GA	0.00448	E	1343	A	0.00448	E
1344	C	25A1967	0.00448	E	1345	A	25A1967	0.00448	E	1346	A	25A1967	GA	0.00448	E	1346	A	0.00448	E
1344	C	25A1967	0.00448	E	1345	A	25A1967	0.00448	E	1346	A	25A1967	GA	0.00448	E	1346	A	0.00448	E
1349	A	47Y1967	0.01866	E	1348	E	39Y1967	0.01722	E	1368	A	49Y1967	GA	0.01866	E	1368	A	0.01866	E
1349	A	47Y1967	0.01866	E	1348	E	39Y1967	0.01722	E	1368	A	49Y1967	GA	0.01866	E	1368	A	0.01866	E
1368	A	49Y1967	0.00895	E	1410	A	24Y1967	0.00383	E	1411	C	31Y1967	GA	0.00895	E	1411	C	0.00895	E
1376	S	6Y1967	0.00895	E	1410	A	24Y1967	0.00383	E	1411	C	31Y1967	GA	0.00895	E	1411	C	0.00895	E
1412	C	31Y1967	0.02925	E	1413	C	27Y1967	0.00316	E	1415	C	28Y1967	GA	0.02925	E	1415	C	0.02925	E
1412	C	31Y1967	0.02925	E	1413	C	27Y1967	0.00316	E	1415	C	28Y1967	GA	0.02925	E	1415	C	0.02925	E
1435	C	13J1967	0.00031	E	1436	E	25J1967	0.00362	E	1438	E	14J1967	GA	0.00031	E	1438	E	0.00031	E
1449	C	16J1967	0.00766	E	1452	A	18E1967	0.00329	E	1458	S	23E1967	GA	0.00766	E	1458	S	0.00766	E
1449	C	16J1967	0.00766	E	1452	A	18E1967	0.00329	E	1458	S	23E1967	GA	0.00766	E	1458	S	0.00766	E
1381	G5	10Y1967	0.00954	E	1382	G5	10Y1967	0.01110	E	1383	G5	10Y1967	GA	0.00954	E	1383	G5	0.00954	E
1384	G5	10Y1967	0.01664	E	1385	G5	10Y1967	0.00942	E	1386	G510	12W1967	GA	0.01664	E	1386	G510	0.01664	E
1384	G5	10Y1967	0.01664	E	1385	G5	10Y1967	0.00942	E	1386	G510	12W1967	GA	0.01664	E	1386	G510	0.01664	E
1390	G514	12W1967	0.22401	E	1391	G515	12W1967	0.20591	E	1392	G516	12W1967	GA	0.22401	E	1392	G516	0.22401	E
1393	G517	13W1967	0.06027	E	1394	G518	12W1967	0.66616	E	1395	G519	13W1967	GA	0.06027	E	1395	G519	0.06027	E
1393	G517	13W1967	0.06027	E	1394	G518	12W1967	0.66616	E	1395	G519	13W1967	GA	0.06027	E	1395	G519	0.06027	E
1507	G520	30C1967	0.00762	E	1508	G521	11J1967	0.01118	E	1398	G522	14W1967	GA	0.00762	E	1398	G522	0.00762	E
1507	G520	30C1967	0.00762	E	1508	G521	11J1967	0.01118	E	1398	G522	14W1967	GA	0.00762	E	1398	G522	0.00762	E
1557	G53	50C1967	0.00374	E	1560	G58	40C1967	0.00517	E	1563	G511	50C1967	GA	0.00374	E	1563	G511	0.00374	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.00159	E
1567	G514	50C1967	0.00159	E	1568	G516	50C1967	0.00000	E	1569	G517	50C1967	GA	0.00159	E	1569	G517	0.0015	

(1575	GS28	60C1967	0.00125	(1544	MU 1	20C1567	0.00477	(1546	LU 1	20C1967	0.01501	)
(1520	MO 1	185E1967	0.02829	(1521	SH 1	185E1967	0.05193	(1522	BH 1	185E1967	0.01641	)
(1526	MC 1	205E1967	0.01707	(1527	TR 1	205E1967	0.02516	(1528	SB 1	205E1967	0.01444	)
(1545	WL 1	20C1967	0.04054	(1552	SM 1	60C1567	0.00660	(1550	PR 1	80C1967	0.16107	)
(1553	SG 1	60C1967	0.01469	(1428	MU 2	29MY1967	0.03001	(1426	PS 2	29MY1967	0.05249	)
(1351	RI 2	21AP1967	0.01041	(1427	LU 2	29MY1967	0.08475	(1417	HQ 2	29MY1967	0.02991	)
(1418	SH 2	22MY1967	0.04666	(1350	BH 2	19AP1967	0.02643	(1425	RA 2	29MY1967	0.02652	)
(1395	FM 2	29MY1967	0.02040	(1401	MO 2	69MY1967	0.04116	(1402	TR 2	69MY1967	0.08122	)
(1400	SB 2	69MY1967	0.01787	(1352	KW 2	21AP1967	0.02377	(1354	GH 2	29AP1967	0.01381	)
(1429	WL 2	25MY1967	0.02123	(1403	CA 2	10MY1967	0.06559	(1404	MQ 2	10MY1967	0.02941	)
(1405	GS 2	19AP1967	0.01310	(1400	SH 2	19AP1967	0.01360	(1401	CT 2	19AP1967	0.02155	)
(1419	BU 2	23MY1967	0.05492	(1420	1H 2	23MY1967	0.01511	(1421	CH 2	23MY1967	0.01735	)
(1422	GA 2	23MY1967	0.05109	(1423	MA 2	25PY1967	0.09421	(1424	KW 2	25MY1967	0.01332	)

Nitzschia romana Grun.

Nitzschia romana Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 69, figs. 12-13. 1881.

578 NIRCANA TOT NO OF STATIONS 4

(446917	CH	12JA1946	0.00082	(446515	GH	20FE1946	0.00569	(446924	CH	10MY1946	0.00141	)
(446923	CH	22NO1946	0.00437	(446516	CH	4MY1947	0.00034	(446919	CH	5JN1947	0.00303	)
(446747	EV	14JO1937	0.00248	(446767	EV	27OC1937	0.00387	(1230	E 2	16MY1964	0.00296	)
(1240	D 6	10JA1964	0.00307	(1243	E 6	13JN1964	0.00418	(1244	E 1	11JN1964	0.00219	)
(1440	B 6	11JL1964	0.00365	(1258	F 1	6JL1964	0.00236	(1260	F 3	6JL1964	0.00191	)
(1264	CT 2	10JA1964	0.00248	(1262	C 2	10JA1964	0.00248	(1266	D 3	18JUL1964	0.00351	)
(1275	O 2	17SE1964	0.00645	(1279	E 1	16SE1964	0.00795	(1285	F 1	15SE1964	0.00165	)
(1304	F 1	10C1964	0.00247	(1307	B 6	NO1964	0.00361	(1308	C 7	6NO1964	0.00304	)
(1320	E 4	7NO1964	0.00207	(1343	A 6	19AP1967	0.00649	(1336	E 2	24SE1967	0.00273	)
(1353	E 5	10C1967	0.00718	(1387	GS11	12MY1967	0.00396	(1398	GS22	19AP1967	0.00304	)
(1355	GS 2	30C1967	0.00353	(1359	GS 7	40C1967	0.00350	(1364	GS12	50C1967	0.00165	)
(1352	BH 1	185E1967	0.00182	(1356	MO	20SE1967	0.01027	(1327	TR 1	20SE1967	0.00629	)
(1329	KW 1	20SE1967	0.01199	(1331	GH 1	25SE1967	0.00845	(1350	PR 1	50C1967	0.00248	)
(1428	MU 2	29MY1967	0.03001	(1351	MI 2	21AP1967	0.00310	(1417	HQ 2	22MY1967	0.00748	)
(1350	BH 2	19AP1967	0.01162	(1401	MO 2	69MY1967	0.01744	(1402	TR 2	69MY1967	0.00541	)
(1400	SB 2	69MY1967	0.00596	(1352	KW 2	21AP1967	0.00859	(1407	SM 2	14MY1967	0.01194	)

Nitzschia sigmoidea (Nitz.) Wm. Smith

Bacillaria sigmoidea Nitzsch, Neue Schrift. Naturforsch. Ges. Halle, 3(1):104. 1817.

579 NISIGPCI TOT NO OF STATIONS 25

(1337	C 3	2MR1567	0.00167	(1341	A 3	19AP1967	0.00108	(1336	GS20	13MY1967	0.00222	)
(1354	GS 1	30C1967	0.00356	(1365	GS13	50C1967	0.00104	(1368	GS16	50C1967	0.00144	)
(1369	GS17	50C1967	0.00149	(1372	GS28	60C1967	0.00518	(1347	PS 1	20C1967	0.00758	)
(1326	MO 1	20SE1967	0.01707	(1327	TR 1	20SE1967	0.01258	(1325	KW 1	20SE1967	0.00199	)
(1330	FR 1	24SE1967	0.01020	(1331	GH 1	25SE1967	0.00845	(1352	SM 1	60C1967	0.00660	)
(1350	MI 1	50C1967	0.02478	(1353	SG 1	60C1967	0.00734	(1428	MU 2	29MY1967	0.03001	)
(1417	HQ 2	22MY1967	0.00748	(1418	SH 2	22MY1967	0.01555	(1350	BH 2	19AP1967	0.00243	)
(1401	MO 2	69MY1967	0.00588	(1404	MQ 2	10MY1967	0.02541	(1407	SM 2	14MY1967	0.01194	)
(1349	CT 2	19AP1967	0.00395	(								)

Nitzschia sinuata var. *tabellaria* (Grun.) Grun.

Denticula tabellaria Grunow, Verh. Zool.-Bot. Ges. Wien, 12:548. 1862.

Nitzschia sinuata var. *tabellaria* (Grun.) Grunow in: Van Heurck, Syn. Diat. Belgique, p. 176, pl. 60, figs. 12-13. 1885.

580 NISINUVI TOT NO OF STATIONS 3

(1530	FR 1	24SE1967	0.01020	(1545	ML 1	20C1967	0.00676	(1550	PR 1	50C1967	0.01219	)
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Nitzschia spiculoides Hust.

Nitzschia spiculoides Hustedt, Instit. Parcs. Nat. Congo Belge, Expl. Parc Nat. Albert, Mission Damas (1935-1936), Fasc. 8, p. 151, pl. 13, figs. 5-6. 1949.

582 NISPICIL TOT NO OF STATIONS 8

(1258	F 1	6JL1964	0.00344	(1259	F 2	6JL1964	0.00930	(1260	F 3	6JL1964	0.00191	)
(1300	E 3	10C1964	0.00398	(1306	E 2	24SE1967	0.00273	(1380	GS 4	9MY1967	0.00673	)
(1345	MU 1	20C1967	0.00477	(1322	BH 1	185E1967	0.00365	(				)

Nitzschia subacicularis Hust.

Nitzschia subacicularis Hustedt in: A. Schmidt, Atlas Diat., pl. 348, fig. 76. 1922.

583 NISACICU TCT NO OF STATIONS 1
 1 1268 E 2 19AUI964 0.00274) (

Nitzschia sublinearis Hust.

Nitzschia sublinearis Hustedt in: Pascher, Süssw.-Fl. Mitteleuropas,
 Heft 10, Aufl. 2, p. 411, fig. 786. 1930.

581 NISLINEA TOT NO OF STATIONS 9
 1 1522 BH 1 185E1967 0.03100) (1523 RA 1 155E1967 0.00923) (1526 MO 1 205E1967 0.03414)
 1 1528 SH 1 205E1967 0.08663) (1545 WL 1 20C1967 0.33110) (1550 PR 1 50C1967 0.03717)
 1 1517 MO 2 22P1967 0.01122) (1550 RH 2 19AP1967 0.01762) (1420 IH 2 29MY1967 0.01511)

Nitzschia thermalis (Ehr.) Auersw.

Pinnularia thermalis Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:21. 1843.
Nitzschia thermalis (Ehr.) Auerswald ex Rabenhorst, Alg. Sachsens resp.
 Mitteleuropas Exsicc., No. 1064. 1860.

584 NITHERMA TCT NO OF STATIONS 2
 1 1264 C 1 10AU1964 0.00193) (1532 A 3 185E1967 0.00329) (

Nitzschia tropica Hust.

Nitzschia tropica Hustedt, Instit. Parcs Nat. Congo Belge, Expl. Parc
 Nat. Albert, Mission Damas (1935-1936), Fasc. 8, p. 147, pl. 11, figs.
 34-48. 1949.

585 NITAPIC TCT NO OF STATIONS 2
 1 46762 EV 10MH1938 0.02206) (1258 F 1 6JL1964 0.00236) (

Nitzschia tryblionella Hantz.

Nitzschia tryblionella Hantzsch ex Rabenhorst, Alg. Sachsens resp. Mit-
 teleuropas Exsicc., No. 984. 1860.

586 NITRYBLI TCT AC OF STATIONS 1
 1 1552 SM 1 60C1967 0.00660) (

Nitzschia tryblionella var. *debilis* (Arnott) A. Mayer

Nitzschia debilis Arnott ex Grunow in: Cleve and Grunow, K. Svenska
 Vet.-Akad. Handl., Ny Följd, 17(2):68. 1880.
Nitzschia tryblionella var. *debilis* (Arnott) A. Mayer, Ber. Naturw.
 Ver. Regensburg, 14:295, pl. 16, fig. 16. 1913.

587 NITRYBVO TCT NO OF STATIONS 1
 1 46764 EV 17JL1937 0.00866) (

Nitzschia tryblionella var. *levidensis* (Wm. Smith) Grun.

Tryblionella levidensis Wm. Smith, Syn. British Diat., Vol. 2, p. 89. 1856.
Nitzschia tryblionella var. *levidensis* (Wm. Smith) Grunow in: Cleve and
 Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):70. 1880.

588 NITRYEVL TCT NO OF STATIONS 4
 1 1556 CS 3 3CC1967 0.00521) (1572 G52C 60C1967 0.00690) (1545 WL 1 20C1967 0.00676)
 1 1401 MO 2 6PY1967 0.01764) (

1	1370	E	5	6W1967	0.51158	1	1408	A	3	25W1967	0.20570	1	1409	A	4	23W1967	0.04166	1
1	1410	A	6	24W1967	0.32266	1	1411	C	3	31W1967	0.21592	1	1412	C	5	31W1967	0.30187	1
1	1413	C	7	25W1967	0.13267	1	1414	E	2	28W1967	0.05709	1	1415	E	3	28W1967	0.15740	1
1	1416	E	3	12W1967	0.15380	1	1417	C	3	16W1967	0.42317	1	1418	C	3	13W1967	0.22479	1
1	1433	C	3	17W1967	0.41338	1	1434	C	5	17W1967	0.14356	1	1435	C	3	14W1967	0.11090	1
1	1436	E	2	15W1967	0.10594	1	1437	E	3	15W1967	0.07536	1	1438	E	5	14W1967	0.12346	1
1	1446	A	3	11W1967	0.00144	1	1447	C	3	14W1967	0.04447	1	1448	C	5	14W1967	0.21475	1
1	1451	C	7	16W1967	0.00197	1	1452	E	2	14W1967	0.00852	1	1453	E	3	15W1967	0.07330	1
1	1504	A	3	28W1967	0.00247	1	1505	A	4	28W1967	0.01031	1	1506	C	3	25W1967	0.00400	1
1	1511	E	7	15W1967	0.00393	1	1512	E	3	15W1967	0.00393	1	1513	E	5	15W1967	0.00393	1
1	1534	A	6	19W1967	0.00620	1	1537	E	3	24W1967	0.01294	1	1538	E	5	23W1967	0.00552	1
1	1541	E	2	11C1967	0.00532	1	1377	GS	1	5W1967	0.18559	1	1378	GS	2	9W1967	0.11354	1
1	1379	GS	3	9W1967	0.06499	1	1380	GS	4	9W1967	0.10762	1	1381	GS	5	9W1967	0.05009	1
1	1382	GS	5	10W1967	0.01280	1	1383	GS	7	10W1967	0.01280	1	1384	GS	8	10W1967	0.01280	1
1	1385	GS	9	10W1967	0.13692	1	1386	GS10	10W1967	0.11204	1	1387	GS11	12W1967	0.27745	1		
1	1388	GS12	12W1967	0.25339	1	1389	GS13	12W1967	0.10056	1	1390	GS14	12W1967	0.24662	1			
1	1391	GS15	12W1967	0.00112	1	1392	GS16	12W1967	0.2636	1	1393	GS17	12W1967	0.04603	1			
1	1394	GS18	13W1967	0.02350	1	1395	GS19	13W1967	0.06960	1	1396	GS20	13W1967	0.01036	1			
1	1397	GS21	13W1967	0.03899	1	1398	GS22	14W1967	0.12153	1	1399	GS	1	30C1967	0.02135	1		
1	1557	GS	4	5C1967	0.01121	1	1560	GS	8	4C1967	0.01617	1	1562	GS10	5C1967	0.00247	1	
1	1563	GS11	5C1967	0.00701	1	1564	GS12	5C1967	0.00165	1	1565	GS13	5C1967	0.00507	1			
1	1567	GS15	5C1967	0.00593	1	1568	GS16	5C1967	0.00289	1	1569	GS17	5C1967	0.01932	1			
1	1570	GS18	5C1967	0.00583	1	1571	GS19	5C1967	0.00176	1	1572	GS20	5C1967	0.00180	1			
1	1573	GS21	6C1967	0.00224	1	1574	GS22	6C1967	0.00288	1	1575	GS28	6C1967	0.00645	1			
1	1594	MU	1	20C1967	0.00238	1	1546	LU	1	20C1967	0.03501	1	1520	MO	1	18E1967	0.01886	1
1	1521	SH	1	18E1967	0.04616	1	1522	HM	1	18E1967	0.02188	1	1526	MO	1	20E1967	0.06827	1
1	1527	TR	1	20E1967	0.01258	1	1528	SH	1	20E1967	0.02888	1	1529	KW	1	20E1967	0.15589	1
1	1530	FR	1	24E1967	0.01000	1	1531	GH	1	25E1967	0.03381	1	1545	WL	1	20C1967	0.02703	1
1	1549	MO	1	46C1967	0.02741	1	1551	ES	1	5C1967	0.02396	1	1552	SM	1	6C1967	0.06603	1
1	1550	MR	1	5C1967	0.06195	1	1553	SE	1	6C1967	0.02203	1	1548	MU	2	29W1967	0.07533	1
1	1426	MS	2	29W1967	0.76358	1	1551	W1	2	21W1967	0.26067	1	1428	LU	2	29W1967	0.28234	1
1	1417	MO	2	22W1967	0.65799	1	1418	SH	2	22W1967	0.07776	1	1430	BU	2	19W1967	0.59911	1
1	1425	RA	2	25W1967	0.22102	1	1399	PW	2	5W1967	0.32644	1	1401	MO	2	4W1967	0.43506	1
1	1402	TR	2	68W1967	0.88636	1	1400	SH	2	6W1967	0.20975	1	1432	MO	2	21W1967	0.38076	1
1	1411	FR	2	23W1967	0.06219	1	1354	SH	2	25W1967	0.08976	1	1429	MO	2	25W1967	0.08976	1
1	1403	CA	2	10W1967	0.23539	1	1404	MS	2	10W1967	0.05081	1	1405	ES	2	12W1967	0.05415	1
1	1407	SH	2	10W1967	0.08957	1	1349	CA	2	15W1967	0.0118	1	1406	MO	2	13W1967	0.0118	1
1	1419	BU	2	23W1967	0.47940	1	1420	IN	2	23W1967	0.18127	1	1421	CH	2	23W1967	0.32963	1
1	1422	GA	2	23W1967	0.25122	1	1423	WA	2	25W1967	0.143879	1	1424	KN	2	25W1967	0.46629	1

Nitzschia sp. #5.

591 NISPECEG TOT NO OF STATIONS 61

3540	CH	11W1973	0.00466	1	46656	CH	MR1947	0.00455	1	46906	CH	WY1947	0.00445	1			
46907	CH	11J1974	0.00095	1	46747	EV	14U1937	0.00248	1	46752	EV	15E1937	0.02177	1			
1293	C	2	16J1964	0.00452	1	1294	D	2	15J1964	0.00958	1	1296	E	2	14J1964	0.00916	1
1457	E	1	14J1964	0.01014	1	1458	SH	1	6J1964	0.00236	1	1460	E	3	6J1964	0.00764	1
1279	E	1	16E1964	0.00393	1	1287	F	3	15E1964	0.00500	1	1445	B	6	14C1964	0.00652	1
1374	E	3	7W1967	0.2650	1	1375	E	3	7W1967	0.01203	1	1376	E	5	6W1967	0.00843	1
1412	C	5	31W1967	0.01263	1	1414	E	2	28W1967	0.00336	1	1432	A	4	13W1967	0.01022	1
1433	C	3	17W1967	0.00646	1	1436	E	2	15W1967	0.00362	1	1446	A	3	11J1967	0.00489	1
1447	A	4	11J1967	0.00243	1	1450	C	5	16J1967	0.00150	1	1452	E	2	14J1967	0.00639	1
1453	E	3	15J1967	0.00506	1	1511	E	2	15E1967	0.00307	1	1512	C	3	15E1967	0.01571	1
1379	GS	3	9W1967	0.06619	1	1380	GS	4	9W1967	0.00336	1	1381	GS	5	10W1967	0.00554	1
1383	GS	1	10W1967	0.02763	1	1384	GS	8	10W1967	0.01716	1	1385	GS	9	10W1967	0.00235	1
1386	GS10	12W1967	0.00862	1	1392	GS16	12W1967	0.01233	1	1394	GS18	13W1967	0.05333	1			
1395	GS19	13W1967	0.00587	1	1397	GS21	13W1967	0.00131	1	1398	GS22	14W1967	0.00304	1			
1555	GS	2	5C1967	0.00533	1	1540	GS	8	4C1967	0.00972	1	1544	MU	1	20C1967	0.00238	1
1521	SH	1	18E1967	0.00577	1	1552	SH	1	6C1967	0.01981	1	1550	PR	1	5C1967	0.02478	1
1428	MU	2	29W1967	0.00301	1	1426	MS	2	29W1967	0.01350	1	1351	PI	2	21W1967	0.00621	1
1427	LU	2	29W1967	0.01211	1	1417	MO	2	22W1967	0.01122	1	1350	BU	2	19W1967	0.00441	1
1395	PW	2	5W1967	0.00680	1	1352	KW	2	21W1967	0.02577	1	1353	FR	2	23W1967	0.01055	1
1354	GH	2	25W1967	0.01726	1	1429	WL	2	29W1967	0.03185	1	1403	CA	2	10W1967	0.15692	1
1404	MO	2	10W1967	0.01272	1												

Nitzschia sp. #6.

592 NISPECEG TOT NO OF STATIONS 65

46924	CH	10W1946	0.00071	1	46758	EV	5JN1937	0.00357	1	46764	EV	17J1937	0.02417	1			
1224	B	6	10W1964	0.00186	1	1231	E	3	16W1964	0.00245	1	1439	B	6	5W1964	0.00200	1
1243	B	6	13J1964	0.00200	1	1257	E	3	14J1964	0.0058	1	1258	F	3	4J1964	0.00196	1
1260	F	3	6J1964	0.00191	1	1268	E	2	18W1964	0.00274	1	1269	E	3	15W1964	0.00274	1
1337	C	7	26W1967	0.00461	1	1338	C	3	26W1967	0.10159	1	1339	C	5	26W1967	0.00286	1
1340	E	3	15W1967	0.00655	1	1341	E	3	15W1967	0.00626	1	1342	A	4	19W1967	0.21475	1
1343	A	6	19W1967	0.00417	1	1344	C	3	25W1967	0.00496	1	1345	C	5	25W1967	0.30018	1
1346	C	7	13W1967	0.00277	1	1347	E	2	23W1967	0.00277	1	1348	E	5	23W1967	0.01110	1
1368	A	3	4W1967	0.05655	1	1369	A	4	4W1967	0.00745	1	1370	A	6	3W1967	0.00381	1
1372	C	5	5W1967	0.04611	1	1373	C	7	2W1967	0.00285	1	1374	E	2	7W1967	0.00292	1
1375	E	3	7W1967	0.01293	1	1376	E	5	6W1967	0.01405	1	1412	ES	1	15W1967	0.00393	1
1433	C	3	17W1967	0.00646	1	1434	C	5	17W1967	0.00598	1	1511	E	2	15E1967	0.00307	1
1512	E	3	15E1967	0.00393	1	1379	GS	3	9W1967	0.00309	1	1380	GS	4	9W1967	0.00366	1
1382	GS	5	10W1967	0.00587	1	1383	GS	7	10W1967	0.00927	1	1384	GS	9	10W1967	0.00235	1
1386	GS10	12W1967	0.00575	1	1387	GS11	12W1967	0.00396	1	1394	GS18	13W1967	0.00344	1			
1557	GS	4	5C1967	0.00374	1	1562	GS10	5C1967	0.00247	1	1566	GS14	5C1967	0.00183	1		
1528	SH	1	20E1967	0.01444	1	1545	W1	1	20C1967	0.01351	1	1551	ES	1	50C1967	0.00795	1
1550	HM	1	50C1967	0.01444	1	1548	W1	1	29W1967	0.00301	1	1526	PS	2	29W1967	0.01050	1
1551	MI	1	50C1967	0.01444	1	1549	W1	1	29W1967	0.00301	1	1527	PS	2	29W1967	0.01050	1
4601	MO	2	6W1967	0.01376	1	4602	TR	2	6W1967	0.00541	1	4600	SH	2	6W1967	0.01191	1
1354	GH	2	25W1967	0.02244	1	1403	CA	2	10W1967	0.01308	1	1349	C1	2	15W1967	0.01766	1

Nitaochia sp. #7.

593 NISPECCG TCT NO CF STATIONS 22

(46758	EV	5JN1937	0.00797	(46767	EV	1AU1937	0.00248	(1268	E 2	15AU1964	C.CC274	)
(1274	D 1	175E1964	0.00469	(1279	E 1	165E1964	0.00393	(1556	GS 3	30C1967	C.CC521	)
(1572	GS20	8CC1967	0.0009C	(1544	MU 1	2CC1967	0.02859	(1546	LU 1	2CC1967	C.CC510	)
(1521	SH 1	185E1967	0.02885	(1526	MD 1	2CC1967	0.00349	(1530	PR 1	245E1967	C.CC001	)
(1531	GH 1	255E1967	0.00845	(1545	WL 1	2CC1967	6.91939	(1548	CA 1	3CC1967	C.CC1272	)
(1549	MD 1	4CC1967	0.01370	(1552	SW 1	60C1967	0.00660	(1550	PR 1	5CC1967	C.CC734	)
(1417	NO 2	22MY1967	0.00748	(1394	GH 2	25AP1967	0.00173	(1429	WL 2	25MY1967	C.CC1062	)
(1404	PD 2	10MY1967	0.02541	(								)

Nitaochia sp. #8.

594 NISPECCG TCT NO CF STATIONS 7

(46752	EV	355E1927	0.02177	(1270	F 1	10AU1964	0.00272	(1275	D 2	175E1964	C.CC645	)
(1285	F 1	195C1964	0.02912	(1554	GS 1	30C1967	0.00396	(1546	LU 1	20C1967	C.CC2001	)
(14C3	CA 2	10MY1967		(								)

Nitaochia sp. #9.

595 NISPECCI TCT NO CF STATIONS 3

(1340	C 7	28PR1967	C.00073	(1341	A 3	19AP1967	C.CC108	(1536	E 2	245E1967	C.CC545	)
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Nitaochia sp. #10.

596 NISPECCG TCT NO CF STATIONS 1

(1250	C 6	10JL1964	C.CC411	(								)
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Nitaochia sp. #11.

597 NISPECCG TCT NO CF STATIONS 2

(1272	C 1	105E1964	0.00410	(1550	PR 1	50C1967	C.CC1239	(				)
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Nitaochia sp. #12.

598 NISPECCG TOT NO CF STATIONS 4

(1550	MR 1	50C1967	0.03717	(1426	MS 2	29MY1967	C.01050	(1350	BH 2	19AP1967	0.00661	)
(1404	MD 2	10MY1967	0.01276	(								)

Nitaochia sp. #14.

599 NISPECCG TCT NO CF STATIONS 1

(1511	E 2	15E1967	0.00307	(								)
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Nitaochia sp. #15.

600 NISPECCG TOT NO CF STATIONS 4

(1544	MU 1	20C1967	0.01888	(1546	LU 1	2CC1967	0.03001	(1550	MR 1	50C1967	C.CC2478	)
(1428	MD 2	29MY1967	0.01295	(								)

Nitaochia sp. #16.

601 NISPECCG TOT NO CF STATIONS 4

(1544	MU 1	20C1967	0.00715	(1546	LU 1	2CC1967	C.CC500	(1529	MR 1	205E1967	C.CC1199	)
(1545	WL 1	20C1967	0.03379	(								)

Nitaochia sp. #17.

602 NISPECCG TCT NO CF STATIONS 1

(1546	LU 1	20C1967	0.02501	(								)
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Nitzschia sp. #18.

603 NISPECOR TCT NO OF STATIONS 2									
1522	BH 1	185E1967	C.10025	1	1950	MR 1	50C1967	0.01239	1

Genus *Opephora* Petit

Petit, Miss. Sci. Cap Horn, 1882-1883, Bot., Vol. 5, p. 130. 1888.

Members of the genus *Opephora* find their primary habitat in periphyton communities. Occasional specimens are taken in plankton collections from Lake Michigan, especially in nearshore areas.

Opephora ansata Hohn and Hellerm.

Opephora ansata Hohn and Hellerman, Trans. American Micr. Soc., 82(3): 321, pl. 1, fig. 13, 1963.

606 OPSPECOR TCT AC OF STATIONS 37									
160273	CH	1876	0.04724	1	1561	CH	1FE1881	0.00578	1
160115	CH	20FE1966	0.00569	1	440924	CH	10W1966	0.00071	1
160522	CH	21AU1947	0.00097	1	46758	EV	5JN1937	0.02853	1
160757	EV	25JUL1937	0.01926	1	46747	EV	1AU1937	0.01733	1
160752	EV	15SE1937	0.17414	1	46760	EV	22SE1937	0.00985	1
160748	EV	13OC1937	0.06455	1	46767	EV	27CC1937	0.02708	1
160758	EV	16MR1938	0.02880	1	46762	EV	18MR1938	0.17644	1
160764	EV	10AU1966	0.00193	1	1279	E 1	16SE1966	0.00393	1
160765	E 6	13OC1964	0.00560	1	134C	C 7	28MR1967	0.00218	1
160766	E 2	11OC1967	0.01597	1	1543	E 5	10CC1967	0.01497	1
160767	GS16	12W1967	0.00816	1	1354	GS18	13W1967	0.00344	1
160768	GS15	50C1967	0.00318	1	1571	GS19	60C1967	0.00059	1
160769	GS22	60C1967	0.00129	1					

Opephora martyi Hérib.

Opephora martyi Héribaud, Diat. Foss. Auvergne, Vol. 1, p. 43, pl. 8, fig. 20. 1902.

604 OPMARTYI TCT AC OF STATIONS 47									
13540	CH	11W1879	0.00466	1	46516	CH	4WY1947	0.00034	1
13541	E 1	18SE1964	0.00634	1	1284	E 6	17SE1964	0.00118	1
13542	D 4	14OC1964	0.00150	1	1320	E 4	7NO1964	0.00207	1
13543	A 3	18SE1967	0.00329	1	1553	A 4	19SE1967	0.00444	1
13544	GS10	12W1967	0.01207	1	1390	GS14	12W1967	0.00587	1
13545	GS12	13W1967	0.00074	1	1554	GS 1	30C1967	0.00356	1
13546	GS 5	40C1967	0.00396	1	1365	GS13	50C1967	0.00799	1
13547	GS17	50C1967	0.00149	1	1571	GS19	60C1967	0.00174	1
13548	GS22	60C1967	0.01438	1	1575	GS28	60C1967	0.00129	1
13549	MS 1	20C1967	0.01597	1	1546	LU 1	20C1967	0.01501	1
13550	SH 1	16SE1967	0.00388	1	1522	BH 1	18SE1967	0.00182	1
13551	MO 1	20SE1967	0.00564	1	1531	GH 1	25SE1967	0.01691	1
13552	MR 1	50C1967	0.00447	1	1533	SE 1	60C1967	0.00724	1
13553	LU 2	22W1967	0.00483	1	1417	MO 2	22W1967	0.00374	1
13554	GH 2	25SE1967	0.00518	1	1404	MO 2	10W1967	0.00501	1
13555	CI 2	19AP1967	0.00359	1	1406	GS 2	13W1967	0.00539	1

Species *incertae sedis*

Opephora sp. #1.

605 OPSPECOR TCT NO OF STATIONS 4									
160923	CH	22NO1946	0.00219	1	1285	F 1	15SE1964	0.00582	1
160924	BH 2	19AP1967	0.00441	1					

Opephora sp. #2.

607 OPSPECOR TCT NO OF STATIONS 9									
1565	GS13	50C1967	0.00507	1	1571	GS19	60C1967	0.00293	1
1566	LU 1	20C1967	0.00500	1	1522	BH 1	18SE1967	0.00182	1
1567	MR 1	50C1967	0.00457	1	1533	SE 1	60C1967	0.00734	1

Genus *Oestrupia* Heid.

Heiden ex Hustedt, Ber. Deutsch. Bot. Ges., 53(1):16. 1935.

Although the growth habit of the freshwater members of the genus *Oestrupia* is poorly known, the limited information available indicates that they are most often found in benthic communities. The entities known from Lake Michigan are rare in plankton collections and those noted usually come from nearshore localities.

Oestrupia zachariasii (Reich.) comb. nov.

Navicula (*Caloneis*) *zachariasii* Reichelt, Forschungsber. Biol. Sta. Plön, 14:199. 1903.

408. OESTRUPIA TOT. NO. OF STATIONS 3									
(1565	GS13	50C1967	C.01014)	(1521	SH 1	18SE1967	0.00577)	(1545	WL 1
								20C1967	C.C4054)

Oestrupia zachariasii var. *undulata* (Schulz) comb. nov.

Caloneis baltica var. *undulata* Schulz, Bot. Arch., 13:203, fig. 76. 1926.

409. OESTRUPIA TOT. NO. OF STATIONS 7									
146815	CH	20FE1946	0.00549)	(1279	E 1	16SE1564	0.00393)	(1398	GS22
(1565	GS13	50C1967	0.01521)	(1574	GS22	60C1967	0.00288)	(1546	LU 1
(1527	TR 1	20SE1967	0.00625)	(				20C1967	C.C1000)

Genus *Pinnularia* Ehr. nom. cons.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1843:45. 1843.

Most species of the genus *Pinnularia* find their primary habitat in benthic communities. The rare representatives of the genus that are taken in plankton collections from Lake Michigan are undoubtedly derived from such communities within the lake or from sources outside the lake proper.

Pinnularia abaujensis (Pant.) Ross

Navicula abaujensis Pantocsek, Beitr. Foss. Bacill. Ungarns, Theil 2, p. 41, pl. 3, fig. 54. 1889.

Pinnularia abaujensis (Pant.) Ross, Natl. Mus. Canada Bull., 97(2):199, pl. 10, fig. 1. 1947.

Coll: 1800.

Pinnularia abaujensis var. *linearis* (Hust.) Patr.

Pinnularia gibba var. *linearis* Hustedt in: Pascher, Süßw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 327, fig. 604. 1930.

Coll: 1800.

Pinnularia acrosphaeria Wm. Smith

Pinnularia acrosphaeria Wm. Smith, Syn. British Diat., Vol. 1, p. 58, pl. 19, fig. 183. 1853.

Coll: 1818.

Pinnularia biceps Greg.

Pinnularia biceps Gregory, Quart. J. Micr. Sci., 4:8, pl. 1, fig. 28. 1856.

610 PIRICEPS TCT NO OF STATIONS 1
(1350 BH 2 19AP1967 0.00220) (

Pinnularia biceps fo. *petersenii* Ross

Pinnularia interrupta fo. *minor* Peterson, Bot. Iceland, Vol. 2, Pt. 2, p. 405, fig. 25. 1928.
Pinnularia biceps fo. *petersenii* Ross, Natl. Mus. Canada Bull., 97(2):201, pl. 9, fig. 11. 1947.

611 PIRICEPS TCT NO OF STATIONS 1
(1404 HQ 2 10MY1967 0.01270) (

Pinnularia borealis Ehr.

Pinnularia borealis Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:420, pl. 1(2), fig. 6. 1843.

612 PIRCEAL TCT NO OF STATIONS 1
(1395 GSI9 13MY1967 0.00117) (

Pinnularia brebissonii (Kütz.) Rabh.

Navicula brebissonii Kütz., Bacill., p. 93, pl. 3, fig. 49. 1844.
Pinnularia brebissonii (Kütz.) Rabenhorst, Fl. Europaea Alg., Sect. 1, p. 222. 1864.

613 PIRERIS TCT NO OF STATIONS 5
(44920 CH 200E1966 0.00031) (46516 CH 4MY1547 0.00034) (46764 EV 17JL1537 0.00806)
(46759 EV 19MY1938 0.00398) (1423 MA 2 25MY1967 0.00428) (

Pinnularia burkii Patr.

Pinnularia burkii Patrick, Farlowia, 2(2):189, pl. 3, fig. 1. 1945.

614 PIRURII TCT NO OF STATIONS 1
(1354 CH 2 25AP1967 0.00173) (

Pinnularia globiceps var. *krockii* (Grun.) Cleve

Navicula krockii Grunow in: Mojsisovics and Neumayer, Beitr. Paläontol. Österreich-Ungarns, Bd. 2, Heft 4, p. 155, pl. 30, fig. 40. 1882.
Pinnularia globiceps var. *krockii* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Förlj, 27(3):77. 1895.

615 PIRLCBVK TCT NO OF STATIONS 1
(1380 GSI3 12MY1567 0.00258) (

Pinnularia interrupta var. *crassior* (Grun.) Cleve

Navicula globiceps var. *crassior* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Förlj, 17(2):27, pl. 1, fig. 13. 1880.
Pinnularia interrupta var. *crassior* (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny Förlj, 27(3):76. 1895.

616 PIINTEVC TCT NO OF STATIONS 3
(1388 GSI2 12MY1567 0.00603) (1389 GSI3 12MY1967 0.00258) (1417 HQ 2 22MY1967 0.00374)

Pinnularia legumen (Ehr.) Ehr.

Navicula legumen Ehrenberg, Ber. Akad. Wiss. Berlin, 1841:141. 1841.
Pinnularia legumen (Ehr.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin,
1841:301, pl. 4(1), fig. 7. 1843.

617	PILEGME	TCT	NO	OF	STATIONS	1
(1404	HQ	2	10MY1967	0.0127C	)	(

Pinnularia leptosoma (Grun.) Cleve

Navicula leptosoma Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 12,
fig. 29. 1880.

Pinnularia leptosoma (Grun.) Cleve, K. Svenska Vet.-Akad. Handl., Ny
Foljd, 27(3):74. 1895.

618	PILEPTOS	TCT	NO	OF	STATIONS	1
(1550	MR	1	50C1967	0.02478	)	(

Pinnularia major (Kütz.) Rabh.

Frustulia maior Kützting, Linnaea, 8:547, pl. 14, fig. 25. 1833.

Navicula major (Kütz.) Kützting, Bacill., p. 97, pl. 4, figs. 19-20. 1844.
Pinnularia major (Kütz.) Rabenhorst, Süßsw.-Diat., p. 42, pl. 6, fig. 5.
1853.

Coll: 1552.

Pinnularia stomatophora (Grun.) Cleve

Navicula stomatophora Grunow in: A. Schmidt, Atlas Diat., pl. 44, figs.
27-29. 1876.

Pinnularia stomatophora (Grun.) Cleve, Acta Soc. Fauna Fl. Fennica,
8(2):27. 1891.

620	PISPECOC	TCT	NO	OF	STATIONS	1
(3541	CH		1FE1881	0.00978	)	(

Pinnularia tibetana Hust.

Pinnularia tibetana Hustedt in: Hedin, South. Tibet, Vol. 6, part 3 (Bot.)
p. 129, pl. 9, figs. 3-5. 1922.

621	PISPECOC	TCT	NO	OF	STATIONS	1
(46764	EV		17JUL1937	C.01612	)	(

Pinnularia undulata Greg.

Pinnularia undulata Gregory, Quart. J. Micr. Sci., 2:97, pl. 4, fig. 10.
1854.

Coll: 862.

Pinnularia viridis (Nitz.) Ehr.

Bacillaria viridis Nitzsch, Neue Schrift. Naturf. Ges. Halle, 3(1):97,
pl. 6, figs. 1-3. 1817.

Pinnularia viridis (Nitz.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:
305, pl. 1(1), fig. 7. 1843.

Genus *Rhizosolenia* Ehr.

Ehrenberg, Abh. Akad. Wiss. Berlin, 1841:134. 1843.

All known members of the genus *Rhizosolenia* are euplanktonic. Most of its members are marine, however the following species are found only in fresh water and are widely reported from the Great Lakes.

Rhizosolenia eriensis H. L. Smith*Rhizosolenia eriensis* H. L. Smith, The Lens, 1:44. 1872.

Cells bacilliform with a single conspicuous spine at each end. Valves much reduced, appearing as a cap at the end of the cells. Cells elongated in the perivalvar axis and laterally compressed. Specimens from Lake Michigan 35-150µ long, 10-25µ broad in greatest diameter, only 2-4µ in least diameter. Because of the construction of the frustule, specimens are almost always observed in girdle view. Intercalary bands numerous, constructed in the form of a split-ring with cuneate ends so that the ends of the "ring" overlap one side of its own opposite end and one side of the next successive intercalary band. The line of imbrication of the intercalary bands is in the median of the long axis of the cell and is quite conspicuous. The frustule is very lightly silicified and is usually destroyed by standard diatom cleaning procedures. In living cells the chromatophores occur near the center of the cell. The end spines are excentric and usually occur on opposite sides of the ends of the cells.

This species is common in plankton collections from Lake Michigan, usually reaching its maximum abundance in the late spring or early fall.

460973	CH	1676	0.07388	(3541	CH	1FE1881	0.00978	(460921	CH	23NC1945	0.00388	)
460908	CH	0E1345	0.03621	(460917	CH	12J41946	0.04186	(460915	CH	20FE1946	0.17641	)
460914	CH	15AF1946	0.03620	(460924	CH	10MY1946	0.22027	(460923	CH	22NO1946	0.01530	)
460920	CH	20CE1946	0.00311	(460950	CH	JAL1947	0.01471	(460950	CH	MR1947	0.10018	)
460916	CH	4MY1947	0.35288	(460956	CH	W1947	1.55204	(460919	CH	5JMI947	0.27162	)
460907	CH	JL1947	0.04586	(460922	CH	21JUL1947	0.00242	(460758	EV	5JMI1937	0.06329	)
460771	EV	11JMI1937	0.65975	(460743	EV	20JAN1937	0.19697	(460764	EV	17JL1937	0.12087	)
460927	EV	25JL1937	0.01444	(460747	EV	18JL1937	0.01238	(460763	EV	23JUL1937	0.06088	)
460765	EV	30ME1937	0.25789	(460760	EV	22SE1937	0.01970	(460760	EV	24SE1937	0.06242	)
460764	EV	6OC1937	0.01463	(460748	EV	13OC1937	0.04270	(460767	EV	27OC1937	0.23984	)
460765	EV	12PR1938	0.18206	(460768	EV	16MR1938	0.23519	(460762	EV	18PR1938	0.19850	)
460751	EV	30ME1938	0.25789	(460772	EV	18MR1938	0.11364	(460756	EV	27AP1938	0.79923	)
460759	EV	15MY1938	1.60702	(460761	EV	27MY1938	0.99204	(460766	EV	14DE1938	0.09506	)
12224	E 4	18MY1964	0.00196	(12225	C 6	12MY1964	0.01568	(12226	C 6	16MY1964	0.04186	)
12227	C* 2	13MY1964	0.00219	(12228	D 2	14MY1964	0.00584	(12229	D 5	14MY1964	0.03595	)
12230	E 2	16MY1964	0.01185	(12231	E 3	16MY1964	0.03712	(12232	E 5	16MY1964	0.01044	)
12233	B 3	5JN2964	0.03096	(12234	B 3	18JN1964	0.08403	(12235	C 1	16JN1964	0.03649	)
12239	B 6	5JN1964	0.78523	(12236	C* 1	8JN1964	0.00815	(12237	C* 2	8JN1964	0.19077	)
12238	O 3	11JN1964	0.02800	(12240	D 6	16JN1964	0.05215	(12241	E 2	13JN1964	0.10350	)
12242	E 3	13JN1964	0.00749	(12243	E 6	15JN1964	0.02156	(12244	F 1	11JN1964	0.05439	)
12245	F 2	11JN1964	0.01725	(12246	F 3	11JN1964	0.04163	(12247	B 3	14JL1964	1.49400	)
12240	B 3	24JL1964	0.08968	(12248	E 6	11JL1964	0.38516	(12249	B 6	24JL1964	2.29256	)
12249	C 3	8JL1964	0.01358	(12250	C* 2	10JL1964	1.43795	(12251	C 7	16JL1964	0.27466	)
12252	C* 1	17JL1964	0.53835	(12253	C* 2	16JL1964	0.08673	(12254	D 2	15JL1964	2.41333	)
12255	O 5	15JL1964	5.21026	(12256	E 2	14JL1964	1.79527	(12257	E 3	14JL1964	1.06490	)
12258	F 1	8JL1964	3.58221	(12259	F 2	6JL1964	2.16508	(12260	F 3	6JL1964	1.19316	)
12261	B 3	24JL1964	0.01766	(12262	B 3	17JUL1964	0.03780	(12263	B 6	24JL1964	1.43296	)
12263	B 6	16JUL1964	0.01581	(12264	C* 1	10JUL1964	0.07916	(12265	C 2	16JUL1964	0.44710	)
12266	O 3	18JUL1964	4.71090	(12267	O 4	18JUL1964	0.02810	(12268	E 2	15JUL1964	2.44933	)
12269	E 3	15JUL1964	0.29600	(12270	F 1	10JUL1964	0.10619	(12271	B 6	15SE1964	0.00606	)
12271	C 7	22SE1964	0.02611	(12272	C 1	10SE1964	0.00821	(12273	C 2	15SE1964	0.00606	)
12274	D 1	16SE1964	0.02815	(12275	D 2	9JUL1964	0.02760	(12276	D 3	18SE1964	0.04470	)
12277	O 4	02JUL1964	0.02479	(12278	D 6	18SE1964	0.01153	(12279	E 1	16SE1964	0.26811	)
12280	E 2	18SE1964	0.05085	(12281	E 3	16SE1964	0.11880	(12282	E 4	16SE1964	0.15512	)
12283	E 9	0.28JL1964	0.27445	(12284	F 3	17SE1964	0.26372	(12285	F 1	15SE1964	0.08736	)
12286	F 2	15SE1964	0.16419	(12287	F 3	15SE1964	0.30206	(12288	B 3	15SE1964	0.76165	)
12445	B 6	0.46C1964	0.00469	(12446	C 7	14C1964	0.80032	(12447	C* 1	16OC1964	0.03411	)
12461	C* 2	14C1964	0.01468	(12492	D 1	15OC1964	0.23852	(12493	D 2	15OC1964	0.56127	)

1254	D 3	150C1564	0.57685	1259	D 4	150C1564	0.74920	1266	O 5	140C1564	0.60156
1257	D 6	140C1564	0.33319	1259	E 1	120C1564	0.10253	1269	E 2	120C1564	0.39950
1300	E 3	130C1564	0.70145	1301	E 4	130C1564	0.09105	1302	E 5	130C1564	1.10594
1303	E 6	130C1564	0.04712	1304	F 1	110C1564	0.14571	1305	F 2	110C1564	0.10178
1306	F 3	110C1564	0.04712	1307	E 6	110C1564	0.26699	1308	E 7	110C1564	1.38366
1309	F 4	100C1564	1.12595	1310	C 3	100C1564	0.58581	1311	O 1	100C1564	0.34766
1312	D 2	80U1564	0.94366	1313	C 3	90U1564	2.70270	1314	D 4	90U1564	1.25575
1315	D 5	90U1564	1.11083	1316	C 6	90U1564	0.34376	1317	E 1	90U1564	2.68055
1318	E 2	70U1564	2.52082	1319	E 3	70U1564	2.93247	1320	F 1	70U1564	4.34333
1321	E 5	70U1564	3.76876	1322	E 6	70U1564	7.46692	1323	F 2	70U1564	0.15052
1324	F 2	40U1564	0.06216	1325	F 3	40U1564	0.02352	1326	F 4	21A1567	0.74134
1330	C 3	28M1567	1.23455	1338	C 3	28M1567	2.03628	1339	C 5	28M1567	0.37102
1342	C 7	28M1567	0.61082	1343	A 4	16A1567	0.27771	1342	A 4	16A1567	1.38957
1343	A 6	150P1567	0.02309	1344	C 3	25A1567	0.20111	1345	E 5	25A1567	3.49350
1346	C 7	21A1567	0.5608C	1347	E 2	23A1567	0.83570	1348	E 5	23A1567	0.62371
1368	A 3	4M1567	0.00628	1369	A 4	4M1567	0.01491	1374	E 2	71U1567	0.65380
1375	E 5	78U1567	0.02941	1376	E 5	78U1567	0.01405	1378	E 3	71U1567	0.15447
1408	A 4	23M1567	0.00298	1410	A 6	24P1567	0.00594	1411	C 3	31M1567	0.60610
1412	C 5	31M1567	0.00862	1413	E 2	25M1567	0.00316	1414	E 2	31M1567	0.01008
1415	E 3	28M1567	0.00450	1416	E 5	28M1567	0.00875	1431	A 3	12M1567	0.03605
1432	A 4	13M1567	0.00168	1433	E 1	17M1567	0.56840	1434	C 5	17M1567	0.38888
1435	C 7	13M1567	0.01575	1436	E 2	15M1567	0.01447	1437	E 5	15M1567	0.16115
1438	E 5	14M1567	0.01089	1446	A 3	11JL1567	1.02735	1447	A 4	11JL1567	3.76591
1449	C 3	16A1567	3.74885	1450	C 5	16A1567	1.13272	1451	C 7	16A1567	0.25940
1452	E 2	14JL1567	0.96862	1453	E 3	15JL1567	1.41546	1454	E 5	15A1567	1.82036
1502	A 6	28A1567	0.00515	1509	C 5	25E1567	0.20692	1510	C 7	29A1567	0.00948
1511	E 2	15E1567	2.57851	1512	E 3	15E1567	0.46725	1513	E 5	31A1567	0.04561
1532	A 3	18E1567	0.00325	1536	E 2	24E1567	0.52626	1537	E 3	25A1567	0.13801
1541	E 2	110C1567	0.02661	1542	E 3	110C1567	0.16273	1543	E 5	100C1567	0.01437
1380	GS 4	90M1567	0.00152	1381	GS 5	10M1567	0.01193	1386	GS 3	10M1567	0.02185
1385	GS 9	10M1567	0.00471	1386	GS10	12M1567	0.00575	1387	GS11	12M1567	0.15434
1388	GS12	12M1567	0.00603	1389	GS13	12M1567	0.00258	1390	GS14	12M1567	0.01174
1392	GS16	12M1567	0.00308	1394	GS17	13M1567	0.00274	1396	GS18	13M1567	0.00460
1398	GS19	13M1567	0.00235	1398	GS22	14M1567	0.01214	1395	GS 1	30C1567	0.33130
1555	GS 2	30C1567	0.44845	1557	GS 4	30C1567	0.02616	1558	GS 5	40C1567	0.02396
1560	GS 5	40C1567	0.00234	1561	GS 9	40C1567	0.00587	1562	GS10	50C1567	0.02220
1563	GS11	50C1567	0.00935	1565	GS13	50C1567	0.01521	1566	GS14	50C1567	0.03767
1568	GS16	55C1567	0.01010	1573	GS21	60C1567	0.00112	1574	GS 1	20C1567	0.62238
1569	GS 1	20C1567	0.00300	1567	GS 2	20E1567	0.00629	1528	GS 3	20C1567	0.14444
1574	GS 4	20E1567	0.01195	153C	FR 1	24E1567	0.01000	1548	GS 4	30C1567	0.1272
1549	GS 1	40C1567	0.00136	1553	GS 5	40C1567	0.00592	1552	GS 6	40C1567	0.00592
1553	GS 1	40C1567	0.02036	1551	GS 2	21A1567	0.17688	1427	GS 2	29M1567	0.07632
1539	GS 2	21A1567	0.01360	1402	GS 2	6P1567	0.01624	1400	GS 2	6P1567	0.01191
1252	GS 2	21A1567	0.01897	1256	GS 2	25A1567	0.00595	1445	GS 2	25A1567	0.13068
1405	GS 2	12M1567	0.03870	1344	GS 2	19A1567	0.01437	1415	GS 2	23M1567	0.03662
1421	GS 2	23M1567	0.01735	1423	GS 2	25P1567	0.00856	1424	GS 2	25P1567	0.03332

Rhizosolenia gracilis H. L. Smith

Rhizosolenia gracilis H. L. Smith, Proc. Amer. Soc. Micr., 5:177, pl. 1, fig. 1b. 1882.

Cells bacilliform with a single conspicuous spine at each end. Valves much reduced, appearing as a cap at the ends of the cells. Cells elongate in the perivalvar axis and laterally compressed. Specimens from Lake Michigan 55-250µ long, 4-12µ broad at the greatest diameter, only 2-4µ broad at the least diameter. Interlary bands numerous, similar in structure to a flattened split-ring. Frustules very lightly silicified, structure of the interlary bands and imbrication line poorly visible. The terminal spines are only slightly excentric and are very long and fine.

This species is occasionally taken in plankton collections from Lake Michigan, most usually in regions that have undergone some degree of eutrophication. It is extremely variable in structure, and malformed specimens are common. This species is usually destroyed in diatom cleaning procedures and is easily overlooked in living material due to its delicate structure.

623 RHIZOSOLENIA GRACILIS H. L. SMITH

160973	CH	1876	0.28342	146524	CH	10P1564	0.00564	146959	CH	MR1567	0.00455
146916	CH	4M1567	0.00170	146602	CH	11P1567	0.00707	146700	CH	11JL1567	0.00707
146771	EV	11JL1567	1.15823	146747	EV	18A1537	0.00495	146750	EV	24E1537	0.00741
146767	EV	22C1537	0.01535	146772	EV	18A1538	0.01419	146756	EV	27A1538	0.03526
146755	EV	29M1538	0.00338	146761	EV	23M1538	0.00763	146761	EV	29M1538	0.00763
14440	6	11JL1564	2.83745	14441	6	24JL1564	0.30388	14250	C 6	10JL1564	0.96157
14251	C 6	11JL1564	0.91138	14252	C 1	16JL1564	0.13195	14253	C 2	16JL1564	0.13195
14254	D 2	15A1564	0.12178	14255	D 1	16JL1564	0.13195	14256	E 2	16JL1564	0.13195
14257	E 3	15A1564	0.87352	14258	F 1	6JL1564	0.00572	14259	F 2	6JL1564	0.12705
14260	F 3	6JL1564	0.00959	14462	B 1	24U1564	0.01706	14265	C 2	10A1564	0.01341
14268	E 2	15A1564	0.00821	14269	E 3	15A1564	0.01370	14273	C 2	10E1564	0.01341
14281	E 3	16E1564	0.00785	14282	E 4	16E1564	0.01108	14283	E 5	16E1564	0.04291
14285	F 1	15A1564	0.00935	14286	F 2	15A1564	0.00935	14287	F 3	15A1564	0.00935
14289	C 7	140C1564	0.02199	14293	D 2	15C1564	0.00943	14294	O 3	15C1564	0.01319
14295	D 4	15C1564	0.02378	14296	D 5	140C1564	0.02734	14297	O 6	146C1564	0.06571

1298	E 1	120C1964	0.00249	(1298	E 2	120C1964	0.01257	(1300	E 3	130C1964	0.00716
1301	E 4	130C1964	0.00883	(1303	E 6	130C1964	0.00560	(1304	F 1	110C1964	0.00494
1305	F 2	110C1964	0.00173	(1307	G 6	110C1964	0.01082	(1308	G 7	6ND1964	0.02129
1309	C 1	105C1964	0.00251	(1310	C 2	105C1964	0.01401	(1311	D 1	6ND1964	0.02987
1312	O 2	6ND1964	0.00794	(1313	O 3	6ND1964	0.00618	(1314	O 4	6ND1964	0.00742
1315	D 5	9ND1964	0.00275	(1316	O 6	9ND1964	0.00756	(1317	E 1	6ND1964	0.01530
1318	E 2	6ND1964	0.00854	(1319	F 1	7ND1964	0.00295	(1320	F 2	7ND1964	0.00477
1321	E 5	7ND1964	0.00638	(1322	E 6	7ND1964	0.00333	(1323	F 1	6ND1964	0.00557
1336	C 3	27JA1967	0.00193	(1337	C 3	28MA1967	0.01911	(1339	C 5	28MA1967	0.00624
1340	C 7	28MA1967	0.00454	(1341	C 3	29AP1967	0.00410	(1342	A 4	19AP1967	0.01581
1343	A 6	19AP1967	0.00260	(1344	C 2	25AP1967	0.01158	(1345	C 5	25AP1967	0.01475
1346	C 7	21AP1967	0.01585	(1347	E 2	23AP1967	0.00764	(1348	E 5	23AP1967	0.00556
1368	A 3	4PV1967	0.00628	(1370	A 6	3MV1967	0.00230	(1374	E 2	7MV1967	0.00260
1376	E 5	6PV1967	0.00582	(1311	O 3	3MV1967	0.00410	(1316	E 2	28MV1967	0.00538
1416	E 5	28MV1967	0.00219	(1431	A 3	12JN1967	0.00435	(1432	A 4	13JN1967	0.02044
1433	C 3	17JN1967	0.01296	(1434	C 2	17JN1967	0.00258	(1435	C 7	13JN1967	0.01894
1446	A 3	11JL1967	0.05912	(1447	A 4	11JL1967	0.04594	(1449	C 3	16JL1967	1.00495
1450	C 5	16JL1967	1.13295	(1451	C 7	16JL1967	0.00267	(1452	E 2	14JL1967	0.01605
1453	E 3	15JL1967	0.25782	(1454	E 5	15JL1967	0.16803	(1511	E 2	15E1967	0.00614
1512	E 3	15E1967	0.02749	(1518	E 5	25E1967	0.00552	(1581	G 5	10MV1967	0.00191
1583	GS 7	10MV1967	0.00267	(1586	GS10	12MV1967	0.00287	(1587	GS11	12MV1967	0.00792
1592	GS16	12MV1967	0.00308	(1595	GS19	13MV1967	0.00117	(1598	GS22	14MV1967	0.00911
1596	GS 3	30PV1967	0.00521	(1547	MS 1	21C1967	0.00768	(1551	PI 2	21AP1967	0.01171
1599	PM 2	5MV1967	0.01360	(1400	SR 2	6MV1967	0.00586	(1352	KN 2	21AP1967	0.00436
1553	FR 2	23AP1967	0.01055	(1403	CA 2	10PV1967	0.01308	(1407	SM 2	24AP1967	0.00597
1419	BU 2	23MV1967	0.01831	(1423	WA 2	25MV1967	0.00248	(1424	KN 2	25MV1967	0.01332

Genus *Rhoicosphenia* Grun.

Grunow, Verh. Zool.-Bot. Ges. Wien, 10:511. 1860.

Members of the genus *Rhoicosphenia* find their primary habitat in periphyton communities. Occasional specimens are taken in plankton collections from Lake Michigan, particularly in nearshore areas.

Rhoicosphenia curvata (Kütz.) Grun.

Comphonema curvatum Kützting, Linnaea, 8:567, pl. 16, fig. 51. 1833.

Rhoicosphenia curvata (Kütz.) Grunow ex Rabenhorst, Fl. Europaea Alg., p. 112. 1864.

624 RECURVAT TCT NG OF STATIONS 64

13541	CH	1JFL1881	0.00578	(146517	CH	12JA1946	0.00028	(146923	CH	22NO1946	0.00219
146920	CH	200C1946	0.00062	(146922	CH	21AU1947	0.00097	(146764	EV	17JL1937	0.00806
146767	PV	1AU1937	0.01895	(146768	EV	23AU1937	1.46252	(146752	EV	15SE1937	0.26121
146750	EV	24SE1937	0.00943	(146748	EV	13OC1937	0.17079	(146767	EV	27OC1937	0.11547
146749	EV	12PR1938	0.01214	(146768	EV	16MR1938	0.01470	(146762	EV	18MR1938	0.02206
146751	EV	30ME1938	0.01117	(1272	C 1	10SE1967	0.00821	(1265	F 1	15SE1967	0.00582
1341	A 3	19AP1967	0.00108	(1342	A 4	19AP1967	0.00180	(1343	A 6	19AP1967	0.00065
1504	A 3	28AU1967	0.00247	(1536	E 2	24SE1967	0.00273	(1538	E 5	23SE1967	0.02210
1588	GS12	12MV1967	0.00603	(1597	GS 4	30C1967	0.00371	(1561	GS 5	46C1967	0.00587
1567	GS15	50C1967	0.00476	(1566	GS17	50C1967	0.00297	(1575	GS28	60C1967	0.00387
1524	PI 1	25SE1967	0.00556	(1526	LL 1	25C1967	0.00001	(1520	H 1	18SE1967	0.00548
1521	SH 1	15C1967	0.00367	(1522	BH 1	15SE1967	0.00912	(1523	PA 1	15SE1967	0.14640
1525	PM 1	20SE1967	0.00935	(1526	MO 1	20SE1967	0.01356	(1527	TR 1	20SE1967	0.00176
1528	SB 1	25SE1967	0.21011	(1529	FR 1	20SE1967	0.02359	(1530	FR 1	24SE1967	0.02000
1531	GH 1	25SE1967	0.10985	(1545	ML 1	20C1967	0.10812	(1548	CA 1	30C1967	0.00508
1549	MO 1	40C1967	0.01370	(1552	SM 1	60C1967	0.00666	(1550	PR 1	50C1967	0.01239
1553	SG 1	40C1967	0.01688	(1428	MU 2	29PV1967	0.00003	(1626	MS 2	29PV1967	0.03150
1551	PI 2	21AP1967	0.00310	(1427	LU 2	29MV1967	0.00362	(1417	PC 2	22PV1967	0.00374
1350	BH 2	16PV1967	0.01354	(1399	PK 2	5PV1967	0.00580	(1461	MU 2	48PV1967	0.01176
1402	TR 2	16PV1967	0.01074	(1409	SA 2	6PV1967	0.01149	(1352	KN 2	21AP1967	0.00099
1354	CH 2	25AP1967	0.00173	(1429	ML 2	29MV1967	0.01062	(1403	CA 2	10MV1967	0.01108
1423	WA 2	25PV1967	0.00478	(1429	ML 2	29MV1967	0.01062	(1403	CA 2	10MV1967	0.01108

Rhoicosphenia curvata var. *subacuta* M. Schmidt

Rhoicosphenia curvata var. *subacuta* M. Schmidt in: A. Schmidt, Atlas Diat., pl. 213, figs. 6-7. 1899.

625 RECURVUS TCT AC EF STATIONS 1

1544	MU 1	20C1967	0.00238
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Genus *Rhopalodia* O. Mill.

O. Müller, Bot. Jahrb., 22:55. 1895.

Members of the genus *Rhopalodia* are adapted to epiphytic growth on aquatic vascular plants and the coarser species of algae. Occasional specimens are noted in plankton collections from Lake Michigan, particularly those from nearshore areas.

Rhopalodia gibba (Ehr.) O. Müll.

Navicula gibba Ehrenberg, Infusionsthierchen, p. 184, pl. 13, fig. 19. 1838.

Rhopalodia gibba (Ehr.) O. Müller, Bot. Jahrb., 22:65, pl. 1, figs. 15-17. 1897.

626 RPHGBBA TCT NO OF STATIONS 5
(60973 CH 1876 0.02362) (1285 F 1 155E1964 0.02912) (1379 CS 3 9MY1967 C.00309)
(1531 GH 1 25SE1967 C.00845) (1553 SG 1 60C1967 C.00734) (

Rhopalodia gibba var. *ventricosa* (Kütz.) V. H.

Epithemia ventricosa Kütz., Bacill., p. 25, pl. 3, fig. 9. 1844.

Rhopalodia gibba var. *ventricosa* (Kütz.) Van Heurck, Treat. Diat., p. 296. 1896.

628 RPHGBBV TCT NO OF STATIONS 1
(1284 E 6 17SE1964 0.00318) (

Rhopalodia gibberula (Ehr.) O. Müll.

Eumotia gibberula Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:126, pl. 3(4), fig. 8. 1843.

627 RPHGBBR TCT NO OF STATIONS 1
(1350 BH 2 15AP1967 0.00220) (

Genus *Stauroneis* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1843:45. 1843.

Most members of the genus *Stauroneis* find their primary habitat in benthic communities. Certain species that are abundant in epipelagic populations are rather commonly found in plankton collections from Lake Michigan but always in very low numbers.

Stauroneis acutiuscula Per. and Hér. b.

Stauroneis acutiuscula Peragallo and Hér. b. in: Hér. b., Diat. Auvergne, p. 78, pl. 3, fig. 20. 1893.

629 SAACUUI TCT NO OF STATIONS 5
(1565 GS13 50C1967 0.01521) (1569 GS17 50C1967 C.00149) (1546 LU 1 20C1967 C.00500)
(1530 FR 1 24SE1967 0.01000) (1545 WL 1 20C1967 C.00207) (

Stauroneis anceps Ehr.

Stauroneis anceps Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:422, pl. 2(1), fig. 18. 1843.

630 SAANCEPS TCT NO OF STATIONS 6
(46747 EV 14U1937 0.00743) (46750 EV 24SE1937 0.00471) (1352 CS16 12MY1967 C.00308)
(1530 FR 1 24SE1967 0.01000) (1350 BH 2 19AP1967 0.00220) (1402 TR 2 6MY1967 C.00541) (

Stauroneis anceps fo. *gracilis* Rabh.

Stauroneis anceps fo. *gracilis* Rabenhorst, Fl. Europaea Alg., sect. 1, p. 247. 1864.

631 SAANGXH TCT NO OF STATIONS 1
(1406 GR 2 13MY1967 0.00276) (

Stauroneis anceps var. *siberica* Grun.

Stauroneis anceps var. *siberica* Grunow in: Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):48, pl. 3, fig. 65. 1880.

632 SAANGEVS TCT NC OF STATICS 5									
(46922	CH	21AUL1947	0.00058)	(46764	EV	17JUL1937	C.01612)	(46763	EV
(1575	CS28	60C1967	0.00129)	(1405	ES 2	12MY1967	0.00645)	(	23AUL1937

Stauroneis dilatata Ehr.

Stauroneis dilatata Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:134, pl. 1(2), fig. 12. 1843.

634 SAOILATA TOT NO OF STATICS 4									
(46764	EV	17JUL1937	0.03225)	(46757	EV	25JUL1937	C.02889)	(46747	EV
(46763	EV	23AUL1937	0.02029)	(					18AUL1937

Stauroneis nobilis var. *baconiana* (Stodd.) Reim.

Stauroneis baconiana Stoddard, Proc. Boston Soc. Nat. Hist., 7:26. 1859.
Stauroneis nobilis var. *baconiana* (Stodd.) Reimer, Proc. Acad. Nat. Sci. Philadelphia, 113:204, pl. 2, fig. 1. 1961.

633 SANGRIVE TCT NC OF STATICS 1									
(1388	CS12	12MY1967	0.00603)	(					

Stauroneis phoenicenteron (Nitz.) Ehr.

Bacillaria phoenicenteron Nitzsch, (pro parte), Neue Schrift. Naturf. Ges. Halle, 3(1):92, pl. 4, figs. 12, 14 (non figs. 1-11, 13, 15-22). 1817.
Stauroneis phoenicenteron (Nitz.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:387, pl. 2(5), fig. 1. 1843.

635 SAPHCENI TCT NC OF STATICS 1									
(1390	GS14	12MY1967	0.00587)	(					

Stauroneis phoenicenteron var. *brevis* Dippel

Stauroneis phoenicenteron var. *brevis* Dippel, Diat. Rhein-Mainebene, p. 82, fig. 176. 1904.

637 SASPECCA TCT NC OF STATICS 1									
(1404	PC 2	10MY1967	C.0127C)	(					

Stauroneis smithii Grun.

Stauroneis smithii Grunow, Verh. Zool.-Bot. Ges. Wien, 10:564, pl. 6, fig. 16. 1860.

636 SASMITHI TCT NC OF STATICS 6									
(1389	GS13	12MY1967	0.00258)	(1565	GS13	50C1967	0.02028)	(1549	PQ 1
(1550	MR 1	50C1967	0.01239)	(1350	8H 2	19AP1967	0.00220)	(1404	PQ 2

Genus *Stephanodiscus* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1845:80. 1845.

Stephanodiscus alpinus Hust. ex Huber-Pestalozzi

Stephanodiscus alpinus Hust. ex Huber-Pestalozzi, Die Binnengewässer, Band 16, Teil 2, Hälfte 2, p. 412, pl. 122, fig. 508. 1942.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 7-33µ in diameter with slightly concave centers. Radial striae usually in biseriolate fascicles near the margin, becoming single near the center of the valve, more rarely single throughout or becoming triseriate near the margins. Puncta in radial striae small but distinct, 18-22 in 10µ. Fascicles are rather widely separated by conspicuous, thickened ribs. The marginal spines occur at the ends of the ribs, between the fascicles. Usually a spine is present at the end of each rib but occasionally, especially in the small individuals, spines may be irregular or lacking. Fascicles and spines 7-10 in 10µ at the margin of the valves.

Although this species has only recently been reported from Lake Michigan (Stoermer 1967), specimens included in our concept of the taxon are present both in modern samples and in samples dating back to 1876. Previous reports probably refer this species to *Stephanodiscus astraea* (Ehr.) Grun. or *S. astraea* var. *minutula* (Kütz.) Grun. Huber-Pestalozzi (1942) reports this entity is abundant in the hypolimnion of alpine lakes.

638 STALPINI TCT KC OF STATIONS 256

(60973)	CH	1876	0.45598	(3540	CH	1876	0.45598	(3541	CH	1876	0.45598	(3542	CH	1876	0.45598	(3543	CH	1876	0.45598	(3544	CH	1876	0.45598	(3545	CH	1876	0.45598	(3546	CH	1876	0.45598	(3547	CH	1876	0.45598	(3548	CH	1876	0.45598	(3549	CH	1876	0.45598	(3550	CH	1876	0.45598	(3551	CH	1876	0.45598	(3552	CH	1876	0.45598	(3553	CH	1876	0.45598	(3554	CH	1876	0.45598	(3555	CH	1876	0.45598	(3556	CH	1876	0.45598	(3557	CH	1876	0.45598	(3558	CH	1876	0.45598	(3559	CH	1876	0.45598	(3560	CH	1876	0.45598	(3561	CH	1876	0.45598	(3562	CH	1876	0.45598	(3563	CH	1876	0.45598	(3564	CH	1876	0.45598	(3565	CH	1876	0.45598	(3566	CH	1876	0.45598	(3567	CH	1876	0.45598	(3568	CH	1876	0.45598	(3569	CH	1876	0.45598	(3570	CH	1876	0.45598	(3571	CH	1876	0.45598	(3572	CH	1876	0.45598	(3573	CH	1876	0.45598	(3574	CH	1876	0.45598	(3575	CH	1876	0.45598	(3576	CH	1876	0.45598	(3577	CH	1876	0.45598	(3578	CH	1876	0.45598	(3579	CH	1876	0.45598	(3580	CH	1876	0.45598	(3581	CH	1876	0.45598	(3582	CH	1876	0.45598	(3583	CH	1876	0.45598	(3584	CH	1876	0.45598	(3585	CH	1876	0.45598	(3586	CH	1876	0.45598	(3587	CH	1876	0.45598	(3588	CH	1876	0.45598	(3589	CH	1876	0.45598	(3590	CH	1876	0.45598	(3591	CH	1876	0.45598	(3592	CH	1876	0.45598	(3593	CH	1876	0.45598	(3594	CH	1876	0.45598	(3595	CH	1876	0.45598	(3596	CH	1876	0.45598	(3597	CH	1876	0.45598	(3598	CH	1876	0.45598	(3599	CH	1876	0.45598	(3600	CH	1876	0.45598	(3601	CH	1876	0.45598	(3602	CH	1876	0.45598	(3603	CH	1876	0.45598	(3604	CH	1876	0.45598	(3605	CH	1876	0.45598	(3606	CH	1876	0.45598	(3607	CH	1876	0.45598	(3608	CH	1876	0.45598	(3609	CH	1876	0.45598	(3610	CH	1876	0.45598	(3611	CH	1876	0.45598	(3612	CH	1876	0.45598	(3613	CH	1876	0.45598	(3614	CH	1876	0.45598	(3615	CH	1876	0.45598	(3616	CH	1876	0.45598	(3617	CH	1876	0.45598	(3618	CH	1876	0.45598	(3619	CH	1876	0.45598	(3620	CH	1876	0.45598	(3621	CH	1876	0.45598	(3622	CH	1876	0.45598	(3623	CH	1876	0.45598	(3624	CH	1876	0.45598	(3625	CH	1876	0.45598	(3626	CH	1876	0.45598	(3627	CH	1876	0.45598	(3628	CH	1876	0.45598	(3629	CH	1876	0.45598	(3630	CH	1876	0.45598	(3631	CH	1876	0.45598	(3632	CH	1876	0.45598	(3633	CH	1876	0.45598	(3634	CH	1876	0.45598	(3635	CH	1876	0.45598	(3636	CH	1876	0.45598	(3637	CH	1876	0.45598	(3638	CH	1876	0.45598	(3639	CH	1876	0.45598	(3640	CH	1876	0.45598	(3641	CH	1876	0.45598	(3642	CH	1876	0.45598	(3643	CH	1876	0.45598	(3644	CH	1876	0.45598	(3645	CH	1876	0.45598	(3646	CH	1876	0.45598	(3647	CH	1876	0.45598	(3648	CH	1876	0.45598	(3649	CH	1876	0.45598	(3650	CH	1876	0.45598	(3651	CH	1876	0.45598	(3652	CH	1876	0.45598	(3653	CH	1876	0.45598	(3654	CH	1876	0.45598	(3655	CH	1876	0.45598	(3656	CH	1876	0.45598	(3657	CH	1876	0.45598	(3658	CH	1876	0.45598	(3659	CH	1876	0.45598	(3660	CH	1876	0.45598	(3661	CH	1876	0.45598	(3662	CH	1876	0.45598	(3663	CH	1876	0.45598	(3664	CH	1876	0.45598	(3665	CH	1876	0.45598	(3666	CH	1876	0.45598	(3667	CH	1876	0.45598	(3668	CH	1876	0.45598	(3669	CH	1876	0.45598	(3670	CH	1876	0.45598	(3671	CH	1876	0.45598	(3672	CH	1876	0.45598	(3673	CH	1876	0.45598	(3674	CH	1876	0.45598	(3675	CH	1876	0.45598	(3676	CH	1876	0.45598	(3677	CH	1876	0.45598	(3678	CH	1876	0.45598	(3679	CH	1876	0.45598	(3680	CH	1876	0.45598	(3681	CH	1876	0.45598	(3682	CH	1876	0.45598	(3683	CH	1876	0.45598	(3684	CH	1876	0.45598	(3685	CH	1876	0.45598	(3686	CH	1876	0.45598	(3687	CH	1876	0.45598	(3688	CH	1876	0.45598	(3689	CH	1876	0.45598	(3690	CH	1876	0.45598	(3691	CH	1876	0.45598	(3692	CH	1876	0.45598	(3693	CH	1876	0.45598	(3694	CH	1876	0.45598	(3695	CH	1876	0.45598	(3696	CH	1876	0.45598	(3697	CH	1876	0.45598	(3698	CH	1876	0.45598	(3699	CH	1876	0.45598	(3700	CH	1876	0.45598	(3701	CH	1876	0.45598	(3702	CH	1876	0.45598	(3703	CH	1876	0.45598	(3704	CH	1876	0.45598	(3705	CH	1876	0.45598	(3706	CH	1876	0.45598	(3707	CH	1876	0.45598	(3708	CH	1876	0.45598	(3709	CH	1876	0.45598	(3710	CH	1876	0.45598	(3711	CH	1876	0.45598	(3712	CH	1876	0.45598	(3713	CH	1876	0.45598	(3714	CH	1876	0.45598	(3715	CH	1876	0.45598	(3716	CH	1876	0.45598	(3717	CH	1876	0.45598	(3718	CH	1876	0.45598	(3719	CH	1876	0.45598	(3720	CH	1876	0.45598	(3721	CH	1876	0.45598	(3722	CH	1876	0.45598	(3723	CH	1876	0.45598	(3724	CH	1876	0.45598	(3725	CH	1876	0.45598	(3726	CH	1876	0.45598	(3727	CH	1876	0.45598	(3728	CH	1876	0.45598	(3729	CH	1876	0.45598	(3730	CH	1876	0.45598	(3731	CH	1876	0.45598	(3732	CH	1876	0.45598	(3733	CH	1876	0.45598	(3734	CH	1876	0.45598	(3735	CH	1876	0.45598	(3736	CH	1876	0.45598	(3737	CH	1876	0.45598	(3738	CH	1876	0.45598	(3739	CH	1876	0.45598	(3740	CH	1876	0.45598	(3741	CH	1876	0.45598	(3742	CH	1876	0.45598	(3743	CH	1876	0.45598	(3744	CH	1876	0.45598	(3745	CH	1876	0.45598	(3746	CH	1876	0.45598	(3747	CH	1876	0.45598	(3748	CH	1876	0.45598	(3749	CH	1876	0.45598	(3750	CH	1876	0.45598	(3751	CH	1876	0.45598	(3752	CH	1876	0.45598	(3753	CH	1876	0.45598	(3754	CH	1876	0.45598	(3755	CH	1876	0.45598	(3756	CH	1876	0.45598	(3757	CH	1876	0.45598	(3758	CH	1876	0.45598	(3759	CH	1876	0.45598	(3760	CH	1876	0.45598	(3761	CH	1876	0.45598	(3762	CH	1876	0.45598	(3763	CH	1876	0.45598	(3764	CH	1876	0.45598	(3765	CH	1876	0.45598	(3766	CH	1876	0.45598	(3767	CH	1876	0.45598	(3768	CH	1876	0.45598	(3769	CH	1876	0.45598	(3770	CH	1876	0.45598	(3771	CH	1876	0.45598	(3772	CH	1876	0.45598	(3773	CH	1876	0.45598	(3774	CH	1876	0.45598	(3775	CH	1876	0.45598	(3776	CH	1876	0.45598	(3777	CH	1876	0.45598	(3778	CH	1876	0.45598	(3779	CH	1876	0.45598	(3780	CH	1876	0.45598	(3781	CH	1876	0.45598	(3782	CH	1876	0.45598	(3783	CH	1876	0.45598	(3784	CH	1876	0.45598	(3785	CH	1876	0.45598	(3786	CH	1876	0.45598	(3787	CH	1876	0.45598	(3788	CH	1876	0.45598	(3789	CH	1876	0.45598	(3790	CH	1876	0.45598	(3791	CH	1876	0.45598	(3792	CH	1876	0.45598	(3793	CH	1876	0.45598	(3794	CH	1876	0.45598	(3795	CH	1876	0.45598	(3796	CH	1876	0.45598	(3797	CH	1876	0.45598	(3798	CH	1876	0.45598	(3799	CH	1876	0.45598	(3800	CH	1876	0.45598	(3801	CH	1876	0.45598	(3802	CH	1876	0.45598	(3803	CH	1876	0.45598	(3804	CH	1876	0.45598	(3805	CH	1876	0.45598	(3806	CH	1876	0.45598	(3807	CH	1876	0.45598	(3808	CH	1876	0.45598	(3809	CH	1876	0.45598	(3810	CH	1876	0.45598	(3811	CH	1876	0.45598	(3812	CH	1876	0.45598	(3813	CH	1876	0.45598	(3814	CH	1876	0.45598	(3815	CH	1876	0.45598	(3816	CH	1876	0.45598	(3817	CH	1876	0.45598	(3818	CH	1876	0.45598	(3819	CH	1876	0.45598	(3820	CH	1876	0.45598	(3821	CH	1876	0.45598	(3822	CH	1876	0.45598	(3823	CH	1876	0.45598	(3824	CH	1876	0.45598	(3825	CH	1876	0.45598	(3826	CH	1876	0.45598	(3827	CH	1876	0.45598	(3828	CH	1876	0.45598	(3829	CH	1876	0.45598	(3830	CH	1876	0.45598	(3831	CH	1876	0.45598	(3832	CH	1876	0.45598	(3833	CH	1876	0.45598	(3834	CH	1876	0.45598	(3835	CH	1876	0.45598	(3836	CH	1876	0.45598	(3837	CH	1876	0.45598	(3838	CH	1876	0.45598	(3839	CH	1876	0.45598	(3840	CH	1876	0.45598	(3841	CH	1876	0.45598	(3842	CH	1876	0.45598	(3843	CH	1876	0.45598	(3844	CH	1876	0.45598	(3845	CH	1876	0.45598	(3846	CH	1876	0.45598	(3847	CH	1876	0.45598	(3848	CH	1876	0.45598	(3849	CH	1876	0.45598	(3850	CH	1876	0.45598	(3851	CH	1876	0.45598	(3852	CH	1876	0.45598	(3853	CH	1876	0.45598	(3854	CH	1876	0.45598	(3855	CH	1876	0.45598	(3856	CH	1876	0.45598	(3857	CH	1876	0.45598	(3858	CH	1876	0.45598	(3859	CH	1876	0.45598	(3860	CH	1876	0.45598	(3861	CH	1876	0.45598	(3862	CH	1876	0.45598	(3863	CH	1876	0.45598	(3864	CH	1876	0
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1355	GS 2	JUL1967	U-01039	1356	GS 3	JUL1967	U-01039	1357	GS 4	30C1967	C.23169
1358	GS 5	40C1967	U-05946	1359	GS 7	40C1967	C.01399	1360	GS 8	40C1967	C.1417
1361	GS 9	40C1967	U-05987	1362	GS10	50C1967	C.00740	1363	GS11	50C1967	C.03040
1364	GS12	50C1967	U-00959	1365	GS13	50C1967	C.01014	1366	GS14	50C1967	C.13102
1367	GS15	50C1967	U-31754	1368	GS16	50C1967	C.12698	1369	GS17	50C1967	C.55594
1370	GS18	50C1967	U-87267	1371	GS19	60C1967	C.04057	1372	GS20	60C1967	C.16122
1373	GS21	60C1967	U-22422	1374	GS22	60C1967	C.04027	1375	GS23	60C1967	C.23804
1344	MS 1	20C1967	C.22180	1347	MS 1	20C1967	C.27944	1324	PI 1	20SE1967	C.32837
1346	LU 1	20C1967	U-88031	1320	HC 1	18SE1967	C.75440	1321	SH 1	18SE1967	C.13002
1323	HA 1	19SE1967	U-03696	1325	PK 1	20SE1967	C.01193	1326	MO 1	20SE1967	C.15910
1327	TR 1	2CE1967	U-18239	1328	SB 1	20SE1967	U-07219	1329	KW 1	20SE1967	C.55996
1330	FR 1	24SE1967	U-01000	1331	GH 1	23SE1967	C.29586	1345	NL 1	20C1967	C.19608
1348	CA 1	30C1967	U-07633	1349	MC 1	40C1967	C.05950	1351	ES 1	50C1967	C.67588
1352	SP 1	60C1967	U-14507	1350	MR 1	50C1967	C.73101	1353	SG 1	60C1967	C.49941
1428	MJ 2	29PY1967	U-16344	1426	PS 2	29PY1967	C.03150	1351	PI 2	21AP1967	C.19950
1427	LU 2	29PY1967	U-50847	1417	HO 2	22MY1967	C.05818	1418	SH 2	22MY1967	C.24883
1350	8H 2	19AP1967	C.12995	1425	RA 2	29PY1967	C.39784	1359	PM 2	39PY1967	C.56487
1401	MD 2	6PY1967	U-24078	1352	TR 2	6PY1967	U-03964	1400	SB 2	49PY1967	C.52186
1352	KW 2	21AP1967	U-72153	1353	FR 2	23AP1967	U-17532	1354	GH 2	25AP1967	C.14499
1429	NL 2	29PY1967	U-25727	1403	CA 2	10PY1967	U-17654	1404	PG 2	10NY1967	C.11613
1405	ES 2	12PY1967	U-40635	1407	SM 2	14PY1967	U-76521	1349	G1 2	19AP1967	C.26175
1406	GB 2	13PY1967	U-04044	1419	BU 2	23MY1967	U-58587	1420	LI 2	23PY1967	C.18127
1421	CH 2	23MY1967	U-74601	1422	GA 2	23PY1967	U-77658	1423	NA 2	25PY1967	C.15205
1424	DN 2	25PY1967	U-83931								

Stephanodiscus astraea (Ehr.) Grun. in Cl. and Grun.

Discoplea ? astraea Ehrenberg, Ber. Akad. Wiss. Berlin, 1844:267. 1844.

Cyclotella astraea (Ehr.) Kützinger, Sp. Alg., p. 19. 1849.

Stephanodiscus astraea (Ehr.) Grunow, in Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Förlj, 17(2):114. 1880.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Radial striae in biserial fascicles near the margin of the valve, becoming uniseriate and disorganized near the center of the valve which is markedly concave. Puncta in the radial striae distinct, 16-19 in 10 μ . The fascicles are closely packed with only a narrow hyaline space separating them. The spines in this species are submarginal and irregularly arranged, usually between every 2-4 fascicles. Fascicles 6-8 in 10 μ at the margins of the valves. In this taxon the fine, irregularly punctate ornamentation of the valve mantle is visible as a margin which is separated from the ornamentation of the valve surface by a narrow hyaline space. The spines arise from the inner border of the apparent margin.

Despite the fact that this is the most widely reported species of the genus, numerous problems of both circumscription and formal nomenclature are attached to it. I have not had the opportunity to observe authentic material of *Discoplea astraea*. Material annotated by Grunow, author of the combination, upon whose illustrations and verified specimens most modern treatments of this taxon are based is available in the United States and is the basis of our concept of the taxon.

Many of the authors that have treated the Lake Michigan plankton have either failed to distinguish this species from *S. niagarae* or have considered the two taxa to be synonymous. Cleve-Euler (1951) has made a variety, *S. astraea* var. *niagarae*, and has pointed out the close morphologic similarity of the two forms. Although this contention cannot be dismissed lightly, substantial differences do exist in the morphology of apparently discrete populations from the upper Great Lakes region and we chose to take the taxonomically conservative position that the two taxa, as circumscribed, represent distinct genetic entities unless it can be shown experimentally that the range of variation observed can be accommodated by a single genome.

The formal nomenclature of this species has been beclouded by the great number of "varieties," some with strikingly different morphology, that have been attached to it. It is our contention that a number of these entities should be treated as separate entities as their resemblance to the typical species is, at best, superficial.

Hendy (1964) has made a new combination, *S. rotula* (Kütz.) Hendy, citing *S. astraea* (Ehr. ex Kütz.) Grun. in Cleve and Grunow as a synonym. Hendy's reasoning on this is obscure in that Kütz. (1849) clearly indicates that *Cyclotella rotula* Kütz. (1844) is a later synonym of *Discoplea ? astraea* Ehrenberg (1844) and further makes a new combination *Cyclotella astraea* (Ehr.) Kütz. based on that epithet. In order to make his intentions fully clear he then proceeds to make a new, and by current rules thoroughly illegal, combination *C. rotula* (Ehr.) Kütz. based on *Discoplea ? rotula* Ehr. (1844). Although Kütz.'s name juggling seems to have confused Hendy, such was not the case with Grunow as he clearly refers the specific epithet to Ehrenberg's type along with Kütz.'s synonym.

This species, despite the relatively large number of reports referring to it, is rare in the plankton of the major portion of the Lake Michigan basin. It occurs in considerable quantity in estuaries and inshore waters that are appreciably eutrophied. It is also one of the most common members of the genus in smaller lakes throughout the state.

635 STASTRAE ICT. NO. OF STATICS 33

1232	E 5	16M1564	0.00174	1236	C* 1	8JN1564	C.00875	1237	C* 2	8JN1564	C.00773
1238	D 3	11N1564	0.00200	1241	E 2	15M1564	C.00296	1244	C* 1	10N1564	C.00193
1266	D 3	18M1564	0.00351	1274	C 1	17E1564	C.00469	1309	C* 1	10N1564	C.00322
1337	C 3	2M1567	0.00294	1338	C 3	2M1567	0.00132	1341	A 3	19M1567	C.00108
1342	A 4	19M1567	0.00180	1411	C 2	11M1567	C.00821	1416	E 5	2M1567	C.00242
1432	A 4	13JN1567	0.00511	1437	E 3	15JN1567	0.00269	1380	GS 4	9M1567	C.00168
1386	GS 8	10M1567	0.00185	1289	GS 13	12M1567	C.00258	1566	GS 14	5C1567	C.00183
1544	MU 1	20C1567	0.01446	1520	MD 1	18E1567	C.00606	1526	MD 1	20E1567	C.00589
1531	GM 1	25E1567	C.01691	1428	MU 2	29M1567	0.01808	1417	HD 2	22M1567	C.00763
1418	SH 2	22M1567	0.01595	1356	SH 2	19M1567	C.00220	1354	GM 2	25M1567	C.00181
1429	SL 2	23M1567	0.02527	1406	EB 2	13M1567	C.01192	1415	HU 2	23M1567	C.00723

Stephanodiscus binderanus (Kütz.) Krieger

Melosira binderana Kütz., Bacill., p. 55, pl. 2, fig. 1. 1844.

Stephanodiscus binderanus (Kütz.) Krieger, Pflanzenforsch. 10:21. 1927.

Cells circular in valve view and rectangular in girdle view, elongate in the perivalvar axis. Vegetative cells always occur in colonies, attached at the valve surface. Valves of specimens from Lake Michigan 8-22μ in diameter, valve surfaces planar. The radial striae are not united into well defined fascicles. Ornamentation of the valve surface is very irregular in this species. In some specimens the poroids are arranged in definite rows and a secondary level of radial ribs is visible, in others the ornamentation of the valve is only partially developed and its order is obscured. A border of small, regularly arranged, submarginal spines is present. The slime pores are not directly below the spines on the valve mantle in this species as they are in most other members of the genus. Because of the shallow valve mantle the slime pores, which are irregularly arranged, are highly visible and their thickened bases may be confused with spines unless care is taken. Puncta in the radial striae about 20-24 in 10μ. Submarginal spines 8-10 in 10μ, usually 3-5 spines occur between each slime pore.

As Krieger (1927) points out the frustular structure and the sequence of formation of elements of the frustule in this species are essentially similar to other species of *Stephanodiscus* and much different from *MeLoira* (Reimann 1960). Its superficial resemblance to the latter genus is only based on its consistent colonial growth habit. A number of the smaller species of *Stephanodiscus* show a greater or lesser tendency to adopt the colonial habit. Great care must be taken if these species are to be distinguished. It is to be emphasized that there is no certain way to distinguish them in living material.

This species is apparently a recent introduction into the flora of Lake Michigan. We have not been able to find records of its occurrence prior to 1938. It is now present in polluted inshore areas throughout the lake and substantial spring blooms have been noted in all parts of the lake in the past few years. Its introduction has caused substantial difficulties for filtration plants utilizing water from that lake in that its filamentous growth habit makes it an excellent filter clogger.

331 MERIDIAN TCT NO OF STATIONS 224

146921	CH	23NOV1945	0.00005	146514	CH	15APR1946	0.46858	146924	CH	10MY1946	0.00014
146912	CH	APR1947	0.01150	146516	CH	4MY1947	0.00170	146906	CH	PIY1947	0.00133
146751	EV	30MR1928	0.06095	146772	EV	18APR1938	0.01416	146756	EV	27APR1938	0.00684
146761	EV	27MY1938	0.00954	11225	C 6	15MY1964	0.00908	11226	C 7	18MY1964	0.35769
11227	C* 2	13MY1964	0.00329	11228	D 2	14MY1964	0.01537	11229	D 5	14MY1964	0.00634
11230	E 2	21JUL1963	11231	E 3	17JUL1963	0.00993	11232	F 3	17JUL1963	1.21743	
11233	B 3	5JUN1964	0.04287	11234	B 3	18JUN1964	0.03936	11235	C 2	8JUN1964	0.00338
11439	B 6	5JUN1964	0.18781	11236	C* 1	8JUN1964	0.01925	11237	C* 2	8JUN1964	0.04383
11238	D 3	11JUN1964	0.02800	11235	D 4	11JUN1964	0.05970	11240	E 6	10JUN1964	0.01994
11241	E 2	13JUN1964	0.07393	11242	E 3	13JUN1964	0.00150	11243	E 6	13JUN1964	0.03758
11244	F 1	11JUN1964	0.00548	11245	F 2	11JUN1964	0.01383	11246	F 3	11JUN1964	0.01195
11440	B 6	14JUL1964	0.00348	11247	B 6	24JUL1964	0.00184	11250	F 3	14JUL1964	0.01444
11251	C 2	16JUL1964	0.00575	11252	C* 1	16JUL1964	0.00558	11253	C* 2	16JUL1964	0.00228
11254	D 2	15JUL1964	0.01174	11255	D 5	15JUL1964	0.00513	11256	E 2	14JUL1964	0.06228
11258	F 1	6AUG1964	0.00236	11259	F 2	6AUG1964	0.00930	11260	F 3	6AUG1964	0.00882
11442	B 6	2AUG1964	0.00682	11264	C* 1	10AUG1964	0.00193	11265	C* 2	10AUG1964	0.00224
11266	D 3	18AUG1964	0.00351	11267	D 6	18AUG1964	0.00649	11268	E 2	15AUG1964	0.00462
11270	F 1	10AUG1964	0.00272	11273	C* 2	10SEPT1964	0.00538	11274	F 1	17SEPT1964	0.00423
11275	D 2	17SEPT1964	0.02586	11278	D 6	18SEPT1964	0.00384	11279	E 1	16SEPT1964	0.13743
11280	E 2	16SEPT1964	0.00681	11284	E 6	17SEPT1964	0.00448	11285	F 1	15SEPT1964	0.00582
11288	B 3	9OCT1964	0.00218	11289	C 7	4OCT1964	0.00440	11290	C* 1	16OCT1964	0.01137
11291	C* 2	16OCT1964	0.00734	11293	G 2	15OCT1964	0.00472	11294	D 3	15OCT1964	0.00330
11297	D 6	14OCT1964	0.00150	11303	A 6	13OCT1964	0.00940	11308	C 4	8NOV1964	0.00044
11309	C* 1	10NOV1964	0.00322	11310	C* 2	10NOV1964	0.00227	11311	D 1	8NOV1964	0.00304
11312	D 2	8NOV1964	0.04056	11313	D 3	9NOV1964	0.00386	11314	D 4	9NOV1964	0.00574
11316	D 6	9NOV1964	0.00378	11317	E 1	6NOV1964	0.00574	11320	E 4	7NOV1964	0.00014
11321	E 5	7NOV1964	0.00319	11325	F 3	6NOV1964	0.00252	11336	C 3	27JAN1967	0.01733
11337	C 7	28NOV1967	4.88690	11338	C 3	28NOV1967	7.04066	11339	C 5	28NOV1967	0.29037
11340	C 7	28NOV1967	8.29704	11341	A 3	15APR1967	1.89860	11342	A 4	15APR1967	1.19490
11343	A 6	15APR1967	4.24501	11344	C 3	25APR1967	0.1364	11345	C 5	25APR1967	0.24755
11346	C 7	21APR1967	1.58893	11347	E 2	23APR1967	1.93480	11348	E 5	23APR1967	0.89376
11348	A 3	4MY1967	1.64936	11349	A 4	4MY1967	0.02236	11370	A 6	31MY1967	2.46465
11371	C 3	4MY1967	0.03001	11372	C 5	8MY1967	0.00709	11373	C 7	8MY1967	0.12836
11374	E 2	7MY1967	0.27762	11375	E 3	7MY1967	0.10106	11376	E 5	6MY1967	2.55797
11408	A 4	7OCT1967	0.00106	11409	A 6	24APR1967	0.00466	11411	C 2	31MY1967	0.00410
11412	C 5	31MY1967	0.00842	11413	C 7	25MY1967	0.04422	11414	E 2	28MY1967	0.11008
11415	E 3	28MY1967	0.00430	11416	E 5	28MY1967	2.00908	11431	A 3	12JAN1967	0.00100
11432	A 4	13JAN1967	0.00746	11433	C 3	17JAN1967	0.05167	11436	C 5	17JAN1967	0.00290
11435	C 7	13JAN1967	0.22101	11438	E 2	15JAN1967	0.01809	11447	E 3	15JAN1967	0.00269
11438	E 5	14JAN1967	0.59919	11447	A 4	11JUL1967	0.00234	11448	E 6	10JUL1967	0.00354
11449	C 3	9OCT1967	0.65548	11450	E 5	14OCT1967	0.00381	11451	E 6	14OCT1967	0.00481
11452	E 2	14JUL1967	0.00382	11453	E 3	15JUL1967	0.00758	11511	E 2	15SEPT1967	0.01355
11513	E 5	31AUG1967	0.00507	11532	A 3	18SEPT1967	0.00457	11533	A 4	19SEPT1967	0.00646
11536	E 2	24SEPT1967	0.00273	11537	E 3	1OCT1967	0.00431	11538	E 5	13SEPT1967	0.00482
11540	C 5	4OCT1967	0.00993	11541	E 2	11OCT1967	0.01024	11542	E 3	11OCT1967	0.00505
11377	GS 1	10MY1967	0.00062	11378	GS 2	9MY1967	0.00062	11380	GS 4	9MY1967	1.16666
11381	GS 5	10MY1967	1.00176	11382	GS 6	12MY1967	1.38001	11383	GS 7	10MY1967	0.11677
11384	GS 8	10MY1967	3.42325	11385	GS 9	10MY1967	1.23614	11386	GS10	12MY1967	2.41310
11387	GS11	13MY1967	2.52487	11388	GS12	28SEPT1967	1.00132	11389	GS13	12MY1967	1.80941
11390	GS14	12MY1967	1.64416	11391	GS15	12MY1967	0.02241	11392	GS16	12MY1967	1.10061
11393	GS17	13MY1967	4.79399	11394	GS18	13MY1967	5.65926	11395	GS19	13MY1967	4.56231
11396	GS20	13MY1967	15.58951	11397	GS21	5AUG1967	5.11146	11398	GS22	7AUG1967	1.73006
11554	GS 1	30JUL1967	0.00356	11555	GS 2	30JUL1967	0.00353	11557	GS 3	30JUL1967	0.01495
11558	GS 4	4OCT1967	0.01586	11560	GS 8	4OCT1967	0.02361	11561	GS 9	4OCT1967	0.29935
11562	GS10	4OCT1967	0.00746	11563	GS11	5OCT1967	0.00187	11564	GS12	4OCT1967	0.00482
11565	GS13	5OCT1967	0.04056	11566	GS14	5OCT1967	0.02398	11567	GS15	5OCT1967	0.01111
11568	GS16	5OCT1967	0.21557	11569	GS17	5OCT1967	0.01338	11571	GS19	6OCT1967	0.27782
11572	GS20	6OCT1967	0.34700	11573	GS21	6OCT1967	1.80305	11574	GS22	6OCT1967	0.00975
11575	GS26	6OCT1967	0.07225	11544	WL 1	20JUL1967	0.00715	11547	PS 1	20JUL1967	0.00588
11524	PS 1	20SEPT1967	0.00324	11546	LU 1	20CUL1967	0.00210	11520	HO 1	20CUL1967	0.00300
11521	PS 4	18SEPT1967	0.18463	11522	PS 5	18SEPT1967	0.25346	11523	PS 6	18SEPT1967	0.11882
11525	PS 7	20SEPT1967	0.41777	11526	MD 1	20SEPT1967	3.36804	11527	TR 1	20SEPT1967	1.50943
11528	PS 10	20SEPT1967	0.12507	11529	KN 1	20SEPT1967	0.07195	11530	PR 1	20SEPT1967	0.38004
11531	PS 13	20SEPT1967	0.01044	11545	WL 1	20CUL1967	0.01623	11549	NC 1	4OCT1967	0.02741

(1951	ES 1	50C1967	0.15732	(1952	SM 1	40C1967	6.41406	(1950	PR 1	50C1967	C.45560
(1953	SG 1	60C1967	1.17509	(1428	MO 2	29MY1967	2.02477	(1426	P 2	29MY1967	C.19948
(1951	MI 2	21AP1967	24.32893	(1427	LU 2	24MY1967	1.18100	(1417	MO 2	22MY1967	32.06621
(1418	SM 2	22MY1967	0.10027	(1950	BU 2	29MY1967	0.11311	(1425	PA 2	19MY1967	6.30548
(1939	PM 2	6MY1967	3.37323	(1401	MO 2	6MY1967	10.81844	(1402	TR 2	6MY1967	8.92354
(1400	SB 2	6MY1967	1.28988	(1952	KW 2	21AP1967	10.85724	(1953	FR 2	23AP1967	14.17721
(1954	SH 2	22AP1967	56.72265	(1428	ML 2	29MY1967	0.30455	(1403	CA 2	29MY1967	14.25540
(1404	MO 2	10MY1967	1.06070	(1405	ES 2	12MY1967	1.67595	(1407	SM 2	14MY1967	18.21277
(1949	CI 2	15AP1967	29.08253	(1406	GB 2	18MY1967	0.00809	(1419	BU 2	23MY1967	6.85711
(1420	HW 2	09MY1967	0.91166	(1421	CM 2	29MY1967	6.45108	(1422	CA 2	23MY1967	6.80287
(1423	KA 2	25MY1967	9.53912	(1424	KA 2	29MY1967	4.90274				

Stephanodiscus hantzschii Grun.

Stephanodiscus hantzschii Grunow in Cleve and Grunow, K. Svenska Vet.-Akad. Handl., Ny Följd, 17(2):115. 1880.
Stephanodiscus hantzschianus Grun. in Van Heurck, Syn. Diat. Belgique, p. 216, pl. 95, fig. 10. 1885.

Cells circular in valve view and square in girdle view. Vegetative cells may occur singly or in colonies of up to 100 cells. Valves of specimens from Lake Michigan 8-22µ in diameter with very slightly concave centers. Radial striae in biseriate to quadriseriate fascicles at the valve margins, becoming uniseriate near the center of the valve. Puncta in the radial striae fine, somewhat difficult to resolve, 22-24 in 10µ. Fascicles widely separated by a hyaline area that is not apparently thickened. The marginal spines occur regularly at the ends of each hyaline ray and arise from noticeably thickened bases. Placement of the spines is very regular in this taxon and they are irregular or missing only on grossly abnormal specimens. Fascicles and spines 8-11 in 10µ at the margins of the valves.

Our concept of this taxon is based on specimens examined by Grunow in the Van Heurck exsiccatae (Types du Synopsis no. 482). It closely resembles several of the other smaller species of *Stephanodiscus* and adequate optical equipment, used with care, is necessary to distinguish it from these species. On the basis of our observations it is rare in the off-shore flora and only becomes abundant in harbors and eutrophied inshore areas.

463 STEPHANODISCUS NO. OF STATIONS 199

(3540	CH	18MY1879	0.15565	(1307	CH	19FE1881	0.06792	(46910	CH	0C1945	0.00105
(46908	CH	0C1945	0.01007	(46914	CH	19AP1964	0.55524	(1924	CH	19MY1946	0.22927
(46923	CH	22NO1566	0.01967	(46920	CH	20DE1946	0.00341	(46905	CH	JA1547	0.00913
(46909	CH	MR1947	0.01366	(46912	CH	AP1947	0.08049	(46916	CH	AP1947	0.00577
(46904	CH	0C1945	0.00646	(46910	CH	9MY1967	0.02124	(46907	CH	0C1945	0.00394
(46922	CH	21AU1947	0.00485	(46972	EV	18AP1967	0.00710	(46936	EV	27AP1967	0.00396
(46761	EV	27MY1938	0.06273	(1224	B 4	18MY1964	0.00196	(1225	C 6	19MY1964	0.03136
(1226	C 7	16MY1964	0.05327	(1227	C 2	13MY1964	0.00110	(1228	E 2	14MY1964	0.01752
(1229	D 5	14MY1964	0.02749	(1230	E 2	16MY1964	0.07408	(1231	E 3	16MY1964	0.03665
(1232	E 5	16MY1964	0.06087	(1233	B 3	5JUN1964	0.02620	(1234	B 3	16JUN1964	0.02530
(1235	C 2	16JUN1964	0.03954	(1439	B 6	5JUN1964	0.10588	(1236	C 3	6JUN1964	0.03161
(1237	C 2	8JUN1964	0.04383	(1238	O 3	11JUN1964	0.01600	(1239	D 4	11JUN1964	0.00116
(1240	D 6	10JUN1964	0.05829	(1241	E 2	13JUN1964	0.15081	(1243	E 6	13JUN1964	0.01670
(1244	F 1	11JUN1964	0.03999	(1245	F 2	11JUN1964	0.10027	(1246	F 3	11JUN1964	0.02868
(1440	B 6	11JUL1964	0.01474	(1441	B 6	24JUL1964	0.01592	(1250	G 6	10JUL1964	0.15733
(1251	C 7	16JUL1964	0.00869	(1252	C 1	16JUL1964	0.01116	(1253	C 2	16JUL1964	0.00685
(1254	D 2	15JUL1964	0.01145	(1255	D 5	17JUL1964	0.01540	(1256	E 2	19JUL1964	0.02687
(1257	E 3	14JUL1964	0.00957	(1258	F 1	6JUL1964	0.02428	(1259	F 2	6JUL1964	0.01859
(1260	F 3	18JUL1964	0.01664	(1261	C 3	10AUG1964	0.01545	(1265	C 2	16AUG1964	0.06894
(1267	O 6	16AUG1964	0.00210	(1268	E 2	17AUG1964	0.00821	(1269	E 3	15AUG1964	0.00274
(1271	C 7	24JUL1964	0.00593	(1272	C 1	10SE1964	0.09336	(1273	C 2	10SE1964	0.01613
(1274	O 6	17SE1964	0.01747	(1275	O 7	01SE1964	0.01275	(1276	E 3	18SE1964	0.11118
(1277	D 4	18ST1964	0.00620	(1278	O 6	18SE1964	0.00749	(1279	E 3	18SE1964	0.11178
(1281	E 3	16SE1964	0.00392	(1283	E 5	16SE1964	0.00613	(1284	E 6	17SE1964	0.00635
(1285	F 3	15SE1964	0.01747	(1287	F 2	01SE1964	0.01501	(1292	O 1	15OC1964	0.00379
(1295	O 4	15OC1964	0.01185	(1297	O 6	14OC1964	0.00571	(1298	E 1	12OC1964	0.01178
(1300	E 3	13OC1964	0.00716	(1301	E 4	13OC1964	0.00442	(1303	E 6	13OC1964	0.01115
(1304	F 3	11OC1964	0.00247	(1306	F 3	11OC1964	0.00277	(1307	B 6	NO1964	0.00241
(1308	C 7	8NO1964	0.00912	(1309	C 1	10NO1964	0.00643	(1311	O 1	8NO1964	0.00258
(1312	O 2	8NO1964	0.00310	(1313	O 3	9NO1964	0.00193	(1315	O 5	9NO1964	0.00910
(1317	E 3	8NO1964	0.00883	(1318	E 2	09NO1964	0.00190	(1319	E 3	7NO1964	0.00262
(1320	E 4	7NO1964	0.00207	(1323	F 1	6NO1964	0.00139	(1325	F 3	6NO1964	0.00252
(1336	3	27JAN1967	0.00193	(1337	C 3	28MY1967	0.00147	(1338	C 3	28MY1967	0.01190
(1339	C 3	28MY1967	0.00167	(1340	E 7	28MY1967	0.01493	(1341	A 3	30AP1967	0.15107
(1342	A 4	19AP1967	0.01620	(1343	A 6	19AP1967	0.03710	(1344	O 3	25AP1967	0.00165
(1346	C 3	28MY1967	0.00167	(1347	E 2	22MY1967	0.00167	(1348	E 5	22MY1967	0.14805
(1370	A 6	3MY1967	0.01084	(1371	C 3	4MY1967	0.00211	(1374	C 3	17JUN1967	0.02092
(1376	E 5	6MY1967	0.01525	(1408	A 3	23MY1967	0.01342	(1410	A 4	24MY1967	0.00564
(1413	C 3	31MY1967	0.01231	(1417	C 5	31MY1967	0.00421	(1418	A 3	28MY1967	0.00450
(1416	E 5	28MY1967	0.07654	(1431	A 3	12JUN1967	0.00772	(1432	A 4	13JUN1967	0.00511
(1433	C 3	17JUN1967	0.00646	(1434	C 5	17JUN1967	0.00299	(1435	C 7	13JUN1967	0.01263

(1438	E 5	14JUL1967	0.01452 J	(1451	C 7	16JUL1967	0.05512 J	(1452	E 2	14JUL1967	0.00495 J
(1454	E 5	15JUL1967	0.00200 J	(1504	A 3	28AUL1967	0.00741 J	(1506	A 6	29AUL1967	0.00523 J
(1532	A 3	18SEI1967	0.00329 J	(1537	E 3	24SEI1967	0.00431 J	(1540	C 5	40C1967	0.00496 J
(1541	E 2	11OCT1967	0.00532 J	(1543	E 5	10OCT1967	0.00718 J	(1548	GS 2	9MY1967	0.00421 J
(1379	GS 3	9MY1967	0.00309 J	(1380	GS 4	9MY1967	0.01177 J	(1381	GS 5	10MY1967	0.01431 J
(1383	GS 7	10MY1967	0.00267 J	(1384	GS 8	10MY1967	0.00555 J	(1385	GS 9	10MY1967	0.00706 J
(1387	GS11	12MY1967	0.00396 J	(1389	GS13	12MY1967	0.00258 J	(1392	GS16	12MY1967	0.00308 J
(1395	GS19	13MY1967	0.00705 J	(1396	GS20	13MY1967	0.00296 J	(1397	GS21	13MY1967	0.00196 J
(1554	GS 1	30C1967	0.00356 J	(1555	GS 2	30C1967	0.00353 J	(1563	GS11	50C1967	0.00234 J
(1565	GS13	50C1967	0.01016 J	(1566	GS14	50C1967	0.00734 J	(1567	GS15	50C1967	0.00476 J
(1568	GS16	50C1967	0.00289 J	(1569	GS17	50C1967	0.00297 J	(1570	GS18	50C1967	0.00992 J
(1571	GS19	60C1967	0.00217 J	(1572	GS20	60C1967	0.00631 J	(1573	GS21	60C1967	0.00505 J
(1574	GS22	60C1967	0.00288 J	(1575	GS23	60C1967	0.00387 J	(1544	MR 1	20C1967	0.02383 J
(1546	LU 1	20C1967	0.02501 J	(1520	MO 1	18SEI1967	0.00463 J	(1521	SH 1	18SEI1967	0.00462 J
(1522	SH 1	18SEI1967	0.01334 J	(1523	RA 1	18SEI1967	0.00923 J	(1526	MO 1	20SEI1967	0.00549 J
(1527	TR 1	20SEI1967	0.00829 J	(1531	OH 1	25SEI1967	0.00485 J	(1545	ML 1	20C1967	0.02650 J
(1548	CA 1	30C1967	0.01272 J	(1549	MG 1	40C1967	0.01370 J	(1550	MR 1	50C1967	0.07434 J
(1553	SG 1	40C1967	0.01468 J	(1428	ML 2	25MY1967	0.04809 J	(1426	PS 2	29MY1967	0.18898 J
(1351	MI 2	21AP1967	0.01241 J	(1427	LU 2	29MY1967	0.03632 J	(1417	MO 2	22MY1967	0.44632 J
(1418	SH 2	22MY1967	0.13597 J	(1350	SH 2	19AP1967	0.05725 J	(1425	SA 2	22MY1967	0.00884 J
(1399	FW 2	5MY1967	0.00680 J	(1402	TR 2	6MY1967	0.11512 J	(1400	SB 2	6MY1967	0.05614 J
(1352	KW 2	21AP1967	0.02436 J	(1353	FR 2	23AP1967	0.04219 J	(1354	CH 2	25AP1967	0.45133 J
(1429	WL 2	29MY1967	0.22752 J	(1403	CA 2	10MY1967	0.03923 J	(1404	PQ 2	10MY1967	0.01270 J
(1405	ES 2	12PY1967	0.01935 J	(1407	SM 2	14MY1967	0.04180 J	(1349	CI 2	15AP1967	0.05748 J
(1406	GB 2	13PY1967	0.16983 J	(1422	GA 2	23MY1967	0.02044 J	(1423	NA 2	25MY1967	0.07708 J
(1424	HR 2	25PY1967	0.02957 J								

Stephanodiscus minutus Grun. ex Cleve and Möll.

Cyclotella minutula Kütz., Bacill., p. 50, pl. 2, fig. 3. 1844.

Stephanodiscus minutus Grunow ex Cleve and Möller, Diatoms, #221. 1879.

Stephanodiscus astraea var. *minutula* Grun. in V. H., Syn. Diat. Belgique, pl. 95, figs. 7, 8. 1882.

Stephanodiscus balatonis Pant., Res. Wiss. erforsch. Balatonsees, p. 105, pl. 15, fig. 324. 1902.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 4-22μ in diameter with strongly concave centers. Radial striae in biseriate fascicles at the valve margins, becoming disorganized near the center of the valve. Puncta in the radial striae fine, more than 30 in 10μ. Fascicles are separated by narrow but obviously thickened radial ribs. The marginal spines arise at the ends of each of these ribs. Placement of the spines is very regular in this species and they are irregular or missing only in grossly abnormal specimens. Fascicles and spines 15-18 in 10μ at the margins of the valves.

Our concept of this taxon is based upon the material on Cleve and Möller slide #221. Most recent workers have considered this entity to be a variety of *S. astraea*. The reason for this is difficult to discern as this species has only a superficial resemblance to *S. astraea*. Its morphology is somewhat similar to that of *S. transilvanicus* but it differs from that taxon by its finer structure and in that the radial striae are always in fascicles of two.

Although *S. astraea* var. *minutula* has been widely reported, the confusion surrounding this name makes it difficult to determine the actual distribution of the taxon we treat here. In our experience in Lake Michigan it is a minor component of the offshore flora and only becomes abundant in estuaries and eutrophied inshore areas of the lake.

64C STASIRVN ICT NO OF STATIONS 257

160973	CH	1676	0.02362	146510	CH	20C1945	0.00218	146921	CH	23H01545	0.00143
160974	PH	1731940	0.000055	146015	CH	20F1E946	0.04552	146914	CH	19AP1546	0.35225
160975	CH	22N1960	0.10928	146520	CH	20D1E946	0.03358	146955	CH	18J1947	0.01303
160976	CH	WR1547	0.00911	146612	CH	AP1547	0.08049	146916	CH	4WY1947	0.24250
160976	CH	PIY1947	1.55304	146519	CH	5JN1547	1.28086	146927	CH	13J1947	0.73720
160977	CH	21A1947	0.21407	146512	CH	0.10452	0.00000	146917	CH	24N1947	0.24027
162473	EV	20N1537	0.21838	146764	EV	17J1937	0.02417	146757	EV	25J1937	0.26173
162474	EV	14U1937	0.02248	146765	EV	30AU1937	0.00758	146744	EV	60C1937	0.01463
162475	EV	14U1937	0.00189	146765	EV	10J1937	0.07816	146739	EV	0.00000	0.00000
162476	EV	27AP1936	0.18206	146759	EV	19W1936	0.02701	146761	EV	27W1936	0.06813
162476	EV	145E1538	0.01584	146723	B	18W1536	0.00467	146720	B	18W1536	0.00588
162477	EV	0.01174	0.00000	146723	7	0.01174	0.00000	146723	7	0.01174	0.00000
162478	EV	14W1964	0.00973	146729	0	14W1964	0.19243	146738	E	16W1964	0.14424
162479	EV	16W1964	0.85608	146732	E	16W1964	0.65046	146733	B	54N2964	0.01191
162480	EV	0.02230	0.00000	146732	0	14C1964	0.00000	146732	0	0.00000	0.00000
162481	EV	8U1964	0.05672	146738	0	13J1964	0.08200	146739	0	14J1964	0.00116
162482	EV	10J1964	0.01381	146741	E	13J1964	0.34593	146742	E	13J1964	0.52453
162483	EV	0.01385	0.00000	146741	E	0.01385	0.00000	146741	E	12J1964	0.00000
162484	F	13J1964	0.15124	146740	B	14J1964	0.06631	146741	B	24J1964	0.00000
162485	F	10J1964	0.02467	146741	E	16J1964	0.00079	146742	E	16J1964	0.02232
162486	F	0.02512	0.00000	146741	E	0.02512	0.00000	146741	E	0.02512	0.00000
162487	F	14J1964	0.08767	146742	E	14J1964	0.72736	146743	F	6J1964	0.02124
162488	F	0.01549	0.00000	146742	E	0.01549	0.00000	146742	E	24J1964	0.00000
162489	F	17AU1964	0.00210	146743	E	10AU1964	0.00000	146744	E	10AU1964	0.00000
162490	F	18AU1964	0.00702	146744	E	18AU1964	0.00000	146745	E	15J1964	0.15149
162491	F	0.24534	0.00000	146744	E	10AU1964	0.00000	146745	E	0.00000	0.00000
162492	F	10J1964	0.00040	146745	E	10J1964	0.00000	146746	E	17J1964	0.00000
162493	F	16J1964	0.00789	146746	E	16J1964	0.01362	146747	E	16J1964	0.01108
162494	F	0.01226	0.00000	146746	E	0.01226	0.00000	146747	E	16J1964	0.01108
162495	F	15C1964	0.00218	14445	B	14C1964	0.00652	146748	E	14C1964	0.00444
162496	D	130C1964	0.00373	146749	E	150C1964	0.00472	146750	E	130C1964	0.00330
162497	F	15C1964	0.00787	146750	E	14C1964	0.00381	146751	E	14C1964	0.00381
162498	F	120C1564	0.01571	14360	E	130C1964	0.02864	14301	E	130C1964	0.01325
162499	F	11C1964	0.00173	14307	B	8W1964	0.00361	14309	C	10C1964	0.00611
162500	F	C	5C02227	131	C	0.00000	0.00000	14312	C	8C1964	0.00000
162501	F	9N1964	0.00193	14315	0	9N1964	0.00455	14317	E	6N1964	0.00383
162502	F	7N1964	0.00380	14319	E	7N1964	0.00524	14320	E	7N1964	0.01034
162503	F	0.00318	0.00000	14320	B	6C00467	0.00000	14321	B	6C1964	0.00000
162504	F	6N1964	0.00659	14336	C	27J1967	0.00770	14337	C	28R1967	0.01255
162505	F	28W1967	1.38637	14339	C	28W1967	1.52772	14340	C	28W1967	1.27253
162506	F	28W1967	1.38637	14339	C	19J2967	0.00000	14340	C	19J2967	0.00000
162507	F	25AP1967	0.09761	14345	C	25AP1967	0.43910	14346	C	27AP1967	0.31245
162508	F	23AP1967	1.13812	14348	E	23AP1967	3.53420	14368	A	4WY1967	0.56565
162509	F	136W1967	0.15282	14361	E	0.06215	0.00000	14362	E	136W1967	0.00000
162510	E	5WY1567	0.22628	14373	C	5WY1567	0.01141	14374	E	7WY1967	0.27166
162511	E	0.24543	0.00000	14374	C	5WY1567	0.25299	14375	E	7WY1967	0.27166
162512	A	23AP1967	0.00298	14410	A	23AP1967	0.02225	14411	C	23AP1967	0.00000
162513	E	31WY1967	0.01684	14413	C	29WY1967	0.00632	14414	E	28WY1967	0.01008
162514	E	0.01709	0.00000	14413	C	5J15038	0.00000	14423	E	13C1967	0.01013
162515	A	13J1967	0.01788	14433	C	17J1967	0.24545	14434	E	17J1967	0.01194
162516	F	13J1967	0.00561	14436	E	15J1967	0.01447	14437	E	15J1967	0.00372
162517	F	0.01268	0.00000	14436	E	0.01268	0.00000	14437	E	0.01268	0.00000
162518	F	16J1967	1.33746	14450	C	16J1967	0.33324	14451	C	16J1967	0.01128
162519	E	14J1967	0.09400	14453	E	15J1967	0.97313	14454	E	15J1967	0.01860
162520	E	0.00755	0.00000	14453	E	0.00755	0.00000	14454	E	34J1967	0.00000
162521	F	18J1967	0.01314	14533	A	19J1967	0.00464	14534	A	19J1967	0.00931
162522	F	20J1967	0.00322	14536	E	24J1967	0.12243	14537	E	24J1967	0.02588
162523	F	0.09091	0.00000	14536	E	4C031967	0.00000	14537	E	4C031967	0.00000
162524	E	11C1967	0.01189	14559	E	7C1967	0.00350	14560	E	4C1967	0.01889
162525	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	4C1967	0.00234
162526	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162527	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162528	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162529	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162530	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162531	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162532	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162533	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162534	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162535	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162536	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162537	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
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162539	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
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162541	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162542	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162543	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162544	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162545	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
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162550	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162551	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
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162558	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162559	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162560	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
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162562	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162563	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162564	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162565	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162566	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162567	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162568	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162569	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162570	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162571	GS	5	0.00761	14560	GS	5	0.00761	14560	GS	5	0.00761
162572	GS	5	0.00761	14560	GS						

Stephanodiscus niagarae Ehr.

Stephanodiscus niagarae Ehrenberg, Ber. Akad. Wiss. Berlin 1845:80. 1845.

Cells circular in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 42-94 μ in diameter with slightly concave centers. Radial striae in biseriate

fascicles near the valve margins, becoming uniseriate near the centers. Puncta in the radial striae coarse, 12-16 in 10 μ . Fascicles closely packed with only small hyaline spaces between them. The coarse spines of this species are sub-marginal and irregularly arranged, usually between each 2-4 fascicles. Fascicles 5-8 in 10 μ at the valve margin. In this taxon a prominent marginal area of fine, irregularly arranged puncta is present. The spines arise from the inner margin of this zone and it is separated from the fascicles by an unornamented space.

This species much resembles *S. astraea* (Ehr.) Grun. and a good deal of speculation has been put forth in the literature regarding the relationship between the two taxa and about their distributions. Our concept of *S. niagarae* is based upon specimens attributed to Bailey in the Academy of Natural Sciences of Philadelphia (ANSP 42768) which are believed to be derived from the original material from Niagara Falls from which this taxon was described.

642 STINACVM TCT NO OF STATIONS 222

140973	CH	1876	0.18895	J	1394C	CH	11MY1874	0.01864	J	13541	CH	11FE1881	1.26121	J
140910	CH	0C1945	0.00437	J	140521	CH	23NO1945	0.00776	J	140512	CH	12AP1946	0.01046	J
140914	CH	19AP1946	0.03630	J	140524	CH	10RY1946	0.00607	J	140623	CH	22NO1946	0.03497	J
140920	CH	20NO1946	0.02885	J	140525	CH	10RY1946	0.00613	J	140529	CH	08AP1947	0.01366	J
140912	CH	AP1947	0.04599	J	140516	CH	4MY1947	0.02443	J	140526	CH	07AP1947	0.01947	J
140919	CH	5JH1947	0.00567	J	140527	CH	HL1947	0.03205	J	140622	CH	21AU1947	0.02855	J
140758	EV	5JH1937	0.02504	J	140771	EV	11C51937	0.01862	J	140743	EV	20JH1964	0.11989	J
140745	EV	3JL1937	0.08359	J	140770	EV	9JL1937	0.11331	J	140744	EV	17JL1937	0.17728	J
140757	EV	25JL1937	0.02859	J	140747	EV	18A1937	0.06436	J	140763	EV	23AU1937	0.06088	J
140765	EV	30AU1937	0.03904	J	140745	EV	7SE1937	0.04362	J	140752	EV	13SE1937	0.04254	J
140760	EV	22SE1937	0.07386	J	140750	EV	24SE1937	0.01885	J	140744	EV	6OC1937	0.0048	J
140748	EV	13OC1937	0.10475	J	140747	EV	27OC1937	0.00587	J	140749	EV	12MR1938	0.07282	J
140768	EV	16MR1938	0.02940	J	140762	EV	16MR1938	0.11102	J	140751	EV	30MR1938	0.03350	J
140772	EV	18AP1938	0.06388	J	140756	EV	27AP1938	0.05541	J	140759	EV	19MR1938	0.31735	J
140761	EV	24SE1938	0.19002	J	140766	EV	14OC1938	0.01584	J	1224	B	18MY1964	0.00784	J
1225	C	15MY1964	0.00532	J	1226	C	18MY1964	0.01503	J	1227	C	18MY1964	0.01101	J
1228	D	18MY1964	0.01752	J	1229	D	14MY1964	0.00034	J	1230	E	16MY1964	0.02074	J
1231	E	16MY1964	0.00138	J	1232	E	16MY1964	0.01217	J	1234	B	18JH1964	0.02812	J
1236	C	8JH1964	0.12225	J	1237	C	8JH1964	0.01547	J	1238	B	11JH1964	0.00600	J
1241	E	12JH1964	0.00739	J	1242	E	13JH1964	0.00091	J	1243	E	13JH1964	0.01044	J
1244	F	11JH1964	0.00110	J	1245	F	11JH1964	0.00692	J	1246	F	11JH1964	0.00598	J
1247	B	14JL1964	0.00447	J	1255	F	12JL1964	0.00770	J	1256	F	14JL1964	0.00366	J
1257	E	14JL1964	0.00718	J	1258	F	6JL1964	0.00472	J	1259	F	6JL1964	0.00310	J
1260	F	6JL1964	0.00382	J	1262	B	17AU1964	0.00210	J	1264	C	10AU1964	0.00386	J
1266	F	18AU1964	0.00351	J	1278	B	18SE1964	0.00384	J	1284	E	17SE1964	0.00318	J
1285	F	15SE1964	0.01165	J	1288	B	15OC1964	0.00218	J	1301	E	13OC1964	0.00083	J
1302	E	13OC1964	0.01620	J	1304	F	11OC1964	0.00494	J	1305	F	11OC1964	0.00345	J
1318	E	7NO1964	0.00150	J	1320	E	7NO1964	0.00207	J	1321	E	7NO1964	0.00038	J
1323	F	6NO1964	0.00557	J	1324	F	6NC1964	0.00695	J	1336	C	27JL1967	0.00385	J
1337	C	28JL1967	0.00246	J	1338	C	28MR1967	0.00248	J	1339	C	28MR1967	0.17148	J
1340	C	28MR1967	0.01018	J	1341	A	19AP1967	0.01953	J	1342	A	19AP1967	0.03248	J
1343	A	19AP1967	0.00347	J	1344	C	25AP1967	0.01324	J	1345	C	25AP1967	0.15009	J
1346	C	21AP1967	0.01865	J	1347	E	23AP1967	0.00465	J	1348	E	23AP1967	0.01919	J
1348	A	4MY1967	0.13708	J	1349	C	4MY1967	0.32800	J	1350	A	3MY1967	0.00491	J
1371	C	4MY1967	0.00800	J	1372	C	5MY1967	0.06458	J	1373	C	5MY1967	0.15318	J
1374	E	7MY1967	0.18828	J	1375	E	7MY1967	0.12512	J	1376	E	8MY1967	0.15688	J
1408	A	23MY1967	0.16082	J	1409	A	23MY1967	0.05356	J	1410	A	24MY1967	0.01491	J
1411	C	31MY1967	0.08206	J	1412	C	31MY1967	0.51772	J	1413	C	29MY1967	0.05370	J
1414	E	28MY1967	0.06045	J	1415	E	28MY1967	0.00760	J	1416	E	28MY1967	0.06123	J
1431	A	12JH1967	0.01267	J	1432	A	13JH1967	0.16059	J	1433	C	17JH1967	0.02586	J
1434	C	17JH1967	0.57722	J	1435	C	13JH1967	0.01579	J	1436	E	19MY1967	0.16092	J
1437	E	15JH1967	0.16368	J	1438	E	15JH1967	0.07468	J	1439	E	16JL1967	0.00456	J
1450	C	16JL1967	0.08545	J	1452	E	14JL1967	0.00039	J	1453	E	16JL1967	0.00847	J
1504	A	28AU1967	0.00247	J	1505	C	25SE1967	0.01009	J	1510	C	25AU1967	0.00316	J
1511	E	25SE1967	0.00092	J	1512	E	15SE1967	0.01963	J	1532	A	0C1967	0.00329	J
1537	E	24SE1967	0.06445	J	1538	E	23SE1967	0.01105	J	1542	E	11OC1967	0.00204	J
1577	GS	9MY1967	0.05941	J	1578	GS	5MY1967	0.03364	J	1579	GS	9MY1967	0.13308	J
1580	GS	9MY1967	0.00546	J	1581	GS	6MY1967	0.00387	J	1582	GS	6MY1967	0.0086	J
1583	GS	10MY1967	0.07485	J	1584	GS	8MY1967	0.25880	J	1585	GS	9MY1967	0.02115	J
1586	GS	12MY1967	0.16087	J	1587	GS	12MY1967	0.25349	J	1588	GS	12MY1967	0.08445	J
1589	GS	12MY1967	0.18049	J	1590	GS	13MY1967	0.31083	J	1591	GS	13MY1967	0.03800	J
1592	GS	12MY1967	0.17365	J	1593	GS	13MY1967	0.46884	J	1594	GS	13MY1967	0.56325	J
1595	GS	15MY1967	0.06873	J	1596	GS	13MY1967	0.49203	J	1597	GS	13MY1967	0.7832	J
1598	GS	12MY1967	0.00281	J	1599	GS	14MY1967	0.00422	J	1600	GS	14MY1967	0.00422	J
1596	GS	30C1967	0.01043	J	1599	GS	40C1967	0.01049	J	1560	GS	40C1967	0.00945	J
1563	GS	50C1967	0.01637	J	1564	GS	50C1967	0.01270	J	1565	GS	50C1967	0.00316	J
1564	GS	50C1967	0.01835	J	1567	GS	50C1967	0.55570	J	1568	GS	50C1967	0.12295	J
1569	GS	50C1967	1.78891	J	1570	GS	50C1967	0.87267	J	1571	GS	50C1967	0.28684	J
1572	GS	50C1967	0.31545	J	1573	GS	50C1967	0.34509	J	1574	GS	50C1967	0.22436	J
1575	GS	50C1967	2.47040	J	1584	MU	20C1967	0.24507	J	1547	PS	20C1967	0.00738	J
1546	LU	20C1967	0.02501	J	1520	GH	18SE1967	0.00901	J	1521	SH	18SE1967	0.00577	J
1522	SH	18SE1967	0.00136	J	1522	GH	20C1967	0.00138	J	1527	SH	20C1967	0.00106	J
1528	SH	20SE1967	0.02888	J	1531	GH	25SE1967	0.00045	J	1545	SH	1C1967	0.00454	J
1548	MU	40C1967	0.02741	J	1551	ES	1C1967	0.01183	J	1552	SH	40C1967	0.16910	J
1550	MU	1C1967	0.12973	J	1553	ES	2C1967	0.00767	J	1542	MU	29MY1967	0.00492	J
1542	MS	29MY1967	0.07345	J	1551	MS	21AP1967	0.01241	J	1552	MU	29MY1967	0.25424	J
1547	MO	22MY1967	0.16418	J	1553	MS	22MY1967	0.00195	J	1550	MO	0C1967	0.02400	J
1525	RA	25MY1967	0.02452	J	1599	MS	5MY1967	0.00471	J	14C1	MO	6MY1967	0.02352	J

(1402 TR 2	6MY1967	0.03190)	(1400 SB 2	6MY1967	0.02078)	(1352 KW 2	21AP1967	C.02577)
(1353 FR 2	23AP1967	0.01055)	(1354 GH 2	25AP1967	C.10874)	(1429 ML 2	29MY1967	C.44591)
(1403 SA 2	10MY1967	0.15692)	(1404 MC 2	10MY1967	C.19055)	(1405 ES 2	12MY1967	C.59985)
(1402 CB 2	18MY1967	0.12883)	(1349 CL 2	15AP1967	0.00718)	(1456 GR 2	19MY1967	C.86265)
(1419 BU 2	23MY1967	0.01031)	(1420 LH 2	23MY1967	0.01511)	(1421 CH 2	23MY1967	C.01735)
(1422 CA 2	23MY1967	0.01022)	(1423 MA 2	25MY1967	0.01285)	(1424 KN 2	25MY1967	C.66661)

Stephanodiscus niagarae var. *magnifica* Fricke

Stephanodiscus niagarae var. *magnifica* Fricke, A. Schmidt's Atlas Diat., pl. 227, figs. 10-13. 1901.

Differs from the nominate variety in its more robust structure. The puncta in the fascicles are closely packed and appear hexagonal in surface focus and circular in deep focus. Valves of Lake Michigan specimens are from 42-106 μ in diameter. Puncta in the radial striae 10-12 in 10 μ . Fascicles 4-5 in 10 μ , becoming indistinct near the marginal zone due to irregular placement. The submarginal spines are very long and coarse and tend to be somewhat more regular in their placement than in the nominate variety. In the larger specimens a second circlet of smaller spines is found on the valve surface, surrounding the sunken central portion of the valve.

This entity reaches its greatest abundance in eutrophic, hardwater lakes in western North America. Its occurrence in Lake Michigan is limited to eutrophied inshore areas and estuaries.

041 STEINAGER ICT NO OF STATIONS 27

(140973 CH	1876	0.23818)	(44616 CH	4MY1967	C.00068)	(446763 EV	23AU1937	C.02029)
(446763 EV	22SE1937	0.00492)	(1223 8 3	18MY1964	C.00156)	(1224 8 4	18MY1964	C.00196)
(1238 0 3	11JN1964	C.00460)	(1268 E 2	15AU1964	C.00274)	(1322 E 6	7NO1964	C.00333)
(1369 A 4	8JUL1964	C.00145)	(1372 A 6	3MY1967	0.00200)	(1372 C 5	9MY1967	C.00709)
(1408 A 3	23MY1967	0.00694)	(1416 E 5	28MY1967	0.00875)	(1377 GS 1	9MY1967	C.00396)
(1382 GS 6	10MY1967	0.00278)	(1391 GS15	12MY1967	0.02394)	(1392 GS16	12MY1967	C.02157)
(1396 GS20	13MY1967	0.00518)	(1394 PU 1	20C1967	0.01191)	(1320 PD 1	18SE1967	C.03300)
(1329 KW 1	20SE1967	0.01199)	(1531 GH 1	25SE1967	0.00845)	(1428 PU 2	29MY1967	C.00301)
(1417 HD 2	22MY1967	0.00374)	(1350 BH 2	15AP1967	C.00441)	(1406 GR 2	13MY1967	0.22645)

Stephanodiscus subtilis (Van Goor) A. Cleve

Melosira subtilis Van Goor, Recueil Trav. Bot. Néerlandis, 21:359, fig. 8. 1924.

Stephanodiscus subtilis (Van Goor) A. Cleve-Euler, K. Svenska Vet.-Akad. Handl., Fjärde Serien, 2(1):54, fig. 72. 1951.

Cells circular in valve view and rectangular, elongate in the perivalvar axis, in girdle view. Vegetative cells always occur in filamentous colonies, joined at the valve surfaces. Cell walls are very lightly silicified, and the frustules are often deformed in prepared collections. Valves of specimens from Lake Michigan 6-22 μ in diameter, only slightly concave at the center. The radial striae are contained in biseriate fascicles near the margins of the valve. The fascicles gradually taper and become uniseriate as they approach the center of the valve but retain their identity. The center of the valve is usually marked by a rosette of puncta. Puncta in the radial striae very fine, barely resolvable with the light microscope, about 40 in 10 μ . The fascicles are separated by narrow, but appreciably thickened radial ribs. A very small marginal spine occurs at the termination of each rib. Fascicles 14-16 in 10 μ at the valve margin.

This species resembles *S. tenuis* in size and general morphologic structure but differs from that taxon in occurring in colonies, having biseriate rather than multiserial fascicles of striae on the valve surface, and by its finer structure and ornamentation. Its structure also much resembles that of *S. damasi* Hust. (1949) but *S. subtilis* does not approach the maximum size of that taxon and has much finer ornamentation.

This species is apparently a recent introduction into the flora of Lake Michigan and has only been found in quantity in eutrophied areas that also have considerable chloride contamination. Previous reports of its occurrence indicate that it flourishes only in such situations.

716 TWHANA TCT NO OF STATICS 139

146517	CH	12J15166	G.00028	146515	CH	20E15166	G.01707	146924	CH	10P15166	G.04585
146923	CH	22N21566	G.01311	146920	CH	20E15166	G.00031	146950	CH	9H15166	G.01821
146516	CH	4M15167	G.01710	146519	CH	5J15167	G.00455	146522	CH	21A15167	G.00097
146758	EV	5J15167	G.07361	146771	EV	11J15167	G.00236	146764	EV	17J15167	G.04106
146757	EV	13J15167	G.01490	146767	EV	14J15167	G.02475	146763	EV	23A15167	G.04056
146752	EV	15E15167	G.04354	146750	EV	24E15167	G.01885	146748	EV	13C15167	G.02135
146745	EV	12M15168	G.01940	146762	EV	18R15168	G.04411	146751	EV	30P15168	G.03350
146756	EV	27A15168	G.02168	146761	EV	27P15168	G.02045	146766	EV	14C15168	G.01584
12736	C 1	8J15164	G.00350	12737	C 2	8J15164	G.00258	12740	O 6	10J15164	G.00640
12741	E 2	13J15164	G.00148	12743	E 6	13J15164	G.00209	12740	B 6	11J15164	G.01474
12752	C 1	16J15164	G.00279	12753	C 2	16J15164	G.00228	12754	C 2	15J15164	G.00283
12755	O 5	15J15164	G.00770	12756	E 2	14J15164	G.00183	12757	E 3	14J15164	G.00239
12764	C 1	10A15164	G.00265	12764	E 6	19E15164	G.00203	12771	C 7	22E15164	G.00655
12772	C 1	10E15164	G.00184	12773	E 4	18E15164	G.00262	12778	O 6	18E15164	G.00284
12779	E 1	16E15164	G.07068	12784	E 6	17E15164	G.00635	12787	F 3	15E15164	G.01001
12788	O 3	15C15164	G.00218	12795	O 4	15C15164	G.01784	12797	O 6	14C15164	G.00190
12798	E 1	12C15164	G.00539	13000	E 3	13C15164	G.00358	13005	F 2	11C15164	G.00173
1306	F 1	11C15164	G.00277	1307	E 6	10N15164	G.00361	1309	C 1	10N15164	G.00161
13111	O 1	2N15164	G.00216	13112	O 3	9N15164	G.00193	13114	O 4	9N15164	G.00287
13116	O 6	9N15164	G.00378	13117	E 1	6N15164	G.00574	13118	E 2	7N15164	G.00380
13119	E 3	7N15164	G.00262	13120	E 4	7N15164	G.00207	13121	E 5	7N15164	G.00058
13123	F 1	11N15164	G.00139	13124	E 2	6N15164	G.00464	13135	E 5	28M15167	G.00312
13141	A 3	15A15167	G.00434	13170	A 6	3P15167	G.00230	14116	E 5	28M15167	G.00437
1431	A 3	12J15167	G.00257	14332	A 4	13J15167	G.00255	14333	C 3	17J15167	G.01292
14335	C 7	13J15167	G.00316	14338	E 5	14J15167	G.00726	14346	A 3	11J15167	G.00245
1447	A 4	11J15167	G.00234	14451	C 7	16J15167	G.00197	14452	E 2	14J15167	G.01277
1454	E 4	12A15167	G.00183	14532	A 3	18E15167	G.00057	14533	A 4	19E15167	G.02705
14534	A 6	19E15167	G.00620	14535	C 7	20E15167	G.01288	14536	E 2	24E15167	G.01091
14537	E 3	24E15167	G.01294	14541	E 2	11C15167	G.00793	14542	E 3	11C15167	G.02034
14543	E 5	10C15167	G.01437	14594	GS 1	3C15167	G.00839	14595	GS 2	3C15167	G.01059
14526	GS 3	3C15167	G.02650	14557	GS 4	3C15167	G.02950	14598	GS 5	4C15167	G.00793
14559	GS 7	4C15167	G.01049	14560	GS 8	4C15167	G.00306	14561	GS 9	4C15167	G.00587
14563	GS11	5C15167	G.00465	14564	GS12	5C15167	G.00165	14565	GS13	5C15167	G.00507
14566	GS14	5C15167	G.00183	14569	GS17	5C15167	G.00149	14571	GS19	6C15167	G.00059
14573	GS21	6C15167	G.00112	14575	GS28	6C15167	G.00129	14544	PS 1	20C15167	G.16203
14547	MS 1	2C15167	G.00788	14546	LU 1	2C15167	G.13005	14521	SH 1	18E15167	G.00416
14522	HR 1	18E15167	2.56742	14523	RA 1	19E15167	G.00303	14526	MO 1	2C15167	1.18336
14527	TR 1	2C15167	1.00629	14528	SB 1	2C15167	G.00534	14529	PK 1	20E15167	G.00593
14530	FR 1	24E15167	G.10001	14531	GM 1	25E15167	G.48183	14545	ML 1	23C15167	G.29056
14548	CA 1	3C15167	G.01272	14549	MG 1	4C15167	G.01093	14551	ES 1	5C15167	G.03994
14550	MR 1	4C15167	G.00567	14553	SE 1	4C15167	G.00203	14548	PU 2	25P15167	G.59032
14562	MS 2	25M15167	G.01050	14551	PT 2	21A15167	G.00621	14527	LU 2	25P15167	G.02421
14517	MO 2	22M15167	G.04860	14550	BP 2	19A15167	3.24222	14601	MO 2	6M15167	G.02946
1462	TR 2	6M15167	G.00664	14605	SB 2	5P15167	1.33429	14592	PK 2	21A15167	G.01718
14534	GM 2	25A15167	G.01036	14529	ML 2	29P15167	G.07432	14549	C1 2	19A15167	G.00359
14606	GB 2	13M15167	G.00270	14419	BL 2	23P15167	G.01831	14422	CA 2	23M15167	G.01533
14623	WA 2	29M15167	G.04710								

Stephanodiscus tenuis Hust.

Stephanodiscus tenuis Husted ex Huber-Pestalozzi, Binnengew., Vol. 16, Teil 2, Hälfte 2, p. 411, pl. 122, fig. 506. 1942.

Cells circular in valve view and rectangular in girdle view. Vegetative cells occur singly or in colonies. Valves of specimens from Lake Michigan 12-25µ in diameter without marked depression in the central portion. Radial striae in multiserial (usually 4-5) fascicles near the margin. The fascicles gradually taper but retain their identity to near the center of the valve. Some of the fascicles become uniseriate and end about one-quarter the valve diameter from the center, others become sinuous and extend to near the center of the valve. The center of the valve is often marked by a small rosette of puncta. The fascicles are separated by narrow, but noticeably

thickened ribs. The spines are small and very regular in their placement, one spine occurring at the end of each interfascicular rib. The spines have apparently thickened bases. Structure of the entire valve fine and difficult to resolve. Puncta in the radial striae fine, about 24-30 in 10 μ . Fascicles and spines 6-7 in 10 μ at the margins of the valves.

Because of its small size and fine structure this species is difficult to distinguish from other small species of the genus, especially *S. hantzschii*, unless considerable care is exercised. In structure it most resembles *S. transilvanicus* but it is easily distinguished from that species by its smaller size range and much finer structure.

444. STENWIS ICT NO OF STATIONS 190

146507	CH	10FE1881	0.01132	146515	CH	20FE1946	0.01707	146914	CH	15AF1546	1.14465	1
146924	CH	10FY1946	0.27513	146523	CH	22ND1946	0.00556	146905	CH	14A1547	0.00463	1
146909	CH	MR1547	0.03643	146512	CH	AF1947	0.01150	146916	CH	4R1947	0.00645	1
146906	CH	NY1547	0.11336	146515	CH	5J1947	0.01152	146922	CH	21AU1947	0.00040	1
146772	EV	18AF1938	0.02835	146756	EV	27AP1938	0.23507	146761	EV	27MY1938	0.00818	1
11225	C 6	15W11964	0.01568	11226	C 7	16W11964	0.04947	11227	C 2	13W11964	0.00219	1
11228	O 2	14W11964	0.00596	11229	E 5	16W11964	0.00846	11230	E 2	13W11964	0.00927	1
11231	E 3	12W11964	0.00245	11234	E 3	18J11964	0.00562	11235	C 7	16J11964	0.00645	1
11439	B 6	5J11964	0.02596	11437	E 2	8J11964	0.01805	11440	O 6	10J11964	0.00460	1
11241	E	13J11964	0.00206	11242	E 6	13J11964	0.01253	11244	F 1	11J11964	0.00219	1
11440	B 6	11J11964	0.01843	11431	E 6	24J11964	0.00661	11249	C 3	8J11964	0.00543	1
11250	C 6	10J11964	0.16037	11251	C 7	16J11964	0.00290	11252	C 1	16J11964	0.00558	1
11253	C 2	16J11964	0.00228	11254	E 2	15J11964	0.00378	11255	F 5	14J11964	0.00219	1
11256	E 2	14J11964	0.00733	11257	E 3	14J11964	0.00239	11258	F 1	6J11964	0.00472	1
11442	B 6	24J11964	0.02261	11264	C 3	10J11964	0.00219	11271	E 7	23S11964	0.01306	1
11272	C 1	10S11964	0.02463	11273	C 2	10S11964	0.01275	11274	O 1	17S11964	0.00449	1
11277	O 4	18S11964	0.04020	11278	O 6	18S11964	0.00769	11284	E 6	17S11964	0.00318	1
11289	C 7	14OC1964	0.00440	11290	C 1	14OC1964	0.00376	11293	O 2	15OC1964	0.00472	1
11255	O 4	15OC1964	0.00555	11297	C 6	14OC1964	0.00952	11301	E 4	13OC1964	0.00442	1
11302	E 5	13OC1964	0.00405	11304	F 1	11OC1964	0.00247	11305	F 2	11OC1964	0.00173	1
11306	F 3	9OC1964	0.00277	11307	E 6	9OC1964	0.00361	11309	C 1	10N11964	0.00161	1
11311	O 1	8N11964	0.00774	11312	C 6	9N11964	0.00378	11320	E 4	7N11964	0.00207	1
11336	C 3	27J11967	0.00193	11337	C 3	28R11967	0.89067	11338	C 4	28R11967	0.86476	1
11339	C 5	28R11967	0.05300	11340	C 2	28R11967	1.27755	11341	A 3	15AP1967	0.49358	1
11342	A 4	15AP1967	0.18472	11343	A 6	15AP1967	2.91750	11344	C 3	25AP1967	0.00093	1
11345	C 5	25AP1967	0.00780	11346	C 7	21AP1967	0.93467	11347	E 2	23AP1967	0.08125	1
11348	E 5	14J11967	1.24763	11348	A 3	4W11967	0.05455	11369	A 4	4W11967	0.01118	1
11370	A 6	3W11967	0.07366	11371	C 3	4W11967	0.00231	11372	C 5	5W11967	0.00355	1
11374	E 2	7W11967	0.02393	11376	E 5	8W11967	0.00281	11408	A 3	23W11967	0.00447	1
11416	E 5	5W11967	0.27772	11411	A 4	6J11967	0.01287	11432	A 4	13J11967	0.00244	1
11433	C 3	17J11967	0.003875	11434	C 5	17J11967	0.00897	11435	C 7	13J11967	0.00683	1
11438	E 5	14J11967	0.00363	11448	A 6	10J11967	0.01661	11451	C 7	16J11967	0.01299	1
11452	E 2	14J11967	0.01064	11511	E 2	15S11967	0.00307	11532	A 3	8S11967	0.00986	1
11533	A 4	15S11967	0.14859	11534	A 6	15S11967	0.02172	11535	C 2	20S11967	0.00322	1
11536	E 2	24S11967	0.02545	11537	E 3	24S11967	0.01264	11538	E 5	23S11967	0.00210	1
11539	C 3	4OC11967	0.01006	11540	C 5	4OC11967	0.00496	11541	E 2	11OC11967	0.00681	1
11542	E 3	11OC11967	0.00509	11543	E 5	10C11967	0.01437	11380	GS 4	9W11967	0.00336	1
11384	GS 8	10W11967	0.00185	11385	GS 9	10W11967	0.01177	11386	GS10	12W11967	0.00862	1
11389	GS13	12W11967	0.00516	11350	GS14	12W11967	0.01174	11391	GS15	12W11967	0.00283	1
11392	GS16	12W11967	0.11095	11353	GS17	13W11967	0.02465	11394	GS18	13W11967	0.00505	1
11405	GS19	14W11967	0.42512	11396	GS20	13W11967	0.17483	11397	GS21	13W11967	1.55664	1
11398	GS22	14W11967	0.00607	11555	GS 2	3OC11967	0.00354	11556	CS 3	3OC11967	0.01043	1
11557	GS 4	3OC11967	0.00747	11555	GS 7	4OC11967	0.00350	11560	GS 8	4OC11967	0.00945	1
11562	GS10	5OC11967	0.00493	11564	GS12	5OC11967	0.00129	11565	GS13	5OC11967	0.01014	1
11566	GS14	5OC11967	0.00734	11567	GS15	5OC11967	0.00476	11568	GS16	5OC11967	0.00433	1
11569	GS17	5OC11967	0.00149	11571	GS19	6OC11967	0.00176	11572	GS20	6OC11967	0.00451	1
11573	GS21	6OC11967	0.01136	11576	GS22	6OC11967	0.00575	11575	GS28	6OC11967	0.00845	1
11574	MU 1	2OC11967	0.24507	11547	MS 1	2OC11967	0.00768	11524	PI 2	20S11967	0.00757	1
11546	MU 1	2OC11967	1.20242	11520	HO 1	18S11967	0.01886	11521	SH 1	18S11967	0.03887	1
11522	BM 1	18S11967	1.48762	11523	RA 1	18S11967	0.26753	11525	PM 1	20S11967	0.01393	1
11526	HO 1	20S11967	0.21619	11527	TR 1	20S11967	0.00618	11528	PM 2	20S11967	0.17266	1
11529	KW 1	20S11967	0.01199	11530	FR 1	24S11967	0.11001	11531	HO 1	25S11967	0.00381	1
11545	MU 1	2OC11967	0.20518	11546	MS 1	2OC11967	0.00266	11547	PM 1	4OC11967	0.00214	1
11551	ES 1	5OC11967	0.00790	11552	SM 1	6OC11967	0.01981	11553	MR 1	5OC11967	0.11151	1
11553	SG 1	6OC11967	0.02203	11428	PU 2	23W11967	1.10880	11426	PS 2	29W11967	5.37233	1
11551	MU 2	21AP11967	0.46891	11427	M 2	23W11967	1.10880	11427	LU 2	29W11967	5.37233	1
11418	SH 2	22W11967	0.07776	11350	RM 2	23W11967	5.14526	11425	RA 2	25W11967	1.69746	1
11359	FW 2	5W11967	0.29924	11401	MO 2	6W11967	1.31703	11402	TR 2	6W11967	1.05047	1
11400	SH 2	6W11967	0.60162	11422	RA 2	23W11967	5.14526	11423	RA 2	25W11967	1.69746	1
11354	GM 2	25AP11967	12.42772	11429	MU 2	29W11967	2.88778	11404	MQ 2	10W11967	0.02541	1
11405	ES 2	12W11967	0.16125	11407	SM 2	14W11967	0.50158	11349	CI 2	15AF1967	5.85501	1
11408	GE 2	13W11967	0.06139	11419	BU 2	23W11967	1.18181	11421	BU 2	23W11967	1.18181	1
11421	LM 2	23W11967	0.27158	11422	GA 2	23W11967	0.43938	11423	NA 2	25W11967	3.39717	1
11424	KN 2	25W11967	0.98588	11424	NA 2	25W11967	0.98588	11424	NA 2	25W11967	0.98588	1

Stephanodiscus transilvanicus Pant.

Stephanodiscus transilvanicus Pantocsek, Beitr. Kennntn. Foss. Bacilli. Ungarns, p. 96, Beitr. III, pl. 8, fig. 125. 1905.
Stephanodiscus astraea var. *intermedia* Frick in: A. Schmidt's Atlas Diat., pl. 225, figs. 37-39. 1901.

Stephanodiscus astraea var. *transilvanica* Fricke in: A. Schmidt's Atlas Diat., pl. 226, figs. 2-22. 1901.

Stephanodiscus astraea var. *multipunctata* Fricke in: A. Schmidt's Atlas Diat., pl. 226, figs. 23-24. 1901.

Cells form in valve view and rectangular in girdle view. Vegetative cells always occur singly. Valves of specimens from Lake Michigan 14-60µ in diameter, with markedly concave center. Radial striae in multiserial (usually 4-6) at the margins, fascicles becoming uniseriate and, eventually, disorganized as they approach the sunken center portion of the valve. Puncta in the radial striae usually fine but irregular in size and placement, 14-20 in 10µ. The fascicles are separated by quite wide and markedly thickened radial ribs. The spines are regularly placed in this species and one spine usually occurs at the end of each rib. A narrow marginal zone of fine, irregularly arranged, puncta is present in the larger individuals and the ribs and spines extend into this zone. In smaller specimens this feature is not apparent in valve view due to the accentuated contour of the valve. Fascicles and spines 3-5 in 10µ at the margins of the valves.

Although the only reports of this species from Lake Michigan are those of Skvortzow (1937), it is the most abundant large member of the genus in the offshore plankton at the present time and is abundant in collections dating back to 1876.

645 SITRANSI TCT NO OF STATIONS 290

160973	CH	1876	3.47189	1	3540	CH	11MY1879	0.47524	1	3541	CH	1FE1881	1.55444	1
13507	CH	19FE1881	2.27168	1	46510	CH	02C1945	0.00109	1	46521	CH	23NO1945	0.00841	1
144174	CH	12JA1946	0.00566	1	46511	CH	20FE1946	0.24177	1	46514	CH	15AP1946	1.07524	1
146524	CH	10MY1946	0.55026	1	46523	CH	22NO1946	0.01748	1	46520	CH	20SE1946	0.21695	2
146905	CH	JA1947	0.11398	1	46569	CH	MR1947	0.59196	1	46612	CH	AP1947	0.13798	1
146916	CH	5MI1947	0.53327	1	46566	CH	MY1947	0.13362	1	46515	CH	5JUN1947	0.08194	1
146907	CH	JA1947	0.44873	1	46513	CH	6AU1947	0.01046	1	46522	CH	21AU1947	0.06952	1
146728	EV	5JN1937	0.60325	1	46771	EV	11JN1937	0.37326	1	46743	EV	20JN1937	0.21838	1
146745	EV	JA1937	0.01493	1	46764	EV	17JUL1937	0.12893	1	46757	EV	25JUL1937	0.16110	1
146747	EV	1AU1937	0.01485	1	46763	EV	23AU1937	0.02029	1	46765	EV	7SE1937	0.04342	1
146752	EV	15SE1937	0.02177	1	46744	EV	6OC1937	0.00975	1	46748	EV	13OC1937	0.38429	1
146767	EV	2TIC1937	0.00774	1	46745	EV	12MR1938	0.15620	1	46768	EV	14MR1938	0.10290	1
146762	EV	18MR1938	0.06617	1	46751	EV	30MR1938	0.05583	1	46772	EV	18AP1938	0.12775	1
146756	EV	27AP1938	0.15776	1	46755	EV	19MY1938	0.29710	1	46761	EV	27MY1938	0.11710	1
11223	E 3	16MY1964	0.02188	1	1224	E 4	18MY1964	0.01015	1	1225	C 6	15MY1964	0.05680	1
11226	C 7	16MY1964	0.05327	1	1227	C 2	13MY1964	0.04935	1	1228	O 2	14MY1964	0.23161	1
11229	O 5	14MY1964	0.26855	1	1230	E 2	16MY1964	0.05036	1	1231	E 3	16MY1964	0.85608	1
11232	E 5	16MY1964	0.79133	1	1233	E 3	5JUN1964	0.03096	1	1234	E 3	16JUN1964	0.00281	1
11235	C 7	16JUN1964	0.01130	1	1439	E 6	5JUN1964	0.02198	1	1236	C 1	8JUN1964	0.01750	1
11237	C 2	8JUN1964	0.03531	1	1238	D 3	11JUN1964	0.23400	1	1239	D 4	11JUN1964	0.62785	1
11240	O 6	13JUN1964	0.01310	1	1241	E 2	13JUN1964	0.54574	1	1242	E 3	11JUN1964	0.41368	1
11243	E 6	13JUN1964	0.22551	1	1244	F 1	11JUN1964	0.08144	1	1245	F 2	11JUN1964	0.22128	1
11246	F 3	11JUN1964	0.20319	1	1247	E 3	14JUL1964	0.00427	1	1248	B 3	24JUL1964	0.00985	1
11460	B 6	11JUL1964	0.01106	1	1251	E 6	24JUL1964	0.01745	1	1249	C 3	8JUL1964	0.00772	1
11250	C 6	10JUL1964	0.02878	1	1251	C 7	16JUL1964	0.01738	1	1252	C 1	16JUL1964	0.00537	1
11253	C 2	16JUL1964	0.04108	1	1256	O 2	15JUL1964	0.18004	1	1255	O 5	15JUL1964	0.18993	1
11256	E 2	14JUL1964	0.13555	1	1257	F 3	14JUL1964	0.50245	1	1258	F 1	6JUL1964	0.30441	1
11259	F 2	6JUL1964	0.16523	1	1260	F 3	6JUL1964	0.14134	1	1261	B 3	24JUL1964	0.00196	1
11262	E 3	17AUG1964	0.02310	1	1442	E 6	24AUG1964	0.00682	1	1443	B 6	18AUG1964	0.00198	1
11263	C 7	15AUG1964	0.00940	1	1264	C 1	10AUG1964	0.00579	1	1265	C 2	10AUG1964	0.00571	1
11266	O 3	18AUG1964	0.05963	1	1268	E 2	15AUG1964	0.20243	1	1269	E 3	15AUG1964	0.76742	1
11270	C 6	15AUG1964	0.01366	1	1269	E 6	15AUG1964	0.09653	1	1271	C 6	8AUG1964	0.00198	1
11273	C 2	10SE1964	0.02688	1	1274	O 1	17SE1964	0.01408	1	1275	O 2	17SE1964	0.01290	1
11276	D 3	18SE1964	0.02235	1	1278	D 6	18SE1964	0.01151	1	1280	E 2	16SE1964	0.03040	1
11281	E 3	14SE1964	0.16488	1	1279	F 4	16SE1964	0.02216	1	1283	E 3	14SE1964	0.01559	1
11284	E 6	17SE1964	0.00953	1	1285	F 1	15SE1964	0.05241	1	1286	F 2	15SE1964	0.01058	1
11287	F 3	15SE1964	0.01001	1	1445	E 6	14OC1964	0.00326	1	1289	C 7	14OC1964	0.15591	1
11290	C 1	16OC1964	0.01137	1	1291	C 2	14OC1964	0.00734	1	1293	O 2	15OC1964	0.00943	1
11294	O 3	15OC1964	0.06593	1	1295	D 4	15OC1964	0.00824	1	1296	O 2	15OC1964	0.02794	1
11297	E 6	15OC1964	0.02666	1	1298	E 1	12DEC1964	0.01885	1	1299	E 2	12OC1964	0.01274	1
11300	E 3	13OC1964	0.11455	1	1301	E 4	13OC1964	0.01846	1	1302	E 5	13OC1964	0.04454	1
11303	E 6	13OC1964	0.02795	1	1302	F 1	13OC1964	0.00795	1	1303	F 2	13OC1964	0.00518	1
11304	F 3	11JUL1964	0.00554	1	1307	E 6	1NO1964	0.00561	1	1308	C 7	6NO1964	0.01521	1
11309	C 1	10NO1964	0.00322	1	1310	C 2	10NO1964	0.00054	1	1311	O 1	8NO1964	0.00228	1
11312	O 2	8NO1964	0.00621	1	1313	O 4	9NO1964	0.00953	1	1314	O 3	9NO1964	0.04015	1
11315	D 5	9NO1964	0.03185	1	1317	E 1	6NO1964	0.00574	1	1318	E 2	7NO1964	0.00181	1
11319	E 3	7NO1964	0.18328	1	1320	E 4	7NO1964	0.05564	1	1321	E 5	7NO1964	0.00273	1
11322	E 6	7NO1964	0.01666	1	1323	E 2	2NO1967	0.00233	1	1324	E 2	2NO1967	0.00198	1
11325	F 3	6NO1964	0.00756	1	1336	C 3	27JUL1967	0.01540	1	1337	C 3	28JUL1967	0.00671	1
11338	C 3	28JUL1967	1.42011	1	1339	C 5	28JUL1967	2.67333	1	1340	C 7	28JUL1967	0.16580	1
11341	A 3	19AP1967	0.11225	1	1342	A 4	19AP1967	0.05530	1	1343	A 4	19AP1967	0.00518	1
11344	C 3	25AP1967	0.28952	1	1345	C 5	25AP1967	1.77378	1	1346	C 7	21AP1967	0.23367	1
11347	E 2	13AP1967	0.13571	1	1347	A 3	13AP1967	0.24216	1	1348	A 3	6AP1967	0.00198	1
11369	A 4	4MY1967	5.47915	1	1370	A 6	3MY1967	0.21637	1	1371	C 3	4MY1967	1.39315	1
11372	C 5	5MY1967	6.45482	1	1373	C 7	5MY1967	2.59570	1	1374	E 2	7MY1967	2.30126	1
11375	E 3	7MY1967	0.46218	1	1376	E 5	6MY1967	0.78705	1	1408	A 3	23MY1967	1.56508	1

1409	A 4	23MY1967	C.41659	1410	A 6	24MY1967	1.18403	1411	C 3	31MY1967	C.94008
1412	C 5	31MY1967	2.35710	1413	C 7	25MY1967	2.43232	1414	E 2	28MY1967	1.41058
1415	E 3	28MY1967	0.94437	1416	E 5	28MY1967	C.22556	1431	A 3	12JN1967	C.36048
1432	E 3	10JN1967	0.47141	1433	C 3	17JN1967	1.13034	1434	C 5	17JN1967	1.74839
1435	C 7	13JN1967	0.55988	1436	E 2	15JN1967	6.33232	1437	E 3	15JN1967	4.33943
1438	E 2	14JN1967	1.52205	1442	A 3	11JL1967	0.01468	1447	A 4	11JL1967	C.15372
1440	A 6	10JL1967	0.02176	1449	C 5	16JL1967	1.13870	1450	C 3	10MY1967	1.73204
1451	C 7	16JL1967	0.01181	1452	A 3	14JL1967	0.27036	1453	E 3	15JL1967	2.47706
1454	E 5	15JL1967	0.01600	1454	A 3	26JL1967	0.00988	1458	C 3	15JL1967	C.1208
1459	C 5	23E1967	0.47141	1459	C 3	23JL1967	0.01316	1511	E 2	15E1967	C.42975
1512	E 3	15E1967	1.44851	1513	E 5	31AU1967	0.00588	1533	A 4	19SE1967	C.00444
1536	E 2	24SE1967	0.03817	1537	E 3	24SE1967	0.02349	1538	E 3	19SE1967	C.00444
1540	E 5	10C1967	0.00946	1541	E 2	11OC1967	0.02129	1542	E 3	11OC1967	1.77990
1543	E 5	10OC1967	0.01437	1547	GS 1	9MY1967	1.01326	1578	GS 2	9MY1967	C.24810
1579	GS 3	9MY1967	0.38228	1580	C 5	9MY1967	0.21344	1581	GS 5	10MY1967	C.1208
1582	GS 6	10MY1967	0.06548	1583	GS 7	10MY1967	0.15217	1584	GS 8	10MY1967	C.47324
1585	GS 9	10MY1967	0.06357	1586	GS 10	12MY1967	0.43993	1587	GS 11	12MY1967	1.55447
1588	GS 12	12MY1967	0.04542	1589	GS 13	12MY1967	0.00909	1590	GS 14	12MY1967	C.00292
1591	GS 15	12MY1967	0.16760	1592	GS 16	12MY1967	0.05548	1593	GS 17	13MY1967	C.04931
1594	GS 18	13MY1967	0.02026	1595	GS 19	12MY1967	0.05844	1596	GS 20	13MY1967	C.00592
1597	GS 21	13MY1967	0.00523	1598	GS 22	14MY1967	0.15941	1599	GS 23	13OC1967	C.01423
1598	GS 24	30C1967	0.00706	1599	GS 25	30C1967	0.01121	1598	GS 26	40C1967	C.00396
1599	GS 27	40C1967	0.01399	1599	GS 28	50C1967	0.00493	1599	GS 29	50C1967	0.00701
1599	GS 30	50C1967	0.01033	1599	GS 31	50C1967	0.07780	1599	GS 32	50C1967	C.11554
1599	GS 33	50C1967	0.08865	1599	GS 34	50C1967	0.33717	1599	GS 35	60C1967	C.00351
1599	GS 36	60C1967	0.01010	1599	GS 37	60C1967	0.03202	1599	GS 38	60C1967	C.1438
1599	GS 39	60C1967	0.01677	1599	GS 40	60C1967	0.00477	1599	GS 41	60C1967	C.07503
1599	GS 42	60C1967	0.02357	1599	GS 43	60C1967	0.01731	1599	GS 44	60C1967	C.04551
1599	GS 45	60C1967	0.00629	1599	GS 46	60C1967	0.00715	1599	GS 47	60C1967	C.02398
1599	GS 48	60C1967	0.00784	1599	GS 49	60C1967	0.01272	1599	GS 50	60C1967	C.0099
1599	GS 51	60C1967	0.00660	1599	GS 52	60C1967	0.06195	1599	GS 53	60C1967	0.03672
1599	GS 54	60C1967	0.04821	1599	GS 55	60C1967	0.08149	1599	GS 56	60C1967	C.22171
1599	GS 56	60C1967	0.48668	1599	GS 57	60C1967	0.22432	1599	GS 58	60C1967	C.04666
1599	GS 59	60C1967	0.01542	1599	GS 60	60C1967	0.22102	1599	GS 61	60C1967	C.04845
1599	GS 62	60C1967	0.28222	1599	GS 63	60C1967	0.13027	1599	GS 64	60C1967	C.04287
1599	GS 65	60C1967	0.48550	1599	GS 66	60C1967	0.21097	1599	GS 67	60C1967	C.04143
1599	GS 68	60C1967	0.98737	1599	GS 69	60C1967	1.42540	1599	GS 70	60C1967	0.07622
1599	GS 71	60C1967	0.00177	1599	GS 72	60C1967	0.00177	1599	GS 73	60C1967	C.00272
1599	GS 74	60C1967	0.02702	1599	GS 75	60C1967	0.16477	1599	GS 76	60C1967	C.00663
1599	GS 77	60C1967	0.26024	1599	GS 78	60C1967	0.19414	1599	GS 79	60C1967	C.03970
1599	GS 80	60C1967	0.26043	1599	GS 81	60C1967	0.02467	1599	GS 82	60C1967	C.03970

Species incertae sedis

Stephanodiscus sp. #5.

646 STSPECE TOT NO OF STATIONS 135

46917	CH	12JL1946	0.00028	46915	CH	20FE1946	0.03414	46914	CH	19AP1946	C.C661
46924	CH	10MY1946	0.00071	46923	CH	22ND1946	0.00617	46909	CH	18MY1947	C.18685
46926	CH	4MY1947	C.00102	46906	CH	MY1947	C.02057	46915	CH	5JN1947	C.C4555
46922	CH	21AU1947	0.00048	46679	EV	5JN1937	0.00357	46676	EV	27AP1938	C.00672
46761	EV	27AP1938	0.00545	1223	B 4	18MY1964	0.00136	1224	B 4	18MY1964	C.C5588
1225	C 6	15MY1964	0.00392	1226	C 7	16MY1964	0.00381	1227	C 8	13MY1964	C.C4349
1228	D 2	14MY1964	0.00473	1229	D 3	14MY1964	0.00355	1230	E 2	14MY1964	C.C4149
1231	E 3	10MY1964	0.01172	1232	E 4	10MY1964	0.00281	1233	F 1	5JN1964	C.04287
1234	F 2	18JN1964	0.00843	1235	C 7	16JN1964	0.00847	1439	B 6	5JN1964	C.34965
1236	C 1	8JN1964	0.02350	1237	C 2	8JN1964	0.15210	1238	D 3	11JN1964	C.04600
1239	D 4	11JN1964	0.00116	1240	D 5	11JN1964	0.01894	1241	E 2	13JN1964	C.10041
1242	E 3	13JN1964	0.01300	1243	E 6	13JN1964	0.02297	1244	F 1	11JN1964	C.C4349
1245	F 2	11JN1964	0.02420	1246	F 3	11JN1964	0.05379	1248	F 4	24JL1964	C.00591
1440	B 6	11JL1964	0.75849	1441	B 7	24JL1964	0.20705	1442	B 8	14JL1964	C.00272
1250	C 6	10JL1964	0.49045	1251	C 7	16JL1964	0.00579	1252	C 8	16JL1964	C.C6837
1253	C 9	16JL1964	0.02054	1254	D 2	15JL1964	0.24946	1255	D 3	15JL1964	1.25764
1256	E 2	14JL1964	0.51293	1257	E 3	14JL1964	0.17705	1258	F 1	6JL1964	C.00895
1259	F 2	6JL1964	0.09064	1260	F 3	6JL1964	0.03438	1261	B 3	28JL1964	C.C6392
1262	B 4	17JL1964	0.00630	1442	B 6	28JL1964	0.09894	1443	B 8	16JL1964	C.C6395
1264	C 1	10JL1964	0.00874	1265	C 2	10JL1964	0.00894	1266	D 3	18JL1964	C.45250
1268	E 2	15JL1964	0.70330	1269	E 3	15JL1964	0.14534	1270	F 1	10JL1964	C.C6817
1271	F 2	15JL1964	0.00303	1273	C 4	10SE1964	0.00338	1275	D 2	17SE1964	C.00645
1277	D 4	18SE1964	0.01239	1278	E 1	18SE1964	0.01178	1280	E 2	18SE1964	C.00841
1281	E 3	16SE1964	0.00785	1283	E 5	16SE1964	0.00613	1285	F 1	15SE1964	0.01747
1294	D 3	10C1964	0.00330	1295	D 4	15OC1964	0.01104	1297	D 6	14CC1964	C.00544
1299	E 2	12OC1964	0.00628	1300	E 3	13OC1964	0.01432	1301	E 4	13OC1964	C.13325
1302	E 5	13OC1964	0.00405	1305	F 2	11OC1964	0.00345	1307	B 6	NO1964	C.00361
1318	E 3	7NO1964	0.00193	1319	C 2	7NO1964	0.01047	1320	A 4	7NO1964	C.00767
1336	C 3	27JL1967	0.00193	1337	C 5	29MY1967	C.00441	1338	C 3	29MY1967	C.C1851
1339	C 5	28MY1967	0.00935	1340	C 7	28MY1967	0.00509	1341	A 3	19AP1967	0.00976
1342	A 4	19AP1967	0.01103	1343	A 6	19AP1967	0.00278	1345	A 8	29MY1967	C.00472
1346	C 7	21AP1967	0.00508	1347	E 2	23AP1967	0.00488	1348	E 5	23AP1967	C.00548
1360	A 4	4MY1967	0.00373	1373	C 7	5MY1967	0.00285	1374	E 2	7MY1967	C.00897
1408	A 6	2MY1967	0.00874	1412	C 3	17JN1967	0.00842	1413	A 4	17JN1967	C.00329
1433	C 3	17JN1967	0.07105	1434	C 5	17JN1967	0.00239	1438	E 5	14JN1967	C.00363
1446	A 4	11JL1967	0.00948	1447	A 4	11JL1967	0.00948	1449	C 3	16JL1967	C.34774
1450	C 5	15JL1967	0.00948	1452	A 3	15JL1967	0.01193	1453	E 3	15JL1967	C.00272
1455	E 5	15JL1967	0.00400	1511	E 2	15E1967	0.01842	1512	E 3	15E1967	0.01178
1513	E 5	31AU1967	0.00507	1536	E 2	24SE1967	0.00273	1537	E 3	24SE1967	0.01294
1538	E 3	24SE1967	0.00273	1539	E 5	31AU1967	0.00507	1540	C 3	19SE1967	C.00444
1379	GS 3	9MY1967	0.00309	1383	GS 7	10MY1967	0.00267	1384	GS 8	10MY1967	C.00370
1385	GS 9	10MY1967	0.00309	1386	GS 10	12MY1967	0.00309	1387	GS 11	12MY1967	C.00292
1392	GS 12	12MY1967	0.00308	1398	GS 22	14MY1967	0.00304	1400	GS 23	13OC1967	C.00423
1522	BM 1	15E1967	1.16201	1549	MS 1	40C1967	0.01370	1550	MS 2	40C1967	C.C6596
1352	WM 2	21AP1967	0.00449	1429	WL 2	25MY1967	0.01052	1423	WA 2	25MY1967	C.02141

Stephanodiscus sp. #10.

649 STSPECC TCT NO OF STATIONS 22

146914	CH	19AP1946	0.01708	146624	CH	10MY1946	0.00494	146023	CH	22NO1946	0.00656
146909	CH	MR1947	0.00911	146906	CH	MY1947	0.01327	146919	CH	5UN1947	0.01214
146758	E	5JUN1937	0.00713	146763	EV	20JUN1937	0.00385	146757	EV	25JUL1937	0.00963
146750	E	24SE1937	0.00471	146750	F	15JUL1964	0.00513	146756	E	14JUL1964	0.00733
146757	E	14JUL1964	0.00957	146758	F	6JUL1964	0.00472	146759	F	6JUL1964	0.00310
146750	F	6JUL1964	0.00191	146758	F	10JUL1964	0.00118	146757	F	13JUL1964	0.00337
146757	E	23AP1967	0.00325	146758	E	15JUN1967	0.00362	146759	E	15JUL1967	0.01264
146751	E	11OC1967	0.02661								

650 STSPECC TCT NO OF STATIONS 2

146957	CH	JL1947	0.00197	146756	C	10JUL1964	0.00411				
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Genus *Surirella* Turp.

Turpin, Mem. Mus. Hist. Nat. (Paris), 16:361. 1828.

Although the majority of freshwater members of the genus *Surirella* find their primary habitat in benthic communities, many are successful facultative planktons. Plankton collections from Lake Michigan, especially those from nearshore areas, often contain representatives of the genus, usually in low numbers.

Surirella angusta Kütz.

Surirella angusta Kützting, Bacill., p. 61, pl. 30, fig. 52. 1844.

651 SUANGEST TCT NO OF STATIONS 162

160973	CH	1876	0.11805	13540	CH	11PY1875	0.02706	13507	CH	10FE1881	0.04526
146901	CH	23NO1946	0.00776	146951	CH	02JAN1946	0.00749	146915	CH	20FE1946	0.01138
146914	CH	15AP1946	0.04698	146924	CH	10MY1946	0.02540	146923	CH	22NO1946	0.01311
146920	CH	20C11946	0.01109	146905	CH	JAN1947	0.01716	146909	CH	MR1947	0.06375
146916	CH	4MY1947	0.01463	146906	CH	MY1947	0.02902	146919	CH	5JUN1947	0.00845
146907	CH	JL1947	0.01045	146922	CH	21JUL1947	0.02666	146758	EV	5UN1937	0.15970
146771	EV	11JUN1937	0.01826	146763	EV	20JUN1937	0.00385	146757	EV	25JUL1937	0.00963
146772	EV	5JUL1937	0.01789	146764	EV	17JUL1937	0.02232	146757	EV	25JUL1937	0.00370
146747	EV	14U1937	0.15348	146763	EV	23JUL1937	0.04058	146765	EV	30AUG1937	0.00558
146750	EV	24SE1937	0.00471	146764	EV	6OC1937	0.01463	146748	EV	13OC1937	0.01135
146749	EV	12MR1938	0.01214	146762	EV	18MR1938	0.02206	146772	EV	18AP1938	0.00710
146756	EV	27AP1938	0.00672	146761	EV	27MY1938	0.01908	146766	EV	14OC1938	0.01584
146756	EV	18MY1946	0.01094	146756	EV	18MY1946	0.00980	146756	EV	19MY1946	0.00392
146756	EV	16MY1946	0.01142	146756	EV	13MY1946	0.00658	146756	EV	14MY1946	0.00775
146756	EV	14MY1946	0.01492	146756	EV	16MY1946	0.00889	146756	EV	16MY1946	0.00752
146756	EV	14MY1946	0.00605	146756	EV	14MY1946	0.01191	146756	EV	16JUN1946	0.00281
146756	EV	14MY1946	0.00999	146756	EV	14MY1946	0.00175	146756	EV	14MY1946	0.00516
146756	EV	14MY1946	0.01600	146756	EV	14MY1946	0.01016	146756	EV	10JUN1946	0.00201
146756	EV	14MY1946	0.01183	146756	EV	14MY1946	0.01046	146756	EV	13JUN1946	0.01253
146756	EV	14MY1946	0.04934	146756	EV	14MY1946	0.02786	146756	EV	11JUN1946	0.00769
146756	EV	14MY1946	0.00998	146756	EV	14MY1946	0.00916	146756	EV	14JUL1946	0.01196
146756	EV	14MY1946	0.00472	146756	EV	14MY1946	0.00573	146756	EV	18AUG1946	0.00214
146756	EV	14MY1946	0.00548	146756	EV	14MY1946	0.00303	146756	EV	22SE1946	0.00654
146756	EV	14MY1946	0.00481	146756	EV	14MY1946	0.01165	146756	EV	14OC1946	0.00100
146756	EV	14MY1946	0.00245	146756	EV	14MY1946	0.00314	146756	EV	13EC1946	0.01432
146756	EV	14MY1946	0.00405	146756	EV	14MY1946	0.00540	146756	EV	11OC1946	0.00988
146756	EV	14MY1946	0.00245	146756	EV	14MY1946	0.00304	146756	EV	8NO1946	0.00252
146756	EV	14MY1946	0.00191	146756	EV	14MY1946	0.00333	146756	EV	27JAN1947	0.00193
146756	EV	14MY1946	0.00294	146756	EV	14MY1946	0.00526	146756	EV	28MR1947	0.00477
146756	EV	14MY1946	0.00636	146756	EV	14MY1946	0.01027	146756	EV	15AP1947	0.00180
146756	EV	14MY1946	0.01251	146756	EV	14MY1946	0.00446	146756	EV	23AP1947	0.01754
146756	EV	14MY1946	0.01201	146756	EV	14MY1946	0.00448	146756	EV	23AP1947	0.01254
146756	EV	14MY1946	0.01369	146756	EV	14MY1946	0.01818	146756	EV	3MY1947	0.00463
146756	EV	14MY1946	0.00923	146756	EV	14MY1946	0.00301	146756	EV	7MY1947	0.01404
146756	EV	14MY1946	0.00331	146756	EV	14MY1946	0.01687	146756	EV	24MY1947	0.01128
146756	EV	14MY1946	0.00225	146756	EV	14MY1946	0.00329	146756	EV	13JUN1947	0.00316
146756	EV	14MY1946	0.00366	146756	EV	14MY1946	0.00366	146756	EV	24SE1947	0.00493
146756	EV	14MY1946	0.00355	146756	EV	14MY1946	0.00802	146756	EV	10MY1946	0.00733
146756	EV	14MY1946	0.00471	146756	EV	14MY1946	0.00575	146756	EV	12MY1946	0.01188
146756	EV	14MY1946	0.00286	146756	EV	14MY1946	0.00286	146756	EV	13JUL1946	0.00396
146756	EV	14MY1946	0.00274	146756	EV	14MY1946	0.00516	146756	EV	13MY1946	0.00605
146756	EV	14MY1946	0.00304	146756	EV	14MY1946	0.00396	146756	EV	30C1946	0.00150
146756	EV	14MY1946	0.00288	146756	EV	14MY1946	0.00560	146756	EV	15JUL1946	0.00923
146756	EV	14MY1946	0.01105	146756	EV	14MY1946	0.00560	146756	EV	20SE1946	0.01444
146756	EV	14MY1946	0.01205	146756	EV	14MY1946	0.00730	146756	EV	5OC1946	0.02478
146756	EV	14MY1946	0.00285	146756	EV	14MY1946	0.01050	146756	EV	21AP1947	0.00103
146756	EV	14MY1946	0.01211	146756	EV	14MY1946	0.00446	146756	EV	15AP1947	0.00441
146756	EV	14MY1946	0.00287	146756	EV	14MY1946	0.00287	146756	EV	6MY1947	0.01159
146756	EV	14MY1946	0.00195	146756	EV	14MY1946	0.01780	146756	EV	21AP1947	0.00257
146756	EV	14MY1946	0.02110	146756	EV	14MY1946	0.03107	146756	EV	10MY1946	0.00223
146756	EV	14MY1946	0.00171	146756	EV	14MY1946	0.00470	146756	EV	14JUN1946	0.00406
146756	EV	14MY1946	0.05492	146756	EV	14MY1946	0.03111	146756	EV	23MY1947	0.00640
146756	EV	14MY1946	0.16349	146756	EV	14MY1946	0.00892	146756	EV	23MY1947	0.00665

Surirella biseriata Bréb. and Godey

Surirella biseriata de Brébisson and Godey, Mem. Soc. Acad. Falaise, 1:53, pl. 7. 1835.

Coll: 1552a.

Surirella biseriata var. *bifrons* (Ehr.) Hust.

Navicula bifrons Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1832:259. 1832.
Surirella bifrons (Ehr.) Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:388, pl. 3(5), fig. 5. 1843.
Surirella biseriata var. *bifrons* Hustedt in: Pascher, Süssw.-Fl. Mittel-europas, Heft 10, Aufl. 2, p. 433, fig. 833. 1930.

652 SUBISEVR TCT NO OF STATIONS 3														
16C973	CH	1876	0.02362	(	3541	CH	1FE1881	0.02535	(	1565	CS13	50C1967	C.0C507	)

Surirella elegans Ehr.

Surirella elegans Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:424. 1843.

Coll: 1407a.

Surirella guatemalensis Ehr.

Surirella guatemalensis Ehrenberg, Mikrogeologie, pl. 33(6), fig. 7. 1854.

Coll: 1552a.

Surirella linearis Wm. Smith

Surirella linearis Wm. Smith, Syn. British Diat., Vol. 1, p. 31, pl. 8, fig. 58z. 1853.

66C SUSPECCA TCT NO OF STATIONS 1									
116C7	SM 2	14MY1567	0.0C597	(					

Surirella linearis var. *constricta* (Ehr.) Grun.

Navicula ? constricta Ehrenberg, Infusionsthierchen, p. 188, pl. 21, fig. 17. 1838.

Surirella constricta (Ehr.) Ehrenberg, Mikrogeologie, pl. 14, fig. 37. 1854.

Surirella linearis var. *constricta* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:455. 1862.

653 SULINEVC TCT AC OF STATIONS 1									
11279	E 1	16SE1964	0.0C393	(					

Surirella linearis var. *helvetica* (Brun) Meist.

Surirella helvetica Brun, Diat. Alpes et Jura, p. 100, pl. 2, fig. 4. 1880.

Surirella linearis var. *helvetica* (Brun) Meister, Beitr. Kryptog.-Fl. Schweiz, 4(1):223, pl. 41, fig. 6. 1913.

654 SULINEVC TCT AC OF STATIONS 7														
(3541	CH	1FE1881	0.0C578	(	146521	CH	23AC1945	C.00065	(	146906	CH	MY1547	C.0C133	)
146922	CH	21AU1947	0.00048	(	1246	C 7	21AP1967	0.00134	(	1388	CS12	12MY1967	C.0C603	)
11407	SM 2	14MY1567	0.0C597	(										

Surirella ovata Kütz.

Surirella ovata Kützinger, Bacill., p. 62, pl. 7, figs. 1-4. 1844.

655 SUOVATA TOT NO CF STATICS 64												
46521	CH	23NO1945	0.00388	(46517	CH	12JAI1946	0.00194	(46515	CH	20FEI1946	C.00569	
46514	CH	19AP1946	0.04592	(46524	CH	10MY1946	0.00282	(46523	CH	22NO1946	C.00437	
46520	CH	20CEI1946	0.00134	(46505	CH	JAI1947	0.00613	(46509	CH	MR1947	C.07741	
46512	CH	AP1947	0.00200	(46506	CH	MY1947	0.00398	(46519	CH	5JUN1947	C.00455	
46507	CH	JUL1947	0.00690	(46522	CH	21AUL1947	0.00145	(46758	EV	5JUN1937	C.00357	
46764	EV	17JUL1937	0.02417	(46744	EV	6GC1937	0.00588	(12226	C	16MY1964	C.00381	
12228	O	2	14MY1964	0.00195	(12231	E	3	16MY1964	0.00245	(12232	E	5
12238	O	3	11JUN1964	0.00200	(12240	O	6	10JUN1964	0.00307	(12242	C	7
12244	F	1	11JUN1964	0.00219	(12245	F	2	11JUN1964	0.00346	(12246	F	3
12252	C*	1	16JUL1964	0.00275	(12256	E	2	14JUL1964	0.00183	(12257	E	3
12258	F	1	6JUL1964	0.00236	(12259	F	2	6JUL1964	0.00310	(12268	E	2
12272	C*	1	15SEI1964	0.00310	(12285	F	1	15SEI1964	0.00362	(12286	E	3
1341	A	3	19AP1967	0.00108	(1343	A	6	19AP1967	0.00069	(1346	C	7
1371	C	3	4MY1967	0.00462	(1375	E	3	7MY1967	0.00241	(1413	C	7
1416	E	5	28MY1967	0.00219	(1436	E	2	15JUN1967	0.00724	(1512	E	3
1382	GS	6	10MY1967	0.00278	(1384	GS	8	10MY1967	0.00370	(1391	GS	12
1352	HM	1	15SEI1967	0.00182	(1359	HM	1	20SEI1967	0.01199	(1351	HM	2
1427	LU	2	29MY1967	0.01211	(1417	HC	2	22MY1967	0.00374	(1350	HM	2
1425	RA	2	29MY1967	0.01168	(1401	MO	2	6MY1967	0.01764	(1402	TR	2
1400	SB	2	6MY1967	0.01187	(1354	GH	2	29MY1967	0.00490	(1403	CA	2
1404	MO	2	10MY1967	0.01270	(1422	GA	2	29MY1967	0.00511	(1423	MA	2
1424	KN	2	29MY1967	0.02665	(							

Surirella ovata var. *pinnata* (Wm. Smith) Hust.

Surirella pinnata Wm. Smith, Syn. British Diat., Vol. 1, p. 34, pl. 9, fig. 72. 1853.

Surirella ovata var. *pinnata* (Wm. Smith) Hustedt in: Pascher, Süsw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 442, fig. 865. 1930.

656. SLOVATP TCT AC CF STATIONS 21												
(13507	CH	15FEI1881	0.01132	(46506	CH	MY1947	C.00265	(46515	CH	5JUN1947	C.00455	
(46907	CH	JUL1947	0.00649	(46922	CH	21AUL1947	0.00048	(46758	EV	5JUN1937	C.00713	
(46747	EV	15AUL1937	0.00248	(46755	EV	19MY1938	0.00338	(12232	E	5	16MY1964	C.00374
(12336	C*	1	8JUN1964	0.00175	(1245	F	2	11JUN1964	0.00346	(1422	E	3
(1556	GS	3	30C1967	0.00521	(1417	MO	2	22MY1967	0.00374	(1350	HM	2
(1402	TR	2	6MY1967	0.01083	(1400	SB	2	6MY1967	0.01764	(1403	CA	2
(1405	ES	2	12MY1967	0.00425	(1406	GB	2	13MY1967	0.00805	(1423	MA	2
											25APR1967	C.00086

Surirella robusta var. *splendida* (Ehr.) V. H.

Navicula ? splendida Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1832:81. 1832.

Surirella splendida (Ehr.) Ehrenberg, Mikrogeologie, pl. 3(2), fig. 17. 1854.

Surirella robusta var. *splendida* (Ehr.) Van Heurck, Syn. Diat. Belgique, p. 187. 1885.

657 SURCBLVS TCT NC CF STATICS 2										
(3541	CH	1FEI1881	0.00578	(1407	SM	2	14MY1967	0.00597	(	

Surirella tenera var. *nervosa* A. S.

Surirella tenera var. *nervosa* A. Schmidt, Atlas Diat., pl. 23, figs. 15-17. 1875.

Coll: #844.

Surirella tenuissima Hust.

Surirella tenuissima Hustedt in: A. Schmidt, Atlas Diat., pl. 299, fig. 15. 1913.

658 SUTENUC TCT NC CF STATICS 1									
(12550	MR	1	5GC1967	C.01235	(				

Species *incertae sedis*

Surirella sp. #3.

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661  SUS*ECOC.TCT.AC OF STATIONS  11
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(46922)  CH  21AU1547  0.00145 ) (46758  EV  5JN1937  0.00357 ) (46766  EV  17JL1537  C.00864 )
(46757  EV  25JL1937  0.00963 ) (46747  EV  1AU1937  0.01485 ) (46752  EV  15SE1937  C.02177 )
(46750  EV  24SE1537  0.00471 ) (46744  EV  60C1537  0.00488 ) ( 1527  TR  1  20SE1967  C.00629 )
( 1404  MQ  2  19MV1967  0.0127C ) ( 1423  MA  2  25MY1967  0.00428 ) (

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Genus *Synedra* Ehr.

Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1830:40. 1832.

Synedra acus Kütz.

Synedra acus Kützinger, Bacill., p. 68, pl. 15, fig. 7. 1844.

Cells in girdle view elongate, rectangular with parallel sides. Specimens from Lake Michigan 90-200 μ long, 4-6 μ broad at the widest point. Valves lanceolate, gradually tapering to rounded or subcapitate ends. Striae perpendicular to the mid-line of the valve throughout, very finely cross-lineate, about 12-14 in 10 μ . Axial area narrow, linear, very slightly expanded in the central portion of the valve. A distinct, quadrate, central area is always present in this species. It lacks any regular ornamentation but occasionally contains what appears to be incompletely developed striae, especially near the valve margins.

This species is occasional in our collections. Its primary habitat is apparently in the periphyton, but, like many other members of the genus, it is able to maintain its existence in the phytoplankton.

462 SVACU		TCT NO OF STATIONS		50							
464922	CH	23NOV1943	0.00065	464524	CH	10MY1944	C.00071	464916	CH	4MY1947	C.00068
464922	CH	21JUL1947	0.00007	464758	EV	5JUN1937	0.66329	464771	EV	11JUN1937	C.01664
464743	AS	20JAN1937	0.00086	464770	EV	9JUL1937	0.66329	464764	EV	17JUL1937	C.02417
464757	AS	10JUN1937	0.00063	464674	EV	19JAN1937	0.00248	464675	EV	30JAN1937	C.00116
464756	EV	0.00000	0.00000	464675	EV	12MAY1937	0.01217	464676	EV	12MAY1937	C.00115
464756	EV	27JAN1938	0.00168	464676	EV	27MAY1938	0.00273	464677	EV	18JUN1938	C.00212
464756	EV	0.01000	0.00000	464677	EV	2.00000	0.00000	464678	EV	0.00000	C.00045
464756	EV	11JUN1936	0.00110	464678	EV	16JUL1936	0.00279	464679	EV	13MAY1936	C.00448
464756	F	15SEI1936	0.00582	464679	EV	14OCT1964	0.00381	464680	F	11JUN1964	C.00418
464756	EV	0.00000	0.00000	464680	EV	0.00000	0.00000	464681	EV	12JUN1964	C.00419
464756	EV	0.00000	0.00000	464681	EV	0.00000	0.00000	464682	EV	0.00000	C.00420
464756	EV	0.00000	0.00000	464682	EV	0.00000	0.00000	464683	EV	0.00000	C.00421
464756	EV	0.00000	0.00000	464683	EV	0.00000	0.00000	464684	EV	0.00000	C.00422
464756	EV	0.00000	0.00000	464684	EV	0.00000	0.00000	464685	EV	0.00000	C.00423
464756	EV	0.00000	0.00000	464685	EV	0.00000	0.00000	464686	EV	0.00000	C.00424
464756	EV	0.00000	0.00000	464686	EV	0.00000	0.00000	464687	EV	0.00000	C.00425
464756	EV	0.00000	0.00000	464687	EV	0.00000	0.00000	464688	EV	0.00000	C.00426
464756	EV	0.00000	0.00000	464688	EV	0.00000	0.00000	464689	EV	0.00000	C.00427
464756	EV	0.00000	0.00000	464689	EV	0.00000	0.00000	464690	EV	0.00000	C.00428
464756	EV	0.00000	0.00000	464690	EV	0.00000	0.00000	464691	EV	0.00000	C.00429
464756	EV	0.00000	0.00000	464691	EV	0.00000	0.00000	464692	EV	0.00000	C.00430
464756	EV	0.00000	0.00000	464692	EV	0.00000	0.00000	464693	EV	0.00000	C.00431
464756	EV	0.00000	0.00000	464693	EV	0.00000	0.00000	464694	EV	0.00000	C.00432
464756	EV	0.00000	0.00000	464694	EV	0.00000	0.00000	464695	EV	0.00000	C.00433
464756	EV	0.00000	0.00000	464695	EV	0.00000	0.00000	464696	EV	0.00000	C.00434
464756	EV	0.00000	0.00000	464696	EV	0.00000	0.00000	464697	EV	0.00000	C.00435
464756	EV	0.00000	0.00000	464697	EV	0.00000	0.00000	464698	EV	0.00000	C.00436
464756	EV	0.00000	0.00000	464698	EV	0.00000	0.00000	464699	EV	0.00000	C.00437
464756	EV	0.00000	0.00000	464699	EV	0.00000	0.00000	464700	EV	0.00000	C.00438
464756	EV	0.00000	0.00000	464700	EV	0.00000	0.00000	464701	EV	0.00000	C.00439
464756	EV	0.00000	0.00000	464701	EV	0.00000	0.00000	464702	EV	0.00000	C.00440
464756	EV	0.00000	0.00000	464702	EV	0.00000	0.00000	464703	EV	0.00000	C.00441
464756	EV	0.00000	0.00000	464703	EV	0.00000	0.00000	464704	EV	0.00000	C.00442
464756	EV	0.00000	0.00000	464704	EV	0.00000	0.00000	464705	EV	0.00000	C.00443
464756	EV	0.00000	0.00000	464705	EV	0.00000	0.00000	464706	EV	0.00000	C.00444
464756	EV	0.00000	0.00000	464706	EV	0.00000	0.00000	464707	EV	0.00000	C.00445
464756	EV	0.00000	0.00000	464707	EV	0.00000	0.00000	464708	EV	0.00000	C.00446
464756	EV	0.00000	0.00000	464708	EV	0.00000	0.00000	464709	EV	0.00000	C.00447
464756	EV	0.00000	0.00000	464709	EV	0.00000	0.00000	464710	EV	0.00000	C.00448
464756	EV	0.00000	0.00000	464710	EV	0.00000	0.00000	464711	EV	0.00000	C.00449
464756	EV	0.00000	0.00000	464711	EV	0.00000	0.00000	464712	EV	0.00000	C.00450
464756	EV	0.00000	0.00000	464712	EV	0.00000	0.00000	464713	EV	0.00000	C.00451
464756	EV	0.00000	0.00000	464713	EV	0.00000	0.00000	464714	EV	0.00000	C.00452
464756	EV	0.00000	0.00000	464714	EV	0.00000	0.00000	464715	EV	0.00000	C.00453
464756	EV	0.00000	0.00000	464715	EV	0.00000	0.00000	464716	EV	0.00000	C.00454
464756	EV	0.00000	0.00000	464716	EV	0.00000	0.00000	464717	EV	0.00000	C.00455
464756	EV	0.00000	0.00000	464717	EV	0.00000	0.00000	464718	EV	0.00000	C.00456
464756	EV	0.00000	0.00000	464718	EV	0.00000	0.00000	464719	EV	0.00000	C.00457
464756	EV	0.00000	0.00000	464719	EV	0.00000	0.00000	464720	EV	0.00000	C.00458
464756	EV	0.00000	0.00000	464720	EV	0.00000	0.00000	464721	EV	0.00000	C.00459
464756	EV	0.00000	0.00000	464721	EV	0.00000	0.00000	464722	EV	0.00000	C.00460
464756	EV	0.00000	0.00000	464722	EV	0.00000	0.00000	464723	EV	0.00000	C.00461
464756	EV	0.00000	0.00000	464723	EV	0.00000	0.00000	464724	EV	0.00000	C.00462
464756	EV	0.00000	0.00000	464724	EV	0.00000	0.00000	464725	EV	0.00000	C.00463
464756	EV	0.00000	0.00000	464725	EV	0.00000	0.00000	464726	EV	0.00000	C.00464
464756	EV	0.00000	0.00000	464726	EV	0.00000	0.00000	464727	EV	0.00000	C.00465
464756	EV	0.00000	0.00000	464727	EV	0.00000	0.00000	464728	EV	0.00000	C.00466
464756	EV	0.00000	0.00000	464728	EV	0.00000	0.00000	464729	EV	0.00000	C.00467
464756	EV	0.00000	0.00000	464729	EV	0.00000	0.00000	464730	EV	0.00000	C.00468
464756	EV	0.00000	0.00000	464730	EV	0.00000	0.00000	464731	EV	0.00000	C.00469
464756	EV	0.00000	0.00000	464731	EV	0.00000	0.00000	464732	EV	0.00000	C.00470
464756	EV	0.00000	0.00000	464732	EV	0.00000	0.00000	464733	EV	0.00000	C.00471
464756	EV	0.00000	0.00000	464733	EV	0.00000	0.00000	464734	EV	0.00000	C.00472
464756	EV	0.00000	0.00000	464734	EV	0.00000	0.00000	464735	EV	0.00000	C.00473
464756	EV	0.00000	0.00000	464735	EV	0.00000	0.00000	464736	EV	0.00000	C.00474
464756	EV	0.00000	0.00000	464736	EV	0.00000	0.00000	464737	EV	0.00000	C.00475
464756	EV	0.00000	0.00000	464737	EV	0.00000	0.00000	464738	EV	0.00000	C.00476
464756	EV	0.00000	0.00000	464738	EV	0.00000	0.00000	464739	EV	0.00000	C.00477
464756	EV	0.00000	0.00000	464739	EV	0.00000	0.00000	464740	EV	0.00000	C.00478
464756	EV	0.00000	0.00000	464740	EV	0.00000	0.00000	464741	EV	0.00000	C.00479
464756	EV	0.00000	0.00000	464741	EV	0.00000	0.00000	464742	EV	0.00000	C.00480
464756	EV	0.00000	0.00000	464742	EV	0.00000	0.00000	464743	EV	0.00000	C.00481
464756	EV	0.00000	0.00000	464743	EV	0.00000	0.00000	464744	EV	0.00000	C.00482
464756	EV	0.00000	0.00000	464744	EV	0.00000	0.00000	464745	EV	0.00000	C.00483
464756	EV	0.00000	0.00000	464745	EV	0.00000	0.00000	464746	EV	0.00000	C.00484
464756	EV	0.00000	0.00000	464746	EV	0.00000	0.00000	464747	EV	0.00000	C.00485
464756	EV	0.00000	0.00000	464747	EV	0.00000	0.00000	464748	EV	0.00000	C.00486
464756	EV	0.00000	0.00000	464748	EV	0.00000	0.00000	464749	EV	0.00000	C.00487
464756	EV	0.00000	0.00000	464749	EV	0.00000	0.00000	464750	EV	0.00000	C.00488
464756	EV	0.00000	0.00000	464750	EV	0.00000	0.00000	464751	EV	0.00000	C.00489
464756	EV	0.00000	0.00000	464751	EV	0.00000	0.00000	464752	EV	0.00000	C.00490
464756	EV	0.00000	0.00000	464752	EV	0.00000	0.00000	464753	EV	0.00000	C.00491
464756	EV	0.00000	0.00000	464753	EV	0.00000	0.00000	464754	EV	0.00000	C.00492
464756	EV	0.00000	0.00000	464754	EV	0.00000	0.00000	464755	EV	0.00000	C.00493
464756	EV	0.00000	0.00000	464755	EV	0.00000	0.00000	464756	EV	0.00000	C.00494
464756	EV	0.00000	0.00000	464756	EV	0.00000	0.00000	464757	EV	0.00000	C.00495
464756	EV	0.00000	0.00000	464757	EV	0.00000	0.00000	464758	EV	0.00000	C.00496
464756	EV	0.00000	0.00000	464758	EV	0.00000	0.00000	464759	EV	0.00000	C.00497
464756	EV	0.00000	0.00000	464759	EV	0.00000	0.00000	464760	EV	0.00000	C.00498
464756	EV	0.00000	0.00000	464760	EV	0.00000	0.00000	464761	EV	0.00000	C.00499
464756	EV	0.00000	0.00000	464761	EV	0.00000	0.00000	464762	EV	0.00000	C.00500
464756	EV	0.00000	0.00000	464762	EV	0.00000	0.00000	464763	EV	0.00000	C.00501
464756	EV	0.00000	0.00000	464763	EV	0.00000	0.00000	464764	EV	0.00000	C.00502
464756	EV	0.00000	0.00000	464764	EV	0.00000	0.00000	464765	EV	0.00000	C.00503
464756	EV	0.00000	0.00000	464765	EV	0.00000	0.00000	464766	EV	0.00000	C.00504
464756	EV	0.00000	0.00000	464766	EV	0.00000	0.00000	464767	EV	0.00000	C.00505
464756	EV	0.00000	0.00000	464767	EV	0.00000	0.00000	464768	EV	0.00000	C.00506
464756	EV	0.00000	0.00000	464768	EV	0.00000	0.00000	464769	EV		

Synedra amphicephala Kütz.

Synedra amphicephala Kützing, Bacill., p. 64, pl. 3, fig. 12. 1844.

Cells in girdle view elongate, sub-rectangular, narrowed toward the ends. Specimens from Lake Michigan 15-50 μ long, 2-4 μ broad. Valves linear to, especially in the smaller individuals, linear-lanceolate with distinctly protracted sub-capitate to capitate apices. Striae finely structured, very finely cross-lineate, parallel throughout the length of the valve, 13-16 in 10 μ . Axial area narrow, slightly lanceolate. Specimens from Lake Michigan lack a central area.

This species apparently finds its primary habitat in the periphyton but is able to exist in the plankton. Most of our specimens come from the northern portion of the lake.

664	SYMPHYA	TCT NO OF STATIONS	1
(1343	A 6	19AP1967	0.00065)

Synedra amphicephala var. *austriaca* (Grun.) Hust.

Synedra austriaca Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 39, figs. 16a-b. 1881.

Synedra amphicephala var. *austriaca* (Grun.) Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:206, figs. 696b-d. 1932.

Valves lanceolate with capitate ends. Striae 12-15 in 10 μ . Morphology and ornamentation of the frustule otherwise essentially similar to the nominate variety.

More common than the nominate variety in our collections, this entity apparently is better adapted to planktonic existence.

252 FRGRACIO TCT NO OF STATIONS 20											
(46917	CH	12JA1946	0.00055)	(46924	CH	10MY1946	0.00423)	(46923	CH	22NC1946	C.01748)
(46916	CH	4MY1947	0.00238)	(46919	CH	5JN1947	0.01695)	(46922	CH	21AU1947	C.00921)
(46758	EV	5JN1937	0.12401)	(46743	EV	20JN1937	0.01713)	(46770	EV	6JL1937	C.01193)
(46766	EV	17JL1937	0.05641)	(46763	EV	23AU1937	C.16234)	(46765	EV	30AU1937	C.02231)
(46752	EV	15SE1937	0.04354)	(46760	EV	22SE1937	0.00492)	(46750	EV	24SE1937	C.02628)
(46764	EV	40C1937	0.01951)	(1258	F 1	4JL1944	C.01652)	(1259	F 2	6JL1944	C.00930)
(1260	F 3	6JL1944	0.00382)	(1549	MO 1	40C1967	0.04111)				

Synedra capitata Ehr.

Synedra capitata Ehrenberg, Poggendr. Ann. Phys., Ser. 2, 38:221, pl. 3, fig. 3(1). 1836.

Cells in girdle view linear with slightly expanded apices. Specimens from Lake Michigan 150-420 μ long, 7-10 μ broad. Valves linear with much expanded cuneately narrowed apices. Striae coarse, distinctly punctate-linear, parallel throughout most of the length of the valve, becoming radiate in the expanded apices, 7-10 in 10 μ . Axial area narrow but distinct, linear throughout. Central area often entirely lacking, when present rather small, quadrate, not reaching the margins of the valve. A distinct "jelly pore" is visible at the ends of the valve.

This very distinctive species is restricted to the periphyton and only occasional accidental occurrences have been noted in our collections.

666 SYCAPITA TCT NO OF STATIONS			5						
(46973	CH	1876	0.02362) (3540	CH	11MY1879	0.00466) (46916	CH	4MY1947	C.00034)
(1356	GS20	13MY1967	0.00074) (1350	SH 2	19AP1967	0.00881)			

Synedra cycloporum Brutschy

Synedra cycloporum Brutschy, Internat. Rev. Hydrobiol., 10:284, fig. 11. 1922.

Living cells attached at one end, usually to planktonic microcrustaceans. Usually several cells are attached at a common point, forming a bushy colony. Valves arcuate, narrowing to rostrate to sub-capitate ends. Specimens from Lake Michigan 30-65 μ long, 3-4 μ broad. Striae finely structured, parallel throughout the length of the valve, 14-18 in 10 μ . Axial area narrow, linear, often slightly displaced toward the concave margin of the valve. Central area may be either present or absent, when present it is quite small, elliptical in shape and does not extend to the margins of the valve.

The secondarily planktonic, epizoic growth habit of this species appears to be obligate. It is most common on copepods although it is occasionally observed on other zooplankters.

668 SYCYCLOP TOT NO OF STATICS 2									
1	1260	F	3	6JL1964	0.00191	(	1568	GS16	50C1967 0.00144)

Synedra delicatissima Wm. Smith

Synedra delicatissima Wm. Smith, Syn. British Diat., vol. 1, pl. 12, fig. 94. 1853.

Cells in girdle view linear, narrowing slightly toward the ends. Valves elongate-lanceolate with rounded to subcapitate ends. Specimens from Lake Michigan 100-335μ long, 3-4μ broad. Striae parallel throughout, 14-16 in 10μ. Axial area narrow, filiform, central area variable, usually elongate-elliptical, not reaching the valve margins, in some specimens much reduced, only marked by a few irregular striae at the center of the valve.

705 SYSPHOCH TOT NO OF STATICS 11									
1	46916	CH		4MY1947	0.00034	(	46919	CH	5JN1947 2.36719)
1	46744	EV		80C1937	0.00488	(	1244	F	11JN1964 0.00219)
1	1270	F	1	10A1967	0.00487	(	1548	E	5
1	1350	BH	2	19AP1967	0.00661	(	1603	CA	2

Synedra delicatissima var. *angustissima* Grun.

Synedra delicatissima var. *angustissima* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 39, fig. 10. 1881.

Synedra acus var. *angustissima* (Grun.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Cells in girdle view linear, narrowed toward the ends. Valves elongate-lanceolate with subcapitate ends. Specimens from Lake Michigan 200-380μ long, 4-5μ broad. Striae parallel throughout, 12-14 in 10μ. Axial area narrow, filiform, central area elongate, rectangular, usually reaching the margins of the valves. In some specimens the central area is irregularly bordered and tends to become more or less elliptical.

Both of these entities are euplanktonic in Lake Michigan. As is true of most members of the genus, certain morphologic characteristics, particularly the form of the central area, tends to be variable. Isolated specimens in the intermediate size range are difficult to distinguish, but large populations appear to fall into two discrete series.

663 SYACUSVA TOT NO OF STATICS 315									
1	46973	CH		1876	0.51940	(	3540	CH	11MY1875 0.07921)
1	3507	CH		19FE1881	0.14716	(	46910	CH	GC1945 1.13602)
1	46908	CH		CE1945	0.09063	(	46517	CH	12JL1946 0.21625)
1	46914	CH		19AP1946	0.10037	(	46526	CH	10MY1946 0.09381)
1	46920	CH		200E1946	0.20027	(	46653	CH	JAL1947 0.06128)
1	46932	CH		AP1947	1.03384	(	46516	CH	4MY1947 1.32323)
1	46919	CH		5JN1947	0.49043	(	46513	CH	6JL1947 0.16735)
1	46758	EV		5JN1937	0.35940	(	46771	EV	11JN1937 0.57534)
1	46745	EV		3JL1937	0.27168	(	46770	EV	9JL1937 0.02982)
1	46757	EV		25JL1937	0.24553	(	46747	EV	1AUI1937 0.35450)
1	46765	EV		30AUI1937	0.22305	(	46769	EV	7SE1937 0.54277)
1	46760	EV		23SE1937	0.27374	(	46750	EV	24SE1937 0.19324)
1	46748	EV		13OC1937	0.20135	(	46767	EV	27OC1937 0.10544)
1	46762	EV		10MR1938	0.12783	(	46751	EV	30MR1938 0.10049)
1	46756	EV		27AP1938	0.20485	(	46759	EV	19MY1938 0.37812)
1	46766	EV		14OE1938	0.22596	(	1223	B	3
1	1225	G	6	15MY1964	1.92081	(	1226	C	7
1	1228	D	2	14PY1964	1.36242	(	1229	D	5

1231	E 3	16M1564	2.62694	(1232	E 5	16M1564	1.70441	(1233	B 3	5UN2564	C.22386
1234	B 3	18JN1564	0.17431	(1235	C 2	16JN1564	0.16663	(1236	B 6	13JN1564	C.13496
1236	C 1	8JN1564	0.30631	(1237	C 2	8JN1564	0.26624	(1238	D 3	11JN1564	1.96000
1238	B 3	26JL1564	0.11171	(1240	B 6	13JN1564	0.19822	(1241	E 2	24JL1564	1.14000
1242	E 3	13JN1564	1.39975	(1243	E 6	13JN1564	2.63052	(1244	F 1	11JN1564	0.16776
1245	F 2	11JN1564	0.59125	(1246	E 3	16JN1564	0.50204	(1247	B 3	14JL1564	C.02561
1248	B 3	26JL1564	0.05517	(1249	B 6	13JL1564	0.24375	(1250	F 2	26JL1564	1.14411
1249	C 3	8JL1564	0.05875	(1250	C 6	10JL1564	0.28989	(1251	C 7	16JL1564	0.22307
1252	C 1	16JL1564	0.51184	(1253	C 2	16JL1564	0.37657	(1254	D 2	15JL1564	0.98677
1255	D 2	15JL1564	0.33009	(1256	F 2	16JL1564	0.26600	(1257	F 6	26JL1564	1.14000
1258	F 1	6JL1564	0.90851	(1259	F 2	6JL1564	1.08453	(1260	F 3	6JL1564	1.51078
1261	B 3	26JL1564	0.00185	(1262	E 3	17JL1564	0.01570	(1263	F 6	18JL1564	0.14411
1263	B 3	16JL1564	0.01186	(1264	E 3	17JL1564	0.04040	(1264	C 7	10JL1564	0.02124
1265	C 1	10JL1564	0.07601	(1266	C 3	18JL1564	0.45549	(1267	D 6	18JL1564	0.01946
1268	E 2	16JL1564	0.54016	(1269	E 2	18JL1564	0.26600	(1270	F 6	18JL1564	0.01946
1269	B 6	15JL1564	0.21219	(1271	C 7	27JL1564	0.01306	(1272	C 1	10JL1564	0.00821
1273	C 1	20JL1564	0.66600	(1274	D 1	17JL1564	0.06100	(1275	D 2	17JL1564	0.11612
1274	D 1	17JL1564	0.06100	(1276	E 2	18JL1564	0.09295	(1278	F 6	18JL1564	0.14411
1279	E 1	16JL1564	0.20811	(1280	E 2	16JL1564	0.37443	(1281	E 3	16JL1564	0.29030
1282	E 4	16JL1564	0.22161	(1283	E 5	16JL1564	0.77847	(1284	E 6	17JL1564	1.22327
1285	F 1	15JL1564	2.44598	(1286	F 2	15JL1564	1.02890	(1287	F 3	15JL1564	C.17054
1288	B 3	15JL1564	0.02177	(1289	E 6	14JL1564	0.20548	(1289	C 7	14JL1564	0.27703
1290	C 1	16JL1564	0.07580	(1291	C 2	16JL1564	0.01468	(1292	D 1	15JL1564	C.11491
1293	D 1	15JL1564	0.12213	(1294	D 6	18JL1564	0.53071	(1295	D 4	15JL1564	C.16702
1296	D 5	14JL1564	0.05002	(1297	D 6	14JL1564	0.23900	(1298	E 1	12JL1564	C.19657
1299	E 2	12JL1564	0.26076	(1300	E 3	13JL1564	0.20645	(1301	E 4	13JL1564	C.74189
1302	F 5	13JL1564	1.41712	(1303	E 6	13JL1564	0.77361	(1304	F 1	11JL1564	C.43218
1305	F 2	11JL1564	0.28993	(1306	F 3	11JL1564	1.16414	(1307	B 6	10JL1564	C.05051
1308	C 7	6JL1564	0.02737	(1309	C 1	10JL1564	0.20421	(1310	C 2	10JL1564	C.29252
1311	C 6	26JL1564	0.23677	(1312	E 3	8JL1564	0.13037	(1313	E 3	9JL1564	C.15677
1314	D 4	9JL1564	0.67178	(1315	C 5	9JL1564	0.15772	(1316	D 6	9JL1564	1.57780
1317	E 1	6JL1564	0.13603	(1318	E 2	7JL1564	0.22639	(1319	E 3	7JL1564	C.75596
1320	E 4	7JL1564	1.90008	(1321	E 5	7JL1564	0.63518	(1322	E 6	7JL1564	1.51331
1323	F 1	6JL1564	0.64948	(1324	F 2	6JL1564	0.97827	(1325	F 3	6JL1564	1.41061
1336	C 3	27JL1564	0.73795	(1337	C 2	26JL1564	2.81309	(1338	C 3	26JL1564	2.82622
1339	C 2	26JL1564	2.82622	(1340	C 3	26JL1564	2.82622	(1341	C 4	26JL1564	2.82622
1342	A 4	19JL1564	3.28443	(1343	A 6	19JL1564	0.23316	(1344	C 3	25JL1564	2.08454
1345	A 5	23JL1564	3.71947	(1346	A 7	23JL1564	0.35111	(1347	E 2	23JL1564	1.24657
1348	E 5	23JL1564	3.26007	(1348	A 7	23JL1564	0.35111	(1349	A 4	4JL1564	0.13436
1370	A 6	3JL1564	0.00230	(1371	C 2	4JL1564	0.07849	(1372	C 5	5JL1564	1.24131
1373	C 7	5JL1564	0.49017	(1374	E 2	7JL1564	3.76565	(1375	E 3	7JL1564	C.70441
1376	E 5	8JL1564	2.26114	(1378	A 4	23JL1564	2.92447	(1405	A 4	5JL1564	2.62844
1410	A 6	24JL1564	3.15742	(1411	C 3	31JL1564	2.44123	(1412	C 5	31JL1564	2.55072
1413	C 2	31JL1564	2.44123	(1414	E 3	16JL1564	0.45884	(1415	E 5	26JL1564	C.30677
1416	E 5	26JL1564	2.96667	(1431	A 3	12JL1564	3.36277	(1432	A 4	13JL1564	C.53379
1433	C 3	13JL1564	0.81488	(1434	C 5	17JL1564	2.93097	(1435	C 7	13JL1564	0.16824
1436	E 2	15JL1564	0.61516	(1437	E 3	15JL1564	0.77485	(1438	E 5	14JL1564	1.65028
1446	A 3	11JL1564	1.94217	(1447	A 4	11JL1564	2.39589	(1448	A 6	10JL1564	C.45514
1449	C 3	16JL1564	1.21885	(1450	C 5	16JL1564	0.79863	(1451	C 7	16JL1564	1.46845
1452	E 2	3JL1564	3.77656	(1453	E 3	15JL1564	0.00880	(1454	E 5	25JL1564	1.35007
1454	A 4	28JL1564	0.49127	(1505	A 4	28JL1564	0.23189	(1506	A 6	29JL1564	C.05253
1509	E 5	25JL1564	2.35187	(1510	C 7	29JL1564	0.44262	(1511	C 2	15JL1564	1.86621
1512	E 3	15JL1564	1.86621	(1513	E 5	31JL1564	2.31608	(1514	E 7	30JL1564	C.05967
1533	A 4	15JL1564	0.13857	(1534	A 6	15JL1564	0.10858	(1535	C 7	20JL1564	C.04288
1538	E 2	24JL1564	3.81942	(1537	E 3	24JL1564	4.42508	(1538	E 5	23JL1564	2.32006
1539	C 3	30JL1564	0.00503	(1540	C 5	40JL1564	0.01489	(1541	E 2	11JL1564	C.02805
1542	E 3	11JL1564	2.61391	(1543	E 5	10JL1564	0.63209	(1577	G 1	9JL1564	C.16228
1578	C 5	9JL1564	C.05875	(1579	C 6	9JL1564	0.66732	(1580	C 5	9JL1564	C.26685
1581	C 5	10JL1564	2.11325	(1582	G 5	6JL1564	0.11380	(1583	G 5	10JL1564	1.21632
1586	G 8	10JL1564	1.10225	(1589	G 5	10JL1564	0.05722	(1586	G 5	12JL1564	C.24280
1587	G 11	12JL1564	0.87136	(1588	G 12	12JL1564	0.05940	(1589	G 13	12JL1564	C.05928
1590	G 14	12JL1564	0.15965	(1591	G 15	12JL1564	0.57463	(1592	G 16	12JL1564	C.75816
1593	G 17	13JL1564	0.70129	(1594	G 18	13JL1564	1.68576	(1595	G 19	13JL1564	C.27480
1596	C 520	13JL1564	0.06011	(1597	G 521	13JL1564	1.13081	(1598	G 522	13JL1564	1.13081
1594	C 51	30C1564	2.15612	(1595	C 52	30C1564	1.38499	(1596	C 53	30C1564	C.07822
1557	G 54	30C1564	0.57562	(1558	C 52	30C1564	0.22747	(1559	C 53	30C1564	C.52808
1560	C 58	40C1564	0.45813	(1561	C 59	40C1564	1.09174	(1562	C 60	40C1564	C.46078
1563	G 511	50C1564	C.55886	(1564	G 512	50C1564	0.01315	(1565	G 513	50C1564	C.03042
1566	G 514	50C1564	0.16457	(1567	G 515	50C1564	0.18894	(1568	G 516	50C1564	C.03161
1569	G 517	50C1564	0.20081	(1570	G 518	50C1564	0.28292	(1571	G 519	60C1564	C.03042
1572	G 520	60C1564	0.00000	(1573	G 521	60C1564	0.03920	(1574	G 522	60C1564	C.04584
1575	G 523	60C1564	0.15352	(1576	G 524	60C1564	0.01861	(1577	G 525	60C1564	C.01861
1546	L 1	20C1564	0.03001	(1520	HC 1	16JL1564	0.03772	(1521	SM 1	18JL1564	C.62674
1522	BH 1	18JL1564	1.94380	(1526	MO 1	20JL1564	0.05120	(1527	TR 1	20JL1564	C.05646
1528	SH 0	20JL1564	0.14305	(1530	BU 2	24JL1564	0.14305	(1531	BU 2	24JL1564	0.14305
1531	GH 1	25JL1564	1.06509	(1548	GA 1	10C1564	0.05088	(1549	MO 1	40C1564	1.60340
1551	E 5	15C1564	0.44732	(1552	SM 1	60C1564	0.66689	(1550	PK 1	53C1564	C.19824
1553	SE 0	15JL1564	0.13025	(1554	BU 2	29JL1564	2.82622	(1555	BU 2	29JL1564	2.82622
1533	PI 2	21JL1564	2.54771	(1427	LU 2	29JL1564	0.45278	(1417	HO 2	22JL1564	2.23194
1418	SH 2	22JL1564	0.88667	(1350	BH 2	15JL1564	1.55063	(1425	RA 2	22JL1564	2.35059
1359	PH 2	40JL1564	0.04961	(1401	HO 2	24JL1564	0.04961	(1402	RA 2	24JL1564	0.04961
1400	SB 2	60JL1564	3.36550	(1352	KW 2	21JL1564	1.92407	(1353	FR 2	23JL1564	1.46624
1354	GH 2	25JL1564	0.20195	(1429	WL 2	29JL1564	1.98191	(1403	GA 2	10JL1564	1.67386
1406	MO 2	10JL1564	1.09248	(1405	SE 2	12JL1564	0.65146	(1407	SM 2	14JL1564	C.01861
1349	C 1	20JL1564	0.88009	(1406	SB 2	13JL1564	0.07818	(1415	BU 2	23JL1564	5.40670
1420	IN 2	23JL1564	3.70091	(1421	CH 2	23JL1564	0.25052	(1422	GA 2	23JL1564	2.61585
1423	HA 2	25JL1564	0.36398	(1424	KN 2	25JL1564	0.52201	(1430	MC 2	12JL1564	0.54281

Synedra demerarae Grun.

Synedra ? demerarae Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 41, fig. 29. 1881.

Cells in girdle view linear, slightly narrowed toward the ends. Cells sometimes attached by the valve faces into short, band-shaped colonies.

Valves lanceolate with capitate ends. Specimens from Lake Michigan 20-90µ long, 2.5-4µ broad. Axial area highly variable, in the smaller individuals wide and more or less lanceolate, in the larger individuals narrow and filiform. Central area entirely lacking in most specimens, in some of the larger individuals marked by a few partially developed striae near the center of the valve. Striae appearing very coarse and well defined 8-12, usually 8-10, in 10µ. One of the most distinctive features of this taxon is the alternate placement of the striae on the two sides of the axial area rather than being opposite one another as is the case in most species of the genus.

The identity of the specimens from Lake Michigan assigned to this taxon is somewhat questionable. The striae are not marginal as in Grunow's original illustration except in the very small individuals. The size range of our specimens is also considerably greater than that reported by other authors (Patrick and Reimer 1966). There is also some question as to the correct generic classification in that our specimens sometimes occur in colonies similar to *Fragilaria*. As has been pointed out by numerous authorities, colony formation is an extremely tenuous taxonomic characteristic in diatoms and a number of the smaller taxa are more or less arbitrarily assigned to either *Synedra* or *Fragilaria* although they may adopt the growth habit "characteristic" of either genus.

ATG SYDNEERG TCT AC OF STATIONS 151

460973	CH	1876	0.04724	1	354C	CH	11MY1879	0.10716	1	354I	CH	1FE1881	0.1076C	1
461007	CH	19FE1881	0.20376	1	466910	CH	0C1945	0.00983	1	466921	CH	23NO1945	0.02005	1
466904	CH	0E1945	0.02014	1	466512	CH	12JA1946	0.02353	1	466515	CH	20FE1946	0.06029	1
466914	CH	19AP1946	0.11851	1	466524	CH	10MY1946	0.05573	1	466923	CH	22NO1946	0.22293	1
466920	CH	20E1946	0.08011	1	466525	CH	JA1947	0.03922	1	466529	CH	HB1947	0.07286	1
466912	CH	AP1947	0.03449	1	466916	CH	4MY1947	0.00305	1	466916	CH	MY1947	0.01261	1
466915	CH	5JN1947	0.01214	1	466527	CH	31J947	0.01874	1	466522	CH	21AU1947	0.00436	1
466758	EV	5JN1937	0.08915	1	466743	EV	20JN1937	0.03426	1	466745	EV	30J1937	0.02090	1
466770	EV	5JN1937	0.03378	1	466764	EV	17J1937	0.01116	1	466757	EV	25J1937	0.01444	1
466747	EV	1AU1937	0.19803	1	466763	EV	23AU1937	0.06088	1	466765	EV	30J1937	0.00558	1
466752	EV	15SE1937	0.08707	1	466760	EV	22SE1937	0.03483	1	466750	EV	24SE1937	0.00544	1
466744	EV	4OC1937	0.02439	1	466767	EV	27OC1937	0.004576	1	466749	EV	12MR1938	0.03641	1
466768	EV	16MR1938	0.0882C	1	466762	EV	18MR1938	0.02206	1	466751	EV	30MR1938	0.03350	1
466772	EV	18AP1938	0.01419	1	466756	EV	27AP1938	0.04533	1	466759	EV	19MY1938	0.00338	1
466761	EV	27MY1938	0.00818	1	466766	EV	14DE1938	0.09506	1	14224	B 4	18MY1936	0.01568	1
461225	C 6	15MY1964	0.01568	1	461227	C 2	13MY1964	0.00768	1	461228	O 2	14MY1964	0.01557	1
461229	D 5	14MY1964	0.01903	1	461230	E 2	16MY1964	0.00889	1	461231	E 3	16MY1964	0.02201	1
461232	E 5	16MY1964	0.24349	1	461236	C 1	6JN1964	0.00700	1	461239	O 4	11JN1964	0.01625	1
461240	D 6	10JN1964	0.00153	1	461241	E 2	13JN1964	0.00444	1	461242	E 3	13JN1964	0.00300	1
461243	E 6	13JN1964	0.01462	1	461244	F 1	11JN1964	0.00329	1	461256	E 2	14JL1964	0.00366	1
461257	E 3	14JL1964	0.00239	1	461258	F 1	6JL1964	0.01888	1	461260	F 3	6JL1964	0.00382	1
461280	E 2	16SE1964	0.00811	1	461285	F 1	15SE1964	0.00230	1	461292	E 3	15OC1964	0.00373	1
461297	D 6	14OC1964	0.01523	1	461305	F 1	11OC1964	0.00494	1	461305	F 2	11OC1964	0.00373	1
461306	F 3	11OC1964	0.00277	1	461316	E 4	9NO1964	0.00378	1	461320	E 4	7NO1964	0.00414	1
461321	E 5	7NO1964	0.00638	1	461322	E 6	7NO1964	0.00466	1	461323	E 1	6NO1964	0.00419	1
461336	C 3	27JA1967	0.00578	1	461337	C 3	28JA1967	0.00497	1	461338	C 3	28MR1967	0.00426	1
461335	A 5	28MR1967	0.02182	1	461340	C 7	28MR1967	0.00336	1	461341	A 3	19AP1967	0.01670	1
461342	A 4	19AP1967	0.01444	1	461343	A 6	19AP1967	0.01042	1	461344	C 3	25AP1967	0.00993	1
461345	C 5	25AP1967	0.00926	1	461346	C 7	21AP1967	0.005074	1	461347	E 2	23AP1967	0.00276	1
461348	E 5	23AP1967	0.01511	1	461349	A 3	4MY1967	0.01279	1	461349	A 4	4MY1967	0.01575	1
461370	A 6	4MY1967	0.01703	1	461371	C 3	4MY1967	0.04155	1	461372	C 5	5MY1967	0.00411	1
461373	C 7	5MY1967	0.01695	1	461374	E 2	7MY1967	0.04184	1	461375	C 3	7MY1967	0.01972	1
461376	C 5	7MY1967	0.01877	1	461377	E 3	27MY1967	0.00702	1	461378	A 4	23MY1967	0.00546	1
461410	A 6	24MY1967	0.03383	1	461411	C 3	31MY1967	0.02720	1	461412	C 5	31MY1967	0.02105	1
461413	C 7	25MY1967	0.04531	1	461414	E 2	20MY1967	0.01343	1	461415	E 3	28MY1967	0.00899	1
461416	E 3	28MY1967	0.007654	1	461431	A 3	12JN1967	0.00515	1	461432	A 4	13JN1967	0.00376	1
461433	C 3	17JN1967	0.01538	1	461434	C 5	17JN1967	0.00897	1	461435	E 2	15JN1967	0.01447	1
461437	E 3	15JN1967	0.00538	1	461438	E 1	14JN1967	0.006173	1	461450	C 5	14JL1967	0.00381	1
461453	E 3	15JL1967	0.00758	1	461456	A 6	24JUL1967	0.00523	1	461457	E 2	15SE1967	0.00370	1
461455	C 7	20SE1967	0.00322	1	461456	E 2	24SE1967	0.00273	1	461458	E 5	23SE1967	0.00552	1
461457	G 5	10MY1967	0.02771	1	461478	G 5	20MY1967	0.04061	1	461479	G 5	9MY1967	0.02587	1
461480	G 4	9MY1967	0.15806	1	461481	G 5	10MY1967	0.02760	1	461482	G 6	10MY1967	0.03603	1
461483	G 5	10MY1967	0.04812	1	461484	G 8	10MY1967	0.02033	1	461485	G 9	10MY1967	0.04003	1
461486	G 510	12MY1967	0.01561	1	461487	G 511	12MY1967	0.13862	1	461488	G 512	12MY1967	0.02413	1
461489	G 513	12MY1967	0.01031	1	461490	G 514	12MY1967	0.01762	1	461491	G 515	12MY1967	0.00875	1
461492	G 516	12MY1967	0.04315	1	461493	G 517	13MY1967	0.04657	1	461494	G 518	13MY1967	0.04816	1
461495	G 519	13MY1967	0.00588	1	461496	G 520	14MY1967	0.00911	1	461497	G 521	14MY1967	0.00350	1
461500	G 522	4OC1967	0.00472	1	461501	G 523	4OC1967	0.00587	1	461502	G 524	6OC1967	0.00268	1
461521	SH 1	18SE1967	0.00577	1	461526	MC 1	20SE1967	0.01138	1	461529	MC 1	20SE1967	0.01199	1
461551	MT 2	21AP1967	0.00461	1	461517	HO 2	22AP1967	0.00474	1	461522	FR 2	6MY1967	0.00302	1
461500	SH 2	6MY1967	0.04170	1	461522	MC 2	21AP1967	0.01718	1	461523	WA 2	25MY1967	0.00856	1

Synedra filiformis Grun.

Synedra filiformis Grunow in: Cleve and Grunow, Svenska Vet.-Akad. Handl., Ny Följd, 17(2):106, pl. 6, fig. 116. 1880.

Cells in girdle view very narrow, linear, occurring singly or in bushy colonies. Valves elongate-lanceolate with very fine, rounded, ends. Specimens from Lake Michigan 45-195µ long, only 1-2µ broad. The frustule is very lightly silicified and the striae are very fine in structure and difficult to resolve. Striae more or less marginal, parallel throughout the length of the valve, 26-30 in 10µ. Axial area relatively wide, indistinctly bordered. In the specimens from Lake Michigan a central area is entirely lacking.

At the present time the taxonomy of the members of the genus *Synedra* that display extreme adaptations to planktonic existence is extremely confused. Many authors have considered many of these forms to be varieties of *S. acus*. Our observations do not support this view. The species most closely resembling the taxon discussed here are *S. ostenfeldii*, which is distinguished by its somewhat coarser structure and *S. tenera*, which is distinguished by its still finer structure and somewhat smaller size range. *Synedra nana* has been reported from Lake Michigan (Williams and Scott 1962) but their identification was apparently based on descriptions and illustrations published by Hustedt (1931) which in no way resemble the original description and illustration of Meister (1912).

703 SYSECOGFC TCT NO OF STATIONS 277

460973	CH	1876	0.23618	1	3541	CH	1FE1881	C.00078	1	46910	CH	0C1945	C.00109	1
460974	CH	23801545	0.02881	1	3541	CH	12A1546	0.02194	1	46911	CH	20F1946	C.00143	1
460914	CH	19AP1946	0.01175	1	46924	CH	10MY1946	0.57534	1	46923	CH	22NO1946	C.00074	1
46909	CH	M91947	0.02277	1	46512	CH	AP1947	0.02300	1	46916	CH	4MY1947	C.00543	1
46906	CH	W1947	2.47468	1	46519	CH	5JN1947	0.70906	1	46907	CH	31J1947	C.16026	1
46913	CH	6AU1547	0.01046	1	46522	CH	21AU1947	0.02859	1	46758	EV	5JN1937	C.79880	1
46771	EV	11JN1937	1.59764	1	46763	EV	20JN1937	0.04710	1	46764	EV	17J1937	C.01612	1
46767	EV	1AU1937	0.04703	1	46765	EV	30AU1937	0.01673	1	46769	EV	7SE1937	C.02171	1
46752	EV	15SE1937	0.04354	1	46760	EV	22SE1937	0.01477	1	46750	EV	24SE1937	C.12726	1
46764	EV	60C1937	0.54623	1	46748	EV	13OC1937	C.02135	1	46767	EV	27OC1937	C.57136	1
46745	EV	12NO1938	0.02427	1	46768	EV	16NO1938	0.02940	1	46762	EV	18NO1938	C.05548	1
46751	EV	30MS1938	0.01117	1	46772	EV	18AP1938	C.00710	1	46756	EV	27AP1938	C.02013	1
46759	EV	19MY1938	C.00440	1	46761	EV	27MY1938	C.01090	1	46766	EV	14NO1938	C.05056	1
1224	B 4	18MY1964	0.05392	1	1225	C 6	19MY1964	0.01176	1	1276	C 7	16MY1964	C.00761	1
1227	C 2	13MY1964	0.00548	1	1228	O 2	14MY1964	0.01168	1	1229	O 5	14MY1964	C.01692	1
1230	E 2	18MY1964	0.02965	1	1231	E 3	16MY1964	0.01712	1	1232	E 5	16MY1964	C.05548	1
1233	B 3	5JN1964	0.02670	1	1234	B 3	18JN1964	0.02389	1	1235	C 7	16JN1964	C.05649	1
1439	B 6	5JN1964	0.37652	1	1236	C 1	8JN1964	C.00350	1	1237	C 2	8JN1964	C.47693	1
1238	O 3	11JN1964	0.21600	1	1239	O 4	11JN1964	C.00560	1	1240	O 6	10JN1964	C.29452	1
1241	E 2	13JN1964	0.15968	1	1242	E 6	13JN1964	C.01459	1	1243	E 6	13JN1964	C.36541	1
1244	F 1	11JN1964	0.00658	1	1245	F 2	11JN1964	0.00766	1	1246	F 3	11JN1964	C.20917	1
1247	B 2	15JN1964	0.46555	1	1248	B 3	24JN1964	0.00897	1	1249	B 6	14JN1964	C.12033	1
1441	B 6	24JN1964	1.16309	1	1249	C 3	8JL1964	0.01358	1	1250	C 6	10JL1964	C.39712	1
1251	C 7	16JL1964	0.28801	1	1252	C 1	16JL1964	0.01395	1	1253	C 2	16JL1964	C.31952	1
1254	O 2	15JL1964	7.50814	1	1255	O 4	15JL1964	16.52852	1	1256	E 2	14JL1964	C.12033	1
1257	E 3	14JL1964	10.88647	1	1258	F 1	6JL1964	2.80813	1	1259	F 2	6JL1964	C.23539	1
1260	F 3	6JL1964	3.34244	1	1262	B 3	17AU1964	0.01260	1	1442	B 6	24JL1964	C.59707	1
1443	B 6	18AU1964	0.05088	1	1263	C 7	19AU1964	0.01201	1	1264	C 1	10AU1964	C.00193	1
1265	C 2	12AU1964	0.01788	1	1266	O 3	18AU1964	4.17427	1	1267	O 6	18AU1964	C.00216	1
1268	E 2	15AU1964	2.57786	1	1269	E 3	15AU1964	12.27868	1	1270	F 1	10AU1964	C.00272	1
1444	B 6	03SE1964	0.05009	1	1271	C 7	22SE1964	0.01999	1	1272	C 1	10SE1964	C.00193	1
1273	C 2	05SE1964	0.02688	1	1275	O 2	17SE1964	0.05361	1	1276	O 3	18SE1964	C.06705	1
1277	C 4	18SE1964	0.01416	1	1281	E 1	04OCT1964	0.01416	1	1281	E 1	04OCT1964	C.01416	1
1287	E 4	18SE1964	0.05540	1	1283	E 5	10SE1964	1.07270	1	1284	E 6	17SE1964	C.01589	1
1285	F 1	15SE1964	0.01747	1	1286	F 2	15SE1964	0.05473	1	1287	F 3	15SE1964	C.62502	1
1288	B 2	15OCT1964	0.00564	1	1289	B 6	15OCT1964	0.01174	1	1289	B 6	15OCT1964	C.01315	1
1290	C 1	16OCT1964	0.01516	1	1291	C 2	16OCT1964	0.02425	1	1292	O 1	15OCT1964	C.03354	1
1293	D 2	15OCT1964	0.32016	1	1294	O 3	15OCT1964	0.01867	1	1295	O 4	15OCT1964	C.08324	1
1296	O 5	15OCT1964	0.06688	1	1297	O 6	16OCT1964	0.01333	1	1298	E 2	12OCT1964	C.01571	1
1300	E 3	13OCT1964	0.50116	1	1301	E 4	13OCT1964	0.67562	1	1302	E 5	13OCT1964	C.78144	1
1303	E 6	13OCT1964	0.03358	1	1304	F 1	11OCT1964	0.01729	1	1305	F 2	11OCT1964	C.00518	1
1309	F 3	14JN1964	0.00677	1	1309	B 6	ND1964	C.61884	1	1308	C 7	8NO1964	C.00594	1
1309	C 1	0NO1964	0.00804	1	1310	C 2	10NO1964	0.00542	1	1311	C 3	11NO1964	C.01233	1
1312	D 2	8NO1964	0.08652	1	1313	D 3	9NO1964	C.22973	1	1314	D 4	9NO1964	C.14067	1
1315	O 5	9NO1964	0.14525	1	1345	B 6	9NO1964	0.00146	1	1317	E 1	9NO1964	C.20676	1
1318	E 2	7NO1964	0.11986	1	1319	E 3	7NO1964	0.36656	1	1320	E 4	7NO1964	C.72385	1
1321	E 5	7NO1964	C.47166	1	1322	E 6	7NO1964	0.31326	1	1323	E 7	6NO1964	C.01591	1
1324	C 2	28MR1967	0.02252	1	1327	C 3	28MR1967	0.02252	1	1327	C 3	28MR1967	C.00761	1
1330	C 3	28MR1967	0.20363	1	1335	C 5	28MR1967	0.04677	1	1340	C 7	28MR1967	C.26361	1
1341	A 3	15AP1967	0.30374	1	1342	A 4	15AP1967	0.71463	1	1343	A 5	15AP1967	C.00506	1
1344	C 5	23AP1967	0.24432	1	1347	E 2	23AP1967	1.73787	1	1346	E 7	23AP1967	C.00543	1
1347	E 2	23AP1967	0.11050	1	1348	E 5	23AP1967	0.31254	1	1348	A 3	4MY1967	C.00628	1
1369	A 4	4MY1967	0.01664	1	1370	A 6	4MY1967	0.00230	1	1372	S 5	4MY1967	C.01124	1
1374	E 2	7MY1967	0.01195	1	1375	E 6	7MY1967	0.00722	1	1376	E 5	4MY1967	C.01124	1

T 1408	A 3	23MY1967	0.03577	(1409	A 4	23MY1967	0.00595	(1410	A 6	24MY1967	C.05074
T 1411	C 3	31MY1967	0.00910	(1412	C 5	31MY1967	0.01263	(1413	C 7	25MY1967	C.00316
T 1414	E 2	28MY1967	0.02015	(1415	E 3	28MY1967	0.01124	(1416	E 5	28MY1967	C.C1936
T 1431	A 3	23JN1967	0.72098	(1432	A 4	13JN1967	2.14570	(1433	C 3	17JN1967	1.42266
T 1434	C 5	17JN1967	0.43742	(1435	C 7	13JN1967	0.05210	(1436	E 2	13JN1967	C.56059
T 1437	E 3	15JN1967	0.27454	(1438	E 5	14JN1967	0.14887	(1446	A 3	11JL1967	4.79429
T 1447	A 4	11JL1967	11.4611	(1448	E 6	10JL1967	0.02122	(1449	C 3	16JL1967	12.36464
T 1450	C 5	16JL1967	0.46796	(1451	C 7	15JL1967	0.15764	(1452	E 2	16JL1967	3.21761
T 1453	E 3	15JL1967	4.44232	(1454	E 5	15JL1967	0.45609	(1504	A 3	28JUL1967	C.0C247
T 1505	A 4	28JUL1967	0.17520	(1506	C 3	25JUL1967	0.00792	(1509	C 5	15JUL1967	2.11871
T 1510	C 7	29AUL1967	0.07588	(1511	E 2	15E1967	0.86776	(1512	C 3	15E1967	7.45593
T 1513	E 5	31AUL1967	1.77359	(1532	A 3	18E1967	0.00657	(1535	C 7	20E1967	C.0C966
T 1536	E 2	24E1967	0.00147	(1538	E 3	24E1967	0.06415	(1538	E 5	23E1967	C.14915
T 1541	E 2	110E1967	0.01044	(1542	E 3	110E1967	2.13588	(1379	GS 3	9MY1967	C.0C309
T 1380	GS 4	9MY1967	0.01345	(1381	GS 5	10MY1967	C.0C954	(1382	GS 6	10MY1967	C.0C055
T 1383	GS 6	10MY1967	0.01874	(1385	GS 7	13JN1967	C.0C254	(1385	GS 9	10MY1967	C.0C942
T 1387	GS11	12MY1967	0.05941	(1388	GS12	12MY1967	0.00603	(1390	GS14	12MY1967	C.0C087
T 1391	GS15	12MY1967	0.01247	(1392	GS16	12MY1967	0.04007	(1393	GS17	13MY1967	C.0C1370
T 1394	GS18	13MY1967	0.24082	(1395	GS19	13MY1967	0.01996	(1397	GS21	13MY1967	C.0C0131
T 1398	GS22	14MY1967	0.04554	(1554	GS 1	30E1967	0.78275	(1555	GS 2	30E1967	C.0C142
T 1557	GS 4	30E1967	0.04111	(1558	GS 5	40E1967	0.01189	(1560	GS 8	40E1967	C.0E284
T 1562	GS 5	30E1967	0.00740	(1563	GS11	50E1967	0.01603	(1564	GS12	50E1967	C.0C016
T 1565	GS13	50E1967	0.01014	(1568	GS16	50E1967	0.00577	(1569	GS17	50E1967	C.0C297
T 1571	GS19	60E1967	0.05244	(1572	GS20	60E1967	0.00500	(1573	GS21	60E1967	C.0C1008
T 1575	GS29	60E1967	0.00258	(1544	MU 1	10C1967	0.00715	(1547	MU 1	20C1967	C.0C758
T 1546	LU 1	20C1967	0.01501	(1521	SH 1	18E1967	0.01154	(1526	MU 1	20E1967	C.0E045
T 1527	TR 1	20E1967	0.03145	(1528	SB 1	20E1967	0.01444	(1529	RM 1	20E1967	C.05996
T 1530	FR 1	24E1967	0.01000	(1545	WL 1	20C1967	0.01351	(1549	MU 1	40C1967	C.0C1370
T 1551	ES 1	50C1967	0.17573	(1552	SM 1	40C1967	0.01637	(1550	RM 1	50C1967	C.18585
T 1553	SG 1	60C1967	0.01541	(1428	MU 2	29MY1967	0.00301	(1430	MU 2	29MY1967	C.0E299
T 1351	MI 2	21AP1967	0.74476	(1427	LU 2	29MY1967	1.01695	(1417	PG 2	22MY1967	C.0E107
T 1350	BH 2	19AP1967	0.01101	(1425	RA 2	29MY1967	0.17662	(1399	PG 2	29MY1967	C.0A081
T 1401	MO 2	6MY1967	0.04116	(1402	TR 2	9MY1967	0.04873	(1400	SB 2	6MY1967	0.04765
T 1352	KW 2	21AP1967	2.61123	(1353	FR 2	23AP1967	0.01055	(1354	GH 2	25AP1967	C.0C071
T 1429	WL 2	29MY1967	0.02123	(1403	CA 2	10MY1967	3.13848	(1404	PG 2	10MY1967	C.0C081
T 1405	SS 2	12MY1967	0.95585	(1407	SM 2	14MY1967	0.01701	(1349	CI 2	15AP1967	C.0C981
T 1419	BU 2	23MY1967	0.40278	(1420	IH 2	23MY1967	0.33233	(1421	CA 2	23MY1967	C.0E2819
T 1422	GA 2	23MY1967	0.45873	(1423	WA 2	25MY1967	0.18413	(1424	KR 2	25MY1967	C.0E665
T 1430	NC 2	12JN1967	0.02947	(							

Synedra fasciculata (Agardh) Kütz.

Diatoma fasciculata Agardh, Disp. Alg. Sveciae, p. 35. 1812.

Synedra fasciculata (Agardh) Kütz., Bacill., p. 68. 1844.

Cells in girdle view broadly rectangular, often occurring in colonies of 2 or more cells. Valves linear to linear-lanceolate with broadly rounded to substrate ends. Specimens from Lake Michigan 74-220µ long, 4-6µ broad. Striae marginal, appearing rather coarse, 12-15 in 10µ. Axial area a broad lanceolate space without ornamentation. No specially defined central area is present. A distinct slime pore is usually visible near one end of each valve.

Most reports of this entity come from waters of high conductivity. In Lake Michigan it has been noted only in polluted harbors and appears to be associated with appreciable chloride contamination.

671 SYNFASC TCY NO. OF STATIONS 7

T 1544	MU 1	20C1967	0.00228	(1521	SH 1	18E1967	0.00577	(1428	MU 2	29MY1967	C.01808
T 1426	PS 2	29MY1967	0.00218	(1417	HO 2	22MY1967	0.00374	(1354	CH 2	25AP1967	C.0C345
T 1429	WL 2	29MY1967	C.10617	(							

Synedra minuscula Grun.

Synedra minuscula Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 39, fig. 13. 1881.

Cells in girdle view elongate rectangular. Valves linear-lanceolate to lanceolate with more or less sharply attenuated, sometimes slightly protracted, ends. Specimens from Lake Michigan 15-30µ long, 2-3µ broad. Striae parallel throughout the length of the valve, finely structured but distinct, 18-20 in 10µ. Axial area narrow, distinct. In the Lake Michigan specimens the central area is usually entirely lacking; when present it consists of a small structureless area surrounded by a few shortened striae.

This species is rare in our collections. The specimens observed are probably ultimately derived from periphyton communities. Previous reports indicate that this species reaches its greatest abundance in periphyton communities where it grows attached to filamentous algae.

675. SYMINUSC ICT NO OF STATIONS 61

(46973) CH	1876	0.02362	(46910) CH	0C1945	0.00109	(46914) CH	15AP1946	0.00320
(46924) CH	10PY1946	0.00071	(46923) CH	22NO1946	0.00219	(46929) CH	MR1947	0.00455
(46916) CH	4MY1947	0.00136	(46908) CH	MY1947	0.00199	(46919) CH	5JUN1947	2.46553
(46913) CH	6AUL1947	0.01046	(46922) CH	21AUL1947	0.00145	(46758) EV	5JUN1937	1.39790
(46771) EV	11JUN1937	0.00951	(46763) EV	20JUN1937	0.02526	(46770) EV	9JUL1937	0.01789
(46764) EV	17JUL1937	0.01752	(46757) EV	25JUL1937	0.04333	(46747) EV	1AUL1937	0.02971
(46763) EV	23AUL1937	0.18263	(46752) EV	15SE1937	0.10884	(46760) EV	22SE1937	0.00452
(46760) EV	24SE1937	0.00426	(46749) EV	12MR1938	0.02144	(46768) EV	18MR1938	0.01470
(46762) EV	18ME1938	0.04411	(46756) EV	27AP1938	0.00168	(46759) EV	5JUN1964	0.00599
(1441) B 6	24JUL1964	0.00220	(1225) O 5	15JUL1964	0.00513	(1297) E 3	14JUL1964	0.00718
(1275) E 1	16SE1964	0.00393	(1285) F 1	33SE1964	0.01747	(1286) F 2	15SE1964	0.01095
(1321) E 5	7NOV1964	0.00319	(1370) A 6	3MY1967	0.00230	(1431) A 3	12JUN1967	0.00227
(1469) C 3	16JUL1967	0.00282	(1425) C 5	16JUL1967	0.00190	(1452) E 2	14JUL1967	0.00213
(1536) C 2	24SE1967	0.00273	(1540) C 5	4OC1967	0.00496	(1542) E 3	11OC1967	0.01017
(1556) GS 3	30C1967	0.00521	(1528) GS 5	4OC1967	0.00793	(1580) GS 8	4OC1967	0.00472
(1567) GS15	5OC1967	0.00159	(1544) MU 1	2CC1967	0.00715	(1547) P 5	2OC1967	0.01186
(1564) EV 1	2CC1967	0.00624	(1526) MU 1	20SE1967	0.01707	(1530) P 1	24SE1967	0.00901
(1545) WL 1	2CC1967	0.73654	(1548) CA 1	3CC1967	0.01272	(1549) P 2	4OC1967	0.01370
(1551) ES 1	5OC1967	0.00799	(1550) MR 1	5OC1967	0.00912	(1551) P 2	21AP1967	0.00310
(1427) LU 2	29MY1967	0.02421	(1417) ME 2	22MY1967	0.00374	(1400) SH 2	4PW1967	0.00596
(1353) FR 2	23AP1967	0.01055	(1353) FR 2	23AP1967	0.01055	(1353) FR 2	23AP1967	0.01055

Synedra montana Krasske

Synedra montana Krasske ex Hustedt in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2)2:204, fig. 694. 1932.

Cells in girdle view very narrowly linear for most of their length, abruptly expanded near the center. Valves very narrow except at the expanded central portion, often more or less constricted at the center, with subcapitate ends. Specimens from Lake Michigan 80-200 μ long, 3-4 μ broad at the widest part, only 1-1.5 μ broad near the ends. Frustules are often curved. Striae distinct, 12-14 in 10 μ . Axial area variable, often relatively broad and lanceolate in outline, especially in the larger individuals. Central area completely lacking in our specimens.

The specimens from Lake Michigan have somewhat coarser structure and a greater size range than those originally described from the Alps. The general morphology of the frustule is, however, essentially similar. It appears that this species is much more common in periphyton communities in Lake Michigan than it is in the plankton.

708. SYSPHECK ICT NO OF STATIONS 63

(1354) CH	1FE1981	0.00978	(46517) CH	17JUL1946	0.00028	(46913) CH	6AUL1947	0.01046
(46747) EV	1AUL1937	0.00971	(46763) EV	23AUL1937	0.00608	(46760) EV	22SE1937	0.01477
(46750) EV	24SE1937	0.01414	(46749) EV	12MR1938	0.02527	(46762) EV	18MR1938	0.00411
(1440) B 6	11JUL1964	0.00369	(1257) E 3	14JUL1964	0.00239	(1244) F 1	12JUL1964	0.00494
(1259) F 2	6JUL1964	0.00139	(1462) E 6	24JUL1964	0.00682	(1270) F 1	10JUL1964	0.00272
(1298) E 1	12OC1964	0.00269	(1299) E 2	12OC1964	0.00314	(1300) E 3	13OC1964	0.00716
(1302) E 5	13OC1964	0.01166	(1303) E 6	13OC1964	0.00560	(1304) F 1	11OC1964	0.00988
(1305) F 2	11OC1964	0.01553	(1308) E 7	4NOV1964	0.00304	(1309) C* 1	10NOV1964	0.00251
(1310) C* 2	1NOV1964	0.01134	(1311) O 1	8NOV1964	0.00264	(1312) O 2	8NOV1964	0.01242
(1313) O 3	3NOV1964	0.00599	(1314) O 4	5NOV1964	0.00861	(1316) O 6	9NOV1964	0.00766
(1317) E 1	4NOV1964	0.00574	(1319) E 3	7NOV1964	0.00262	(1320) E 4	7NOV1964	0.00437
(1321) E 5	7NOV1964	0.00319	(1322) E 6	7NOV1964	0.00667	(1323) F 1	8NOV1964	0.01254
(1324) E 2	8NOV1964	0.00466	(1325) E 3	8NOV1964	0.00504	(1348) E 5	23AP1967	0.00137
(1432) A 4	13JUN1967	0.00511	(1433) C 3	17JUN1967	0.00646	(1447) A 4	11JUL1967	0.00936
(1449) C 3	16JUL1967	0.01146	(1450) C 5	16JUL1967	0.00573	(1510) C 7	29AUL1967	0.00316
(1512) E 3	15E1967	0.01178	(1532) A 3	18SE1967	0.00329	(1553) A 4	19SE1967	0.00464
(1535) C 7	20SE1967	0.00322	(1540) C 5	4OC1967	0.00496	(1379) GS 3	9MY1967	0.00619
(1389) GS13	12MY1967	0.00577	(1389) GS13	13MY1967	0.00577	(1354) GS18	13MY1967	0.00344
(1556) GS 1	30C1967	0.01779	(1557) GS 4	30C1967	0.00747	(1558) GS 5	4OC1967	0.01189
(1562) GS10	5OC1967	0.00247	(1526) MC 1	20SE1967	0.00569	(1548) CA 1	30C1967	0.00616
(1425) RA 2	23MY1967	0.03526	(1403) CA 2	10MY1967	0.01398	(1404) PG 2	10MY1967	0.00811

Synedra ostenfeldii (Krieger) A. Cleve

Synedra acus var. *ostenfeldii* Krieger, Pflanzenforsch., 10:36, fig. 29-2b. 1927.

Synedra ostenfeldii (Krieger) A. Cleve-Euler ex Stålberg, Verh. Internat. Verein. Limnol., 9:194. 1940.

Cells in girdle view linear-lanceolate, narrowing slightly from the middle to the rectangular ends. In life several cells are united at one end to form bushy colonies. Specimens from Lake Michigan 80-170μ long, 2-3μ broad. Valves lanceolate with capitate ends, very lightly silicified. Striae with very delicate structure 16-24 (usually 20-24) in 10μ. Axial area relatively broad, indistinctly bordered. Central area lacking in specimens from Lake Michigan.

This species is quite common in the summer flora of Lake Michigan, especially in areas that have undergone some degree of eutrophication. It is variable in morphology and the structures of the valve are so delicate that they are difficult to resolve satisfactorily except under optimal conditions.

702 SYSPCOB TOT NC OF STATIONS 271

13541	CH	1FE1981	0.01594	1	446921	CH	23NC1945	0.00194	1	446908	CH	0E1945	0.02014	1
446912	CH	12JA1946	0.00111	1	446515	CH	20FE1946	0.00797	1	446916	CH	0E1946	0.01281	1
446924	CH	10PY1946	0.00423	1	446923	CH	22NO1946	0.00874	1	446920	CH	20DE1946	0.00602	1
446909	CH	04J1947	0.00227	1	446512	CH	04J1947	0.00899	1	446916	CH	4MY1947	0.00754	1
446904	CH	04J1947	0.00221	1	446519	CH	5JN1947	0.01359	1	446907	CH	5JN1947	0.00194	1
446913	CH	04J1947	0.01046	1	446522	CH	21AU1947	0.01046	1	446758	EV	5JN1947	0.04903	1
446771	EV	11JN1937	0.00959	1	446759	EV	24SE1937	0.00117	1	446747	EV	1AU1937	0.00743	1
446765	EV	30AU1937	0.01673	1	446750	EV	30MR1938	0.00471	1	446746	EV	4OC1937	0.01683	1
446749	EV	12MR1938	0.00846	1	446751	EV	30MR1938	0.01117	1	446772	EV	18AP1938	0.04250	1
446756	EV	22AP1938	0.00532	1	446752	EV	30MR1938	0.00759	1	446773	EV	28MY1938	0.01036	1
446766	EV	14OC1938	0.03169	1	1223	B	18MY1964	0.00563	1	1224	B	18MY1964	0.02549	1
1225	C	18MY1964	0.24896	1	1226	C	16MY1964	0.05282	1	1227	C	13MY1964	0.05264	1
1228	D	14MY1964	0.21020	1	1229	D	16MY1964	0.04202	1	1230	D	16MY1964	0.24004	1
1231	E	16MY1964	0.34243	1	1232	E	16MY1964	0.08864	1	1233	D	5JN1964	0.01503	1
1234	B	18JN1964	0.12852	1	1235	C	16JN1964	0.28808	1	1439	B	5JN1964	1.11888	1
1236	C	8JN1964	0.05627	1	1237	C	8JN1964	0.36092	1	1438	O	13JN1964	0.28000	1
1239	O	11JN1964	0.05570	1	1240	D	10JN1964	0.07056	1	1241	E	13JN1964	0.15968	1
1242	E	13JN1964	0.19033	1	1243	E	13JN1964	0.15001	1	1244	F	11JN1964	0.04934	1
1245	F	11JN1964	0.09681	1	1246	F	11JN1964	0.26893	1	1247	B	14JL1964	0.02134	1
1248	B	24JL1964	0.12794	1	1249	B	11JN1964	0.30540	1	1249	B	24JL1964	0.26120	1
1249	C	8JL1964	0.01358	1	1250	C	10JL1964	0.14389	1	1251	C	16JL1964	0.15354	1
1252	C	16JL1964	0.01674	1	1253	C	16JL1964	0.44048	1	1254	O	15JL1964	0.41333	1
1255	O	15JL1964	0.92083	1	1256	F	14JL1964	0.11797	1	1257	C	14JL1964	0.70343	1
1258	F	6JL1964	0.21282	1	1259	F	6JL1964	0.15929	1	1260	F	6JL1964	0.53580	1
1261	B	2AU1964	0.02944	1	1262	B	17AU1964	0.02730	1	1262	B	2AU1964	1.07472	1
1263	B	18AU1964	0.01186	1	1263	C	15AU1964	0.02002	1	1265	C	10AU1964	0.44695	1
1264	C	18AU1964	0.22099	1	1267	O	18AU1964	0.00216	1	1268	E	15AU1964	0.42127	1
1269	C	15AU1964	0.49882	1	1264	B	19SE1964	0.00122	1	1271	C	22SE1964	0.02611	1
1272	C	17SE1964	0.00821	1	1273	C	19SE1964	0.00821	1	1274	O	17SE1964	0.01877	1
1275	O	17SE1964	0.01935	1	1276	O	18SE1964	0.13992	1	1277	O	18SE1964	0.00925	1
1278	O	18SE1964	0.01922	1	1279	E	18SE1964	0.02396	1	1280	E	16SE1964	0.52420	1
1281	F	430509	0.35059	1	1282	C	16SE1964	0.91967	1	1283	E	17JN1964	1.49435	1
1284	E	17SE1964	0.05714	1	1285	F	15SE1964	0.08155	1	1286	F	15SE1964	0.76620	1
1287	F	15SE1964	0.19015	1	1285	B	04J1964	0.03588	1	1289	C	14OC1964	0.00879	1
1290	C	14OC1964	0.01137	1	1290	C	04J1964	0.01137	1	1294	O	14OC1964	0.12556	1
1295	D	15OC1964	0.02535	1	1296	O	14OC1964	0.04928	1	1297	O	14OC1964	0.33080	1
1298	E	1	0.00559	1	1299	E	12OC1964	0.01237	1	1300	E	13OC1964	0.22512	1
1301	E	13OC1964	0.09273	1	1302	E	13OC1964	0.12957	1	1303	E	13OC1964	0.11119	1
1307	B	6NO1964	0.01443	1	1308	C	6NO1964	0.00304	1	1309	C	10NO1964	0.02611	1
1310	C	9NO1964	0.00082	1	1311	C	8NO1964	0.00104	1	1312	O	8NO1964	0.00531	1
1313	D	5NO1964	0.05405	1	1314	C	4NO1964	0.04306	1	1315	C	17JN1964	0.00305	1
1316	D	9NO1964	0.20777	1	1317	E	6NO1964	0.01532	1	1318	E	7NO1964	0.02854	1
1319	E	7NO1964	0.43536	1	1320	E	6NO1964	0.28856	1	1321	E	7NO1964	0.44649	1
1322	E	7NO1964	0.30528	1	1324	F	6NO1964	0.00446	1	1336	C	28MR1967	0.00085	1
1337	C	27MR1967	0.00804	1	1338	C	28MR1967	0.15739	1	1339	C	7NO1967	0.43649	1
1340	C	28MR1967	0.06173	1	1341	A	48V1967	0.01491	1	1342	A	19AP1967	1.38557	1
1343	A	19AP1967	0.12444	1	1344	C	25AP1967	0.15808	1	1345	C	25AP1967	0.25244	1
1348	C	21AP1967	1.02813	1	1347	E	23AP1967	0.27254	1	1348	E	23AP1967	0.32077	1
1349	A	0.45578	0.45578	1	1349	A	4	0.01491	1	1350	A	4	0.01491	1
1371	C	4V1967	0.00042	1	1372	C	5V1967	0.12056	1	1373	C	5V1967	0.02522	1
1374	E	7V1967	0.00958	1	1375	E	7V1967	0.00965	1	1376	E	6V1967	0.36541	1
1408	C	4V1967	0.31307	1	1409	A	4V1967	0.15864	1	1410	A	24V1967	0.00085	1
1411	C	31V1967	0.14360	1	1412	C	31V1967	0.88391	1	1413	C	25V1967	0.10108	1
1414	C	28V1967	0.42513	1	1415	E	28V1967	0.52615	1	1416	E	28V1967	0.25556	1
1431	A	12JN1967	0.21361	1	1432	A	13JN1967	0.78806	1	1433	A	24V1967	0.00085	1
1434	C	17JN1967	0.57722	1	1435	C	13JN1967	0.73886	1	1436	E	15JN1967	0.54610	1
1437	E	13JN1967	0.31187	1	1438	C	10JL1967	0.64633	1	1444	A	11JL1967	0.68490	1
1442	A	11JL1967	0.35175	1	1445	C	10JL1967	0.01061	1	1449	C	16JL1967	0.79121	1
1450	C	16JL1967	0.39986	1	1451	C	16JL1967	0.19544	1	1452	E	14JL1967	1.78822	1
1453	E	7JL1967	0.72545	1	1454	C	28AUG1967	0.28008	1	1456	A	28AUG1967	0.41728	1
1505	A	28AUG1967	0.01031	1	1506	A	29AUG1967	0.05023	1	1508	C	25JL1967	0.00085	1
1509	C	25JL1967	0.04749	1	1510	C	29AUG1967	0.00422	1	1511	E	15E1967	0.71836	1
1512	E	12JL1967	0.12364	1	1513	C	14E1967	0.00760	1	1514	E	15E1967	0.00322	1
1533	A	19SE1967	0.02321	1	1534	A	15SE1967	0.00620	1	1535	C	20SE1967	0.00322	1

(1536	E 2	245E1967	0.95435	(1537	E 3	245E1967	0.95719	(1538	E 5	235E1967	1.93338
(1540	C 5	40C1967	0.05496	(1541	E 2	11C1967	0.18626	(1542	E 3	11C1967	2.13588
(1543	E 5	10C1967	0.02873	(1577	GS 1	9W1967	0.01187	(1578	GS 2	9W1967	0.04625
(1579	GS 1	10W1967	0.02976	(1580	GS 4	9W1967	0.39348	(1581	GS 5	10W1967	0.12641
(1582	GS 6	10W1967	0.00833	(1583	GS 7	10W1967	0.10940	(1584	GS 8	10W1967	0.12940
(1585	GS 9	10W1967	0.01648	(1586	GS10	12W1967	0.00510	(1587	GS11	12W1967	0.17823
(1588	GS12	12W1967	0.01257	(1589	GS13	12W1967	0.05516	(1591	GS15	12W1967	0.05831
(1592	GS16	12W1967	0.04623	(1593	GS17	13W1967	0.04931	(1594	GS18	13W1967	0.34747
(1595	GS19	13W1967	0.01996	(1597	GS21	13W1967	0.00262	(1598	GS22	14W1967	0.04554
(1596	GS 1	30C1967	0.18275	(1595	GS 2	30C1967	0.05297	(1596	GS 3	30C1967	0.02086
(1597	GS 4	30C1967	0.02616	(1598	GS 5	40C1967	0.03567	(1599	GS 7	40C1967	0.10142
(1595	GS 8	40C1967	0.01889	(1591	GS 9	40C1967	0.00587	(1562	GS10	40C1967	0.04194
(1560	GS 1	60C1967	0.02088	(1547	MS 1	20C1967	0.01597	(1520	HO 1	185E1967	0.01414
(1574	GS22	60C1967	0.00288	(1547	MS 1	20C1967	0.01597	(1520	HO 1	185E1967	0.01414

Synedra parasitica (Wm. Smith) Hust.

Odontidium ? parasiticum Wm. Smith, Syn. British Diat., vol. 2, p. 19, supp. pl. 60, fig. 375. 1856.

Fragilaria ? parasitica (Wm. Smith) Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 30. 1881.

Synedra parasitica (Wm. Smith) Husted in: Pascher, Süssw.-Fl. Mittel-europas, Heft 10, Aufl. 2, p. 161, fig. 195. 1930.

Cells in girdle view rectangular, on focusing obviously expanded in the central portion. Valves rhombic-lanceolate with much expanded centers and narrow, sharply attenuated to subcapitate ends. Specimens from Lake Michigan 10-25µ long, 4-6µ broad. Axial area broad, lanceolate, without visible ornamentation. Striae finely structured, short 16-19 in 10µ.

This species often grows attached to some of the larger tycho planktonic algae, especially members of the genera *Nitzschia*, *Burirella*, and *Cymatopleura*.

676 SYPARASI TCT NO OF STATIONS 30

(46921	CH	23N01545	0.90129	(46515	CH	20E01946	0.00569	(46914	CH	19AP1946	0.06330
(46924	CH	10W1946	0.00141	(46523	CH	22N01946	0.00656	(46920	CH	20E01946	0.00662
(46905	CH	JA1947	0.00122	(46509	CH	MB1947	0.00511	(46907	CH	JA1947	0.00549
(46958	EV	5N01537	0.00357	(46747	EV	14U01537	0.00495	(46745	EV	30AU1937	0.00598
(46747	EV	27C01537	0.00587	(46749	EV	12N01938	0.01214	(1242	E 3	13JN1964	0.00130
(1245	F 2	11N01964	0.00346	(1304	F 1	11C01964	0.00247	(1305	E 3	13JN1967	0.00253
(1388	GS16	12N01967	0.00303	(1389	GS13	12W1967	0.00776	(1392	GS16	12W1967	0.00308
(1393	GS17	13W1967	0.00274	(1394	GS18	13W1967	0.00510	(1395	GS19	13W1967	0.00235
(1357	GS21	13W1967	0.00085	(1365	GS13	50C1967	0.00510	(1350	GH 2	15AP1967	0.01542
(1352	KN 2	21AP1967	0.00559	(1404	MO 2	10W1967	0.02541	(1405	ES 2	12W1967	0.00645

Synedra parasitica var. *subconstricta* (Grun.) Hust.

Fragilaria parasitica var. *subconstricta* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 45, fig. 29. 1881.

Synedra parasitica var. *subconstricta* (Grun.) Husted in: Pascher, Süssw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 161, fig. 196. 1930.

Valves more or less constricted in the middle, other morphologic features of the frustule and ornamentation of the valve essentially similar to the nominate variety.

677 SYPARAVS TCT NO OF STATIONS 2

(1341	A 3	19AP1967	0.00108	(1350	BH 2	19AP1967	0.00405	(			
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Synedra pulchella Ralfs

Synedra pulchella Ralfs ex Kützing, Bacill., p. 68, pl. 29, fig. 87. 1844.

Cells in girdle view rectangular-lanceolate, slightly narrowed toward the ends. Valves lanceolate to linear-lanceolate with attenuated, rostrate or subcapitate ends. Specimens from Lake Michigan 46-100 μ long, 5-7 μ broad. Valves strongly silicified, all structures distinct and robust in appearance. Axial area narrow, slightly lanceolate, broader toward the mid-portion of the valve. Central area quadrate extending entirely across the mid-portion of the valve, distinctly thickened at the margins with an ovoid, less thickened region occupying the center. This area sometimes contains ornamentation appearing as partially developed striae. Striae well defined, distinctly punctate, parallel through most of the length of the valve, becoming slightly radiate near the apices, 12-16 in 10 μ .

This species is most often reported from mineralized inland waters or from brackish waters. It is very rare in Lake Michigan at the present time but can be expected to become more abundant in areas receiving heavy pollution from wastes high in chlorides.

678 SYMPULCHE TOT NO OF STATIONS 5											
(1504	A 3	28AU1967	0.00247	(1428	MU 2	29MY1967	0.01205	(1426	MS 2	29MY1967	C.01050
(1350	BH 2	19AP1967	0.00220	(1406	GB 2	13MY1967	0.00539	(			

Synedra rumpens Kütz.

Synedra rumpens Kützing, Bacill., p. 69, pl. 16, fig. 6(6), figs. 4-5. 1844.

Cells in girdle view linear, very slightly narrowed toward the ends. Valves linear-lanceolate with somewhat protracted, rostrate to subcapitate ends. Specimens from Lake Michigan 30-70 μ long, 2-4 μ broad. Axial area narrow, linear through most of the length of the valve, in some specimens widened near the midportion of the valve. Central area a structureless transverse fascia extending to the margins of the valve, not visibly thickened.

675 SYRUPPEN ICF NO OF STATIONS 46											
(62972	CH	1876	0.07085	(46517	CH	12J61966	0.00083	(46916	CH	19AP1966	0.00214
(46920	CH	20GE1966	0.00123	(46516	CH	4MY1967	0.00034	(46919	CH	5JH1967	C.00455
(46922	CH	21AU1967	C.00097	(46764	EV	17J11937	0.00806	(46747	EV	14U1937	C.00743
(46765	EV	36AU1937	0.00558	(46752	EV	15SE1937	0.02177	(46750	EV	24SE1937	C.00471
(46745	EV	12MS1938	0.01214	(46768	EV	16MS1938	0.01470	(46756	EV	27AP1938	C.00168
(1284	E 6	17SE1964	0.00635	(1302	E 5	13OC1964	C.02429	(1311	O 1	8NO1964	0.00516
(1313	D 3	9NO1964	0.00579	(1314	D 4	9NO1964	0.00574	(1317	E 1	6NO1964	0.00383
(1318	E 2	7NO1964	0.00380	(1319	E 3	7NO1964	C.01571	(1320	E 4	7NO1964	C.01861
(1321	E 5	7NO1964	0.00638	(1322	E 6	7NO1964	C.00667	(1324	F 2	6NO1964	C.00466
(1342	A 6	19AP1967	0.00180	(1371	C 3	4MY1967	C.00231	(1395	GS19	13MY1967	C.00117
(1386	GS20	13MY1967	0.00148	(1576	GS22	6OC1967	0.00280	(1544	MU 1	20C1967	C.00715
(1547	MS 1	20C1967	0.00798	(1522	BH 1	18SE1967	C.00365	(1527	TR 1	20SE1967	0.00629
(1521	GR 1	25SE1967	0.00864	(1555	ML 1	20C1967	0.01351	(1549	PQ 1	4OC1967	C.01370
(1550	ML 1	5OC1967	0.14545	(1428	MU 2	29MY1967	0.01205	(1427	LU 2	29MY1967	0.02421
(1417	HO 2	22MY1967	0.01122	(1350	BH 2	19AP1967	C.03084	(135*	FR 2	23AP1967	C.01055
(1354	GR 2	25AP1967	0.00863	(							

Synedra rumpens var. *familiaris* (Kütz.) Hust.

Synedra familiaris Kützing, Bacill., p. 68, pl. 15, fig. 12. 1844.

Synedra rumpens var. *familiaris* (Kütz.) Husted in: Pascher, Sussw.-Fl. Mitteleuropas, Heft 10, Aufl. 2, p. 156, fig. 176. 1930.

Valves linear-lanceolate, somewhat constricted in the middle and slightly swollen on either side of the central area. Striae parallel throughout, about 18-20 in 10 μ , appearing more delicate than in the nominate variety.

680 SYRUMPVF TOT NO CF STATIONS 9

(146757	EV	25JL1937	C.00481)	(146763	EV	29AU1937	C.12175)	(146761	EV	27MY1938	C.CC273)
(1236	C 1	8JN1964	0.00175)	(1522	BH 1	18SE1967	0.00182)	(1526	MO 1	20SE1967	C.01138)
(1527	TR 1	20SE1967	0.00629)	(1428	MU 2	29MY1967	0.00301)	(1350	BH 2	19AP1967	C.00220)

Synedra rumpens var. *fragilarioides* Grun.

Synedra rumpens var. *fragilarioides* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 12. 1881.

Frustules more strongly silicified than in the nominate variety. Striae 10-12 in 10 μ , visibly cross-lineate. Central area appears thickened and often contains irregular markings appearing as partially developed striae. In some specimens the central area is somewhat expanded. Shape, size range and general morphology of the frustule essentially similar to the nominate variety.

682 SYRUMPVR TOT NO CF STATIONS 8

(	1235	C 7	16JN1964	0.00565	)	(	1240	O 6	10JN1964	0.00767	)	(	1243	E 6	13JN1964	0.00209	)
(	1338	C 3	20MR1967	0.00132	)	(	1341	A 3	19AP1967	0.00108	)	(	1343	A 6	19AP1967	C.00069	)
(	1346	C 7	21AP1967	0.00134	)	(	1408	A 3	23MY1967	0.00447	)	(					)

Synedra rumpens var. *meneghiniana* Grun.

Synedra rumpens var. ? *meneghiniana* Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 40, fig. 13. 1881.

Valves linear with rostrate ends. Striae 13-15 in 10 μ , without visible substructure. Other morphologic features of the frustule essentially similar to the nominate variety.

These entities are all found in periphyton communities in a variety of habitats. Occasional specimens are noted in offshore plankton collections from Lake Michigan.

681 SYRUMPVM TOT NO CF STATIONS 1

(	1341	A 3	19AP1967	0.00217	(										)
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Synedra ulna (Nitz.) Ehr.

Bacillaria ulna Nitzsch, Neue Schrift. Naturf. Ges. Halle, 3(1):99, pl. 5. 1817.

Synedra ulna (Nitz.) Ehrenberg, Ber. Akad. Wiss. Berlin 1836:53. 1836.

Cells in girdle view very elongate-rectangular, usually slightly expanded at the ends. Valves linear to linear-lanceolate with rostrate ends. Specimens from Lake Michigan 75-220 μ long, 5-8 μ broad. Axial area narrow, linear. Central area usually a hyaline fascia reaching both margins of the valve, in some specimens reduced or entirely lacking. Striae parallel throughout, finely but distinctly lineate-punctate, 8-12 in 10 μ . A distinct "jelly pore" is present at one end of each valve.

This species finds its primary habitat in the periphyton but is often found in plankton collections, often in considerable abundance. Numerous varieties have been described. The majority of these are also usually found in periphyton communities but some are adapted to planktonic existence.

(3540	CH	11MY1879	0.01398	(3541	CH	1FE1881	C.12716	(46910	CH	GC1945	C.C0109
(46921	CH	22NO1946	0.00381	(46912	CH	12JAI1946	0.00083	(46915	CH	20FE1946	0.00569
(46914	CH	19AP1946	0.01077	(46924	CH	10MY1946	0.00282	(46923	CH	22NO1946	C.C1530
(46922	CH	20JUL1946	0.01048	(46925	CH	JAI1947	0.00613	(46912	CH	AP1947	C.C1120
(46916	CH	4MY1947	0.00645	(46916	CH	MY1947	0.01019	(46919	CH	5JUN1947	C.C0766
(46907	CH	1JUL1947	0.00649	(46913	CH	6AI1947	0.03138	(46922	CH	21JUL1947	C.C6679
(46758	EV	5JUN1937	0.04903	(46771	EV	11JUN1937	0.03506	(46743	EV	20JUN1937	C.43676
(46745	EV	5JUL1937	0.04180	(46770	EV	9JUL1937	0.23855	(46764	EV	17JUL1937	C.C5670
(46757	EV	25JUL1937	0.06740	(46747	EV	14JUL1937	0.13862	(46763	EV	23AUG1937	C.C0058
(46752	EV	15SE1937	0.04354	(46760	EV	22SE1937	0.01477	(46750	EV	24SE1937	C.C0144
(46748	EV	13OC1937	0.02135	(46767	EV	27OC1937	0.01160	(46749	EV	12PH1938	C.C1214
(46748	EV	14PH1938	0.01170	(46762	EV	10PH1938	0.00617	(46772	EV	18AP1938	C.C0710
(46756	EV	27AP1938	0.00336	(46761	EV	27MY1938	0.01090	(46766	EV	14OC1938	C.C0310
(12225	C 6	15MY1965	0.00352	(12226	C 7	17JUL1965	0.00381	(12230	E 2	18JUL1964	C.C0089
(1231	E 3	14MY1964	0.00734	(1232	E 5	16MY1964	0.00174	(1236	C 1	8JUN1964	C.C0175
(1240	D 6	10JUN1964	0.00152	(1243	E 6	13JUN1964	0.00209	(1244	F 1	11JUN1964	C.C0329
(1245	F 2	11JUN1964	0.00346	(1246	F 3	11JUN1964	0.00598	(1254	O 2	15JUL1964	C.C0192
(1258	E 1	5JUL1964	0.00412	(1259	F 2	6JUL1964	0.00310	(1260	F 3	6JUL1964	C.C0764
(1267	O 6	18AUG1964	0.00432	(1270	F 1	10AUG1964	0.00272	(1272	C 1	10SEP1964	C.C0821
(1284	E 6	17SEP1964	0.00318	(1285	F 1	15SEP1964	0.00582	(1298	E 1	12OC1964	C.C0269
(1304	F 1	11OC1964	0.00484	(1337	C 3	26MR1967	0.00147	(1338	C 3	26MR1967	C.C0132
(1341	A 3	19AP1967	0.00688	(1342	A 4	19AP1967	0.00361	(1347	E 2	23AP1967	C.C0325
(1371	C 3	4MY1967	0.00281	(1373	C 7	5MY1967	0.00285	(1413	C 7	25MY1967	C.C00316
(1416	E 5	28MY1967	0.00636	(1431	A 3	12JUN1967	0.00257	(1449	C 3	16JUL1967	C.C0764
(1452	E 2	14JUL1967	0.00639	(1453	E 3	15JUL1967	0.00253	(1537	C 3	24SEP1967	C.C0431
(1378	GS 2	5PY1967	0.00621	(1386	GS10	12MY1967	0.00267	(1387	GS11	12MY1967	C.C0272
(1388	GS12	12MY1967	0.00317	(1385	GS13	12MY1967	0.00774	(1390	GS14	12MY1967	C.C0174
(1392	GS16	12MY1967	0.02157	(1394	GS18	13MY1967	0.00860	(1396	GS20	13MY1967	C.C0222
(1397	GS21	13MY1967	0.00065	(1395	GS 2	3OC1967	0.00353	(1399	GS 7	13MY1967	C.C0250
(1561	GS 5	4GC1967	0.00587	(1567	GS15	5OC1967	0.00318	(1569	GS17	5OC1967	C.C0446
(1570	GS18	5OC1967	0.00992	(1571	GS19	6OC1967	0.00234	(1572	GS20	6OC1967	C.C0270
(1573	GS21	6OC1967	0.00112	(1575	GS28	6OC1967	0.01032	(1584	PU 1	2OC1967	C.C0547
(1547	MS 1	2GC1967	0.00798	(152C	HC 1	18SE1967	0.01414	(1521	SH 1	18SE1967	C.C0577
(1522	BH 1	18SE1967	0.04555	(1526	MC 1	20SE1967	0.00569	(1527	TR 1	20SE1967	C.C0629
(1529	KW 1	25SE1967	0.01195	(1531	GR 1	25SE1967	0.00287	(1545	ML 1	2OC1967	C.C0676
(1545	MQ 1	4GC1967	0.04852	(1550	MR 1	5GC1967	0.58904	(1528	PU 2	25MY1967	C.C0939
(1426	MS 2	25MY1967	0.45144	(1391	ML 2	21APR1967	0.05586	(1427	LU 2	25MY1967	C.C4685
(1417	HD 2	25MY1967	0.16824	(1405	SE 2	25MY1967	0.00155	(1403	HC 2	25MY1967	C.C3987
(1425	PA 2	25MY1967	0.01768	(1399	PW 2	5PY1967	C.C1360	(1401	MO 2	6MY1967	C.C0176
(1402	TR 2	5PY1967	0.15703	(1400	SR 2	8PY1967	1.96612	(1353	FR 2	23AP1967	C.C01055
(1354	GR 2	23AP1967	0.15677	(1402	SR 2	8PY1967	0.76432	(1403	HC 2	10MY1967	C.C1308
(1404	MQ 2	10MY1967	0.29217	(1405	ES 2	12MY1967	0.00370	(1456	GR 2	13MY1967	C.C0539
(1423	WA 2	25PY1967	0.00428	(1424	WA 2	25PY1967	0.00428	(1424	WA 2	25PY1967	0.00428

Synedra ulna var. *aequalis* (Kütz.) Hust.*Frustulia aequalis* Kützting, Syn. Diat., p. 18, fig. 30. 1834.*Synedra ulna* var. *aequalis* (Kütz.) Hustedit in: Rabenhorst, Kryptog.-Fl. Deutschland, 7(2):199, fig. 691A, d. 1932.

Valves linear without special morphological demarcation of the ends.
Other characteristics essentially similar to the nominate variety.

(3540	CH	11MY1879	0.00466	(46743	EV	20JUN1937	0.01265	(46747	EV	1AU1937	C.CC743
(1522	BH 1	18SE1967	0.00182	(1531	GR 1	25SE1967	0.00845	(1350	BH 2	19AP1967	C.C1982

Synedra ulna var. *amphirhynchus* (Ehr.) Grun.*Synedra amphirhynchus* Ehrenberg, Phys. Abh. Akad. Wiss. Berlin, 1841:425, pl. 3(1), fig. 25. 1843.*Synedra ulna* var. *amphirhynchus* (Ehr.) Grunow, Verh. Zool.-Bot. Ges. Wien, 12:397. 1862.

Valves lanceolate with very narrow and much produced rostrate to capitate ends. Other morphologic features of the frustule and ornamentation of the valve essentially similar to the nominate variety. Specimens so far observed from Lake Michigan are in the lower size range (75-190μ long).

This entity is rare in our collections and the specimens observed are probably derived from periphyton communities.

(3540	CH	11MY1879	0.00932	(3541	CH	1FE1881	C.C0235	(3507	CH	19FE1881	C.C0132
(1378	GS 2	5MY1967	0.00521	(1380	GS 4	9MY1967	0.00618	(1353	GS17	13MY1967	C.C0274
(1404	MQ 2	10MY1967	0.01270	(1402	SR 2	8PY1967	1.96612	(1403	HC 2	10MY1967	C.C1308

Synedra ulna var. *chaseana* Thomas

Synedra ulna var. *chaseana* Thomas in: Walker and Chase, New and rare diatoms, Ser. 1, p. 4, pl. 2, fig. 3. 1886.

Valves very elongate, narrowly linear-lanceolate, with slightly expanded, subcapitate ends which are cuneately rounded at the tip. Central area usually completely lacking, sometimes marked by a few less-developed striae in the mid-portion of the valve. Specimens from Lake Michigan 380-600 μ m long, only 3-5 μ m broad. Striae coarse, 8-11 in 10 μ m.

This entity is eu planktonic and is abundant in many collections from Lake Michigan. It may be viewed as the extreme adaptation to planktonic existence in this group. In some respects its morphology is distinct from the *S. ulna* and some authors (Boyer 1927) consider it to be a separate species.

ARS SYLVANAC TCT NC OF STATIONS 319

160973	CH	1876	0.2580	(354)	CH	11M1879	2.02208	(354)	CH	1FF1881	8.92106
160974	CH	19F1881	2.51302	(46910)	CH	OC1945	0.78101	(46921)	CH	23NO1945	1.72348
160985	CH	OC1945	0.78101	(46921)	CH	12J1946	0.75111	(46915)	CH	27FE1946	1.47594
160914	CH	16M1946	0.34703	(46924)	CH	10M1946	0.41499	(46917)	CH	22NO1946	1.27858
160920	CH	20C1946	0.32042	(46925)	CH	JA1947	0.51845	(46909)	CH	MR1947	1.77588
160912	CH	AP1947	1.04933	(46916)	CH	AP1947	1.14480	(46926)	CH	RY1947	0.73538
160919	CH	5JN1547	0.49043	(46927)	CH	JI1947	1.60262	(46913)	CH	HA1947	1.61313
160922	CH	21AU1947	0.34652	(46758)	EV	5JN1937	2.19670	(46712)	EV	11JN1937	3.06215
160743	EV	2CJ1947	0.21306	(46752)	EV	25JL1937	0.26072	(46712)	EV	5SE1937	0.70712
160744	EV	17JL1937	1.65995	(46757)	EV	25JL1937	2.02205	(46747)	EV	1AU1937	2.07396
160763	EV	23AU1937	0.48994	(46765)	EV	30AU1937	0.59119	(46769)	EV	7SE1937	1.43291
160762	EV	15SE1937	1.21898	(46760)	EV	22SE1937	0.60564	(46750)	EV	24SE1937	0.72583
160764	EV	6DC1937	0.22635	(46768)	EV	13OC1937	0.72588	(46767)	EV	27OC1937	0.43325
160765	EV	2MAY1938	0.47389	(46768)	EV	14MAY1938	1.17955	(46762)	EV	18MAY1938	0.46273
160751	EV	30MAY1938	2.30012	(46772)	EV	18AP1938	0.15614	(46756)	EV	27AP1938	0.51715
160759	EV	19MAY1938	0.21863	(46761)	EV	27MAY1938	0.88667	(46766)	EV	14OE1938	0.47529
161223	B	18M1964	1.52109	(1424)	E	18M1964	2.19586	(1424)	E	15MAY1964	3.90723
161226	C	16M1964	0.89041	(1422)	C	13M1964	1.84231	(1428)	O	14M1964	2.58661
161225	D	14M1964	0.52862	(1423)	E	14M1964	1.45507	(1423)	E	16M1964	2.16711
161232	E	12M1964	0.39631	(1423)	B	8JUN1964	2.33383	(1234)	C	13JUN1964	0.76722
161233	C	16M1964	1.84709	(1439)	E	5JUN1964	1.77023	(1236)	C	18M1964	1.51225
161237	C	10JUN1964	0.31338	(1440)	E	10JUN1964	1.71400	(1239)	F	10JUN1964	1.50605
161240	D	10JUN1964	2.00334	(1441)	E	13JUN1964	1.51699	(1242)	E	13JUN1964	3.00632
161243	E	13JUN1964	3.89627	(1444)	F	11JUN1964	1.33110	(1245)	F	11JUN1964	1.03727
161246	F	11JUN1964	1.00600	(1447)	B	19JUL1964	2.93156	(1248)	E	24JUL1964	3.23660
161440	B	11JUL1964	3.61131	(1441)	E	24JUL1964	0.62886	(1249)	C	18JUL1964	1.90114
161250	C	10JUL1964	5.36876	(1425)	C	16JUL1964	1.52095	(1252)	C	8JUL1964	1.25986
161253	C	16JUL1964	5.32682	(1424)	C	15JUL1964	4.11012	(1255)	O	15JUL1964	0.46764
161256	E	16JUL1964	1.77765	(1427)	E	14JUL1964	0.41962	(1258)	F	6JUL1964	2.26403
161259	F	6JUL1964	1.73725	(1426)	F	6JUL1964	1.87176	(1261)	B	2AU1964	0.37287
161262	B	2AU1964	0.29399	(1442)	B	2AU1964	0.68714	(1442)	B	16AU1964	2.67759
161263	C	15AU1964	0.56045	(1424)	C	10AU1964	0.45181	(1265)	C	10AU1964	4.69452
161266	D	18AU1964	1.74968	(1427)	O	18AU1964	0.10808	(1268)	E	15AU1964	0.45569
161269	E	15AU1964	5.17192	(1427)	F	10AU1964	1.04813	(1444)	E	16SE1964	1.61891
161271	C	22SE1964	0.52882	(1427)	C	10SE1964	2.29857	(1273)	C	10SE1964	3.76364
161274	O	17SE1964	1.09792	(1475)	O	17SE1964	1.08445	(1276)	O	18SE1964	13.0384
161277	O	18SE1964	0.39631	(1478)	E	24SE1964	0.68714	(1279)	E	24SE1964	2.18992
161280	E	16SE1964	11.16823	(1281)	E	16SE1964	11.16823	(1282)	E	16SE1964	0.82593
161283	E	16SE1964	10.17689	(1284)	E	17SE1964	0.68724	(1285)	F	15SE1964	0.42543
161286	F	14SE1964	6.12960	(1287)	F	15SE1964	0.97318	(1288)	C	15OC1964	0.45313
161445	B	14OC1964	0.64893	(1285)	C	14OC1964	0.69377	(1290)	C	16OC1964	0.13644
161291	C	16OC1964	1.40951	(1292)	O	13OC1964	0.14162	(1293)	C	13OC1964	1.45079
161296	D	15OC1964	2.67890	(1295)	O	15OC1964	1.39137	(1296)	O	14DC1964	0.68852
161297	O	14DC1964	0.31969	(1298)	E	12OC1964	0.69574	(1299)	E	12OC1964	4.53032
161300	E	12OC1964	0.69574	(1301)	C	12OC1964	0.97858	(1302)	C	13OC1964	4.72103
161303	E	13OC1964	2.89936	(1304)	F	11OC1964	1.84234	(1305)	F	11OC1964	1.26760
161306	F	11OC1964	2.84284	(1307)	E	NO1964	0.50512	(1308)	O	6NO1964	0.38626
161309	C	31MAY1967	1.04073	(1310)	C	11NOV1967	1.34240	(1311)	C	11NOV1967	1.45079
161312	D	8NO1964	0.43458	(1313)	O	9NO1964	1.51335	(1314)	O	9NO1964	1.48709
161315	O	9NO1964	1.16449	(1316)	C	9NO1964	3.34693	(1317)	E	6NO1964	0.24891
161318	E	28MAY1967	2.11763	(1317)	E	28MAY1967	0.68836	(1320)	E	28MAY1967	0.86502
161321	E	7NO1964	2.10049	(1322)	E	7NO1964	2.79935	(1323)	F	6NO1964	0.37171
161324	F	6NO1964	1.08241	(1322)	F	6NO1964	1.49878	(1326)	C	27JAN1967	0.37163
161337	C	27JAN1967	2.35676	(1338)	C	28MAY1967	2.21622	(1342)	C	28MAY1967	2.91023
161340	C	28MAY1967	1.01804	(1341)	A	19AP1967	1.58862	(1342)	A	19AP1967	2.60590
161343	A	19AP1967	0.17785	(1344)	C	25AP1967	2.62387	(1345)	C	25AP1967	1.45411
161346	C	24AP1967	2.11763	(1347)	E	24AP1967	0.75782	(1348)	E	23AP1967	0.86502
161368	A	4MAY1967	2.69092	(1369)	A	4MAY1967	2.69092	(1370)	A	3MAY1967	0.40281
161372	E	29MAY1967	0.69377	(1372)	E	29MAY1967	0.69377	(1372)	E	5MAY1967	2.65616
161374	E	7MAY1967	0.404662	(1375)	E	7MAY1967	0.40465	(1376)	E	6MAY1967	1.96762
161408	A	23MAY1967	1.56505	(1465)	A	23MAY1967	0.62888	(1410)	A	23MAY1967	1.44339
161411	C	6MAY1967	0.12713	(1412)	C	3MAY1967	1.14210	(1413)	C	28MAY1967	2.08131
161414	E	28MAY1967	5.32682	(1415)	E	28MAY1967	0.19571	(1416)	E	28MAY1967	2.96967
161431	A	12JUN1967	1.80240	(1432)	A	13JUN1967	0.44902	(1433)	C	17JUN1967	3.91422
161436	C	17JUN1967	0.95587	(1436)	C	17JUN1967	0.95587	(1436)	C	17JUN1967	0.95587
161437	E	13JUN1967	0.527548	(1438)	E	14JUN1967	2.03341	(1446)	A	11JUL1967	1.30680
161462	A	11JUL1967	0.70717	(1458)	A	10JUL1967	1.81766	(1449)	C	16JUL1967	0.66641
161450	C	16JUL1967	0.59860	(1451)	E	10JUL1967	0.77590	(1452)	E	10JUL1967	0.77590
161453	E	15JUL1967	0.60626	(1454)	E	15JUL1967	1.10222	(1504)	A	28AU1967	0.69127
161505	A	28AU1967	0.07730	(1506)	A	29AU1967	0.01064	(1508)	C	25SE1967	0.69937

1509	C 5	1951/1967	3.76501	1510	C 7	1951/1967	0.12962	1511	E 2	1951/1967	3.57921
1512	E 3	1951/1967	3.45183	1513	E 3	1951/1967	0.90058	1532	A 3	1951/1967	0.62928
1533	A 4	1951/1967	0.03248	1534	A 6	1951/1967	0.00931	1535	C 7	2051/1967	0.04506
1536	E 2	2451/1967	3.43568	1537	E 3	2451/1967	11.27404	1538	E 5	2351/1967	3.61266
1539	C 3	1951/1967	0.00903	1540	E 3	1951/1967	0.01985	1541	E 2	1101/1967	0.50204
1542	E 3	1101/1967	4.50570	1543	E 5	1001/1967	0.25858	1537	G 5	91/1967	5.35919
1548	GS 2	91/1967	2.65517	1549	GS 3	91/1967	0.33624	1580	GS 4	91/1967	1.25441
1581	GS 5	101/1967	1.11146	1582	GS 5	101/1967	0.64946	1583	GS 7	101/1967	0.58811
1584	GS 8	101/1967	0.51761	1585	GS 9	101/1967	1.21024	1586	GS10	121/1967	0.69327
1587	GS11	121/1967	2.11800	1588	GS12	121/1967	2.11510	1589	GS13	121/1967	0.33622
1590	GS14	121/1967	0.15965	1591	GS15	21/1967	0.73751	1592	GS16	121/1967	0.09938
1593	GS17	131/1967	0.24107	1594	GS18	131/1967	0.05333	1595	GS19	131/1967	0.00470
1596	GS20	131/1967	0.05392	1597	GS21	131/1967	0.05733	1598	GS22	141/1967	1.55025
1599	GS 2	301/1967	3.32313	1599	GS 2	301/1967	1.25568	1596	GS 3	301/1967	0.07822
1597	GS 4	301/1967	0.57922	1598	GS 5	401/1967	0.67782	1599	GS 7	401/1967	0.59308
1590	GS 9	401/1967	0.43263	1591	GS 9	501/1967	0.64946	1592	GS10	501/1967	0.00923
1593	GS11	501/1967	1.30945	1594	GS12	501/1967	0.02963	1595	GS13	501/1967	0.03949
1596	GS14	501/1967	0.36691	1597	GS15	501/1967	0.01608	1598	GS16	501/1967	0.12698
1599	GS17	501/1967	0.05392	1599	GS18	501/1967	0.05392	1599	GS19	501/1967	0.00480
1573	GS21	601/1967	0.05672	1574	GS22	601/1967	1.61077	1575	GS28	601/1967	0.25003
1544	MS 1	201/1967	0.06715	1547	MS 1	201/1967	0.11178	1546	MS 1	201/1967	0.00402
1520	MS 1	1551/1967	0.00943	1521	MS 1	1451/1967	0.00577	1523	MS 1	1451/1967	0.00923
1525	MS 1	2051/1967	0.05570	1526	MS 1	2051/1967	0.24444	1527	MS 1	2051/1967	0.07547
1528	MS 1	2051/1967	0.23101	1529	MS 1	2051/1967	0.33577	1530	MS 1	2451/1967	0.35003
1548	MS 1	301/1967	0.03272	1549	MS 1	301/1967	0.22800	1551	MS 1	301/1967	0.03994
1552	MS 1	601/1967	0.09904	1550	MS 1	301/1967	0.04556	1553	MS 1	601/1967	0.02938
1548	MS 1	291/1967	0.07533	1549	MS 2	291/1967	1.79527	1551	MS 2	211/1967	0.33204
1547	MS 2	291/1967	4.39647	1547	MS 2	221/1967	0.02243	1548	MS 2	221/1967	0.54432
1530	MS 2	1581/1967	0.35282	1531	MS 2	291/1967	0.03093	1539	MS 2	91/1967	1.66221
1401	MS 2	61/1967	0.75259	1402	MS 2	61/1967	0.57638	1403	MS 2	61/1967	1.64999
1352	MS 2	2181/1967	0.30064	1353	MS 2	2181/1967	0.25969	1354	MS 2	291/1967	0.05696
1429	MS 2	291/1967	0.45562	1403	MS 2	101/1967	0.62770	1404	MS 2	101/1967	0.31758
1505	MS 2	121/1967	0.07746	1407	MS 2	141/1967	0.37619	1408	MS 2	191/1967	0.39637
1406	MS 2	131/1967	0.01348	1415	MS 2	231/1967	0.09154	1420	MS 2	231/1967	0.36211
1421	MS 2	231/1967	0.36333	1422	MS 2	231/1967	0.12262	1423	MS 2	251/1967	0.55101
1424	MS 2	251/1967	0.50626	1430	MS 2	121/1967	0.71552				

Synedra ulna var. *claviceps* Hust.

Synedra ulna var. *claviceps* Hustedt, Arch. Hydrobiol., Suppl. 15:157, pl. 10, fig. 36. 1938.

Valves linear with slightly expanded terminal portions and bluntly rounded ends. Striae coarse, usually 8-9 in 10μ. Specimens from Lake Michigan 109-520μ long.

Some authorities have speculated that specimens having this morphology are auxospore stages of *S. ulna*. The size range of specimens noted in this study seems to preclude this possibility.

687. SYLVAUL TCT NO. OF STATIONS 90

3540	CH	111/1937	0.00932	3541	CH	111/1937	0.00932	4609	CH	111/1937	0.00455
46771	EV	111/1937	0.00475	46780	EV	225/1937	0.00492	46751	EV	301/1937	0.11117
46675	EV	211/1937	0.05840	46761	EV	271/1937	0.04090	1240	G 6	101/1944	0.00307
1250	C 4	101/1944	0.09411	1254	G 2	151/1944	0.01912	1259	F 2	61/1944	0.01169
1260	F 3	61/1944	0.02865	1266	G 3	181/1944	0.00351	1277	G 4	185/1944	0.06202
1279	E 1	165/1944	0.00681	1280	E 2	145/1944	0.00681	1285	F 1	155/1944	0.02390
1286	F 2	155/1944	0.01095	1287	F 3	155/1944	0.01001	1298	F 1	120/1944	0.00266
1299	E 2	102/1944	0.00628	1300	E 3	130/1944	0.00716	1304	F 1	110/1944	0.00247
1306	E 3	102/1944	0.00733	1307	G 3	301/1944	0.01133	1310	C 3	281/1944	0.00073
1342	A 4	191/1947	0.00361	1343	A 6	191/1947	0.00199	1374	E 2	71/1947	0.00598
1375	E 3	71/1947	0.00241	1408	A 3	231/1947	0.00894	1431	A 3	121/1947	0.00772
1432	A 4	131/1947	0.00295	1433	C 3	171/1947	0.01292	1434	C 5	171/1947	0.00259
1446	A 3	111/1947	0.00245	1448	A 6	101/1947	0.00334	1449	C 3	161/1947	0.00382
1450	C 5	161/1947	0.00381	1451	C 7	161/1947	0.00394	1452	E 2	141/1947	0.00426
1504	G 3	281/1947	0.00276	1505	G 5	245/1947	0.00273	1506	G 5	245/1947	0.00273
1542	G 3	110/1947	0.01526	1543	E 5	100/1947	0.00718	1577	GS 1	91/1947	0.01817
1579	GS 3	91/1947	0.00615	1580	GS 4	91/1947	0.02186	1581	GS 5	101/1947	0.01631
1582	GS 6	101/1947	0.01776	1583	GS 7	101/1947	0.00535	1584	GS 8	101/1947	0.00370
1585	GS 9	101/1947	0.00942	1586	GS10	121/1947	0.01436	1587	GS11	121/1947	0.01669
1588	GS12	121/1947	0.47059	1589	GS13	121/1947	0.10572	1590	GS14	121/1947	0.00982
1591	GS15	121/1947	0.05313	1592	GS16	121/1947	0.05313	1593	GS17	121/1947	0.01729
1594	GS18	131/1947	0.02408	1595	GS19	131/1947	0.00352	1597	GS21	131/1947	0.00065
1598	GS22	141/1947	0.01518	1599	GS 2	301/1947	0.00712	1598	GS 3	401/1947	0.00396
1599	GS 4	401/1947	0.00899	1593	GS11	501/1947	0.00468	1594	GS12	501/1947	0.00045
1597	GS15	501/1947	0.02223	1599	GS17	501/1947	0.00743	1571	GS19	601/1947	0.00293
1573	GS21	601/1947	0.00742	1574	GS22	601/1947	0.00863	1575	GS28	601/1947	0.00645
1526	MS 1	2051/1947	0.00569	1552	MS 1	601/1947	0.0132	1550	MS 1	601/1947	0.00045
1428	MS 2	291/1947	0.00403	1426	MS 2	291/1947	0.00549	1427	MS 2	291/1947	0.00241
1550	MS 2	1581/1947	0.01765	1551	MS 2	291/1947	0.00404	1451	MS 2	61/1947	0.01176
1402	MS 2	61/1947	0.00541	1400	MS 2	61/1947	0.01787	1410	MS 2	231/1947	0.01831

Synedra ulna var. *constricta* Venkt.

Synedra ulna var. *constricta* Venkataraman, Proc. Indian Acad. Sci., 10 (B6):308, fig. 36. 1939.

Valves relatively broadly lanceolate, constricted in the center, with narrowly produced, rostrate ends. Specimens from Lake Michigan 75-180 μ long, 6-8 μ broad. Central area more or less elliptical, either reaching to the margins of the valve or bordered by shortened striae. Striae somewhat finer than in the nominate variety, 10-13 in 10 μ .

This entity is abundant and widely distributed in periphyton collections. Occasional specimens are noted in plankton collections from Lake Michigan. Its distinctive morphology may warrant its treatment as a separate species.

691 SYULNAVC TCT NC OF STATIONS 7

(46923	CH	22NO1946	0.00437	(46758	EV	5JUN1937	0.00357	(1388	GS12	12MY1967	C.00603
(13222	BH-1	18SE1967	0.00182	(1531	GH-1	25SE1967	0.00845	(1550	MR-1	5OC1967	C.004956
(1428	MU-2	29MY1967	0.00301								

Synedra ulna var. *danica* (Kütz.) V. H.

Synedra danica Kützling, Bacill., p. 66, pl. 14, fig. 13. 1844.

Synedra ulna var. *danica* (Kütz.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Valves elongate, linear-lanceolate with protracted, subcapitate ends. Specimens from Lake Michigan 180-350 μ long, 5-6 μ broad. Striae coarse, 9-11 in 10 μ . Central area usually present, rather small and rectangular in outline, sometimes containing faint ornamentation with the appearance of partially developed striae.

This entity is common in our collections from Lake Michigan, especially those taken from areas that have undergone enrichment. In some respects, it resembles *S. ulna* var. *chaseana* but may be distinguished from that taxon by its slightly broader valves, the presence of a central area and the shape of the ends of the valves which are smoothly rounded rather than more or less lanceolate as in *S. ulna* var. *chaseana*. In several of our collections from Lake Michigan populations of *S. ulna* var. *danica* occur together with unusual specimens with elongate expanded ends similar to the specimens Gemeinhart (1926) cites as "regeneration forms."

686 SYULNAVC TCT NC OF STATIONS 306

(60973	CH	1876	0.04724	(354C	CH	11MY1879	0.07455	(354J	CH	1FE1881	C.36193
(3507	CH	19FE1881	0.01132	(46210	CH	0C1945	0.07100	(46521	CH	23NO1955	0.10477
(46908	CH	0E1945	0.05035	(46517	CH	12JA1946	0.09898	(46915	CH	20FE1946	C.33574
(46914	CH	15AP1946	0.05167	(46924	CH	10MY1946	0.13057	(46923	CH	22NO1946	0.01497
(46920	CH	20DE1946	0.06655	(46505	CH	JA1947	0.03922	(46909	CH	MY1947	C.11839
(46912	CH	AP1947	0.13798	(46916	CH	4PY1947	0.17643	(46906	CH	MY1947	0.10354
(46919	CH	5JUN1947	0.02883	(46507	CH	JA1947	0.54489	(46913	CH	6AU1947	C.03138
(46922	CH	21AU1947	0.03829	(46758	EV	5JUN1937	0.08559	(46771	EV	11JUN1937	0.14740
(46743	EV	20JUN1937	0.26548	(46745	EV	3JUL1937	0.35528	(46770	EV	9JUL1937	0.01193
(46764	EV	0C1945	0.10475	(46752	EV	25SE1967	0.25480	(46747	EV	1AU1937	C.33171
(46763	EV	23AU1937	0.06088	(46765	EV	30AU1937	0.02789	(46749	EV	7SE1937	C.00684
(46752	EV	12SE1937	0.04354	(46760	EV	22SE1937	0.03447	(46750	EV	24SE1937	0.22623
(46744	EV	6OC1937	0.54623	(46748	EV	13OC1937	0.44833	(46747	EV	27OC1937	0.01547
(46749	EV	12MR1938	0.08550	(46768	EV	16MR1938	0.16169	(46762	EV	18MR1938	C.06617
(46751	EV	30MR1938	0.22331	(46772	EV	18AP1938	0.06388	(46756	EV	27AP1938	C.03694
(46755	EV	27AP1938	0.06752	(46761	EV	27MY1938	0.50952	(46746	EV	14OE1938	C.04753
(1223	B-3	18MY1964	0.03750	(1224	B-4	18PY1964	0.05294	(1225	C-6	15MY1964	C.42336
(1226	F-3	16PY1964	0.33486	(1227	C-2	13MY1964	0.02832	(1228	O-2	14PY1964	C.10315
(1229	O-5	14MY1964	0.36159	(1230	E-2	16PY1964	0.21633	(1231	E-3	18MY1964	C.38265
(1232	E-5	16MY1964	0.06236	(1233	B-3	5JUN2964	0.05239	(1234	B-3	18JUN1964	0.11527
(1235	F-3	16JUN1964	0.04236	(1439	B-6	5JUN1964	0.04995	(1236	C-1	8JUN1964	0.11027
(1237	C-2	8JUN1964	0.16455	(1238	O-3	11JUN1964	0.06460	(1239	O-4	11JUN1964	0.04150
(1240	O-6	10JUN1964	0.13499	(1241	E-2	13JUN1964	0.12568	(1242	E-3	13JUN1964	0.19033
(1243	E-6	11JUN1964	0.73581	(1244	F-1	11JUN1964	0.06908	(1245	C-2	11JUN1964	C.35227
(1246	F-3	11JUN1964	0.30518	(1247	B-3	14JUL1964	0.07257	(1248	B-3	24JUL1964	C.16355
(1460	B-6	11JUL1964	0.09550	(1441	B-6	24JUL1964	0.11674	(1249	C-3	8JUL1964	0.06817
(1250	C-6	10JUL1964	C.74000	(1251	C-7	14JUL1964	0.03766	(1252	C-1	16JUL1964	C.02232
(1253	C-2	13JUL1964	0.13465	(1254	O-2	15JUL1964	0.18004	(1255	O-5	15JUL1964	C.11550
(1256	E-2	14JUL1964	0.25647	(1257	E-3	14JUL1964	0.22491	(1258	F-1	6JUL1964	C.25486
(1259	F-2	6JUL1964	0.25719	(1260	F-3	6JUL1964	0.26779	(1261	B-3	28JUL1964	C.04500
(1262	B-3	17AUL1964	0.00630	(1262	F-6	28JUL1964	0.05807	(1263	F-7	15AUL1964	C.01201
(1264	C-1	10AUL1964	0.03282	(1265	C-2	10AUL1964	0.07824	(1266	O-3	18AUL1964	C.22450

1267	D 6	18AU1964	0.0513	1268	E 2	15AU1964	C.70030	1269	E 8	15AU1964	C.35356
1270	F 1	10AU1964	0.09258	1244	H 6	19SE1964	C.16066	1272	C 1	10SE1964	C.01231
1273	C 2	10SE1964	0.01612	1274	O 1	17SE1964	C.05033	1275	E 2	13SE1964	C.2680
1276	D 3	18SE1964	0.45800	1277	F 1	18SE1964	C.03718	1278	O 6	18SE1964	C.29594
1279	E 1	16SE1964	0.02356	1280	E 2	16SE1964	C.32678	1281	E 3	16SE1964	C.31786
1282	E 4	16SE1964	0.14464	1283	E 3	16SE1964	C.45523	1284	O 3	15SE1964	C.04615
1285	F 2	18SE1964	0.43096	1286	F 2	18SE1964	C.14249	1287	F 3	15SE1964	C.1508
1445	B 6	14OC1964	0.02283	1289	C 7	14OC1964	C.06556	1290	C 1	16OC1964	C.60758
1291	C 2	16OC1964	0.02423	1293	O 7	16OC1964	C.02167	1294	O 3	19OC1964	C.28099
1295	D 2	18OC1964	0.06551	1296	O 5	14OC1964	C.05115	1297	O 6	14OC1964	C.14089
1298	E 1	12OC1964	C.01077	1299	E 2	12OC1964	C.04398	1300	E 3	13OC1964	C.45463
1301	E 1	16OC1964	0.05061	1302	E 1	16OC1964	C.02166	1303	E 1	16OC1964	C.04615
1304	F 1	11OC1964	C.05048	1305	F 2	11OC1964	C.12766	1306	F 3	11OC1964	C.10810
1307	H 6	NO1964	0.00722	1308	C 7	6NO1964	C.02129	1310	C 2	10NO1964	C.60227
1312	O 1	NO1964	C.03104	1313	O 2	NO1964	C.02510	1314	O 3	NO1964	C.04615
1315	D 5	9NO1964	C.02275	1316	D 6	9NO1964	C.18888	1317	E 1	6NO1964	C.00191
1318	E 2	7NO1964	C.02093	1319	E 3	7NO1964	C.02880	1320	E 4	7NO1964	C.60687
1321	E 2	28MU1967	C.50902	1341	F 1	15AP1967	C.12604	1342	A 4	19AP1967	C.2565
1324	F 2	6NO1964	C.03028	1325	F 3	6NO1964	C.12595	1336	C 3	27JA1967	C.02118
1337	C 3	28MU1967	C.03441	1338	C 3	28MU1967	C.33850	1339	C 2	28MU1967	C.72956
1340	C 3	28MU1967	C.06663	1341	C 3	25AP1967	C.06749	1342	A 4	19AP1967	C.2565
1343	A 4	19AP1967	C.48632	1344	C 3	25AP1967	C.06394	1345	C 3	25AP1967	C.45611
1346	C 7	21AP1967	C.09367	1347	E 2	23AP1967	C.24144	1348	E 5	23AP1967	C.31254
1368	A 3	4MY1967	1.42567	1369	A 4	4MY1967	1.82638	1370	A 6	4MY1967	1.35487
1371	C 3	4MY1967	2.26234	1372	C 3	5MY1967	C.09305	1373	C 7	5MY1967	C.55901
1374	E 2	7MY1967	1.39271	1375	E 3	7MY1967	C.52639	1408	A 3	23MY1967	2.61606
1409	A 4	23MY1967	1.14563	1410	A 6	23MY1967	C.15742	1411	C 3	31MY1967	1.15402
1412	C 5	31MY1967	C.98493	1413	C 7	23MY1967	1.21616	1414	E 2	28MY1967	C.94039
1415	E 3	28MY1967	1.36255	1416	E 5	28MY1967	C.11900	1431	A 3	12JN1967	1.56037
1432	A 3	13JN1967	1.45776	1433	C 3	7JN1967	C.31378	1434	C 5	17JN1967	1.67484
1435	C 7	13JN1967	1.02927	1436	E 2	15JN1967	C.23648	1437	E 3	15JN1967	C.47103
1438	E 5	15JN1967	C.63210	1446	A 3	11JL1967	C.57238	1447	A 4	11JL1967	C.99270
1448	A 6	10JL1967	C.34074	1449	C 3	8JL1967	C.160495	1450	C 5	16JL1967	1.42055
1451	C 7	16JL1967	1.28735	1452	E 2	14JL1967	C.49815	1453	E 3	15JL1967	C.64707
1454	E 1	15JL1967	C.54196	1504	A 3	28AU1967	C.31354	1505	A 4	28AU1967	C.61031
1506	A 6	25AU1967	C.05754	1508	C 3	25E1967	C.21181	1509	C 5	25E1967	C.54507
1510	C 7	29AU1967	C.04742	1511	E 2	13E1967	C.53719	1512	E 3	13E1967	1.00518
1513	E 5	31AU1967	C.05423	1532	A 3	18SE1967	C.02937	1533	A 4	18SE1967	C.01393
1534	A 6	19SE1967	C.00931	1535	C 7	20SE1967	C.00322	1536	E 2	24SE1967	C.38174
1537	E 2	24SE1967	1.46602	1538	E 5	23SE1967	C.15353	1540	C 5	4OC1967	C.00496
1542	E 1	11OC1967	C.12441	1543	E 3	9MY1967	C.03951	1577	G 5	29E7	C.95727
1578	GS 2	9MY1967	1.07649	1579	GS 3	9MY1967	C.51993	1580	GS 4	4OC1967	C.94165
1581	GS 5	10MY1967	C.46033	1582	GS 6	10MY1967	C.53568	1583	GS 7	10MY1967	C.41435
1584	GS 8	10MY1967	C.56732	1586	GS10	13JL1967	C.18185	1586	GS12	12MY1967	C.95302
1587	GS11	12MY1967	1.01394	1588	GS12	12MY1967	C.21146	1589	GS13	12MY1967	C.99270
1590	GS14	12MY1967	C.20520	1591	GS15	12MY1967	C.46133	1592	GS16	12MY1967	1.67868
1593	GS17	13MY1967	1.0889	1594	GS18	13MY1967	C.22093	1595	GS19	13MY1967	C.20061
1596	GS20	13MY1967	C.01332	1597	GS21	13MY1967	C.00523	1598	GS22	13MY1967	1.41482
1599	GS 1	3OC1967	C.76329	1599	GS 2	3OC1967	C.01272	1599	GS 3	3OC1967	C.54207
1599	GS 4	3OC1967	C.07137	1599	GS 5	4OC1967	C.02749	1599	GS 7	4OC1967	C.59207
1599	GS 8	4OC1967	C.01967	1599	GS 9	4OC1967	C.14087	1599	GS10	5OC1967	C.43157
1599	GS11	5OC1967	C.51443	1599	GS12	5OC1967	C.00988	1599	GS13	5OC1967	C.60208
1599	GS14	5OC1967	C.19263	1599	GS15	5OC1967	C.81608	1599	GS16	5OC1967	C.28840
1599	GS17	5OC1967	C.29220	1599	GS18	5OC1967	C.18187	1599	GS19	5OC1967	C.94165
1573	GS21	6OC1967	C.01680	1574	GS22	6OC1967	C.37195	1575	GS20	6OC1967	C.07354
1544	MU 1	2OC1967	C.00238	1547	M 1	2OC1967	C.02395	1546	LU 1	2OC1967	C.01000
1520	MD 1	18SE1967	C.05186	1521	SH 1	18SE1967	C.02308	1525	PW 1	20SE1967	C.02785
1526	MD 1	20SE1967	C.95584	1527	TR 1	20SE1967	C.02389	1528	SB 1	20SE1967	C.01551
1530	FR 1	24SE1967	C.20002	1531	GH 1	25SE1967	C.04227	1545	NL 1	2OC1967	C.02027
1549	MD 1	4OC1967	C.91186	1551	E 5	5OC1967	C.03994	1552	SM 1	4OC1967	C.07523
1550	MR 1	5OC1967	C.16107	1553	SG 1	4OC1967	C.02938	1548	MU 2	29MY1967	C.12655
1546	MS 2	29MY1967	C.83990	1551	M 2	21AP1967	C.12994	1547	LU 2	29MY1967	1.41646
1547	MD 2	29MY1967	C.59818	1548	SH 2	22MY1967	C.10515	1550	BN 2	19AP1967	C.23648
1545	MR 2	29MY1967	C.10333	1541	MD 2	6MY1967	C.47037	1542	TR 2	6MY1967	C.24908
1540	SB 2	6MY1967	1.14367	1552	KW 2	21AP1967	C.32640	1553	FR 2	23AP1967	C.36920
1534	GR 2	25AP1967	C.05006	1549	NL 2	29MY1967	C.19110	1543	CA 2	10MY1967	C.46001
1540	MD 2	10MY1967	C.21224	1540	ES 2	12MY1967	C.16125	1547	SM 2	14MY1967	C.25676
1545	CL 2	19AP1967	C.49932	1546	EN 2	13MY1967	C.00270	1549	BU 2	23MY1967	1.51920
1542	IR 2	23MY1967	C.73414	1542	HN 2	13MY1967	C.26801	1542	MC 2	12JN1967	C.93758
1543	WA 2	25AP1967	C.02216	1543	KN 2	25MY1967	C.75939	1543	MC 2	12JN1967	C.93758

Synedra ulna var. *longissima* (Wm. Smith) Brun

Synedra longissima Wm. Smith, Syn. British Diat., vol. 1, p. 72, pl. 12, fig. 95. 1853.

Synedra ulna var. *longissima* (Wm. Smith) Brun, Diat. Alpes Jura, p. 126, pl. 4, fig. 21. 1880.

Valves linear to linear-lanceolate with expanded, bluntly rounded ends. Frustules are often extremely elongate and many are more or less curved. Other features as in the nominate variety.

685 SYULNAV8 TGT NC CF STATIONS 3

1568 CS16 5OC1967 0.00144 1403 CA 2 10MY1967 0.09154 1404 MU 2 10MY1967 C.22864

690 SYULNAV9 TGT AC CF STATIONS 3

1522 BH 1 18SE1967 0.46866 1531 GH 1 25SE1967 8.25021 1530 EH 2 19AP1967 C.22423

Synedra ulna var. *oxyrhynchus* (Kütz.) V. H.

Synedra oxyrhynchus Kütz., Bacill., p. 66, pl. 14, fig. 8. 1844.

Synedra ulna var. *oxyrhynchus* (Kütz.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Valves linear with narrowly rostrate apices. The maximum length of this entity is less than 150 μ and the striae tend to be finer than in the nominate variety, usually about 14-15 in 10 μ .

693 SYULNAVX TCT NO OF STATIONS 11

146916	CH	4MY1947	0.00034	1	146916	CH	MY1947	0.00066	1	146916	CH	5JN1947	0.00303	1
146907	CH	JL1947	0.00049	1	146922	CH	21JUL1947	0.00048	1	146749	EV	20JUN1937	0.01285	1
11257	E 3	14JUL1964	0.00239	1	1394	GS18	13MY1967	0.00344	1	1395	GS19	13MY1967	0.00235	1
11426	MS 2	29MY1967	0.02106	1	1427	LU 2	29MY1967	0.02111	1					

Synedra ulna var. *spathulifera* (Grun.) V. H.

Synedra spatulifera Grunow in: Van Heurck, Syn. Diat. Belgique, pl. 38, fig. 4. 1881.

Synedra ulna var. *spathulifera* (Grun.) Van Heurck, Syn. Diat. Belgique, p. 151. 1885.

Valves linear through most of their length, at the ends broadly expanded to a width greater than the center of the valve, then abruptly narrowed to produced, subcapitate ends. Other features of the morphology and ornamentation of the frustule are essentially similar to the nominate variety.

This entity is common in some periphyton collections from Lake Michigan. It is rarely taken in plankton collections and the specimens observed in our collections are undoubtedly derived from benthic habitats. As pointed out by other authors (Boyer 1927; Hustedt 1932) this entity is not related to the "regeneration forms" discussed above.

695 SYULNAVX TCT NO OF STATIONS 8

146767	EV	27OC1937	0.00387	1	1258	F 1	6JL1964	0.00236	1	1567	GS15	5OC1967	0.00159	1
11522	HM 1	18SE1967	0.00912	1	1531	GH 1	25SE1967	0.01044	1	1553	SG 1	6OC1967	0.01465	1
11617	HO 2	22MY1967	0.00374	1	1350	HM 2	19AP1967	0.02203	1					

Species incertae sedis

Synedra sp. (aff. *S. hyperborea* var. *rostellata*)

676 SYHYPEVR TCT NO OF STATIONS 32

146908	CH	FE1945	0.01007	1	146915	CH	20FE1946	0.00569	1	146916	CH	4MY1947	0.00034	1
146922	CH	21JUL1947	0.00048	1	146749	EV	12MY1938	0.01214	1	146761	EV	27MY1938	0.00818	1
11461	B 6	25JUL1964	0.00222	1	11257	E 3	14JUL1964	0.00239	1	11258	F 1	6JL1964	0.00706	1
11259	F 2	6JUL1964	0.00310	1	1260	F 3	6JL1964	0.00382	1	1264	C* 1	10JUL1964	0.00193	1
11293	C* 2	14OC1964	0.00245	1	1299	E 2	12OC1964	0.00561	1	1300	F 3	13OC1964	0.00358	1
11303	E 6	13OC1964	0.00560	1	1305	F 2	11OC1964	0.00345	1	1307	B 6	10JUL1964	0.00361	1
11311	D 1	9NOV1964	0.00516	1	1315	G 5	9NOV1964	0.01365	1	1319	E 3	7NOV1964	0.00524	1
11320	E 4	7NOV1964	0.00620	1	1321	E 5	7NOV1964	0.00638	1	1347	E 2	23AP1967	0.00650	1
11348	E 5	23AP1967	0.00137	1	1370	A 6	3MY1967	0.00460	1	1376	E 5	6MY1967	0.00281	1
11432	A 4	13JUN1967	0.00255	1	1448	A 6	10JUL1967	0.00354	1	1539	G 3	4OC1967	0.01006	1
11381	GS 5	10MY1967	0.00354	1	1382	GS 6	10MY1967	0.00278	1					

Synedra sp. #7.

704 SYSPCOG TCT NO OF STATIONS 7

146915	CH	5JN1947	0.00122	1	1236	C* 1	8JN1964	0.01050	1	1243	E 6	13JN1964	0.00209	1
11284	E 6	17SE1964	0.00318	1	1285	F 1	15SE1964	0.03494	1	1287	F 3	15SE1964	0.00500	1
11382	GS 6	10MY1967	0.00278	1										

Synedra sp. #12.

709 SYSPGCOL TCT NO OF STATIONS 1
(1315 D 5 SNO1964 0.00455) (

Synedra sp. #13.

710 SYSPGCOM TCT NO OF STATIONS 1
(1258 F 1 6JL1964 0.00472) (

Synedra "capitata var. fossilis" (not validly described).

667 SYCAPIVE TCT NO OF STATIONS 1
(1400 SB 2 6MJ1967 0.00556) (

Genus *Tabellaria* Ehr.

Ehrenberg, Ber. Akad. Wiss. Berlin, 1840:217. 1840.

All members of the genus *Tabellaria* reported below occur in plankton collections from Lake Michigan in abundance. The populations observed are highly variable and specific determinations are often obtained with difficulty. It appears probable that some of these variable populations may contain more than one genetic entity, however we have found no way that they can be consistently separated on the basis of morphologic characteristics visible with the light microscope. Knudson (1952) has revised the genus, largely on the basis of the type of colony formation. In our experience this is the least stable of all morphologic characteristics. Any of the entities reported below will, in some instances, adopt any or all of the colony forms reported by Knudson.

Tabellaria fenestrata (Lyngb.) Kütz.

Diatoma fenestratum Lyngbye, Tent. Hydrophyt. Danicae, p. 180, pl. 61, fig. E(3). 1819.

Tabellaria fenestrata (Lyngb.) Kütz., Bacill., p. 127, pl. 18, fig. 2. 1844.

Cells in girdle view elongate-rectangular with rounded ends, united by gelatinous pads at the corners into zig-zag or, more rarely, linear or stellate colonies. Usually four conspicuous septae, lying in the valvar plane, are evident. Valves elongate, linear, slightly expanded at the middle and at the ends. Expanded areas subequal, middle only slightly broader than the ends. Valves of specimens from Lake Michigan 24-134 μ long, 4-8 μ broad at the middle. Striae fine, 18-22 in 10 μ , perpendicular to the midline throughout. Axial area narrow, linear, without any specially demarcated central area. At the ends of the valves there are pore fields composed of very fine and irregularly arranged puncta. A conspicuous slime pore is present just to one side of the axial area near the center of the valve. In some populations very fine marginal spines are present at the margins of the valve.

711 TAFENEST TCT NO OF STATIONS 320

460973	CH	1876	9.84884	(	3540	CH	11MY1879	52.13623	(	3541	CH	1FE1881	53.07639	)	
(	3507	CH	19FE1881	69.66266	)	460910	CH	0C1945	12.17613	(	460921	CH	23NO1945	36.46599	)
460908	CH	0E1945	37.18978	)	460917	CH	12JA1946	34.19790	)	460915	CH	20FE1946	30.14282	)	
460914	CH	19AP1946	15.00508	)	460924	CH	10MY1946	8.50970	)	460923	CH	22OC1946	21.87785	)	
460920	CH	20OE1946	10.89439	)	460925	CH	JA1947	29.91420	)	460909	CH	RI1947	42.02904	)	
460912	CH	0PI947	11.05815	)	460916	CH	0MY1947	6.08276	)	460906	CH	RY1947	2.97666	)	
460915	CH	5JN1947	3.79660	)	460907	CH	JI1947	23.87903	)	460913	CH	6AU1947	30.53237	)	

465922	CH	21AU1547	33.39197	46758	EV	5JUN1937	11.08937	46771	EV	11JUN1937	3.46156	4
465923	CH	21AU1547	18.22385	46758	EV	28.61737	28.72923	46771	EV	40.18770	46.2770	4
46764	EV	17JUL1937	18.72682	46757	EV	25JUL1937	32.62241	46747	EV	18JUL1937	16.91214	4
46763	EV	23AU1937	26.13635	46765	EV	30AU1937	44.66257	46769	EV	75E1937	21.88449	4
46752	EV	15SE1937	19.45349	46763	EV	24JUL1937	24.74759	46754	EV	24JUL1937	24.74759	4
46744	EV	19E1937	12.01713	46748	EV	13C1937	1.19356	46767	EV	27OC1937	6.06553	4
46749	EV	12MR1937	7.13674	46768	EV	16MR1938	6.58533	46762	EV	10MR1938	0.02823	4
46751	EV	16SEP1938	4.00491	46772	EV	16JUL1938	4.00491	46756	EV	8JUL1938	16.71007	4
46759	EV	19MY1946	4.19035	46761	EV	27MR1938	15.26218	46766	EV	14C1938	11.53595	4
12223	E3	6.154710		1227	C 4	1.68552		1225	C 6	15MR1966	22.77538	4
1226	C	16MY1964	31.46346	1227	C 2	13V1964		1228	C 0	21.14800		4
1229	D 5	14MY1964	26.54127	1230	E 2	16MY1964	24.27536	1231	E 1	38MY1966	6.08874	4
1232	E 1	13JUL1964	21.12769	1233	E 3	12JUL1964	21.12769	1234	E 3	18JUL1966	32.66682	4
1225	C 7	16JUL1964	41.51721	1239	E 6	5JUN1964	14.63661	1236	C 1	16JUL1966	16.71007	4
1237	C 2	8JUL1964	34.46764	1238	0	11JUN1964	8.96000	1239	D 4	11JUN1966	22.82564	4
1240	E 6	13JUL1964	36.62861	1241	E 3	12.21277		1242	F 1	11JUN1966	45.78575	4
1243	E 6	13JUL1964	17.97794	1244	F 1	11JUN1964	39.52721	1245	F 2	11JUN1966	45.78575	4
1246	F 3	11JUL1964	46.24351	1247	E 3	14JUL1964	34.95966	1248	8	24JUL1966	35.52766	4
1240	E 6	14JUL1964	19.40622	1241	F 6	24C1964	2.70764	1249	3	8JUL1966	16.71007	4
1250	C 6	10JUL1964	14.10072	1251	C 7	16JUL1964	40.55855	1252	C 1	16JUL1966	38.85634	4
1253	C 2	16JUL1964	21.24794	1254	D 2	15JUL1964	8.84888	1255	0	15JUL1966	4.66784	4
1256	E 2	13JUL1964	13.55273	1257	3	6JUL1964	2.01914	1258	2	10AUL1966	15.26551	4
1259	F 2	6JUL1964	19.73846	1260	F 3	6JUL1964	25.40251	1261	8	28AUL1966	38.46455	4
1262	E 3	17AUL1964	14.84678	1262	8	28AUL1964	2C.30023	1263	8	16AUL1966	5.46323	4
1263	C 7	18AUL1964	28.58286	1264	C 3	10AUL1964	36.42727	1265	C 2	10AUL1966	36.2C142	4
1266	D 3	18AUL1964	11.54062	1267	0	18AUL1964	43.57776	1268	E 2	15AUL1966	15.12747	4
1269	E 3	15AUL1964	5.56378	1270	F 1	10AUL1964	17.91695	1271	8	195E1966	11.45836	4
1271	C 7	22SE1964	68.55127	1272	C 4	10SE1964	28.73009	1273	C 3	10SE1966	21.45276	4
1274	D 1	17SE1964	28.90254	1275	D 2	17SE1964	23.9393	1276	0	18SE1966	23.46892	4
1277	D 2	18SE1964	44.88550	1278	0	18SE1964	52.47937	1279	E 1	18SE1966	29.86087	4
1280	E 1	18JUL1964	11.91361	1281	E 6	8JUN1964	8.79017	1282	E 1	18JUL1966	21.14800	4
1283	E 5	18JUL1964	18.48594	1284	E 6	17SE1964	11.57060	1285	F 1	15SE1966	11.14549	4
1286	E 6	19JUL1964	19.15490	1287	E 3	17SE1964	19.41522	1288	3	15JUL1966	11.14549	4
1445	E 6	14C1964	46.57533	1289	C 7	14C1964	50.94560	1290	C 1	14C1966	17.85674	4
1291	C 2	16C1964	39.72408	1292	O 1	15OC1964	37.04532	1293	D 2	15OC1966	47.87283	4
1296	E 3	18C1964	41.07193	1295	0	40JAN1965	40.78803	1296	E 3	18C1966	56.73387	4
1297	D 6	14C1964	51.31183	1298	E 1	12C1964	32.42133	1299	E 2	12C1966	31.00847	4
1300	E 3	13C1964	23.80525	1301	E 4	13C1964	17.92810	1302	E 5	13C1966	11.62037	4
1303	E 6	14C1964	25.85911	1304	C 7	11C1964	6.45005	1305	E 3	14C1966	36.13381	4
1306	F 3	11C1964	9.85253	1307	E 6	10JAN1964	30.30740	1308	C 7	6ND1966	50.67064	4
1309	C 1	10ND1964	15.64510	1310	C 2	10ND1964	7C.00000	1311	0	10ND1966	24.74722	4
1312	D 2	14ND1964	25.42293	1313	0	30JAN1964	38.26124	1314	D 4	6ND1966	26.13381	4
1315	D 5	9ND1964	48.40764	1316	D 6	9ND1964	24.06316	1317	E 1	6ND1966	24.66109	4
1318	F 2	7ND1964	26.50153	1319	E 3	7ND1964	21.26044	1320	E 4	7ND1966	17.55242	4
1321	E 2	7ND1964	16.75923	1322	E 6	7ND1964	11.43067	1323	F 1	6ND1966	9.17073	4
1324	F 2	6ND1964	12.55445	1325	E 3	21AUG1964	21.15833	1326	E 3	21AUG1966	78.61022	4
1337	E 3	1337	8.43584	1338	C 3	28MR1967	8.43584	1339	C 3	28MR1966	12.52474	4
1340	C 7	28MR1967	4.67738	1341	A 1	13APR1967	15.51552	1342	A 4	19APR1967	2C.21185	4
1343	E 6	19APR1967	1.44000	1344	E 6	19APR1967	1.44000	1345	E 6	19APR1967	1.44000	4
1356	C 7	21APR1967	8.13126	1347	E 2	23APR1967	8.99114	1348	E 5	23APR1967	14.77724	4
1368	A 3	4MY1967	17.01337	1369	A 4	4MY1967	9.91464	1370	A 6	3MY1967	14.82334	4
1371	C 3	7MY1967	15.64688	1372	E 1	12JUL1967	12.64131	1373	C 3	5MY1967	5.15476	4
1374	E 2	7MY1967	10.04184	1375	E 3	7MY1967	14.95074	1376	E 5	6MY1967	34.83008	4
1408	A 3	23MY1967	35.96659	1409	A 4	23MY1967	25.20383	1410	A 6	24MY1967	29.95544	4
1411	C 3	31MY1967	19.24260	1412	C 5	10JUL1967	10.31331	1413	C 7	29MY1967	7.76606	4
1414	E 2	28MY1967	14.15779	1415	E 3	28MY1967	11.01767	1416	E 5	28MY1967	21.12444	4
1431	A 3	12JUN1967	34.42593	1432	A 4	12JUN1967	10.01328	1433	C 3	17JUN1967	22.96330	4
1436	E 5	17JUN1967	7.76614	1435	E 4	13JUN1967	41.45244	1436	E 2	15JUN1967	7.02222	4
1437	E 3	15JUN1967	4.33343	1438	E 5	14JUN1967	7.87495	1446	A 4	11JUL1967	17.22449	4
1447	A 4	11JUL1967	10.64278	1448	A 6	10JUL1967	62.63483	1449	C 3	16JUL1967	6.15232	4
1450	E 6	16JUL1967	8.93078	1451	C 7	16JUL1967	24.95943	1452	C 2	14JUL1967	16.44303	4
1453	E 3	15JUL1967	1.50393	1454	E 5	15JUL1967	36.82736	1456	A 3	28AUL1967	46.48808	4
1505	A 4	28AUL1967	31.28203	1506	C 7	29AUL1967	51.9191	1508	C 3	25E1967	42.24281	4
1509	E 3	10AUG1967	10.24528	1510	C 7	29AUL1967	46.46664	1511	E 2	15E1967	12.67766	4
1512	E 3	15E1967	4.33766	1513	E 5	31AUG1967	13.47927	1532	A 3	18E1967	3C.12622	4
1533	E 6	19E1967	32.45468	1534	A 6	19E1967	31.92380	1535	C 3	20E1967	62.90072	4
1536	E 2	24E1967	25.57669	1537	E 3	24E1967	11.77435	1538	E 5	23E1967	17.49426	4
1539	C 3	40C1967	28.52297	1540	C 5	40C1967	34.55631	1541	E 2	11C1967	26.03933	4
1543	E 3	40C1967	40.77177	1544	E 3	40C1967	12.40784	1545	E 3	15AUG1967	35.14608	4
1379	CS 3	9MY1967	37.91161	1380	CS 4	9MY1967	39.31393	1381	CS 5	10MY1967	36.39746	4
1382	CS 5	10MY1967	20.80380	1383	CS 7	10MY1967	26.57105	1384	CS 8	10MY1967	18.24567	4
1385	CS 9	13MY1967	36.94146	1386	CS 10	12MY1967	22.92222	1387	CS 11	13MY1967	16.44303	4
1388	CS12	12MY1967	24.91704	1389	CS13	12MY1967	12.61480	1390	CS14	12MY1967	2C.14091	4
1391	CS15	12MY1967	26.48887	1392	CS16	12MY1967	19.10155	1393	CS17	13MY1967	21.47710	4
1394	CS18	13JAN1968	13.72489	1395	CS19	12MY1967	2.87714	1396	CS20	13MY1967	6.02689	4
1397	CS21	13MY1967	6.04097	1398	CS22	14MY1967	37.82870	1399	CS 1	3CC1967	16.92456	4
1399	CS 2	3CC1967	24.71751	1396	CS 3	3CC1967	4C.15225	1397	CS 4	3CC1967	16.91031	4
1398	CS 5	13JUN1967	2.91919	1399	CS 6	14JUN1967	14.93320	1396	CS 7	13JUN1967	17.88938	4
1391	CS 9	40C1967	29.07180	1392	CS10	50C1967	23.31737	1393	CS11	50C1967	2C.62386	4
1394	CS12	50C1967	8.07155	1395	CS13	50C1967	3.90427	1396	CS14	50C1967	16.5458	4
1397	CS15	21APR1967	22.47947	1398	CS16	50C1967	7.82824	1399	CS17	50C1967	6.03511	4
1390	CS18	50C1967	8.23007	1391	CS19	60C1967	1.59811	1372	CS20	60C1967	4C.0047	4
1393	CS21	60C1967	0.26200	1394	CS22	60C1967	24.96492	1375	CS28	60C1967	17.88938	4
1344	W 1	2CC1967	0.15012	1347	MS 1	20C1967	5.23752	1354	W 1	20E1967	38.87915	4
1346	W 1	2CC1967	1.60C6C	1350	HO 1	18E1967	15.61401	1321	SH 1	18E1967	5.00815	4
1352	W 1	0.00000		1353	HO 2	18E1967	17.02177	1325	SH 2	18E1967	47.88138	4
1326	W 1	20E1967	5.27963	1327	TR 1	20E1967	1.91195	1328	SH 3	20E1967	30.03175	4
1329	W 1	20E1967	6.92396	1330	FP 1	24E1967	11.52115	1331	CH 1	23E1967	1.79824	4
1341	W 1	20E1967	2.91919	1342	GA 1	7.32714		1343	PC 1	20E1967	17.88938	4
1351	ES 1	50C1967	3.45075	1352	MR 1	6CC1967	0.66889	1350	MR 1	50C1967	2.77537	4
1353	SG 1	60C1967	0.41883	1428	MO 1	20MY1967	1.01338	1429	MO 2	20MY1967	17.88938	4
1351	W 1	21APR1967	1.35022	1427	W 2	29MY1967	12.62871	1417	HO 2	22MY1967	34.00000	4
1418	SH	22MY1967	35.83203</									

Tabellaria fenestrata var. *geniculata* A. Cleve

Tabellaria fenestrata var. *geniculata* A. Cleve, Ofv. K. Svenska Vet.-Akad. Forhandl. 8:831, fig. 1-5. 1899.

Distinguished from the nominate variety by valves which are rather strongly bent in the apical axis. In most specimens the midportion of the valve is more strongly expanded on the side opposite the arc of the ends. This entity is highly variable in both frustule structure and colony formation. The valves are often somewhat constricted near the central and terminal expansions. Perhaps best treated as a separate species of subspecies (Skabitschewsky 1960).

112 TAFENEVG ICT NC OF STATIONS 228

(46973) CH	1876	0.2932	1	354C	CH	11MY1879	C.40049	1	3541	CH	1FE1881	C.44018
(4907) CH	19FE1881	0.29432	1	46510	CH	OC1945	0.00218	1	46621	CH	23NO1943	C.00299
(46917) CH	12JA1546	0.01636	1	46515	CH	20FE1946	0.09121	1	46616	CH	19AP1946	C.00214
(46924) CH	10MY1946	0.00141	1	46523	CH	22ND1946	0.00219	1	46620	CH	20DE1946	C.00062
(46905) CH	JA1547	0.00123	1	46509	CH	MR1947	0.01821	1	46612	CH	AP1547	C.01150
(46916) CH	0.000167	0.000167	1	46517	CH	5JN1947	0.00303	1	46607	CH	JA1547	C.00426
(46922) CH	21AU1547	0.01131	1	46758	EV	5JN1937	0.00337	1	46671	EV	11JM1937	C.00238
(46743) EV	20JM1937	0.01713	1	46745	EV	3JL1937	0.04180	1	46710	EV	7JL1937	C.03578
(46765) EV	17JL1547	0.00806	1	46757	EV	2JL1937	0.05296	1	46674	EV	18A1937	C.00743
(46765) EV	30AU1537	0.02231	1	46676	EV	21OC1937	0.00387	1	46671	EV	27W1938	C.00545
(46765) EV	18MY1564	0.00156	1	46674	EV	18MY1964	0.00196	1	46675	EV	18MY1964	C.00392
(46765) EV	0.01142	0.01142	1	46674	EV	18MY1964	0.00548	1	46675	EV	18MY1964	C.00426
(46765) EV	18MY1964	0.00386	1	46674	EV	18MY1964	0.00839	1	46675	EV	18MY1964	C.00426
(46765) EV	0.00621	0.00621	1	46674	EV	18MY1964	0.00621	1	46675	EV	18MY1964	C.00426
(46765) EV	0.01130	0.01130	1	46674	EV	18MY1964	0.00799	1	46675	EV	18MY1964	C.00426
(46765) EV	0.00228	0.00228	1	46674	EV	18MY1964	0.00231	1	46675	EV	18MY1964	C.00426
(46765) EV	0.00244	0.00244	1	46674	EV	18MY1964	0.00244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.01235	0.01235	1	46674	EV	18MY1964	0.01037	1	46675	EV	18MY1964	C.00426
(46765) EV	0.01379	0.01379	1	46674	EV	18MY1964	0.01379	1	46675	EV	18MY1964	C.00426
(46765) EV	0.01415	0.01415	1	46674	EV	18MY1964	0.01415	1	46675	EV	18MY1964	C.00426
(46765) EV	0.01564	0.01564	1	46674	EV	18MY1964	0.01564	1	46675	EV	18MY1964	C.00426
(46765) EV	0.01797	0.01797	1	46674	EV	18MY1964	0.01797	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02340	0.02340	1	46674	EV	18MY1964	0.02340	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02589	0.02589	1	46674	EV	18MY1964	0.02589	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02693	0.02693	1	46674	EV	18MY1964	0.02693	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02712	0.02712	1	46674	EV	18MY1964	0.02712	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02732	0.02732	1	46674	EV	18MY1964	0.02732	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02759	0.02759	1	46674	EV	18MY1964	0.02759	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02814	0.02814	1	46674	EV	18MY1964	0.02814	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02844	0.02844	1	46674	EV	18MY1964	0.02844	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02894	0.02894	1	46674	EV	18MY1964	0.02894	1	46675	EV	18MY1964	C.00426
(46765) EV	0.02944	0.02944	1	46674	EV	18MY1964	0.02944	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03044	0.03044	1	46674	EV	18MY1964	0.03044	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03144	0.03144	1	46674	EV	18MY1964	0.03144	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03244	0.03244	1	46674	EV	18MY1964	0.03244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03344	0.03344	1	46674	EV	18MY1964	0.03344	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03444	0.03444	1	46674	EV	18MY1964	0.03444	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03544	0.03544	1	46674	EV	18MY1964	0.03544	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03644	0.03644	1	46674	EV	18MY1964	0.03644	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03744	0.03744	1	46674	EV	18MY1964	0.03744	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03844	0.03844	1	46674	EV	18MY1964	0.03844	1	46675	EV	18MY1964	C.00426
(46765) EV	0.03944	0.03944	1	46674	EV	18MY1964	0.03944	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04044	0.04044	1	46674	EV	18MY1964	0.04044	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04144	0.04144	1	46674	EV	18MY1964	0.04144	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04244	0.04244	1	46674	EV	18MY1964	0.04244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04344	0.04344	1	46674	EV	18MY1964	0.04344	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04444	0.04444	1	46674	EV	18MY1964	0.04444	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04544	0.04544	1	46674	EV	18MY1964	0.04544	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04644	0.04644	1	46674	EV	18MY1964	0.04644	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04744	0.04744	1	46674	EV	18MY1964	0.04744	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04844	0.04844	1	46674	EV	18MY1964	0.04844	1	46675	EV	18MY1964	C.00426
(46765) EV	0.04944	0.04944	1	46674	EV	18MY1964	0.04944	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05044	0.05044	1	46674	EV	18MY1964	0.05044	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05144	0.05144	1	46674	EV	18MY1964	0.05144	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05244	0.05244	1	46674	EV	18MY1964	0.05244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05344	0.05344	1	46674	EV	18MY1964	0.05344	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05444	0.05444	1	46674	EV	18MY1964	0.05444	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05544	0.05544	1	46674	EV	18MY1964	0.05544	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05644	0.05644	1	46674	EV	18MY1964	0.05644	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05744	0.05744	1	46674	EV	18MY1964	0.05744	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05844	0.05844	1	46674	EV	18MY1964	0.05844	1	46675	EV	18MY1964	C.00426
(46765) EV	0.05944	0.05944	1	46674	EV	18MY1964	0.05944	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06044	0.06044	1	46674	EV	18MY1964	0.06044	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06144	0.06144	1	46674	EV	18MY1964	0.06144	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06244	0.06244	1	46674	EV	18MY1964	0.06244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06344	0.06344	1	46674	EV	18MY1964	0.06344	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06444	0.06444	1	46674	EV	18MY1964	0.06444	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06544	0.06544	1	46674	EV	18MY1964	0.06544	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06644	0.06644	1	46674	EV	18MY1964	0.06644	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06744	0.06744	1	46674	EV	18MY1964	0.06744	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06844	0.06844	1	46674	EV	18MY1964	0.06844	1	46675	EV	18MY1964	C.00426
(46765) EV	0.06944	0.06944	1	46674	EV	18MY1964	0.06944	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07044	0.07044	1	46674	EV	18MY1964	0.07044	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07144	0.07144	1	46674	EV	18MY1964	0.07144	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07244	0.07244	1	46674	EV	18MY1964	0.07244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07344	0.07344	1	46674	EV	18MY1964	0.07344	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07444	0.07444	1	46674	EV	18MY1964	0.07444	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07544	0.07544	1	46674	EV	18MY1964	0.07544	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07644	0.07644	1	46674	EV	18MY1964	0.07644	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07744	0.07744	1	46674	EV	18MY1964	0.07744	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07844	0.07844	1	46674	EV	18MY1964	0.07844	1	46675	EV	18MY1964	C.00426
(46765) EV	0.07944	0.07944	1	46674	EV	18MY1964	0.07944	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08044	0.08044	1	46674	EV	18MY1964	0.08044	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08144	0.08144	1	46674	EV	18MY1964	0.08144	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08244	0.08244	1	46674	EV	18MY1964	0.08244	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08344	0.08344	1	46674	EV	18MY1964	0.08344	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08444	0.08444	1	46674	EV	18MY1964	0.08444	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08544	0.08544	1	46674	EV	18MY1964	0.08544	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08644	0.08644	1	46674	EV	18MY1964	0.08644	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08744	0.08744	1	46674	EV	18MY1964	0.08744	1	46675	EV	18MY1964	C.00426
(46765) EV	0.08844	0.08844	1	46674	EV	18						

Tabellaria fenestrata var. *intermedia* Grun.

Tabellaria fenestrata var. *intermedia* Grunow in: Van Heurck, Syn. Diat.
Belgique, pl. 52, fig. 6-8. 1881.

Distinguished from the nominate variety by its shorter valves which are usually much wider in girdle view and which usually contain more than 4 septae. Maximum length of observed specimens less than 100 μ . Perhaps best treated as a separate species.

713 TAFENEVI TCT NC CF STATIONS 29

13540	CH	11PY1879	0.07455	1	13541	CH	1FE1881	0.03513	1	146912	CH	AP1647	C.1150	1
146912	CH	5JN1567	0.00303	1	14492	C 3	16JN1567	0.03699	1	1454	E 5	15JN1567	C.00200	1
11511	E 2	11E1567	0.00614	1	11512	E 5	31AU1967	C.02027	1	11537	E 5	24SE1567	C.00863	1
11541	E 2	11E1567	C.00532	1	11542	E 3	11C1967	C.01017	1	11380	GS 4	9WV1967	C.00336	1
11381	GS 5	10WV1967	0.00279	1	11382	GS 6	10WV1967	0.00278	1	11386	GS10	12WV1967	C.00375	1
11388	GS12	12WV1967	0.01207	1	11389	GS13	12WV1967	C.00516	1	11393	GS17	13WV1967	C.00274	1
11554	GS 1	30C1967	0.00356	1	11555	GS 2	30C1967	0.01412	1	11556	GS 3	30C1967	C.00521	1
11557	GS 4	30C1967	0.00374	1	11558	GS 5	40C1967	C.00703	1	11559	GS 7	40C1967	C.01049	1
11560	GS 8	40C1967	0.00945	1	11574	GS22	60C1967	0.00288	1	11547	PS 1	20C1567	C.00798	1
11548	CA 1	35C1567	C.01272	1	11545	C1 2	15AP1567	C.00359	1					

Tabellaria flocculosa (Roth) Kütz.

Conferva flocculosa Roth, Catalecta Bot., Fasc. 1, p. 192, pl. 4, fig. 4;
pl. 5, fig. 6. 1797.

Tabellaria flocculosa (Roth) Kützing, Bacill., p. 127, pl. 17, fig. 21.
1844.

Cells in girdle view short, rectangular with rounded ends, united by gelatinous pads at the corners into zig-zag colonies. Usually more than 8 conspicuous septae, lying in the valvar plane, are evident in each cell. Valves linear, strongly expanded at the middle and less expanded at the ends. Valves often slightly asymmetric to the transverse axis, being wider at one side of the central expansion than at the other. Valves of specimens from Lake Michigan 15-65 μ long, 7-12 μ broad at the widest extremity. Striae fine, perpendicular to the midline throughout, 18-20 in 10 μ . Axial area narrow, linear, in some instances lanceolately widened at the middle of the valve. At the ends of the valves there are pore fields composed of very fine, irregularly arranged puncta. A conspicuous slime pore is present, usually lying to one side of the axial area at about the level of the beginning of the central expansion. In asymmetric valves the slime pore is usually toward the broader end of the valve. In some populations fine marginal spines are present at the ends of the valves.

714 TAFLOCCU TCT NC CF STATIONS 318

140973	CH	1876	1.62946	1	13540	CH	11PY1875	17.00192	1	13541	CH	1FE1881	14.47716	1
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146914	CH	19AP1546	3.50447	1	146924	CH	10WV1946	2.24688	1	146923	CH	22MO1546	4.83018	1
146920	CH	20DE1946	2.12282	1	146925	CH	18JN1947	8.16644	1	146929	CH	MR1947	8.87938	1
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146919	CH	5JN1547	0.78908	1	146907	CH	JL1947	4.87156	1	146913	CH	6AU1947	C.52320	1
146922	CH	21AU1947	3.42370	1	146758	EV	5JN1937	3.19521	1	146771	EV	11JN1937	2.26332	1
146761	EV	20JN1937	5.27533	1	146745	EV	3JL1937	12.87356	1	146770	EV	5JL1937	38.39526	1
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146749	EV	12MR1938	4.41001	1	146768	EV	16MR1938	1.96972	1	146762	EV	10MR1938	2.24967	1
146751	EV	30PR1938	2.07682	1	146772	EV	18AP1938	3.37828	1	146756	EV	27AP1938	C.89326	1
146759	EV	19WV1938	1.98514	1	146761	EV	27WV1938	3.96817	1	146766	EV	14OC1938	6.65399	1
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11226	C 7	16WV1964	6.12633	1	11227	C* 2	13WV1964	7.82981	1	11228	D 2	14WV1964	4.08727	1
11229	D 5	14WV1964	6.66089	1	11230	E 2	16WV1964	7.05290	1	11231	E 3	18WV1964	5.82135	1
11232	E 5	16WV1964	6.45246	1	11233	F 3	7JL1964	21.17119	1	11234	B 3	12JN1964	15.94120	1
11235	C 7	16JN1964	23.72412	1	1439	B 6	5JN1964	13.84615	1	11236	C* 1	8JN1964	23.89203	1
11237	C* 2	8JN1964	11.36691	1	11238	O 3	11JN1964	2.66000	1	11239	G 4	11JN1964	13.32173	1

(1240	D 6	13JN1964	12.34632	(1241	E 1	13JN1964	11.67431	(1242	E 3	13JN1964	11.76341
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(1246	E 3	11JN1964	19.24241	(1247	B 7	14JL1964	12.44602	(1248	B 3	24JL1964	12.00047
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(1253	C 2	16JL1964	14.05979	(1254	D 2	15JL1964	4.82666	(1255	D 5	15JL1964	2.87640
(1256	E 2	12JL1964	16.22831	(1257	F 1	6JL1964	12.77119	(1258	F 1	6JL1964	10.22831
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(1324	F 2	6NO1964	6.56746	(1325	F 3	6NO1964	17.28003	(1326	F 4	27JAN1967	7.27861
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(1349	A 4	4JUN1967	1.30456	(1350	E 6	23APR1967	5.96156	(1351	C 3	4JUN1967	3.35311
(1372	C 5	29MAY1967	3.22741	(1373	C 7	29MAY1967	6.49517	(1374	E 2	7JUN1967	4.81172
(1375	E 3	7JUN1967	5.03506	(1376	E 5	6JUN1967	10.23162	(1378	A 3	23MAY1967	11.71275
(1409	A 4	23MAY1967	5.41576	(1410	C 3	23MAY1967	1.92016	(1411	C 5	31MAY1967	1.77446
(1412	C 5	31MAY1967	2.94638	(1413	C 7	23MAY1967	5.08576	(1414	E 2	28JUN1967	4.93703
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(1393	GS17	13MAY1967	6.21872	(1394	GS18	13MAY1967	6.68576	(1395	GS19	13MAY1967	6.55212
(1396	GS20	13MAY1967	6.00666	(1397	GS21	13MAY1967	6.02224	(1398	GS22	14MAY1967	7.65097
(1556	GS 1	30C1967	8.71700	(1555	GS 2	30C1967	8.65113	(1556	GS 3	30C1967	15.45981
(1557	GS 4	30C1967	3.40067	(1558	GS 5	40C1967	6.65927	(1559	GS 7	40C1967	6.60978
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(1563	GS11	50C1967	5.11616	(1564	GS12	50C1967	2.30430	(1565	GS13	50C1967	0.70987
(1566	GS14	50C1967	3.13667	(1567	GS15	50C1967	7.11292	(1568	GS16	50C1967	6.17171
(1569	GS17	50C1967	12.48484	(1570	GS18	50C1967	12.44990	(1571	GS19	60C1967	0.00761
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(1576	MS 1	20C1967	10.45814	(1546	MS 2	20C1967	12.55088	(1548	MS 3	20C1967	4.67726
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(1525	PM 1	20SE1967	14.25288	(1526	PM 1	20SE1967	3.18958	(1527	RA 1	20SE1967	6.56491
(1528	SH 1	20SE1967	9.10227	(1529	PM 1	20SE1967	4.28084	(1530	RA 1	24SE1967	1.16042
(1531	GH 1	25SE1967	6.18597	(1545	WL 1	2CC1967	6.32435	(1548	CA 1	3CC1967	3.26568
(1549	MO 1	40C1967	10.24427	(1551	ES 1	50C1967	6.87068	(1552	SH 1	60C1967	6.37658
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Genus *Thalassiosira* Cleve
Cleve, Bih. K. Svenska Vet.-Akad. Handl., 1(13):6. 1873.

Members of the genus *Thalassiosira* find their primary habitat in marine and brackish-water plankton communities. The species occurring in Lake Michigan are usually associated with areas receiving considerable chloride contamination.

The limited number of previous reports available indicates that this entity occurs in inland waters of relatively high dissolved solids content as well as in brackish water.

717 TMSPECDA TCT NO CF STATICS 12

(1317	E 1	60C1964	0.00191	(1557	GS 4	30C1967	C.00747	(1559	GS 7	40C1967	C.CC350
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(1294	NU 1	20C1967	0.00238	(1531	GP 1	255E1967	C.00287	(1255	ML 1	20C1967	C.CC676
(1548	CA 1	30C1967	0.01272	(1461	MC 2	00V1967	C.00986	(1422	CA 2	23PV1967	C.CC511

Genus *Tropidoneis* Cleve
Cleve, Diatomist, 1:22. 1890.

Although most members of the genus *Tropidoneis* are restricted to marine or brackish-water habitats, the single representative that occurs in our collections is widely reported from strictly freshwater situations. It reaches its maximum abundance in benthic communities but apparently adopts planktonic existence with facility and is often taken in plankton collections.

Tropidoneis lepidoptera var. *proboscidea* Cleve

Tropidoneis lepidoptera var. *proboscidea* Cleve, K. Svenska Vet.-Akad.
Handl., Ny Följd, 26(2):25. 1894.

718 TRLEFIVP TCT NO CF STATICS 5

(46750	EV	245E1537	0.00471	(46762	EV	18PR1538	0.02206	(1571	GS19	60C1967	C.CC059
(1553	SG 1	60C1967	0.00734	(1421	CH 2	23MY1567	0.01735	(			

Species *incertae sedis*

Tropidoneis sp. #1.

715 TMSPECDA TCT NO CF STATICS 2

(1240	O 6	10JN1564	0.00153	(1268	E 2	15AU1964	C.CC074	(
73.202 SEC. CPU TIME								

CONCLUSIONS

It is apparent from the areal and temporal distribution of dominant plankton diatoms in Lake Michigan that certain entities are associated with certain broadly defined conditions of water quality. Certain taxa, notably *Cyclotella comta*, *C. operculata*, *C. ocellata* and *Melosira distans*, are apparently relatively important constituents of only extremely oligotrophic floras and are rapidly replaced in disturbed portions of the lake. These entities, with the exception of *M. distans*, are still found in the offshore flora of Lake Michigan although they appear to be relatively less abundant than they previously were, particularly in the southern basin of the lake. Reduction in the relative abundance of these entities is among the first indications of disturbance of the ecosystem that appears in phytoplankton assemblages.

Several entities which are relatively more abundant in the plankton flora appear to be somewhat more tolerant of changing conditions but are rapidly reduced in abundance with extensive chemically measurable change. Notable examples of this tendency are found among some of the modern offshore plankton dominants such as *Tabellaria fenestrata*, *Melosira islandica*, *Rhizosolenia eriensis*, *Stephanodiscus transilvanicus*, *Synedra ulna* var. *chaseana*, *C. michiganiana* and *C. kuetzingiana*. Decline in relative abundance of these taxa is the first indication of serious disturbance of areas within the Lake Michigan ecosystem.

Other entities which are relatively abundant in undisturbed portions of the lake appear to be favored by slight increases in trophic level and flourish in moderately disturbed portions of the lake. They initially show an increase in relative abundance only to decline if pollution increases. Some notable examples of this tendency are *Asterionella formosa*, *Fragilaria crotonensis*, *Stephanodiscus alpinus*, *S. minutus*, *S. niagarae*, *S. hantzschii*, *Synedra delicatissima*, *S. ulna* var. *danica*, *S. ostenfeldii* and *S. filiformis*. Decline in the relative abundance of these species in the plankton flora is usually accompanied by obvious decline in water quality and disturbance in higher trophic levels of the ecosystem such as the fish and benthic invertebrate faunas.

A number of species which were formerly apparently able to thrive only in naturally eutrophic estuaries and inshore areas of the lake are favored by increasing pollution and are able to flourish in highly disturbed portions of the open lake. Some of the more abundant entities showing this pattern of distribution are *Melosira granulata* and its varieties, *Fragilaria capucina* and its varieties, *F. construens*, *F. intermedia* and *Stephanodiscus tenuis*. Within this group *Melosira granulata* appears to be less successful in the offshore flora than might be expected from its usual dominance in smaller eutrophic lakes, probably due to its temperature tolerance. Its varieties appear to favor even higher trophic levels and become most abundant in extremely disturbed environments. On the other hand, the varieties of *Fragilaria capucina* appear to be better

adapted to existence in the offshore flora than the nominate variety. The species in this group presently are dominant in highly disturbed areas such as the nearshore waters of the southern basin of Lake Michigan and Green Bay. Most of them are best adapted to the ecosystem of smaller lakes, and with further disturbance of the system they will likely be replaced by entities in the following category. The single exception to this is *Stephanodiscus tenuis* which is well adapted to existence in the Great Lakes and which has become dominant in the plankton floras of Lake Ontario and Lake Erie.

The final general group of dominant plankton species includes those taxa which were apparently not able to live in Lake Michigan in its original condition and which have been introduced following pollution. Included in this group are such species as *Asterionella bleakleyi*, *Diatoma tenue* var. *elongatum*, *Stephanodiscus binderanus*, *S. subtilis*, *Nitzschia dissipata* and finally the species of *Thalassiosira* and *Coscinodiscus* now present. Within this group *Diatoma tenue* var. *elongatum*, *Nitzschia dissipata*, *Stephanodiscus binderanus* and *S. subtilis* first appear in our samples from the late 1930's. Ahlstrom (1936) reported *Diatoma tenue* var. *elongatum* from samples taken in the early 1930's and it is possible that some of the populations he reported as *Stephanodiscus hantzschii* may belong to either *S. binderanus* or *S. subtilis*. *Nitzschia dissipata* is a very widely distributed organism and seems to become moderately abundant in eutrophic lakes in many localities. Perhaps the most interesting taxon in this group from the standpoint of direct effects on water quality is *S. binderanus*. From the time of its introduction, probably sometime in the early 1930's, it increased in abundance to the point that it caused serious problems with short filter runs at the Chicago filtration plant in the mid and late 1950's (Vaughn 1961). At the present time it is dominant in the spring flora at some stations in the extreme southern basin and in Green Bay. It also seems to be increasing at the offshore stations as a considerable increase was noted between comparable stations in 1964 and 1967. It should be pointed out that estimates of the increase in abundance in this particular nuisance organism are probably highly conservative because its peak abundance is associated with the development of the thermal bar (Stoermer 1968). The final series of taxa, members of the genera *Thalassiosira* and *Coscinodiscus*, which appear to have been introduced into Lake Michigan sometime after 1945, apparently represent the end members of the pollution sequence in the Great Lakes, so far as the plankton diatom flora is concerned. At the present time the distribution of these entities in Lake Michigan is quite restricted. *Coscinodiscus subsalsus* has become one of the dominant species in Lake Erie and can be expected to increase dramatically as pollution of the lake continues.

Consideration of distribution and relative abundance of the major components of the plankton flora leads one to the conclusion that Lake Michigan is probably at the present time about at the "break point" between rather moderate and transient algal nuisances, largely confined to the inshore waters, and drastic and most likely irreversible changes in the entire ecosystem. As pointed out above, all of the plankton diatoms associated with extreme water quality degradation in the Great Lakes

system are now present in Lake Michigan. While the end members of the sequence are now present in only negligible numbers, the apparently accelerating increase in *S. binderanus* is disturbing both from the standpoint of its direct effect on water quality and because of the effects on the total system its presence indicates. Based on our qualitative evaluation of floristic changes in Lake Michigan it appears that reversal of the present trends will depend largely upon actions taken within the next, at most, ten years. It should be emphasized here that the samples available to us tend to introduce a conservative bias to these considerations. The early samples are all from the area which was earliest and most severely affected. Many of our recent samples come from the areas of the lake furthest removed from, and least affected by man's activities. This, unfortunately, shows only the worst conditions in Lake Michigan at the early dates and a spectrum including the best conditions in the recent samples. While local pollution problems affecting the qualitative aspects of the plankton diatom flora have been present for a long time, it should be pointed out that the floras of these inshore areas have now been very drastically altered and, more importantly, that the effects of pollution now are becoming increasingly evident throughout the system.

The areal distribution of the major plankton dominant taxa follows the trends one would expect from consideration of the location of major effluent sources with one striking exception. The plankton floras of southern Green Bay and local areas surrounding harbors and major stream mouths most strongly differ from the flora of the open lake. The extreme southern crescent of the lake, from Chicago to Benton Harbor, Michigan, is also obviously and strongly affected. Somewhat surprisingly, it also appears that the Ludington-Manistee-Frankfort area of the northern Michigan coast is apparently quite substantially disturbed. From the qualitative aspects of the flora it is suggested that this disturbance is largely the result of shifts in the conservative element balance rather than particularly high nutrient levels. From considerations of effluent sources and the morphometry of Lake Michigan, it is tempting to assume that the southern basin of the lake might be much more strongly affected by pollution than the northern basin. Our results tend to indicate that this is only partially true. It appears that the nearshore floras of the southern basin are more strongly affected than similar areas in the northern basin. On the other hand, more recent blooms of introduced organisms appear at stations in the northern basin also.

One of the striking observations from the present study is the large number of rare species that were recorded from our collections. We entered this study with the apparently rather naive assumption that the offshore plankton of Lake Michigan would not be available to other than euplanktonic forms and thus the plankton assemblages would resemble true oceanic plankton more than limnoplankton. This assumption proved to be, at best, only partially correct. On a quantitative basis it is true that ten or less entities usually comprise more than ninety percent of the total assemblage. It is also true, however, that these major dominants rarely exceed twenty percent of the species noted at a given station. In a given

assemblage a certain fraction of these minor species are euplanktonic forms present in low abundance. In almost all collections there are also sizable fractions of entities that are obviously derived from habitats other than the plankton. As would be expected, these entities are most abundant in collections taken from shallow water areas but they are also represented in the majority of collections taken even from midlake stations. The significance of this component of the flora is very difficult to determine. Included in it are a large number of apparent new records for the United States and a number of entities which are apparently undescribed. I have previously speculated (1967) that one of the effects of nutrient pollution in Lake Michigan is to render the plankton environment more accessible to entities which find their primary habitat in benthic assemblages. The results of this study would tend to support this contention. Any assessment of the impact this component of the flora has on practical problems in water quality control, or even of their value as indicators of environmental conditions, is extremely difficult at the present time. A good deal of further work will be necessary before this information can be reduced to a useful context. It is, however, obvious that any realistic attempt to treat the factors operational in the Great Lakes ecosystem must account for this component of the biota which has never, as yet, been investigated in a systematic manner.

Prior to 1966 slightly less than 350 taxa of diatoms had been reported from Lake Michigan. Removal of the obvious synonyms from this list reduces this number to something less than 300. In the present study more than 700 morphologically distinguishable entities were noted. Considering the fact that only plankton collections, which are depauperate in species compared to periphyton collections, were examined, it is obvious that our knowledge of the biological operators at this level of the Lake Michigan ecosystem is still quite primitive. There is still need for critical taxonomic revision of some of the genera present. This is particularly true of some of the highly variable planktonic genera such as *Synedra* and *Fragilaria*. Even for the entities well enough known so that it is possible to make firm statements about their taxonomic relationships, there is still a critical lack of knowledge regarding life cycles and quantitative environmental requirements. Of the entities treated here, the complete life cycles of less than twenty are fully known. For even fewer is there any trustworthy experimental information regarding nutrient and other environmental requirements. If we are ever to be able to gain the necessary insight to understand and manage large aquatic ecosystems, such as Lake Michigan, such information must be forthcoming. It is hoped that this study will furnish part of the necessary background to implement such studies.

When working with large, complex and variable assemblages as was necessary in this study, it is tempting to seek some measure of the distribution of populations within the various assemblages which will furnish insight into the factors affecting them. One of the obvious statistical devices to employ in this context is diversity analysis. One approach to this has been used by a group at the Academy of Natural Sciences of Philadelphia with apparent success in determining the effects of pollution on

stream diatom populations (Patrick, Hohn and Wallace 1954; Patrick 1963, 1964). In the present study, preliminary analysis of the method utilized by these workers indicated serious difficulty in applying it to plankton diatom populations in Lake Michigan. Their diversity calculations are based on the log normal population model advanced by Preston (1948). Hutchinson (1967) has pointed out that in plankton assemblages tolerable fit to a log normal curve may be achieved but that the mode remains at the origin even if very large assemblages are considered. In our analysis we adopted an information theory based diversity estimate which has been used, with apparent success, in determining shifts in subfossil diatom populations (Stockner and Benson 1967; Stoermer and Yang 1968). The results of this analysis are presented in appendix "A." Although this manipulation brought to light some points of interest, it is emphasized that diversity alone furnishes very little information regarding the trophic status of Lake Michigan plankton diatom populations. If all the assemblages are considered, the modal diversity values fall at 1.80 and the modal redundancy values fall at 0.60. If localities are considered it is apparent that the extremes, both high and low, of diversity and redundancy are found in harbor collections. If the offshore stations are considered it is apparent that the range of diversity values recorded at a given sampling station on successive sampling dates is, in most instances, fully as great as the difference between any two offshore sampling stations at a given date. On the basis of our observations there is a slight tendency for the average diversity, as measured by the index employed, to increase with eutrophication in Lake Michigan and for redundancy values to be reduced. This picture is complicated by the fact that most areas of the lake that are appreciably affected are also in nearshore localities which are more easily invaded by entities arising from benthic communities.

The following picture emerges from our consideration of diversity plankton diatom assemblages in Lake Michigan. Before the influence of man's activities, nutrients were at such low levels that many potential occupants of the habitat were effectively excluded. This is reflected in assemblages of rather low diversity. In addition plankton populations are strongly affected by seasonal succession. The dominant populations wax and wane during the seasonal cycle and these shifts are strongly reflected in diversity estimates derived from samples taken at successive points in time. It will be noted that the spring bloom tends to depress diversity and the progression of this bloom can be traced from south to north during 1964 and 1967 by reference to the diversity values given in appendix "A." During this stage in succession average diversity values will be low and extremes, both high and low, will be minimized. With addition of nutrients to such an environment it will be rendered available to more taxa, but the added nutrients will also allow increased population densities of the dominant taxa during blooms. This produces the effect that we presently see in Lake Michigan. There is a slight average increase in diversity but the extreme high and low values found in specific spot samples both exceed those found in the unaltered environment. As further nutrients are added, the favored species will occur in increasing densities but fewer taxa will be added to the total assemblage.

This would produce further spread in the possible values from spot samples, but average diversity values from many samples taken during a given season would closely approximate the values derived from samples from the unaltered environment. With gross pollution the plankton habitat would be denied to many species and those tolerant of such conditions would occur in very high density, hence diversity would be strongly depressed.

In previous studies related to water quality, diversity information has largely been used to detect exactly these conditions. This would certainly not be a viable context for the Great Lakes. Because of the extremely long residency time of water in the lakes and because their main utility lies in their aesthetic appeal and as a source for very high-quality potable water, adequate indicative criteria of water quality should be based on more subtle assessments. If the problem of time course considerations could be escaped, diversity measurements would be of much greater value in plankton studies. It should be pointed out that this is exactly the case in studies of fossil assemblages where an integration of the yearly floristic succession is obtained. It would appear that this is the reason why diversity measurements are a much more satisfactory tool in these studies.

SUMMARY

1. The present study shows a considerably more diverse diatom flora in Lake Michigan than had been reported previously. Contrary to expectations, a substantial number of the entities taken in plankton collections are obviously derived from benthic communities.

2. There has been an increase in the relative numbers of entities associated with degradation of water quality during the period of study. Certain entities associated with moderate to high levels of pollution which were not noted in earlier collections were apparently introduced prior to 1937 and now cause nuisances in certain inshore areas and are becoming increasingly abundant at offshore stations throughout the lake. Certain entities associated with extreme degradation of water quality in the Great Lakes system were introduced into Lake Michigan between 1947 and 1964. Although now present in only low numbers, they indicate the pollution of Lake Michigan is reaching critical levels.

3. Extreme differences exist, particularly at certain times of the year, between the coastal areas and open waters of the lake in terms of both abundance and species composition of the phytoplankton flora.

4. On the basis of the plankton diatom assemblages present, it appears that the most strongly affected areas of Lake Michigan are: the extreme southern crescent of the lake, from Chicago, Illinois, to Benton Harbor, Michigan; the southern portion of Green Bay; the northern Michigan coast in the Ludington-Manistee-Frankfort area. In addition, local problems exist around most of the major harbors.

5. Our study suggests that diversity estimates, based on single plankton collections, offer relatively little information regarding the condition of the waters sampled.

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Appendix A

List of Collections

Collections listed without alphabetical prefix are housed in the collection of the Great Lakes Research Division. Those with the prefix ANSP are the property of and are housed at the Academy of Natural Sciences, Philadelphia. In the case of collections in which the diatom assemblage has been analyzed in detail the following characteristics are listed: the total number of species present, the total number of s_s specimens in the assemblage, an estimate of diversity computed as $H = - \sum_{i=1}^s p_i \ln p_i$ where p_i

represents an estimate of the proportion of the i^{th} species, and an estimate of redundancy computed as $R = 1 - H / \ln S$. Other collections have been examined in greater or lesser detail but have not been counted.

- 804 Shore plankton from beach near entrance to Wilderness St. Park, Michigan. Coll: E. F. Stoermer. 28 Sept. 1965.
- 810 Surface plankton from north side of Mackinaw City Public Dock, Mackinaw City, Michigan. Coll: E. F. Stoermer. 28 Sept. 1965.
- 826 Surface plankton from river side of breakwater, Elk River. Coll: E. F. Stoermer. 29 Sept. 1965.
- 827 Surface plankton from Lake Michigan side of breakwater, Elk River, Michigan. Coll: E. F. Stoermer. 29 Sept. 1965.
- 841 Surface plankton, Muskegon Lake, Michigan, near harbor entrance. Coll: E. F. Stoermer. 4 Oct. 1965.
- 842 Surface plankton, Lake Michigan, 7 mi at 210° from White Lake, Michigan, inlet, 9 mi 300° from Muskegon, Michigan, inlet. Coll: E. F. Stoermer. 5 Oct. 1965.
- 844 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 845 Plankton, 5 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 846 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 847 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 848 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 849 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 850 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 851 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 852 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 853 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 854 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 855 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).

- 856 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 857 Plankton, 5 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 858 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 859 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 860 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 861 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 862 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 863 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 864 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 865 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 866 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 867 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 868 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 869 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 870 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 871 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 872 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 873 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 874 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 12 Nov. 1965 (500 ml).

- 875 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 876 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 877 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 878 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 879 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 12 Nov. 1965 (500 ml).
- 883 #25 net surface plankton, 8 mi. at 269° off Grand Haven, Michigan. Coll: E. F. Stoermer. 12 Jan. 1966.
- 896 Plankton from Grand River in town of Spring Lake, Ottawa County, Michigan. Coll: E. F. Stoermer. 13 April 1966.
- 898 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 899 Plankton, 5 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 900 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 901 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 902 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 903 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 904 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 905 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 906 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 28 March 1966 (500 ml).
- 907 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).
- 908 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).
- 909 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 20 March 1966 (500 ml).

- 910 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll:
E. F. Stoermer. 20 March 1966 (500 ml).
- 911 Plankton, 5 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll:
E. F. Stoermer. 20 March 1966 (500 ml).
- 912 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll:
E. F. Stoermer. 20 March 1966 (500 ml).
- 913 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 20 March 1966 (500 ml).
- 914 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 20 March 1966 (500 ml).
- 915 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 20 March 1966 (500 ml).
- 916 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 917 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 918 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 919 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 920 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 921 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 922 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 923 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 924 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 3 April 1966 (500 ml).
- 925 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 6 April 1966 (500 ml).
- 926 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 6 April 1966 (500 ml).
- 927 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 6 April 1966 (500 ml).
- 928 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 6 April 1966 (500 ml).

- 929 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).
- 930 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).
- 931 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).
- 932 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).
- 933 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll: E. F. Stoermer. 6 April 1966 (500 ml).
- 938 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 939 Plankton, 5 meters, Station A-3. 43°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 940 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 941 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 942 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 943 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 944 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 945 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 946 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 26 April 1966 (500 ml).
- 947 Plankton, surface, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 948 Plankton, 5 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 949 Plankton, 15 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 950 Plankton, surface, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 951 Plankton, 5 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 25 April 1966 (500 ml).

- 952 Plankton, 15 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 953 Plankton, surface, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 954 Plankton, 5 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 955 Plankton, 15 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 25 April 1966 (500 ml).
- 956 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 957 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 958 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 959 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 960 Plankton, 5 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 961 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 962 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 963 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 964 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 965 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 966 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 967 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 968 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 969 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).
- 970 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll: E. F. Stoermer. 28 April 1966 (500 ml).

- 971 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 28 April 1966 (500 ml).
- 972 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 28 April 1966 (500 ml).
- 973 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 28 April 1966 (500 ml).
- 974 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 975 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 976 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 977 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 978 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 979 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 980 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 981 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 982 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll:
E. F. Stoermer. 26 April 1966 (500 ml).
- 983 Plankton, surface, Station A-3. 42°05'30"N; 86°43'00"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).
- 984 Plankton, 5 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).
- 985 Plankton, 15 meters, Station A-3. 42°05'30"N; 86°43'00"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).
- 986 Plankton, surface, Station A-4. 42°03'30"N; 87°06'30"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).
- 987 Plankton, 5 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).
- 988 Plankton, 15 meters, Station A-4. 42°03'30"N; 87°06'30"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).
- 989 Plankton, surface, Station A-6. 41°52'00"N; 87°27'00"W. Coll:
E. F. Stoermer. 15 May 1966 (500 ml).

- 990 Plankton, 5 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).
- 991 Plankton, 15 meters, Station A-6. 41°52'00"N; 87°27'00"W. Coll: E. F. Stoermer. 15 May 1966 (500 ml).
- 992 Plankton, surface, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 993 Plankton, 5 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 994 Plankton, 15 meters, Station B-3. 42°24'00"N; 86°35'20"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 995 Plankton, surface, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 996 Plankton, 5 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 997 Plankton, 15 meters, Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 998 Plankton, surface, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 999 Plankton, 5 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 1000 Plankton, 15 meters, Station B-6. 42°22'30"N; 87°30'00"W. Coll: C. F. Powers. 16 May 1966 (500 ml).
- 1001 Plankton, surface, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1002 Plankton, 5 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1003 Plankton, 15 meters, Station C-3. 42°49'10"N; 86°28'25"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1004 Plankton, surface, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1005 Plankton, 5 meter, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1006 Plankton, 15 meters, Station C-5. 42°49'00"N; 86°50'00"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1007 Plankton, surface, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).
- 1008 Plankton, 5 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll: E. F. Stoermer. 16 May 1966 (500 ml).

- 1009 Plankton, 15 meters, Station C-7. 42°47'30"N; 87°34'30"W. Coll:
E. F. Stoermer. 16 May 1966 (500 ml).
- 1010 Plankton, surface, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1011 Plankton, 5 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1012 Plankton, 15 meters, Station D-2. 43°56'00"N; 86°39'30"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1013 Plankton, surface, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1014 Plankton, 5 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1015 Plankton, 15 meters, Station D-4. 43°48'00"N; 87°03'00"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1016 Plankton, surface, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1017 Plankton, 5 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1018 Plankton, 15 meters, Station D-5. 43°38'40"N; 87°31'00"W. Coll:
E. F. Stoermer. 17 May 1966 (500 ml).
- 1019 Plankton, surface, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1020 Plankton, 5 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1021 Plankton, 15 meters, Station E-2. 44°37'00"N; 86°21'42"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1022 Plankton, surface, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1023 Plankton, 5 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1024 Plankton, 15 meters, Station E-3. 44°34'00"N; 86°40'00"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1025 Plankton, surface, Station E-5. 44°25'30"N; 87°10'18"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1026 Plankton, 5 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).
- 1027 Plankton, 15 meters, Station E-5. 44°25'30"N; 87°10'18"W. Coll:
E. F. Stoermer. 20 May 1966 (500 ml).

- 1033 Plankton (#25 net), Garden Creek, near outlet in town of Garden, Delta County, Michigan. Sec. 17, R18W, Twp 39N. Coll: E. F. Stoermer. 20 June 1966.
- 1035 Plankton near shore (#25 net), fishing access site near town of Garden, Delta County, Michigan. Sec. 18, R18W, T39N. Coll: E. F. Stoermer. 20 June 1966.
- 1042 Shore plankton (#25 net), Sack Bay, Delta County, Michigan. Sec. 30, R19W, T38N. Coll: E. F. Stoermer. 20 June 1966.
- 1044 Shore plankton (#25 net), Sand Bay, near Fayette State Park, Delta County, Michigan. Sec. 9, R19W, T38N. Coll: E. F. Stoermer. 20 June 1966.
- 1046 Shore plankton (#25 net), Fayette Harbor, Fayette State Park, Delta County, Michigan. Sec. 4, R19W, T38N. Coll: E. F. Stoermer. 20 June 1966.
- 1056 Plankton, Harbor of Manistique, Schoolcraft County, Michigan. Sec. 12, R16W, T41. Considerable wood detritus, depauperate algal flora. Coll: E. F. Stoermer. 21 June 1966.
- 1060 Plankton - from ferry dock, St. Ignace, Mackinac County, Michigan. Sec. 18, R3W, T40N. Coll: E. F. Stoermer. 21 June 1966.
- 1092 Shore plankton from harbor, Cross Village. Sec. 33, R6W, T38N. Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1094 Shore plankton, City Park, Harbor Springs. Sec. 13, R6W, T35N. Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1095 Shore plankton, tile outlet just east of "Irish Marina." Sec. 18, R5W, T35N. Harbor Springs, Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1096 Plankton, Petoskey Harbor. Sec. 31, R5W, T35N. Emmet County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1100 Plankton ship channel, Charlevoix. Sec. 27, R8W, T34N. Charlevoix County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1102 Plankton, Lake Charlevoix, Charlevoix City Dock. Sec. 26, R8W, T34S. Charlevoix County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1105 Plankton, river side of breakwater, Elk Rapids. Sec. 20, R9W, T29N. Antrim County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1108 Shore plankton, harbor of Traverse City. Sec. 6, R10W, T27N. Grand Traverse County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1114 Plankton, Lake Michigan, 100 yds from confluence of Platte River. Sec. 20, R15W, T27N. Benzie State Park, Benzie County, Michigan. Coll: E. F. Stoermer. 23 June 1966.

- 1116 Plankton, Platte River, at confluence with Lake Michigan. Sec. 20, R15W, T27N. Benzie State Park, Benzie County, Michigan. Coll: E. F. Stoermer. 23 June 1966.
- 1121 Plankton, Lake Michigan just outside Frankfort breakwater. Sec. 28, R16W, T26N. Benzie County, Michigan. Coll: E. F. Stoermer. 24 June 1966.
- 1122 Plankton, Frankfort Harbor, just inside breakwater. Sec. 28, R16W, T26N. Benzie County, Michigan. Coll: E. F. Stoermer. 24 June 1966.
- 1125 Plankton just outside breakwater, Manistee. Sec. 3, R17W, T21N. Manistee County, Michigan. Coll: E. F. Stoermer. 24 June 1966.
- 1126 Plankton just inside breakwater, Manistee. Sec. 3, R17W, T21N. Manistee County, Michigan. *Melosira* dominant. Coll: E. F. Stoermer. 24 June 1966.
- 1128 Plankton inside harbor, Ludington. Sec. 16, R18W, T18N. Mason County, Michigan. Coll: E. F. Stoermer. 24 June 1966.
- 1130 Plankton just outside harbor, Ludington. Sec. 16, R18W, T18N. Mason County, Michigan. Coll: E. F. Stoermer. 24 June 1966.
- 1132 Shore plankton shallow water in Muskegon Lake, pier across from State Park office. Sec. 22, R17W, T10N. Muskegon State Park, Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.
- 1135 Plankton, Muskegon Lake, just inside ship channel, Sec. 28, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.
- 1139 Plankton, inside Muskegon north piers. Sec. 29, R17W, T10N, Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.
- 1141 Plankton, outside Muskegon north pier. Sec. 29, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.
- 1142 Plankton, 10 yds off campground beach, Muskegon State Park. Sec. 17, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.
- 1143 Plankton 100 yds off campground beach, Muskegon State Park. Sec. 17, R17W, T10N. Muskegon County, Michigan. Coll: E. F. Stoermer. 25 June 1966.
- 1144 Surface #20 net tow, Lake Michigan. Station GA-1a. 41°38.4'N; 87°19.0'W. Coll: A. Strong. 19 May 1966.
- 1145 Surface #20 net tow, Lake Michigan. Station GA-1b. 41°38.4'N; 87°19.0'W. Coll: A. Strong. 19 May 1966.
- 1164 Vertical #20 net tow, 55ft depth. Sleeping Bear Bay, Lake Michigan. Coll: Robert Anderson. 21 June 1966.
- 1192 Surface #20 net tow. Station PM-1. 45°46'30"N; 85°08'45"W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.

- 1193 Surface #20 net tow. Station PM-2. 45°24.0'N; 85°15.0'W. Lake Michigan. Mostly zooplankton. Coll: E. F. Stoermer. 21 August 1966.
- 1194 Surface #20 net tow. Station PM-3. 45°17.2'N; 85°55.0'W. Lake Michigan. Coll: E. F. Stoermer. 21 August 1966.
- 1195 Surface #20 net tow. Station PM-4. 45°01'18"N; 85°55'00"W. Lake Michigan. Coll: E. F. Stoermer. 22 August 1966.
- 1196 Vertical #20 net tow. Station MP-2. 44°57'48"N; 86°03'06"W. Lake Michigan. Coll: E. F. Stoermer. 22 August 1966.
- 1197 Vertical #20 net tow. Station AEC-1. 42°36.0'N; 86°59.0'W. Lake Michigan. Coll: E. F. Stoermer. 19 Sept. 1966.
- 1198 Vertical #20 net tow. Station AEC-2. 42°46.5'N; 87°02.5'W. Lake Michigan. Coll: E. F. Stoermer. 19 Sept. 1966.
- 1199 Vertical #20 net tow. Station AEC-3. 43°18.5'N; 86°42.5'W. Lake Michigan. Coll: E. F. Stoermer. 20 Sept. 1966.
- 1200 Vertical #20 net tow. Station AEC-4. 43°54.4'N; 86°49.0'W. Lake Michigan. Coll: E. F. Stoermer. 20 Sept. 1966.
- 1201 Vertical #20 net tow. Station AEC-5. 44°08.7'N; 86°42.6'W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.
- 1202 Vertical #20 net tow. Station AEC-6. 44°20.0'N; 86°43.1'W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.
- 1203 Vertical #20 net tow. Station AEC-7. 44°28.7'N; 86°43.1'W. Lake Michigan. Coll: E. F. Stoermer. 21 Sept. 1966.
- 1204 Vertical #20 net haul. Station A-1. 42°06'30"N; 86°32'00"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.
- 1205 Vertical #20 net haul. Station A-2. 42°06'00"N; 86°37'00"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.
- 1206 Vertical #20 net haul. Station A-3. 42°05'30"N; 86°43'00"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.
- 1207 Vertical #20 net haul. Station A-4. 42°03'30"N; 87°06'30"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.
- 1208 Vertical #20 net haul. Station A-5. 41°57'00"N; 87°18'30"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.
- 1209 Vertical #20 net haul. Station A-6. 41°52'00"N; 87°27'00"W. Lake Michigan. Coll: J. Ayers. 27 Sept. 1966.
- 1210 Vertical #20 net haul. Station C-1. 42°49'40"N; 86°14'50"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.
- 1211 Vertical #20 net haul. Station C-2. 42°49'40"N; 86°18'25"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966.

- 1212 Vertical #20 net haul. Station C-3. 42°49'10"N; 86°28'25"W. Lake Michigan. Coll: J. Ayers. 26 Sept. 1966 (Extremely sparse phytoplankton).
- 1213 Vertical #20 net haul. Station C-4. 42°48'50"N; 86°41'30"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.
- 1214 Vertical #20 net haul. Station C-5. 42°49'00"N; 86°50'00"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.
- 1215 Vertical #20 net haul. Station C-6. 42°47'40"N; 87°26'50"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.
- 1216 Vertical #20 net haul. Station C-7. 42°47'30"N; 87°34'30"W. Lake Michigan. Coll: J. Ayers. 28 Sept. 1966.
- 1217 Vertical #20 net haul. Station E-1. 44°37'30"N; 86°18'12"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.
- 1218 Vertical #20 net haul. Station E-2. 44°37'00"N; 86°21'42"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.
- 1219 Vertical #20 net haul. Station E-3. 44°34'00"N; 86°40'00"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.
- 1220 Vertical #20 net haul. Station E-4. 44°30'18"N; 86°55'18"W. Lake Michigan. Coll: J. Ayers. 2 Oct. 1966.
- 1221 Vertical #20 net haul. Station #5. 44°25'30"N; 87°10'18"W. Lake Michigan. Coll: J. Ayers. 1 Oct. 1966.
- 1222 Vertical #20 net haul. Station E-6. 44°27'48"N; 87°26'25"W. Lake Michigan. Coll: J. Ayers. 1 Oct. 1966.
- 1223 #20 net sample, vertical haul, 83 m., Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 18 May 1964.
26 spp. 63995 spec. H=0.848 R=0.740
- 1224 #20 net sample, vertical haul, 141 m., Station B-4. 42°23'30"N; 87°01'30"W. Coll: C. F. Powers. 18 May 1964.
33 spp. 51005 spec. H=0.721 R=0.794
- 1225 #20 net sample, vertical haul, Station C-6. 42°47'40"N; 87°26'50"W. Coll: C. F. Powers. 15 May 1964.
40 spp. 25510 spec. H=1.368 R=0.629
- 1226 #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W. Coll: C. F. Powers. 16 May 1964.
42 spp. 26280 spec. H=1.520 R=0.593
- 1227 #20 net sample, vertical haul, Station C-2. 43°12'00"N; 86°31'00"W. Coll: C. F. Powers. 13 May 1964.
40 spp. 91190 spec. H=1.264 R=0.657

1228	#20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W. Coll: C. F. Powers. 14 May 1964. 46 spp. 51379 spec. H=1.243 R=0.675
1229	#20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W. Coll: C. F. Powers. 14 May 1964. 52 spp. 47291 spec. H=1.638 R=0.585
1230a	#20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W. Coll: C. F. Powers. 16 May 1964. 50 spp. 33745 spec. H=1.416 R=0.638
1231	#20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W. Coll: C. F. Powers. 16 May 1964. 51 spp. 40884 spec. H=1.225 R=0.688
1232	#20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W. Coll: C. F. Powers. 16 May 1964. 59 spp. 57498 spec. H=1.659 R=0.593
1233	#20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 5 June 1964. 37 spp. 41991 spec. H=1.673 R=0.537
1234a	#20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 18 June 1964. 38 spp. 35568 spec. H=1.574 R=0.567
1235a	#20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W. Coll: C. F. Powers. 16 June 1964. 35 spp. 35407 spec. H=1.446 R=0.593
1236	#20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W. Coll: C. F. Powers. 8 June 1964. 64 spp. 57132 spec. H=1.668 R=0.599
1237a	#20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W. Coll: C. F. Powers. 8 June 1964. 49 spp. 38790 spec. H=1.674 R=0.570
1238	#20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W. Coll: C. F. Powers. 11 June 1964. 44 spp. 50000 spec. H=0.972 R=0.743
1239	#20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W. Coll: C. F. Powers. 11 June 1964. 39 spp. 86175 spec. H=1.240 R=0.661
1240	#20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W. Coll: C. F. Powers. 10 June 1964. 83 spp. 65191 spec. H=1.398 R=0.684
1241	#20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W. Coll: C. F. Powers. 13 June 1964. 56 spp. 67634 spec. H=1.418 R=0.648

1242	#20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W. Coll: C. F. Powers. 13 June 1964. 44 spp. 66726 spec. H=0.629 R=0.834
1243	#20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W. Coll: C. F. Powers. 13 June 1964. 78 spp. 47892 spec. H=1.655 R=0.620
1244	#20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W. Coll: C. F. Powers. 11 June 1964. 89 spp. 91203 spec. H=1.500 R=0.666
1245a	#20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W. Coll: C. F. Powers. 11 June 1964 68 spp. 28922 spec. H=1.490 R=0.647
1246a	#20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W. Coll: C. F. Powers. 11 June 1964. 54 spp. 16733 spec. H=1.554 R=0.610
1247a	#20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 14 July 1964. 28 spp. 23427 spec. H=1.572 R=0.528
1248	#20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 24 July 1964. 34 spp. 50748 spec. H=1.626 R=0.539
1249	#20 net sample, vertical haul, Station C-3. 42°49'10"N; 86°28'25"W. Coll: C. F. Powers. 8 July 1964. 27 spp. 36820 spec. H=1.520 R=0.539
1250a	#20 net sample, vertical haul, Station C-6. 42°47'40"N; 87°26'50"W. Coll: C. F. Powers. 10 July 1964. 42 spp. 24325 spec. H=1.838 R=0.508
1251	#20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W. Coll: C. F. Powers. 16 July 1964. 37 spp. 34518 spec. H=1.422 R=0.606
1252	#20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W. Coll: C. F. Powers. 16 July 1964. 55 spp. 35850 spec. H=1.682 R=0.580
1253	#20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W. Coll: C. F. Powers. 16 July 1964. 43 spp. 43816 spec. H=1.647 R=0.562
1254	#20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W. Coll: C. F. Powers. 15 July 1964. 56 spp. 52210 spec. H=1.722 R=0.572
1255	#20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W. Coll: C. F. Powers. 15 July 1964. 55 spp. 38962 spec. H=2.048 R=0.489

- 1256 #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 14 July 1964.
73 spp. 54588 spec. H=1.533 R=0.638
- 1257 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 14 July 1964.
63 spp. 41795 spec. H=1.464 R=0.647
- 1258 #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 6 July 1964.
117 spp. 42377 spec. H=1.984 R=0.583
- 1259 #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 6 July 1964.
78 spp. 32272 spec. H=1.988 R=0.544
- 1260 #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 6 July 1964.
89 spp. 52357 spec. H=2.012 R=0.552
- 1261 #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 2 August 1964.
31 spp. 50956 spec. H=1.278 R=0.628
- 1262 #20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W.
Coll: C. F. Powers. 17 August 1964.
31 spp. 47620 spec. H=1.254 R=0.635
- 1263 #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 15 August 1964.
20 spp. 24980 spec. H=1.214 R=0.595
- 1264 #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 10 August 1964.
74 spp. 51792 spec. H=1.705 R=0.604
- 1265 #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 10 August 1964.
52 spp. 44733 spec. H=1.571 R=0.602
- 1266 #20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W.
Coll: C. F. Powers. 18 August 1964.
44 spp. 28508 spec. H=2.259 R=0.403
- 1267 #20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W.
Coll: C. F. Powers. 18 August 1964.
38 spp. 46260 spec. H=1.289 R=0.646
- 1268 #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 15 August 1964.
82 spp. 36556 spec. H=2.081 R=0.528
- 1269 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 15 August 1964.
50 spp. 36486 spec. H=2.007 R=0.487

1270	#20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W. Coll: C. F. Powers. 10 August 1964. 84 spp. 36725 spec. H=1.817 R=0.590
1271a	#20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W. Coll: C. F. Powers. 22 Sept. 1964. 39 spp. 15317 spec. H=0.984 R=0.731
1272	#20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W. Coll: C. F. Powers. 10 Sept. 1964. 57 spp. 24363 spec. H=1.732 R=0.572
1273a	#20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W. Coll: C. F. Powers. 10 Sept. 1964. 39 spp. 18599 spec. H=1.703 R=0.535
1274a	#20 net sample, vertical haul, Station D-1. 43°57'00"N; 86°33'00"W. Coll: C. F. Powers. 17 Sept. 1964. 49 spp. 21313 spec. H=1.700 R=0.563
1275	#20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W. Coll: C. F. Powers. 17 Sept. 1964. 52 spp. 15501 spec. H=1.770 R=0.552
1276a	#20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W. Coll: C. F. Powers. 18 Sept. 1964. 28 spp. 8948 spec. H=1.860 R=0.442
1277	#20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W. Coll: C. F. Powers. 18 Sept. 1964. 29 spp. 16138 spec. H=1.446 R=0.571
1278a	#20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W. Coll: C. F. Powers. 18 Sept. 1964. 44 spp. 26019 spec. H=1.388 R=0.633
1279a	#20 net sample, vertical haul, Station E-1. 44°37'30"N; 86°18'12"W. Coll: C. F. Powers. 16 Sept. 1964. 109 spp. 25467 spec. H=1.832 R=0.610
1280a	#20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W. Coll: C. F. Powers. 16 Sept. 1964. 42 spp. 14689 spec. H=1.558 R=0.583
1281a	#20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W. Coll: C. F. Powers. 16 Sept. 1964. 40 spp. 25483 spec. H=1.951 R=0.471
1282	#20 net sample, vertical haul, Station E-4. 44°30'18"N; 86°55'18"W. Coll: C. F. Powers. 16 Sept. 1964. 34 spp. 9025 spec. H=1.772 R=0.497
1283a	#20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W. Coll: C. F. Powers. 16 Sept. 1964. 38 spp. 16314 spec. H=2.064 R=0.432

1284a	#20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W. Coll: C. F. Powers. 17 Sept. 1964. 77 spp. 31473 spec. H=1.900 R=0.563
1285a	#20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W. Coll: C. F. Powers. 15 Sept. 1964. 151 spp. 17171 spec. H=2.374 R=0.527
1286a	#20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W. Coll: C. F. Powers. 15 Sept. 1964. 44 spp. 9136 spec. H=1.864 R=0.507
1287a	#20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W. Coll: C. F. Powers. 15 Sept. 1964. 48 spp. 19984 spec. H=1.821 R=0.530
1288a	#20 net sample, vertical haul, Station B-3. 42°24'00"N; 86°35'30"W. Coll: C. F. Powers. 15 Oct. 1964. 35 spp. 45938 spec. H=1.406 R=0.605
1289	#20 net sample, vertical haul. Station C-7. 42°47'30"N; 87°34'30"W. Coll: C. F. Powers. 14 Oct. 1964. 40 spp. 22741 spec. H=1.343 R=0.636
1290a	#20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W. Coll: C. F. Powers. 16 Oct. 1964. 32 spp. 26385 spec. H=1.331 R=0.616
1291a	#20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W. Coll: C. F. Powers. 16 Oct. 1964. 29 spp. 40878 spec. H=1.340 R=0.602
1292a	#20 net sample, vertical haul, Station D-1. 43°57'00"N; 86°33'00"W. Coll: C. F. Powers. 15 Oct. 1964. 30 spp. 26832 spec. H=1.381 R=0.594
1293a	#20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W. Coll: C. F. Powers. 15 Oct. 1964. 34 spp. 21202 spec. H=1.408 R=0.601
1294a	#20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W. Coll: C. F. Powers. 15 Oct. 1964. 37 spp. 30337 spec. H=1.564 R=0.567
1295	#20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W. Coll: C. F. Powers. 15 Oct. 1964. 33 spp. 16818 spec. H=1.605 R=0.541
1296	#20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W. Coll: C. F. Powers. 14 Oct. 1964. 31 spp. 25417 spec. H=1.306 R=0.620
1297a	#20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W. Coll: C. F. Powers. 14 Oct. 1964. 60 spp. 52522 spec. H=1.512 R=0.631

- 1298 #20 net sample, vertical haul, Station E-1. 44°37'30"N; 86°18'12"W.
Coll: C. F. Powers. 12 Oct. 1964.
48 spp. 37136 spec. H=1.461 R=0.622
- 1299a #20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W.
Coll: C. F. Powers. 12 Oct. 1964.
50 spp. 31830 spec. H=1.677 R=0.571
- 1300 #20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W.
Coll: C. F. Powers. 13 Oct. 1964.
61 spp. 27935 spec. H=2.000 R=0.513
- 1301a #20 net sample, vertical haul, Station E-4. 44°30'18"N; 86°55'18"W.
Coll: C. F. Powers. 13 Oct. 1964.
46 spp. 22646 spec. H=1.953 R=0.490
- 1302a #20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W.
Coll: C. F. Powers. 13 Oct. 1964.
61 spp. 24698 spec. H=2.049 R=0.502
- 1303 #20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W.
Coll: C. F. Powers. 13 Oct. 1964.
54 spp. 17866 spec. H=2.097 R=0.474
- 1304a #20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W.
Coll: C. F. Powers. 11 Oct. 1964.
83 spp. 40492 spec. H=1.038 R=0.765
- 1305a #20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W.
Coll: C. F. Powers. 11 Oct. 1964.
74 spp. 57966 spec. H=0.870 R=0.798
- 1306a #20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W.
Coll: C. F. Powers. 11 Oct. 1964.
56 spp. 36078 spec. H=0.998 R=0.752
- 1307 #20 net sample, vertical haul, Station B-6. 42°22'30"N; 87°30'00"W.
Coll: C. F. Powers. Probably Nov. 1964.
39 spp. 27716 spec. H=1.493 R=0.593
- 1308a #20 net sample, vertical haul, Station C-7. 42°47'30"N; 87°34'30"W.
Coll: C. F. Powers. 6 Nov. 1964.
42 spp. 32879 spec. H=1.366 R=0.635
- 1309a #20 net sample, vertical haul, Station C'-1. 43°08'00"N; 86°23'00"W.
Coll: C. F. Powers. 10 Nov. 1964.
35 spp. 62192 spec. H=1.202 R=0.662
- 1310 #20 net sample, vertical haul, Station C'-2. 43°12'00"N; 86°31'00"W.
Coll: C. F. Powers. 10 Nov. 1964.
32 spp. 44100 spec. H=1.371 R=0.604
- 1311 #20 net sample, vertical haul, Station D-1. 43°57'00"N; 86°33'00"W.
Coll: C. F. Powers. 8 Nov. 1964.
41 spp. 38762 spec. H=1.362 R=0.633

1312	#20 net sample, vertical haul, Station D-2. 43°56'00"N; 86°39'30"W. Coll: C. F. Powers. 8 Nov. 1964. 33 spp. 32215 spec. H=1.410 R=0.597
1313	#20 net sample, vertical haul, Station D-3. 43°54'00"N; 86°51'30"W. Coll: C. F. Powers. 9 Nov. 1964. 38 spp. 51800 spec. H=1.493 R=0.590
1314a	#20 net sample, vertical haul, Station D-4. 43°48'00"N; 87°03'00"W. Coll: C. F. Powers. 9 Nov. 1964. 31 spp. 34833 spec. H=1.482 R=0.568
1315	#20 net sample, vertical haul, Station D-5. 43°38'40"N; 87°31'00"W. Coll: C. F. Powers. 9 Nov. 1964. 33 spp. 21980 spec. H=1.404 R=0.598
1316	#20 net sample, vertical haul, Station D-6. 43°44'00"N; 87°38'00"W. Coll: C. F. Powers. 9 Nov. 1964. 48 spp. 26472 spec. H=1.608 R=0.585
1317	#20 net sample, vertical haul, Station E-1. 44°37'30"N; 86°18'12"W. Coll: C. F. Powers. 6 Nov. 1964. 48 spp. 52228 spec. H=1.394 R=0.640
1318a	#20 net sample, vertical haul, Station E-2. 44°37'00"N; 86°21'42"W. Coll: C. F. Powers. 7 Nov. 1964. 51 spp. 52563 spec. H=1.544 R=0.607
1319	#20 net sample, vertical haul, Station E-3. 44°34'00"N; 86°40'00"W. Coll: C. F. Powers. 7 Nov. 1964. 43 spp. 38193 spec. H=1.620 R=0.569
1320a	#20 net sample, vertical haul, Station E-4. 44°30'18"N; 86°55'18"W. Coll: C. F. Powers. 7 Nov. 1964. 63 spp. 48350 spec. H=1.646 R=0.603
1321	#20 net sample, vertical haul, Station E-5. 44°25'30"N; 87°10'18"W. Coll: C. F. Powers. 7 Nov. 1964. 50 spp. 31326 spec. H=1.616 R=0.587
1322a	#20 net sample, vertical haul, Station E-6. 44°27'48"N; 87°26'25"W. Coll: C. F. Powers. 7 Nov. 1964. 57 spp. 30007 spec. H=1.674 R=0.586
1323a	#20 net sample, vertical haul, Station F-1. 45°21'45"N; 85°19'45"W. Coll: C. F. Powers. 6 Nov. 1964. 56 spp. 71750 spec. H=1.152 R=0.714
1324	#20 net sample, vertical haul, Station F-2. 45°28'30"N; 85°26'00"W. Coll: C. F. Powers. 6 Nov. 1964. 49 spp. 42933 spec. H=1.192 R=0.694
1325a	#20 net sample, vertical haul, Station F-3. 45°33'40"N; 85°30'45"W. Coll: C. F. Powers. 6 Nov. 1964. 33 spp. 39699 spec. H=1.346 R=0.615
1331	Plankton, #20 net vertical haul. Sta. MIL-1D. Milwaukee, Wisconsin. Coll: J. Ayers. 21 July 1965.

- 1332 Vertical #20 net haul. Sta. MHKE-16. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 23 July 1965.
- 1333 Oblique #20 net haul. Sta. MIL-KE. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 24 July 1965.
- 1334 Oblique #20 net haul. Sta. MIL-35. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 27 July 1965.
- 1335 #20 net oblique haul. Sta. MH-29. Milwaukee, Wisconsin. Lk. Mich.
Coll: J. Ayers. 28 July 1965.
- 1336 Vertical #20 net haul. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: C. F. Powers. 27 Jan. 1967.
41 spp. 51933 spec. H=0.893 R=0.759
- 1337 Vertical #20 net haul. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: C. F. Powers. 2 March 1967.
60 spp. 68039 spec. H=1.884 R=0.540
- 1338a Vertical #20 net haul. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: C. F. Powers. 28 March 1967.
58 spp. 75628 spec. H=2.002 R=0.507
- 1339 Vertical #20 net haul. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: C. F. Powers. 28 March 1967.
52 spp. 32074 spec. H=1.747 R=0.558
- 1340a Vertical #20 net haul. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: C. F. Powers. 28 March 1967.
67 spp. 137519 spec. H=1.793 R=0.574
- 1341a Vertical #20 net haul. Sta. A-3-A. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 19 April 1967.
102 spp. 92183 spec. H=1.700 R=0.632
- 1342 Vertical #20 net haul. Sta. A-4-A. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 19 April 1967.
72 spp. 55413 spec. H=1.930 R=0.549
- 1343 Vertical #20 net haul. Sta. A-6-A. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 19 April 1967.
77 spp. 143939 spec. H=1.409 R=0.676
- 1344a Vertical #20 net haul. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 25 April 1967.
48 spp. 60445 spec. H=1.324 R=0.658
- 1345a Vertical #20 net haul. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 25 April 1967.
60 spp. 51303 spec. H=2.073 R=0.494
- 1346a Vertical #20 net haul. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 21 April 1967.
76 spp. 74893 spec. H=1.471 R=0.660

- 1347a Vertical #20 net haul. Sta. E-2-E. 44°37'00"N; 86°21'40"W. Lake Mich.
Coll: E. Dunster. 23 April 1967.
53 spp. 61505 spec. H=1,760 R=0.557
- 1348a Vertical #20 net haul. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 23 April 1967.
72 spp. 72950 spec. H=1,758 R=0.589
- 1349 Vertical #20 net haul. Off Chicago--Pierhead, Illinois. CI: 41°53.3'N;
87°35.4'W. Lake Mich. Coll: E. Dunster. 19 April 1967.
70 spp. 27838 spec. H=1,752 R=0.588
- 1350a Surface #20 net tow. Benton Harobr, Michigan. BH: 42°06.9'N; 86°29.7'W.
Lake Mich. Coll: E. Dunster. 19 April 1967.
237 spp. 45401 spec. H=2,572 R=0.530
- 1351 Surface #20 net tow. Milwaukee entrance, Wisconsin. MI: 43°01,6'N;
87°52,9'W. Lake Mich. Coll: E. Dunster. 21 April 1967.
72 spp. 32225 spec. H=2,123 R=0.504
- 1352 Surface #20 net tow. Kewaunee Harbor entrance, Wisconsin KW: 44°27.5'N;
87°29.6'W. Lake Mich. Coll: E. Dunster. 21 April 1967.
80 spp. 11642 spec. H=2,635 R=0.399
- 1353 Surface #20 net tow. Frankfort---off piers, Michigan. FR: 44°37.8'N;
86°15.0'W. Lake Mich. Coll: E. Dunster. 23 April 1967.
49 spp. 9480 spec. H=1,876 R=0.518
- 1354 Surface #20 net tow. Outside, Grand Haven pierheads, Michigan. GH:
43°03.5'N; 86°15.4'W. Lake Mich. Coll: E. Dunster. 25 April 1967.
133 spp. 57942 spec. H=1,693 R=0.654
- 1355 Vertical #20 net tow. Sta. #1, off Grand Haven. 43°08.6'N; 86°19.6'W.
Lake Mich. Coll: V. E. Noble. 28 April 1967.
- 1356 Vertical #20 net tow. Sta. #2, off Grand Haven. 43°08.6'N; 86°19.8'W.
Lake Mich. Coll: V. E. Noble. 28 April 1967.
- 1357 Vertical #20 net tow. Sta. #3, off Grand Haven. 43°03.8'N; 86°20.0'W.
Lake Mich. Coll: V. E. Noble. 28 April 1967.
- 1358 Vertical #20 net tow. Sta. #4, off Grand Haven. 43°03.8'N; 86°19.5'W.
Lake Mich. Coll: V. E. Noble. 29 April 1967.
- 1359 Vertical #20 net tow. Sta. #5, off Grand Haven. 43°03.7'N; 86°18.9'W.
Lake Mich. Coll: V. E. Noble. 29 April 1967.
- 1360 Vertical #20 net tow. Sta. #6, off Grand Haven. 43°03.7'N; 86°15.9'W.
Lake Mich. Coll: V. E. Noble. 29 April 1967.
- 1361 Vertical #20 net tow. Sta. #7, off Grand Haven. 43°01.9'N; 86°16.6'W.
Lake Mich. Coll: V. E. Noble. 30 April 1967.
- 1362 Vertical #20 net tow. Sta. #8, off Grand Haven. 43°02.1'N; 86°16.3'W.
Lake Mich. Coll: V. E. Noble. 30 April 1967.

- 1363 Vertical #20 net tow. Sta. #9, off Grand Haven. 43°02.6'N; 86°16.0'W.
Lake Mich. Coll: V. E. Noble. 30 April 1967.
- 1364 Vertical #20 net tow. Sta. #10, off Grand Haven. 43°02.6'N; 86°15.4'W.
Lake Mich. Coll: V. E. Noble. 30 April 1967.
- 1365 Vertical #20 net tow. Sta. #11, off Grand Haven. 43°02.5'N; 86°18.0'W.
Lake Mich. Coll: V. E. Noble. 30 April 1967.
- 1366 Vertical #20 net tow. Inside Grand Haven Piers -A, Mich. Lake Mich.
Coll: V. E. Noble. 29 April 1967.
- 1367 Vertical #20 net tow. Inside Grand Haven Piers -B, Mich. Lake Mich.
Coll: V. E. Noble. 29 April 1967.
- 1368a Vertical #20 net haul. Sta. A-3-E. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. F. Stoermer. 4 May 1967.
48 spp. 31830 spec. H=1.731 R=0.553
- 1369 Vertical #20 net haul. Sta. A-4-E. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. F. Stoermer. 4 May 1967.
46 spp. 26829 spec. H=1.103 R=0.712
- 1370 Vertical #20 net haul. Sta. A-6-E. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. F. Stoermer. 3 May 1967.
53 spp. 43445 spec. H=1.349 R=0.660
- 1371a Vertical #20 net haul. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. F. Stoermer. 4 May 1967.
40 spp. 43318 spec. H=1.236 R=0.665
- 1372a Vertical #20 net haul. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. F. Stoermer. 5 May 1967.
45 spp. 28196 spec. H=1.458 R=0.617
- 1373 Vertical #20 net haul. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. F. Stoermer. 5 May 1967.
40 spp. 35058 spec. H=1.011 R=0.726
- 1374 Vertical #20 net haul. Sta. E-2-E. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. F. Stoermer. 7 May 1967.
59 spp. 33460 spec. H=1.676 R=0.589
- 1375a Vertical #20 net haul. Sta. E-3-E. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 May 1967.
57 spp. 41559 spec. H=1.418 R=0.649
- 1376 Vertical #20 net haul. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. F. Stoermer. 6 May 1967.
55 spp. 35576 spec. H=1.764 R=0.560
- 1377a Vertical #20 net haul. Sta. GS-67-1. 44°46.9'N; 86°13.7'W. Lake Mich.
Coll: E. F. Stoermer. 9 May 1967.
39 spp. 25265 spec. H=1.462 R=0.601

1378	Vertical #20 net haul. Sta. GS-67-2. 45°00.6N; 85°56.5W. Lake Mich. Coll: E. F. Stoermer. 9 May 1967. 34 spp. 23781 spec.	H=1.693	R=0.520
1379	Vertical #20 net haul. Sta. GS-67-3. 45°04.4N; 85°26.6W. Lake Mich. Coll: E. F. Stoermer. 9 May 1967. 54 spp. 32312 spec.	H=1.748	R=0.562
1380a	Vertical #20 net haul. Sta. GS-67-4. 45°25.2N; 85°19.0W. Lake Mich. Coll: E. F. Stoermer. 9 May 1967. 63 spp. 59470 spec.	H=1.872	R=0.548
1381a	Vertical #20 net haul. Sta. GS-67-5. 45°30.5N; 85°23.5W. Lake Mich. Coll: E. F. Stoermer. 10 May 1967. 55 spp. 41926 spec.	H=1.783	R=0.555
1382	Vertical #20 net haul. Sta. GS-67-6. 45°33.0N; 85°34.5W. Lake Mich. Coll: E. F. Stoermer. 10 May 1967. 64 spp. 36026 spec.	H=1.553	R=0.626
1383	Vertical #20 net haul. Sta. GS-67-7. 45°34.5N; 85°41.2W. Lake Mich. Coll: E. F. Stoermer. 10 May 1967. 61 spp. 37408 spec.	H=1.855	R=0.549
1384	Vertical #20 net haul. Sta. GS-67-8. 45°44.7N; 85°46.5W. Lake Mich. Coll: E. F. Stoermer. 10 May 1967. 67 spp. 54095 spec.	H=1.651	R=0.607
1385	Vertical #20 net haul. Sta. GS-67-9. 45°54.6N; 86°11.5W. Lake Mich. Coll: E. F. Stoermer. 10 May 1967. 50 spp. 42471 spec.	H=1.660	R=0.576
1386	Vertical #20 net haul. Sta. GS-67-10. 45°34.0N; 86°25.7W. Lake Mich. Coll: E. F. Stoermer. 12 May 1967. 62 spp. 34810 spec.	H=1.614	R=0.609
1387	Vertical #20 net haul. Sta. GS-67-11. 45°31.7N; 86°41.4W. Lake Mich. Coll: E. F. Stoermer. 12 May 1967. 106 spp. 26248 spec.	H=2.075	R=0.555
1388	Vertical #20 net haul. Sta. GS-67-12. 45°47.1N; 86°36.1W. Lake Mich. Coll: E. F. Stoermer. 12 May 1967. 126 spp. 16575 spec.	H=2.212	R=0.543
1389	Vertical #20 net haul. Sta. GS-67-13. 45°43.8N; 86°41.6W. Lake Mich. Coll: E. F. Stoermer. 12 May 1967. 103 spp. 38783 spec.	H=1.644	R=0.645
1390	Vertical #20 net haul. Sta. GS-67-14. 45°40.5N; 86°48.8W. Lake Mich. Coll: E. F. Stoermer. 12 May 1967. 78 spp. 17030 spec.	H=1.823	R=0.582
1391	Vertical #20 net haul. Sta. GS-67-15. 45°36.2N; 86°58.5 W. Lake Mich. Coll: E. F. Stoermer. 12 May 1967. 66 spp. 20883 spec.	H=2.091	R=0.501

- 1392 Vertical #20 net haul. Sta. GS-67-16. 45°47.4N; 87°02.2W. Lake Mich.
Coll: E. F. Stoermer. 12 May 1967.
93 spp. 32447 spec. H=2.114 R=0.534
- 1393 Vertical #20 net haul. Sta. GS-67-17. 45°34.0N; 87°09.0W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
71 spp. 36504 spec. H=2.077 R=0.513
- 1394a Vertical #20 net haul. Sta. GS-67-18. 45°23.5N; 87°17.5W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
108 spp. 58134 spec. H=1.955 R=0.583
- 1395 Vertical #20 net haul. Sta. GS-67-19. 45°05.0N; 87°32.3W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
82 spp. 85154 spec. H=1.423 R=0.677
- 1396 Vertical #20 net haul. Sta. GS-67-20. 44°40.2N; 87°52.8W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
78 spp. 135155 spec. H=1.359 R=0.688
- 1397 Vertical #20 net haul. Sta. GS-67-21. 44°54.7N; 87°25.8W. Lake Mich.
Coll: E. F. Stoermer. 13 May 1967.
70 spp. 152893 spec. H=1.296 R=0.695
- 1398 Vertical #20 net haul. Sta. GS-67-22. 44°46.6N; 87°17.4W. Lake Mich.
Coll: E. F. Stoermer. 14 May 1967.
77 spp. 32937 spec. H=1.873 R=0.569
- 1399a Surface #20 net tow. Harbor entrance, Port Washington, Wisconsin.
PW: 43°23.2'N; 87°51.7'W. Coll: E. F. Stoermer. 5 May 1967.
64 spp. 14704 spec. H=2.041 R=0.509
- 1400a Surface #20 net tow. Harbor entrance, Sheboygan, Wisconsin, Lake Mich.
SB: 43°45.0'N; 87°41.5'W. Coll: E. F. Stoermer. 6 May 1967.
96 spp. 16788 spec. H=2.297 R=0.497
- 1401 Surface #20 net tow. Harbor entrance, Manitowoc, Wisconsin, Lake Mich.
MO: 44°05.6'N; 87°38.6'W. Coll: E. F. Stoermer. 6 May 1967.
101 spp. 17008 spec. H=2.029 R=0.560
- 1402 Surface #20 net tow. Harbor entrance, Two Rivers, Wisconsin, Lake Mich.
TR: 44°08.6'N; 87°33.6'W. Coll: E. F. Stoermer. 6 May 1967.
108 spp. 18468 spec. H=2.055 R=0.561
- 1403 Surface #20 net tow. Harbor entrance, Charlevoix, Michigan, Lake Mich.
CA: 45°19.3'N; 85°15.9'W. Coll: E. F. Stoermer. 10 May 1967.
123 spp. 7653 spec. H=2.859 R=0.406
- 1404 Surface #20 net tow. Harbor entrance, Manistique, Michigan, Lake Mich.
MQ: 45°56.7'N; 86°14.8'W. Coll: E. F. Stoermer. 10 May 1967.
163 spp. 7872 spec. H=2.327 R=0.543
- 1405 Surface #20 net tow. Harbor entrance, Escanaba, Michigan, Lake Mich.
ES: 45°44.7'N; 87°02.2'W. Coll: E. F. Stoermer. 12 May 1967.
92 spp. 15504 spec. H=1.534 R=0.661

- 1406a Surface #20 net tow. Harbor entrance, Green Bay, Wisconsin, Lake Mich.
GB: 44°39.2'N; 87°54.1'W. Coll: E. F. Stoermer. 13 May 1967.
75 spp. 37095 spec. H=0.513 R=0.881
- 1407 Surface #20 net tow. Harbor entrance, Sturgeon Bay, Wisconsin, Lake Mich.
SM: 44°47.5'N; 87°18.6'W. Coll: E. F. Stoermer. 14 May 1967.
116 spp. 16747 spec. H=2.393 R=0.497
- 1408a Vertical #20 net tow. Sta. A-3-E. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 23 May 1967.
48 spp. 22363 spec. H=1.694 R=0.562
- 1409a Vertical #20 net tow. Sta. A-4-E. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 23 May 1967.
32 spp. 33606 spec. H=1.553 R=0.556
- 1410a Vertical #20 net haul. Sta. A-6-E. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 24 May 1967.
48 spp. 17736 spec. H=1.555 R=0.598
- 1411a Vertical #20 net haul. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 31 May 1967.
48 spp. 24373 spec. H=1.558 R=0.597
- 1412a Vertical #20 net haul. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 31 May 1967.
44 spp. 23758 spec. H=1.480 R=0.609
- 1413a Vertical #20 net haul. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 25 May 1967.
37 spp. 31657 spec. H=1.185 R=0.672
- 1414a Vertical #20 net haul. Sta. E-2-E. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 28 May 1967.
37 spp. 29775 spec. H=1.363 R=0.623
- 1415 Vertical #20 net haul. Sta. E-3-E. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 28 May 1967.
38 spp. 44474 spec. H=1.244 R=0.658
- 1416 Vertical #20 net haul. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 28 May 1967.
58 spp. 45729 spec. H=1.472 R=0.637
- 1417 Surface #20 net tow. Harbor entrance, Holland, Michigan, Lake Mich.
HO: 42°46.4'N; 86°12.9'W. Coll: E. Dunster. 22 May 1967.
138 spp. 26748 spec. H=2.574 R=0.478
- 1418a Surface #20 net tow. Harbor entrance, South Haven, Michigan, Lake Mich.
SH: 42°24.0'N; 86°17.3'W. Coll: E. Dunster. 22 May 1967.
50 spp. 6430 spec. H=1.829 R=0.532
- 1419a Surface #20 net tow. Harbor entrance, Buffington, Indiana, Lake Mich.
BU: 41°38.8'N; 87°24.6'W. Coll: E. Dunster. 23 May 1967.
42 spp. 5462 spec. H=2.098 R=0.439

- 1420 Surface #20 net tow. Harbor entrance, Indiana Harbor, Indiana, Lake Mich. IH: 41°40.9'N; 87°26.5'W. Coll: E. Dunster. 23 May 1967.
40 spp. 6620 spec. H=1.938 R=0.475
- 1421a Surface #20 net tow. Harbor entrance, Calumet Harbor, Indiana, Lake Mich. CH: 41°43.5'N; 87°29.6'W. Coll: E. Dunster. 23 May 1967.
48 spp. 5764 spec. H=2.011 R=0.480
- 1422a Surface #20 net tow. Harbor entrance, Gary, Indiana, Lake Mich. GA: 41°37.5'N; 87°19.4'W. Coll: E. Dunster. 23 May 1967.
69 spp. 19573 spec. H=2.037 R=0.519
- 1423 Surface #20 net tow. Harbor entrance, Waukegan, Illinois, Lake Mich. WA: 42°21.7'N; 87°48.8'W. Coll: E. Dunster. 25 May 1967.
80 spp. 23353 spec. H=2.195 R=0.499
- 1424a Surface #20 net tow. Harbor entrance, Kenosha, Wisconsin, Lake Mich. KN: 42°35.7'N; 87°48.5'W. Coll: E. Dunster. 25 May 1967.
42 spp. 7506 spec. H=2.214 R=0.408
- 1425 Surface #20 net tow. Harbor entrance, Racine, Wisconsin, Lake Mich. RA: 42°44.1'N; 87°46.3'W. Coll: E. Dunster. 25 May 1967.
41 spp. 11311 spec. H=2.111 R=0.432
- 1426 Surface #20 net tow. Harbor entrance, Manistee, Michigan, Lake Mich. MS: 44°15.1'N; 86°20.8'W. Coll: E. Dunster. 29 May 1967.
135 spp. 9525 spec. H=2.896 R=0.410
- 1427 Surface #20 net tow. Harbor entrance, Ludington, Michigan, Lake Mich. LU: 43°57.2'N; 86°27.8'W. Coll: E. Dunster. 29 May 1967.
96 spp. 8260 spec. H=2.726 R=0.403
- 1428a Surface #20 net tow. Harbor entrance, Muskegon, Michigan, Lake Mich. MU: 43°13.5'N; 86°20.8'W. Coll: E. Dunster. 29 May 1967.
96 spp. 33189 spec. H=1.346 R=0.705
- 1429a Surface #20 net tow. Harbor entrance, White Lake, Michigan, Lake Mich. WL: 43°22.5'N; 86°25.3'W. Coll: E. Dunster. 29 May 1967.
75 spp. 9421 spec. H=2.399 R=0.444
- 1430a Surface #20 net tow. Michigan City, Indiana, Lake Mich. MC: 41°43.7'N; 87°54.7'W. Coll: J. Ayers. 12 June 1967.
18 spp. 4053 spec. H=0.969 R=0.665
- 1431 Vertical #20 net tow. Sta. A-3-E. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: J. Ayers. 12 June 1967.
44 spp. 38837 spec. H=1.760 R=0.535
- 1432 Vertical #20 net tow. Sta. A-4-E. 42°03'30"N; 87°06'30"W. Lake Mich. Coll: J. Ayers. 13 June 1967.
55 spp. 39148 spec. H=1.876 R=0.532
- 1433 Vertical #20 net tow. Sta. C-3-E. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: J. Ayers. 17 June 1967.
48 spp. 15482 spec. H=2.321 R=0.400

1434	Vertical #20 net tow. Sta. C-5-E. 42°49'00"N; 86°50'00"W. Lake Mich. Coll: J. Ayers. 17 June 1967. 45 spp. 33436 spec. H=1.453 R=0.618
1435	Vertical #20 net tow. Sta. C-7-E. 42°47'30"N; 87°34'30"W. Lake Mich. Coll: J. Ayers. 13 June 1967. 46 spp. 31673 spec. H=1.695 R=0.557
1436	Vertical #20 net tow. Sta. E-2-E. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: J. Ayers. 15 June 1967. 42 spp. 27636 spec. H=1.894 R=0.493
1437	Vertical #20 net tow. Sta. E-3-E. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: J. Ayers. 15 June 1967. 31 spp. 37153 spec. H=1.293 R=0.623
1438	Vertical #20 net tow. Sta. E-5-E. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: J. Ayers. 14 June 1967. 38 spp. 27540 spec. H=1.307 R=0.641
1439a	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 5 June 1964. 52 spp. 50050 spec. H=1.787 R=0.548
1440a	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 11 July 1964. 46 spp. 27137 spec. H=2.152 R=0.438
1441a	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 24 July 1964. 41 spp. 45399 spec. H=1.842 R=0.504
1442a	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 2 Aug. 1964. 32 spp. 29310 spec. H=1.895 R=0.453
1443	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 16 Aug. 1964. 23 spp. 50586 spec. H=1.361 R=0.566
1444a	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 19 Sept. 1964. 27 spp. 32989 spec. H=1.523 R=0.538
1445a	Vertical #20 net tow. Sta. B-6. 42°22'30"N; 87°30'00"W. Lake Mich. Coll: C. F. Powers. 14 Oct. 1964. 40 spp. 30660 spec. H=1.500 R=0.593
1446a	Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: E. Dunster. 11 July 1967. 45 spp. 40882 spec. H=2.143 R=0.437
1447a	Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich. Coll: E. Dunster. 11 July 1967. 35 spp. 42752 spec. H=2.284 R=0.358

1448a	Vertical #20 net tow. Sta. A-6. Coll: E. Dunster. 10 July 1967. 32 spp. 28275 spec.	41°52'00"N; 87°27'00"W. Lake Mich. H=1,311 R=0.622
1449a	Vertical #20 net tow. Sta. C-3. Coll: E. Dunster. 16 July 1967. 64 spp. 26169 spec.	42°49'10"N; 86°28'25"W. Lake Mich. H=2,568 R=0.383
1450a	Vertical #20 net tow. Sta. C-5. Coll: E. Dunster. 16 July 1967. 49 spp. 52515 spec.	42°49'00"N; 86°50'00"W. Lake Mich. H=2,278 R=0.415
1451a	Vertical #20 net tow. Sta. C-7. Coll: E. Dunster. 16 July 1967. 52 spp. 50802 spec.	42°47'30"N; 87°34'30"W. Lake Mich. H=2,193 R=0.445
1452a	Vertical #20 net tow. Sta. E-2. Coll: E. Dunster. 14 July 1967. 68 spp. 46974 spec.	44°37'00"N; 86°21'42"W. Lake Mich. H=2,464 R=0.416
1453a	Vertical #20 net tow. Sta. E-3. Coll: E. Dunster. 15 July 1967. 47 spp. 39563 spec.	44°34'00"N; 86°40'00"W. Lake Mich. H=1,843 R=0.521
1454a	Vertical #20 net tow. Sta. E-5. Coll: E. Dunster. 15 July 1967. 46 spp. 49990 spec.	44°25'30"N; 87°10'18"W. Lake Mich. H=1,858 R=0.515
1455	Surface #20 net tow. CH-1, Chicago, Illinois, Lake Mich. Coll: E. Dunster. 10 July 1967.	
1504a	Vertical #20 net tow. Sta. A-3. Coll: E. Dunster. 28 Aug. 1967. 45 spp. 40505 spec.	42°05'30"N; 86°43'00"W. Lake Mich. H=1,404 R=0.631
1505	Vertical #20 net tow. Sta. A-4. Coll: E. Dunster. 28 Aug. 1967. 19 spp. 19406 spec.	42°03'30"N; 87°06'30"W. Lake Mich. H=1,484 R=0.496
1506	Vertical #20 net tow. Sta. A-6. Coll: E. Dunster. 29 Aug. 1967. 17 spp. 19117 spec.	41°52'00"N; 87°27'00"W. Lake Mich. H=1,123 R=0.603
1508	Vertical #20 net tow. Sta. C-3. Coll: E. Dunster. 2 Sept. 1967. 23 spp. 25022 spec.	42°49'10"N; 86°28'25"W. Lake Mich. H=1,530 R=0.512
1509	Vertical #20 net tow. Sta. C-5. Coll: E. Dunster. 2 Sept. 1967. 30 spp. 19814 spec.	42°49'00"N; 86°40'00"W. Lake Mich. H=2,066 R=0.393
1510	Vertical #20 net tow. Sta. C-7. Coll: E. Dunster. 29 Aug. 1967. 25 spp. 31630 spec.	42°47'30"N; 87°34'30"W. Lake Mich. H=1,375 R=0.573

1511	Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. Dunster. 1 Sept. 1967. 59 spp. 32577 spec. H=2.351 R=0.423
1512	Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: E. Dunster. 1 Sept. 1967. 59 spp. 25468 spec. H=2.396 R=0.412
1513	Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. Dunster. 31 Aug. 1967. 33 spp. 19734 spec. H=1.813 R=0.482
1520	Surface #20 net tow. Holland, Michigan, Lake Mich. H0: 42°46.4'N; 86°12.9'W. Coll: J. Ayers. 18 Sept. 1967. 76 spp. 21209 spec. H=1.917 R=0.557
1521	Surface #20 net tow. South Haven, Michigan, Lake Mich. SH: 42°24.0'N; 86°17.3'W. Coll: J. Ayers. 18 Sept. 1967. 89 spp. 17332 spec. H=1.451 R=0.677
1522	Surface #20 net tow. Benton Harbor, Michigan, Lake Mich. BH: 42°06.9'N; 86°29.7'W. Coll: J. Ayers. 18 Sept. 1967. 102 spp. 54841 spec. H=1.452 R=0.686
1523a	Surface #20 net tow. Racine, Wisconsin, Lake Mich. RA: 42°44.1'N; 87°46.3'W. Coll: J. Ayers. 19 Sept. 1967. 54 spp. 10840 spec. H=1.653 R=0.586
1524	Surface #20 net tow. Milwaukee, Wisconsin, Lake Mich. MI: 43°01.6'N; 87°52.9'W. Coll: J. Ayers. 20 Sept. 1967. 38 spp. 4568 spec. H=1.595 R=0.561
1525a	Surface #20 net tow. Port Washington, Wisconsin, Lake Mich. PW: 43° 23.2'N; 87°51.7'W. Coll: J. Ayers. 20 Sept. 1967. 27 spp. 7181 spec. H=1.426 R=0.567
1526	Surface #20 net tow. Manitowoc, Wisconsin, Lake Mich. MO: 44°05.6'N; 87°38.6'W. Coll: J. Ayers. 20 Sept. 1967. 121 spp. 17577 spec. H=2.230 R=0.535
1527	Surface #20 net tow. Two Rivers, Wisconsin, Lake Mich. TR: 44°08.6'N; 87°33.6'W. Coll: J. Ayers. 20 Sept. 1967. 135 spp. 15900 spec. H=1.820 R=0.629
1528a	Surface #20 net tow. Sheboygan, Wisconsin, Lake Mich. SB: 43°45.0'N; 87°41.5'W. Coll: J. Ayers. 20 Sept. 1967. 65 spp. 6926 spec. H=2.057 R=0.507
1529	Surface #20 net tow. Kewaunee, Wisconsin, Lake Mich. KW: 44°27.5'N; 87°29.6'W. Coll: J. Ayers. 20 Sept. 1967. 95 spp. 8339 spec. H=2.389 R=0.475
1530a	Surface #20 net tow. Frankfort, Michigan, Lake Mich. FR: 44°37.8'N; 86°15.0'W. Coll: J. Ayers. 24 Sept. 1967. 94 spp. 9999 spec. H=1.856 R=0.591

1531	Surface #20 net tow. Grand Haven, Michigan, Lake Mich. GH: 43°03.5'N; 86°15.4'W. Coll: J. Ayers. 25 Sept. 1967. 70 spp. 11830 spec. H=1.762 R=0.585
1532	Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: J. Ayers. 18 Sept. 1967. 49 spp. 30441 spec. H=1.380 R=0.645
1533	Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich. Coll: J. Ayers. 19 Sept. 1967. 49 spp. 21542 spec. H=1.362 R=0.650
1534	Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich. Coll: J. Ayers. 19 Sept. 1967. 39 spp. 32233 spec. H=1.433 R=0.609
1535	Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich. Coll: J. Ayers. 20 Sept. 1967. 32 spp. 31067 spec. H=1.109 R=0.680
1536	Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: J. Ayers. 24 Sept. 1967. 85 spp. 36674 spec. H=2.199 R=0.505
1537a	Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: J. Ayers. 24 Sept. 1967. 63 spp. 23186 spec. H=2.575 R=0.378
1538a	Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: J. Ayers. 23 Sept. 1967. 70 spp. 18103 spec. H=2.003 R=0.529
1539a	Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: C. F. Powers. 4 Oct. 1967. 31 spp. 19874 spec. H=1.462 R=0.574
1540	Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich. Coll: C. F. Powers. 4 Oct. 1967. 41 spp. 20147 spec. H=1.401 R=0.623
1541a	Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1967. 85 spp. 18791 spec. H=1.854 R=0.583
1542	Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1967. 72 spp. 19664 spec. H=2.417 R=0.435
1543	Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. F. Stoermer. 10 Oct. 1967. 52 spp. 13922 spec. H=1.460 R=0.631
1544	Surface #20 net tow. Muskegon, Michigan, Lake Mich. MU: 43°13.5'N; 86°20.8'W. Coll: E. F. Stoermer. 2 Oct. 1967. 111 spp. 41967 spec. H=0.821 R=0.826

- 1545 Surface #20 net tow. White Lake, Michigan, Lake Mich. WL: 43°22.5'N;
86°25.3'W. Coll: E. F. Stoermer. 2 Oct. 1967.
159 spp. 14799 spec. H=2.579 R=0.491
- 1546 Surface #20 net tow. Ludington, Michigan, Lake Mich. LU: 43°57.2'N;
86°27.8'W. Coll: E. F. Stoermer. 2 Oct. 1967.
129 spp. 19993 spec. H=1.155 R=0.762
- 1547 Surface #20 net tow. Manistee, Michigan, Lake Mich. MS: 44°15.1'N;
86°20.8'W. Coll: E. F. Stoermer. 2 Oct. 1967.
71 spp. 12525 spec. H=1.339 R=0.686
- 1548 Surface #20 net tow. Charlevoix, Michigan, Lake Mich. CA: 45°19.3'N;
85°15.9'W. Coll: E. F. Stoermer. 3 Oct. 1967.
50 spp. 7861 spec. H=1.328 R=0.661
- 1549 Surface #20 net tow. Manistique, Michigan, Lake Mich. MQ: 45°56.7'N;
86°14.8'W. Coll: E. F. Stoermer. 4 Oct. 1967.
85 spp. 7297 spec. H=2.287 R=0.485
- 1550 Surface #20 net tow. Marinette, Wisconsin and Menominee, Michigan.
Green Bay. MR: 45°05.8'N; 87°35.1'W. Coll: E. F. Stoermer. 5 Oct. 1967.
233 spp. 8071 spec. H=3.574 R=0.344
- 1551 Surface #20 net tow. Escanaba, Michigan, Little Bay De Noc. ES: 45°
44.7'N; 87°02.2'W. Coll: E. F. Stoermer. 5 Oct. 1967.
77 spp. 12519 spec. H=1.980 R=0.544
- 1552 Surface #20 net tow. Sturgeon Bay, Wisconsin, Lake Mich. SM: 44°
47.5'N; 87°18.6'W. Coll: E. F. Stoermer. 6 Oct. 1967.
88 spp. 15145 spec. H=1.850 R=0.587
- 1553 Surface #20 net tow. Sturgeon Bay, Wisconsin, Green Bay. SG: 44°
50.1N; 87°22.9'W. Coll: E. F. Stoermer. 6 Oct. 1967.
114 spp. 13616 spec. H=2.024 R=0.573
- 1554a Vertical #20 net tow. Sta. GS-1A. 44°46.9'N; 86°13.7'W. Lake Mich.
Coll: E. F. Stoermer. 3 Oct. 1967.
91 spp. 28106 spec. H=2.212 R=0.510
- 1555 Vertical #20 net tow. Sta. GS-2A. 45°00.6'N; 85°56.5'W. Lake Mich.
Coll: E. F. Stoermer. 3 Oct. 1967.
81 spp. 28320 spec. H=1.973 R=0.551
- 1556 Vertical #20 net tow. Sta. GS-3A. 45°04.4'N; 85°26.6'W. Lake Mich.
Coll: E. F. Stoermer. 3 Oct. 1967.
56 spp. 19177 spec. H=1.767 R=0.561
- 1557 Vertical #20 net tow. Sta. GS-4A. 45°25.2'N; 85°19.0'W. Lake Mich.
Coll: E. F. Stoermer. 3 Oct. 1967.
81 spp. 26760 spec. H=1.705 R=0.612
- 1558 Vertical #20 net tow. Sta. GS-5A. 45°30.5'N; 85°23.5'W. Lake Mich.
Coll: E. F. Stoermer. 4 Oct. 1967.
69 spp. 25228 spec. H=1.775 R=0.581

1559	Vertical #20 net tow. Sta. GS-7A. 45°34.5'N; 85°41.2'W. Lake Mich. Coll: E. F. Stoermer. 4 Oct. 1967. 68 spp. 28594 spec. H=1.682 R=0.601
1560	Vertical #20 net tow. Sta. GS-8A. 45°44.7'N; 85°46.5'W. Lake Mich. Coll: E. F. Stoermer. 4 Oct. 1967. 63 spp. 21173 spec. H=1.992 R=0.519
1561	Vertical #20 net tow. Sta. GS-9A. 45°54.6'N; 86°11.5'W. Lake Mich. Coll: E. F. Stoermer. 4 Oct. 1967. 49 spp. 17037 spec. H=1.859 R=0.522
1562	Vertical #20 net tow. Sta. GS-10A. 45°34.0'N; 86°25.7'W. Lake Mich. Coll: E. F. Stoermer. 5 Oct. 1967. 54 spp. 40534 spec. H=1.882 R=0.528
1563	Vertical #20 net tow. Sta. GS-11A. 45°31.7'N; 86°41.4'W. Lake Mich. Coll: E. F. Stoermer. 5 Oct. 1967. 60 spp. 42766 spec. H=1.711 R=0.582
1564	Vertical #20 net tow. Sta. GS-12A. 45°47.1'N; 86°36.1'W. Lake Mich. Coll: E. F. Stoermer. 5 Oct. 1967. 46 spp. 60756 spec. H=1.066 R=0.722
1565	Vertical #20 net tow. Sta. GS-13A. 45°43.8'N; 86°41.6'W. Lake Mich. Coll: E. F. Stoermer. 5 Oct. 1967. 155 spp. 19722 spec. H=1.653 R=0.672
1566	Vertical #20 net tow. Sta. GS-14A. 45°40.5'N; 86°48.8'W. Green Bay. Coll: E. F. Stoermer. 5 Oct. 1967. 70 spp. 54510 spec. H=1.493 R=0.649
1567	Vertical #20 net tow. Sta. GS-15A. 45°36.2'N; 86°58.5'W. Green Bay. Coll: E. F. Stoermer. 5 Oct. 1967. 115 spp. 62984 spec. H=1.832 R=0.614
1568	Vertical #20 net tow. Sta. GS-16A. 45°47.4'N; 87°02.2'W. Little Bay De Noc. Coll: E. F. Stoermer. 5 Oct. 1967. 73 spp. 69301 spec. H=1.517 R=0.646
1569	Vertical #20 net tow. Sta. GS-17A. 45°34.0'N; 87°09.0'W. Green Bay. Coll: E. F. Stoermer. 5 Oct. 1967. 106 spp. 67273 spec. H=1.685 R=0.639
1570	Vertical #20 net tow. Sta. GS-18A. 45°23.5'N; 87°17.5'W. Green Bay. Coll: E. F. Stoermer. 5 Oct. 1967. 57 spp. 10084 spec. H=1.813 R=0.552
1571	Vertical #20 net tow. Sta. GS-19A. 45°05.1'N; 87°32.3'W. Green Bay. Coll: E. F. Stoermer. 6 Oct. 1967. 102 spp. 170827 spec. H=1.233 R=0.733
1572	Vertical #20 net tow. Sta. GS-20A. 44°40.2'N; 87°52.9'W. Green Bay. Coll: E. F. Stoermer. 6 Oct. 1967. 66 spp. 110952 spec. H=1.146 R=0.727

- 1573 Vertical #20 net tow. Sta. GS-21A. 44°55.3'N; 87°26.0'W. Green Bay.
Coll: E. F. Stoermer. 6 Oct. 1967.
91 spp. 89293 spec. H=1.423 R=0.685
- 1574 Vertical #20 net tow. Sta. GS-22A. 44°46.6'N; 87°17.2'W. Lake Mich.
Coll: E. F. Stoermer. 6 Oct. 1967.
161 spp. 34766 spec. H=2.155 R=0.576
- 1575 Vertical #20 net tow. Sta. GS-28A. 44°52.2'N; 87°39.0'W. Green Bay.
Coll: E. F. Stoermer. 6 Oct. 1967.
98 spp. 77508 spec. H=1.465 R=0.680
- 1580 Surface #20 net tow. Indiana Harbor, Indiana, Lake Mich. Coll: J. Ayers. 8 Nov. 1967.
- 1581 Surface #20 net tow. Gary, Indiana, Lake Mich. Coll: J. Ayers. 8 Nov. 1967.
- 1582 Surface #20 net tow. Calumet Harbor, Indiana, Lake Mich. Coll: J. Ayers. 10 Nov. 1967.
- 1583 Surface #20 net tow. Michigan City Harbor, Indiana, Lake Mich. Coll: J. Ayers. 10 Nov. 1967.
- 1584 Surface #20 net tow. Chicago Harbor, Illinois, Lake Mich. Coll: J. Ayers. 10 Nov. 1967.
- 1589 Vertical #20 net tow. 1/4 mi west of GH pierhead. Lake Mich. Coll: E. Dunster. 19 March 1968.
- 1590 Vertical #20 net tow. 2.8 mi N GH pierhead, 3/4 mi from shore. Lake Mich. Coll: E. Dunster. 19 March 1968.
- 1591 Vertical #20 net tow. Open water area in center of ice flow 1 1/4 mi from shore. Lake Mich. Coll: E. Dunster. 19 March 1968.
- 1592 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich. Coll: E. Dunster. 26 March 1968.
- 1593 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich. Coll: E. Dunster. 26 March 1968.
- 1594 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: E. Dunster. 26 March 1968.
- 1595 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich. Coll: E. Dunster. 5 April 1968.
- 1596 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich. Coll: E. Dunster. 16 April 1968.
- 1597 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich. Coll: E. Dunster. 5 April 1968.
- 1598 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich. Coll: E. Dunster. 16 April 1968.

1599 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 5 April 1968.

1600 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1601 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 5 April 1968.

1602 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1603 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 3 April 1968.

1604 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1605 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 3 April 1968.

1606 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: J. Ayers. 13 June 1967.

1607 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1608 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1609 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1610 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1611 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1612 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1613 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1614 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 16 April 1968.

1615 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

1616 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.

1617 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 2 April 1968.

- 1618 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 17 April 1968.
- 1619 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 22 April 1968.
- 1620 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 22 April 1968.
- 1621 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 22 April 1968.
- 1622 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 22 April 1968.
- 1623 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 21 April 1968.
- 1624 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. Dunster. 21 April 1968.
- 1625 One minute surface #20 net tow 1 mile from Grand Haven, Michigan pier-
heads bearing 260°. Sta. 1. Lake Mich. Coll: E. F. Stoermer. 7 May
1968.
- 1626 One minute surface #20 net tow 2 miles offshore from Grand Haven,
Michigan pierheads bearing 260°. Sta. 2. Lake Mich. Coll: E. F.
Stoermer. 7 May 1968.
- 1627 One minute surface #20 net tow 3 miles offshore from Grand Haven,
Michigan pierheads bearing 260°. Sta. 3. Lake Mich. Coll: E. F.
Stoermer. 7 May 1968.
- 1628 One minute surface #20 net tow 4 miles offshore from Grand Haven,
Michigan pierheads bearing 260°. Sta. 4. Lake Mich. Coll: E. F.
Stoermer. 7 May 1968.
- 1629 One minute surface #20 net tow 5 miles from Grand Haven, Michigan
pierheads bearing 260°. Sta. 5. Lake Mich. Coll: E. F. Stoermer.
7 May 1968.
- 1630 Surface #20 net tow in Port Sheldon thermal discharge. Coll: E. F.
Stoermer. 7 May 1968.
- 1631 Surface #20 net tow in Muskegon, Michigan plume 1/2 mi from pierheads.
Coll: E. F. Stoermer. 7 May 1968.
- 1632 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.
- 1633 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.
- 1634 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1635 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1636 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1637 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1638 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1639 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1640 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1641 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1642 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1643 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1644 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1645 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 13 May 1968.

1646 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1647 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1648 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1649 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 14 May 1968.

1650 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. Dunster. 27 May 1968.

1651 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1652 Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich.
Coll: E. Dunster. 15 May 1968.

1653	Vertical #20 net tow. Sta. E-3. Coll: E. Dunster. 15 May 1968.	44°34'00"N; 86°40'00"W.	Lake Mich.
1654	Vertical #20 net tow. Sta. E-4. Coll: E. Dunster. 15 May 1968.	44°30'18"N; 86°55'18"W.	Lake Mich.
1655	Vertical #20 net tow. Sta. E-5. Coll: E. Dunster. 15 May 1968.	44°25'30"N; 87°10'18"W.	Lake Mich.
1656	Vertical #20 net tow. Sta. E-6. Coll: E. Dunster. 15 May 1968.	44°27'48"N; 87°26'25"W.	Lake Mich.
1657	Vertical #20 net tow. Sta. A-1. Coll: E. Dunster. 15 July 1968.	42°06'30"N; 86°32'00"W.	Lake Mich.
1658	Vertical #20 net tow. Sta. A-2. Coll: E. Dunster. 15 July 1968.	42°06'00"N; 86°37'00"W.	Lake Mich.
1659	Vertical #20 net tow. Sta. A-3. Coll: E. Dunster. 15 July 1968.	42°05'30"N; 86°43'00"W.	Lake Mich.
1660	Vertical #20 net tow. Sta. A-4. Coll: E. Dunster. 16 July 1968.	42°03'30"N; 87°06'30"W.	Lake Mich.
1661	Vertical #20 net tow. Sta. A-5. Coll: E. Dunster. 16 July 1968.	41°57'00"N; 87°18'30"W.	Lake Mich.
1662	Vertical #20 net tow. Sta. A-6. Coll: E. Dunster. 16 July 1968.	41°52'00"N; 87°27'00"W.	Lake Mich.
1663	Vertical #20 net tow. Sta. C-1. Coll: E. Dunster. 15 July 1968.	42°49'40"N; 86°14'50"W.	Lake Mich.
1664	Vertical #20 net tow. Sta. C-2. Coll: E. Dunster. 15 July 1968.	42°49'40"N; 86°18'25"W.	Lake Mich.
1665	Vertical #20 net tow. Sta. C-3. Coll: E. Dunster. 15 July 1968.	42°49'10"N; 86°28'25"W.	Lake Mich.
1666	Vertical #20 net tow. Sta. C-4. Coll: E. Dunster. 15 July 1968.	42°48'50"N; 86°41'30"W.	Lake Mich.
1667	Vertical #20 net tow. Sta. C-5. Coll: E. Dunster. 15 July 1968.	42°49'00"N; 86°50'00"W.	Lake Mich.
1668	Vertical #20 net tow. Sta. C-6. Coll: E. Dunster. 16 July 1968.	42°47'50"N; 87°26'50"W.	Lake Mich.
1669	Vertical #20 net tow. Sta. C-7. Coll: E. Dunster. 16 July 1968.	42°47'30"N; 87°34'30"W.	Lake Mich.
1670	Vertical #20 net tow. Sta. E-1. Coll: E. Dunster. 18 July 1968.	44°37'30"N; 86°18'12"W.	Lake Mich.

1671	Vertical #20 net tow. Sta. E-2. Coll: E. Dunster. 18 July 1968.	44°37'00"N; 86°21'42"W.	Lake Mich.
1672	Vertical #20 net tow. Sta. E-3. Coll: E. Dunster. 17 July 1968.	44°34'00"N; 86°40'00"W.	Lake Mich.
1673	Vertical #20 net tow. Sta. E-4. Coll: E. Dunster. 17 July 1968.	44°30'18"N; 86°55'18"W.	Lake Mich.
1674	Vertical #20 net tow. Sta. E-5. Coll: E. Dunster. 17 July 1968.	44°25'30"N; 87°10'18"W.	Lake Mich.
1675	Vertical #20 net tow. Sta. E-6. Coll: E. Dunster. 17 July 1968.	44°27'48"N; 87°26'25"W.	Lake Mich.
1676	Vertical #20 net tow. Sta. A-1. Coll: E. Dunster. 6 Aug. 1968.	42°06'30"N; 86°32'00"W.	Lake Mich.
1677	Vertical #20 net tow. Sta. A-2. Coll: E. Dunster. 6 Aug. 1968.	42°06'00"N; 86°37'00"W.	Lake Mich.
1678	Vertical #20 net tow. Sta. A-3. Coll: E. Dunster. 6 Aug. 1968.	42°05'30"N; 86°43'00"W.	Lake Mich.
1679	Vertical #20 net tow. Sta. A-4. Coll: E. Dunster. 7 Aug. 1968.	42°03'30"N; 87°06'30"W.	Lake Mich.
1680	Vertical #20 net tow. Sta. A-5. Coll: E. Dunster. 7 Aug. 1968.	41°57'00"N; 87°18'30"W.	Lake Mich.
1681	Vertical #20 net tow. Sta. A-6. Coll: E. Dunster. 7 Aug. 1968.	41°52'00"N; 87°27'00"W.	Lake Mich.
1682	Vertical #20 net tow. Sta. C-1. Coll: E. Dunster. 6 Aug. 1968.	42°49'40"N; 86°14'50"W.	Lake Mich.
1683	Vertical #20 net tow. Sta. C-2. Coll: E. Dunster. 6 Aug. 1968.	42°49'40"N; 86°18'25"W.	Lake Mich.
1684	Vertical #20 net tow. Sta. C-3. Coll: E. Dunster. 6 Aug. 1968.	42°49'10"N; 86°28'25"W.	Lake Mich.
1685	Vertical #20 net tow. Sta. C-4. Coll: E. Dunster. 6 Aug. 1968.	42°48'50"N; 86°41'30"W.	Lake Mich.
1686	Vertical #20 net tow. Sta. C-5. Coll: E. Dunster. 6 Aug. 1968.	42°49'00"N; 86°50'00"W.	Lake Mich.
1687	Vertical #20 net tow. Sta. C-6. Coll: E. Dunster. 8 Aug. 1968.	42°47'40"N; 87°26'50"W.	Lake Mich.
1688	Vertical #20 net tow. Sta. C-7. Coll: E. Dunster. 8 Aug. 1968.	42°47'30"N; 87°34'30"W.	Lake Mich.
1689	Vertical #20 net tow. Sta. E-3. Coll: E. Dunster. 9 Aug. 1968.	44°34'00"N; 86°40'00"W.	Lake Mich.

1690	Vertical #20 net tow. Sta. E-4.	44°30'18"N; 86°55'18"W.	Lake Mich.
	Coll: E. Dunster. 9 Aug. 1968.		
1691	Vertical #20 net tow. Sta. E-5.	44°25'30"N; 87°10'18"W.	Lake Mich.
	Coll: E. Dunster. 9 Aug. 1968.		
1692	Vertical #20 net tow. Sta. E-6.	44°27'48"N; 87°26'25"W.	Lake Mich.
	Coll: E. Dunster. 9 Aug. 1968.		
1693	Vertical #20 net tow. Sta. A-1.	42°06'30"N; 86°32'00"W.	Lake Mich.
	Coll: E. Dunster. 12 Sept. 1968.		
1694	Vertical #20 net tow. Sta. A-2.	42°06'00"N; 86°37'00"W.	Lake Mich.
	Coll: E. Dunster. 12 Sept. 1968.		
1695	Vertical #20 net tow. Sta. A-3.	42°05'30"N; 86°43'00"W.	Lake Mich.
	Coll: E. Dunster. 12 Sept. 1968.		
1696	Vertical #20 net tow. Sta. A-4.	42°03'30"N; 87°06'30"W.	Lake Mich.
	Coll: E. Dunster. 13 Sept. 1968.		
1697	Vertical #20 net tow. Sta. A-5.	41°57'00"N; 87°18'30"W.	Lake Mich.
	Coll: E. Dunster. 13 Sept. 1968.		
1698	Vertical #20 net tow. Sta. A-6.	41°52'00"N; 87°27'00"W.	Lake Mich.
	Coll: E. Dunster. 13 Sept. 1968.		
1699	Vertical #20 net tow. Sta. C-1.	42°49'40"N; 86°14'50"W.	Lake Mich.
	Coll: E. Dunster. 11 Sept. 1968.		
1700	Vertical #20 net tow. Sta. C-2.	42°49'40"N; 86°18'25"W.	Lake Mich.
	Coll: E. Dunster. 11 Sept. 1968.		
1701	Vertical #20 net tow. Sta. C-3.	42°49'10"N; 86°28'25"W.	Lake Mich.
	Coll: E. Dunster. 12 Sept. 1968.		
1702	Vertical #20 net tow. Sta. C-4.	42°48'50"N; 86°41'30"W.	Lake Mich.
	Coll: E. Dunster. 12 Sept. 1968.		
1703	Vertical #20 net tow. Sta. C-5.	42°49'00"N; 86°50'00"W.	Lake Mich.
	Coll: E. Dunster. 12 Sept. 1968.		
1704	Vertical #20 net tow. Sta. C-6.	42°47'40"N; 87°26'50"W.	Lake Mich.
	Coll: E. Dunster. 13 Sept. 1968.		
1705	Vertical #20 net tow. Sta. C-7.	42°47'30"N; 87°34'30"W.	Lake Mich.
	Coll: E. Dunster. 13 Sept. 1968.		
1706	Vertical #20 net tow. Sta. E-1.	44°37'30"N; 86°18'12"W.	Lake Mich.
	Coll: E. Dunster. 14 Sept. 1968.		
1707	Vertical #20 net tow. Sta. E-2.	44°37'00"N; 86°21'42"W.	Lake Mich.
	Coll: E. Dunster. 14 Sept. 1968.		

1708 Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1709 Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1710 Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1711 Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich.
Coll: E. Dunster. 14 Sept. 1968.

1712 Vertical #20 net tow. Sta. A-1. 42°06'30"N; 86°32'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1713 Vertical #20 net tow. Sta. A-2. 42°06'00"N; 86°37'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1714 Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1715 Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1716 Vertical #20 net tow. Sta. A-5. 41°57'00"N; 87°18'30"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1717 Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1718 Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1719 Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1720 Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1721 Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1722 Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich.
Coll: E. F. Stoermer. 7 Oct. 1968.

1723 Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1724 Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich.
Coll: E. F. Stoermer. 8 Oct. 1968.

1725 Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich.
Coll: E. F. Stoermer. 11 Oct. 1968.

1726	Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1968.
1727	Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1968.
1728	Vertical #20 net tow. Sta. E-4. 44°30'18"N; 86°55'18"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1968.
1729	Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: E. F. Stoermer. 11 Oct. 1968.
1730	Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich. Coll: E. F. Stoermer. 10 Oct. 1968.
1731	Vertical #20 net tow. Sta. A-3. 42°05'30"N; 86°43'00"W. Lake Mich. Coll: E. Dunster. 8 Nov. 1968.
1732	Vertical #20 net tow. Sta. A-4. 42°03'30"N; 87°06'30"W. Lake Mich. Coll: E. Dunster. 13 Nov. 1968.
1733	Vertical #20 net tow. Sta. A-6. 41°52'00"N; 87°27'00"W. Lake Mich. Coll: E. Dunster. 13 Nov. 1968.
1734	Vertical #20 net tow. Sta. C-1. 42°49'40"N; 86°14'50"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1735	Vertical #20 net tow. Sta. C-2. 42°49'40"N; 86°18'25"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1736	Vertical #20 net tow. Sta. C-3. 42°49'10"N; 86°28'25"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1737	Vertical #20 net tow. Sta. C-4. 42°48'50"N; 86°41'30"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1738	Vertical #20 net tow. Sta. C-5. 42°49'00"N; 86°50'00"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1739	Vertical #20 net tow. Sta. C-6. 42°47'40"N; 87°26'50"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1740	Vertical #20 net tow. Sta. C-7. 42°47'30"N; 87°34'30"W. Lake Mich. Coll: E. Dunster. 10 Nov. 1968.
1741	Vertical #20 net tow. Sta. E-1. 44°37'30"N; 86°18'12"W. Lake Mich. Coll: E. Dunster. 9 Nov. 1968.
1742	Vertical #20 net tow. Sta. E-2. 44°37'00"N; 86°21'42"W. Lake Mich. Coll: E. Dunster. 9 Nov. 1968.
1743	Vertical #20 net tow. Sta. E-3. 44°34'00"N; 86°40'00"W. Lake Mich. Coll: E. Dunster. 9 Nov. 1968.

1744	Vertical #20 net tow. Sta. E-4. Coll: E. Dunster. 9 Nov. 1968.	44°30'18"N; 86°55'18"W.	Lake Mich.
1800	Vertical #20 net tow. Sta. E-1. Coll: E. Dunster. 9 Aug. 1968.	44°37'30"N; 86°18'12"W.	Lake Mich.
1801	Vertical #20 net tow. Sta. E-2. Coll: E. Dunster. 9 Aug. 1968.	44°37'00"N; 86°21'42"W.	Lake Mich.
1802	Vertical #20 net tow. Sta. A-1. Coll: J. Ayers. 24 April 1969.	42°06'30"N; 86°32'00"W.	Lake Mich.
1803	Vertical #20 net tow. Sta. A-2. Coll: J. Ayers. 25 April 1969.	42°06'00"N; 86°37'00"W.	Lake Mich.
1804	Vertical #20 net tow. Sta. A-3. Coll: J. Ayers. 25 April 1969.	42°05'30"N; 86°43'00"W.	Lake Mich.
1805	Vertical #20 net tow. Sta. A-4. Coll: J. Ayers. 25 April 1969.	42°03'30"N; 87°06'30"W.	Lake Mich.
1806	Vertical #20 net tow. Sta. A-5. Coll: J. Ayers. 25 April 1969.	41°57'00"N; 87°18'30"W.	Lake Mich.
1807	Vertical #20 net tow. Sta. A-6. Coll: J. Ayers. 25 April 1969.	41°52'00"N; 87°27'00"W.	Lake Mich.
1808	Vertical #20 net tow. Sta. C-1. Coll: J. Ayers. 23 April 1969.	42°49'40"N; 86°14'50"W.	Lake Mich.
1809	Vertical #20 net tow. Sta. C-2. Coll: J. Ayers. 23 April 1969.	42°49'40"N; 86°18'25"W.	Lake Mich.
1810	Vertical #20 net tow. Sta. C-3. Coll: J. Ayers. 23 April 1969.	42°49'10"N; 86°28'25"W.	Lake Mich.
1811	Vertical #20 net tow. Sta. C-6. Coll: J. Ayers. 26 April 1969.	42°47'40"N; 87°26'50"W.	Lake Mich.
1812	Vertical #20 net tow. Sta. C-7. Coll: J. Ayers. 26 April 1969.	42°47'30"N; 87°34'30"W.	Lake Mich.
1813	Vertical #20 net tow. Sta. E-1. Coll: J. Ayers. 27 April 1969.	44°37'30"N; 86°18'12"W.	Lake Mich.
1814	Vertical #20 net tow. Sta. E-2. Coll: J. Ayers. 27 April 1969.	44°37'00"N; 86°21'42"W.	Lake Mich.
1815	Vertical #20 net tow. Sta. E-3. Coll: J. Ayers. 27 April 1969.	44°34'00"N; 86°40'00"W.	Lake Mich.
1816	Vertical #20 net tow. Sta. E-4. Coll: J. Ayers. 27 April 1969.	44°30'18"N; 86°55'18"W.	Lake Mich.

1817	Vertical #20 net tow. Sta. E-5. 44°25'30"N; 87°10'18"W. Lake Mich. Coll: J. Ayers. 27 April 1969.			
1818	Vertical #20 net tow. Sta. E-6. 44°27'48"N; 87°26'25"W. Lake Mich. Coll: J. Ayers. 27 April 1969.			
ANSP 60973	Lake Michigan. 1876. 88 spp. 4234 spec.	H=2.065	R=0.539	
ANSP 3540	Diatomaceae. Chicago Water Supply. Coll: B. W. Thomas. 11 May 1879. 66 spp. 21463 spec.	H=1.539	R=0.633	
ANSP 3541	Chicago Water Supply. Coll: B. W. Thomas. 1 Feb. 1881. 89 spp. 10223 spec.	H=1.765	R=0.607	
ANSP 3507	Chicago Water Supply. Coll: B. W. Thomas. 19 Feb. 1881. 38 spp. 8834 spec.	H=1.159	R=0.681	
ANSP 46910a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239246. Coll: K. E. Damann. Oct. 1945. 62 spp. 91551 spec.	H=1.282	R=0.689	
ANSP 46921a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239302. Coll: K. E. Damann. 23 Nov. 1945. 106 spp. 154634 spec.	H=1.801	R=0.614	
ANSP 46908a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239241. Coll: K. E. Damann. Dec. 1945. 32 spp. 9932 spec.	H=1.762	R=0.492	
ANSP 46917a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239297. Coll: K. E. Damann. 12 Jan. 1946. 108 spp. 360701 spec.	H=1.640	R=0.650	
ANSP 46915a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239277. Coll: K. E. Damann. 20 Feb. 1946. 87 spp. 17575 spec.	H=1.982	R=0.556	
ANSP 46914a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239263. Coll: K. E. Damann. 19 April 1946. 103 spp. 93661 spec.	H=2.055	R=0.557	
ANSP 46924a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239315. Coll: K. E. Damann. 10 May 1946. 113 spp. 141756 spec.	H=1.777	R=0.624	
ANSP 46923a	Plankton tow in Lake Mich. From Field Museum Sheet #1239312. Coll: K. E. Damann. 20 Nov. 1946. 104 spp. 45758 spec.	H=2.103	R=0.547	
ANSP 46920a	Plankton tow in Lake Mich. From Field Museum Sheet #1239301. Coll: K. E. Damann. 20 Dec. 1946. 110 spp. 324569 spec.	H=1.227	R=0.739	
ANSP 46905a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239231. Coll: K. E. Damann. Jan. 1947. 82 spp. 81596 spec.	H=1.631	R=0.630	

ANSP 46909a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239244. Coll: K. E. Damann. March 1947. 96 spp. 21963 spec. H=1.942 R=0.575
ANSP 46912a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239257. Coll: K. E. Damann. April 1947. 44 spp. 8698 spec. H=1.851 R=0.511
ANSP 46916a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239296. Coll: K. E. Damann. 4 May 1947. 122 spp. 294734 spec. H=2.059 R=0.571
ANSP 46906a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239232. Coll: K. E. Damann. May 1947. 111 spp. 150672 spec. H=2.428 R=0.485
ANSP 46919a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239300. Coll: K. E. Damann. 5 June 1947. 130 spp. 65909 spec. H=2.534 R=0.479
ANSP 46907a	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239234. Coll: K. E. Damann. July 1947. 106 spp. 202793 spec. H=2.083 R=0.553
ANSP 46913	Plankton tow in Lake Mich. Chicago, Ill. From Field Museum Sheet #1239258. Coll: K. E. Damann. 6 Aug. 1947. 36 spp. 9562 spec. H=0.947 R=0.736
ANSP 46922a	Plankton tow in Lake Mich. Ill. From Field Museum Sheet #1239309. Coll: K. E. Damann. 21 Aug. 1947. 136 spp. 206338 spec. H=1.859 R=0.622
ANSP 46758a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120598. Coll: E. S. Ford. 5 June 1937. 154 spp. 28042 spec. H=2.595 R=0.485
ANSP 46771a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120613. Coll: E. S. Ford. 11 June 1937. 63 spp. 42062 spec. H=1.821 R=0.561
ANSP 46743a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120580. Coll: E. S. Ford. 20 June 1937. 92 spp. 23354 spec. H=2.095 R=0.537
ANSP 46745a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120584. Coll: E. S. Ford. 3 July 1937. 34 spp. 4785 spec. H=1.878 R=0.467
ANSP 46770a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120612. Coll: E. S. Ford. 9 July 1937. 72 spp. 16768 spec. H=1.642 R=0.616
ANSP 46764a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120606. Coll: E. S. Ford. 17 July 1937. 155 spp. 12410 spec. H=2.570 R=0.490

ANSP 46757a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120597. Coll: E. S. Ford. 25 July 1937. 141 spp. 20771 spec. H=1.752 R=0.646
ANSP 46747a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120586. Coll: E. S. Ford. 1 Aug. 1937. 156 spp. 40397 spec. H=1.733 R=0.657
ANSP 46763a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120605. Coll: E. S. Ford. 23 Aug. 1937. 128 spp. 4928 spec. H=2.571 R=0.470
ANSP 46765a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120607. Coll: L. H. Triffany. 2nd Daily. 30 Aug. 1937. 59 spp. 17930 spec. H=1.486 R=0.636
ANSP 46769a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120611. Coll: L. H. Triffany. 7 Sept. 1937. 29 spp. 4606 spec. H=1.334 R=0.604
ANSP 46752a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120591. Coll: E. S. Ford. 15 Sept. 1937. 113 spp. 4594 spec. H=2.229 R=0.528
ANSP 46760a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120602. Coll: W. A. Daily. 22 Sept. 1937. 75 spp. 20309 spec. H=1.723 R=0.601
ANSP 46750a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120589. Coll: W. A. Daily. 24 Sept. 1937. 90 spp. 21217 spec. H=1.872 R=0.584
ANSP 46744a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120583. Coll: W. A. Daily. 6 Oct. 1937. 73 spp. 20504 spec. H=1.705 R=0.603
ANSP 46748a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120587. Coll: W. A. Daily. 13 Oct. 1937. 83 spp. 4684 spec. H=1.169 R=0.735
ANSP 46767a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120609. Coll: W. A. Daily. 27 Oct. 1937. 104 spp. 25851 spec. H=1.329 R=0.714
ANSP 46749a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120588. Coll: W. A. Daily. 12 March 1938. 71 spp. 8239 spec. H=1.829 R=0.571
ANSP 46768a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120610. Coll: W. A. Daily. 16 March 1938. 109 spp. 6803 spec. H=1.661 R=0.646
ANSP 46762a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120604. Coll: W. A. Daily. 18 March 1938. 107 spp. 4534 spec. H=2.210 R=0.527

ANSP 46751a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120590. Coll: W. A. Daily. 30 March 1938. 63 spp. 8956 spec. H=1.615 R=0.610
ANSP 46772a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120614. Coll: W. A. Daily. 18 April 1938. 34 spp. 14090 spec. H=1.361 R=0.614
ANSP 46756a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120596. Coll: W. A. Daily. 27 April 1938. 71 spp. 59557 spec. H=1.772 R=0.584
ANSP 46759a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120601. Coll: W. A. Daily. 19 May 1938. 63 spp. 29620 spec. H=0.938 R=0.774
ANSP 46761a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120603. Coll: W. A. Daily. 27 May 1938. 72 spp. 36692 spec. H=1.669 R=0.610
ANSP 46766a	Net collection. Lake Mich. Evanston, Ill. From Field Museum Sheet #1120608. Coll: K. Seaman. 14 Dec. 1938. 58 spp. 6312 spec. H=2.121 R=0.478