

Desmids of transitional peats in Konik Stary near Warsaw

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(Received: January 12, 1973)

Abstract

The author reports the results of investigations carried on for a whole year on the desmidian flora of a transitional peat bog. Sixty seven species, six varieties and one form, belonging to 18 genera were found.

INTRODUCTION

Studies of the desmidian flora of the peatfields of the Mazowsze Lowland are so far scarce. The first mention of abundant desmids in peat bogs in Otwock and Miłosna is found in Kozłowski's paper (1895). A more extensive elaboration of desmids of some peatbogs in the environs of Warsaw was undertaken by Wysocka (1934). Unfortunately this work has not been continued since. It seemed opportune in this connection to study the specific composition of desmids of transitional peat bogs of the Mazowsze Lowland and also to establish whether in winter months these investigations are of any use when the water bodies are covered with ice.

METHODS

The material was collected from 6 Oct., 1971 to 21 Sept., 1972, on the average not less frequently than once a month. A total of 14 samples was collected in the above mentioned period. Mostly water was wrung out of sphagnum agglomerations growing in peat hags right under the water surface and out of *Utricularia minor* agglomerations. Less frequently samples were taken from shallow puddles forming temporarily, when the water level rose, from shallow silted up pits overgrown with vegetation in which water, under the pressure of the floating sphagnum

mat, came out to the surface, from innundated sphagnum aggregations (water directly under the mat surface) from the surface bloom of algae in shallow silty depressions and from filamentous algae. Plankton samples were collected with a plankton bolting cloth No. 25 sampler. At one time from 5 (in winter) to 12 samples of a 0.5 l. volume were collected from the peat bog. The material was kept in open jars out of doors. From each sample after previous condensation of the material at least 10 slides 24×24 mm were examined in detail. Living material was examined for not longer than 7 days after sampling. Conservation of the material in these conditions was not necessary, since within this period no changes in it could be noticed. In order to visualize better the details of the cell walls, the cell content was sometimes removed by means of 50 per cent chromic acid. As clearing fluid to facilitate observation a chloralhydrate aqueous solution 1:5 was used.

For each species (with the exception of rare ones) at least 10 measurements were taken to establish the range of individual sizes.

During sampling water pH was measured with Hellige's soil pH-metre, this failed, however, to show changes in pH in the course of the year, which oscillated between 4 and 5. In winter the thickness of the ice cover on the peat hags was measured when sampling.

In identification of the species the following works were helpful: West W. et G. S. (1905—1923), Migula (1907, 1911), Laporte (1931), Krieger (1933, 1935, 1937, 1939), Taylor (1933), Wysocka (1934), Kadłubowska (1952), Kossinskaya (1952, 1960), Růžička (1954, 1955, 1956, 1957, 1959, 1962), Teiling (1954), Hirano (1955, 1956, 1957, 1959, 1960, 1968, 1972), Wasyluk (1957, 1961, 1961a), Grönblad, Prowse, Scott (1958), Grönblad, Scott, Croasdale (1964), Scott, Grönblad, Croasdale (1965), Bourrelly (1966), Bicudo (1969), Tomaszewicz (1970), Islam (1970).

SAMPLING SITE

The peat field in Konik Stary lies 20 km east of Warsaw. Its surface area is about 8 ha. It is a transitional peat field, surrounded almost completely with young pine forest. It had been intensively exploited in the past so that large peat hags have remained. For some time now exploitation has been discontinued, and only little peat is left in the littoral parts. The draining ditches, probably dug at the time of exploitation, have become shallow and are intensively overgrown so that they no more fulfill their primary function. On account of this the water level is high and regeneration of the pits occurs rather quickly. Most of the pits are already covered with floating sphagnum mats, clear water remains only in the deepest and youngest pits.

The peat field is overgrown with rarely disseminated *Betula verrucosa* and *B. pubescens*. The trees are young, up to 10 cm in diameter. Here and there, on the edges of the peat bog, larger agglomerations of *Salix cinerea* and *S. aurita* and of *Frangula alnus* occur. The moss layer consists mainly of *Sphagnum apiculatum*. In the peat hags frequently *Sph. cuspidatum* is found in larger quantities. From among flowering plants *Eriophorum angustifolium* and *Oxycoccus quadripetalus* are rather abundant. Another frequent species is also *Vaccinium uliginosum*. Such species as: *Carex fusca*, *C. stellulata*, *C. canescens*, *C. hudsonii*, *Peucedanum palustre*, *Cirsium palustre*, *Drosera rotundifolia*, *Lycopus europaeus*, *Lysimachia vulgaris*, *Calluna vulgaris*, *Vaccinium myrtillus*, *Andromeda polifolia*, *Juncus effusus*, *J. conglomeratus*, *Galium palustre* and others occur in smaller quantities. *Utricularia minor* is frequently abundant in the peat hags. In the pits at the edge of the peatfield, where a considerable amount of eutrophic waters flows in frequently large agglomerations of *Typha latifolia* and *Phragmites communis* are noted. The bloom of filamentous algae consisted as a rule of *Mougeotia* sp. and *Spirogyra* sp.

LIST OF SPECIES, VARIETIES AND FORMS OF DESMIDS

Abbreviations

lg. — length	proc. — cell processes
lat. — width	spin. — spine or spines
isth. — isthmus	lob. pol. — polar lobe
ap. — apex	bas. — base

MESOTAENIACEAE

Mesotaenium Nägeli 1849

Mesotaenium de-greyi Turn. f. *breve* (W. West) Kossinsk.; 1g. 36.8—57.5 μ ; 1at. 20—23 μ ; 1g.:lat. 1.7—2.7x.

Cylindrocystis Meneghini 1938

Cylindrocystis brebissoni Menegh.; 1g. 46.8—60.2 μ ; lat. 20—22.3 μ ; 1g.:lat. 2.2—3x.

Cylindrocystis crassa de-Bary; 1g. 34.5—46 μ ; lat. 20.7—23 μ ; 1g.: lat. 1.5—2.1x.

Netrium (Nägeli 1849) Itzsigsohn et Rothe 1856

Netrium digitus (Ehrenb.) Itzigs, et Rothe; lg. 205—247,5 μ ; lat. 63—69,1 μ ; lat. ap. 26—28,9 μ ; lg.:lat. 3,1—3,7x. Individuals were also found in which the length to width ratio of the cells was lower than that given in the description of this species (plate 1, fig. 4 b) amounting to lg. : lat. 2,4—2,5x, the dimensions not deviating from those given in the literature (lg. 171,5—216,2 μ ; lat. 69—85,1 μ ; ap. lat. 25 μ).

DESMIDIACEAE

Penium de Brébisson 1844

Penium spirostrialatum Barker; lg. 184—300 μ ; lat. 17,2—20,7 μ ; lat. ap. 12,2—14 μ ; lg.:lat. 8,8—15,8x.

Closterium Nitzsch 1817

Closterium acutum (Lyngb.) Bréb. var. *linea* (Perty) W. et G. West; lg. 89—109 μ ; lat. 3,5 μ ; lat. ap. 1,5 μ ; lg.:lat. 25,4—28,5x.

Closterium baileyanum Bréb.; lg. 315,4—456,2 μ ; lat. 32,2—50,6 μ ; lat. ap. 16,1—18,4 μ ; lg.:lat. 8,8—11x.

Closterium costatum Corda; lg. 269,7—365,2 μ ; lat. 32,2—36,8 μ ; lat. ap. 10,5—11,5 μ ; lg.:lat. 7,8—10x.

Closterium dianae Ehrenb.; lg. 250—315,4 μ ; lat. 25—29,9 μ ; lat. ap. 5—6,9 μ ; lg.:lat. 10—11,9x.

Closterium dianae Ehrenb. var. *pseudodianae* (Roy) Krieger; lg. 174,8—201 μ ; lat. 13,8—15 μ ; lat. ap. 3—4 μ ; lg.:lat. 12,6—14x.

Closterium exiguum W. et G. West; lg. 62,4—71,3 μ ; lat. 2,8—4,6 μ ; lg.:lat. 14,5—22,3x.

Closterium gracile Bréb.; lg. 132—210 μ ; lat. 4,5—8 μ ; lat. ap. 3—3,3 μ ; lg.:lat. 29—38x.

Closterium intermedium Ralfs; lg. 213,9—257,2 μ ; lat. 15,6—18,4 μ ; lat. ap. 6—7 μ ; lg.:lat. 12,2—15,3x.

Closterium lunula (Müll.) Nitzsch; lg. 464,8—581 μ ; lat. 75,9—103,5 μ ; lat. ap. 13,8—16,1 μ ; lg.:lat. 5,8—6,1x.

Closterium macilentum Bréb.; lg. 264—332 μ ; lat. 11,5—18,4 μ ; lat. ap. 4,6 μ ; lg.:lat. 18—23x.

Closterium navicula (Bréb.) Lütkem.; lg. 30,6—55,2 μ ; lat. 9,2—13,8 μ ; lat. ap. 4,6—6,9 μ ; lg.:lat. 3—4x.

- Closterium parvulum* Nág.; lg. 105—126 μ ; lat. 10,5—11,5 μ ; lat. ap. 2,2 μ ; lg.: lat. 9,1—10,9x.
- Closterium pronum* Bréb.; lg. 298,8—385,5 μ ; lat. 6,9—9 μ ; lat. ap. 2,2—2,3 μ ; lg.:lat. 34—48x.
- Closterium pronum* Bréb. f. *brevius* (W.West) Kossinsk.; lg. 230—290 μ ; lat. 6,6—9 μ ; lat. ap. 2,2—2,3 μ ; lg.:lat. 31—37x.
- Closterium setaceum* Ehrenb.; lg. 227,7—305, μ ; lat. 9,2—11,5 μ ; lat. ap. 1,5—2 μ ; lg.:lat. 24,7—26x.
- Closterium striolatum* Ehrenb.; lg. 243—380 μ ; lat. 24,5—28 μ ; lat. ap. 10,8—11 μ ; lg.:lat. 9—15x.
- Closterium tumidum* Johns.; lg. 126—169 μ ; lat. 15,6—20 μ ; lat. ap. 5,2—6,1 μ ; lg.:lat. 7,7—9,4x.
- Closterium ulna* Focke; lg. 230—412 μ ; lat. 15,6—17,8 μ ; lat. ap. 8,8—11 μ ; lg.:lat. 13,5—25,1x.
- Closterium venus* Kütz.; lg. 64,4—71,3 μ ; lat. 8,7—9,2 μ ; lat. ap. 2,3 μ ; lg.:lat. 7—7,7x.

Pleurotaenium Nägeli 1849

- Pleurotaenium minutum* (Ralfs) Delp.; lg. 98,1—109,2 μ ; lat. bas. 14—15,6 μ ; lat. ap. 8,9—10 μ ; lg.:lat. bas. 6,5—7,5x.
- Pleurotaenium trabecula* (Ehrenb.) Nág.; lg. 307,1 μ ; lat. bas. 18,4 μ ; lat. ap. 13,8 μ ; lg.:lat. bas. 17x.
- Pleurotaenium tridentulum* (Wolle) W.West; lg. 191,7—209,6 μ ; lat. bas. 15—15,6 μ ; lat. ap. 6,6—7 μ ; lg.:lat. bas. 12,4—13,4x.

Tetmemorus Ralfs 1844

- Tetmemorus brebissonii* (Menegh.) Ralfs; lg. 96,6—110,4 μ ; lat. 22,3—23 μ ; isth. 16,2—18,4 μ ; lat. ap. 16,1—18,4 μ ; lg.:lat. 4,2—5x.
- Tetmemorus granulatus* (Bréb.) Ralfs; lg. 115—131,5 μ ; lat. 26,7—28,9 μ ; isth. 24,2—26,7 μ ; lat. ap. 13,3—15,6 μ ; lg.:lat. 4—4,9x.
- Tetmemorus laevis* (Kütz.) Ralfs; lg. 66,9—73,5 μ ; lat. 17,8—20 μ ; isth. 15,6—17,8 μ ; lat. ap. 9—13 μ ; lg.:lat. 3,5—4,1x.

Euastrum Ehrenberg 1832

- Euastrum affine* Ralfs; lg. 112,5—112,7 μ ; lat. 56—62,1 μ ; lat. lob. pol. 25,3—26 μ ; isth. 16,1—17 μ ; lg.:lat. 1,8—2x.
- Euastrum ansatum* (Ehrenb.) Ralfs; lg. 92—96,6 μ ; lat. 43,7—48,3 μ ; lat. lob. pol. 20,7—23 μ ; isth. 11,5—13,8 μ ; lg.:lat. 2—2,1x.
- Euastrum binale* (Turp.) Ehrenb.; lg. 23—26,7 μ ; lat. 17,6—20 μ ; lat. lob. pol. 10,3—13,3 μ ; isth. 4,4—4,6 μ ; lg.:lat. 1,2—1,4x.

Euastrum denticulatum (Kirchn.) Gay; lg. 32,2 μ ; lat. 25,3 μ ; lat. lob. pol. 18,4 μ ; isth. 5,6 μ ; lg.:lat. 1,2x.

Euastrum elegans (Bréb.) Kütz.; lg. 38,2—41,6 μ ; lat. 26—26,7 μ ; lat. lob. pol. 16—17,8 μ ; isth. 6—6,6 μ ; lg.:lat. 1,4—1,5x.

Euastrum insulare (Witt.) Roy; lg. 23—24,5 μ ; lat. 17,8 μ ; lat. lob. pol. 13,3 μ ; isth. 4,4 μ ; lg.:lat. 1,3x.

Micrasterias Agardh 1827

Micrasterias rotata (Grev.) Ralfs; lg. 205,1—257,3 μ ; lat. 189,5—224,1 μ ; lat. lob. pol. 46—59,8 μ ; isth. 23—36 μ ; lg.: lat. 1—1,1x.

Micrasterias truncata (Corda) Bréb.; lg. 91,4—109,2 μ ; lat. 82,5—91,4 μ ; lat. lob. pol. 53,5—62,4 μ ; isth. 17,8—22,3 μ ; lg.: lat. 1,1—1,2x.

Micrasterias truncata (Corda) Bréb. var. *bahuensis* Witt.; lg. 101,2—119,6 μ ; lat. 80,5—92 μ ; lat. lob. pol. 62,1—69 μ ; isth. 18,4—23 μ ; lg.:lat. 1,2—1,3x.

Micrasterias truncata (Corda) Bréb. var. *crenata* (Bréb.) Reinsch; lg. 91,4—98,1 μ ; lat. 84,7—89,2 μ ; lat. lob. pol. 53,5—60,2 μ , isth. 15,6—18,6 μ ; lg.:lat. 1,07—1,1x.

Micrasterias truncata (Corda) Bréb. var. *neodamensis* (A. Braun) Dick; lg. 89,2—98,1 μ ; lat. 82,3—84,7 μ ; lat. lob. pol. 53,5—57,6 μ ; isth. 15,6—16,4 μ ; lg.:lat. 1,1—1,2x.

Actinotaenium (Nägeli 1849) Teiling 1954

Actinotaenium cucurbita (Bréb.) Teil.; lg. 35,6—42,3 μ ; lat. 19—22,3 μ ; isth. 15,6—18,4 μ ; lg.:lat. 1,8—2x.

Cosmarium Corda 1834

Cosmarium amoenum Bréb.; lg. 43,7—50,6 μ ; lat. 20,7—27,2 μ ; isth. 13,8—17,2 μ ; lg.:lat. 1,8—2,1x.

Cosmarium asphaerosporum Nordst. var. *strigosum* Nordst.; lg. 9,2—11,5 μ ; lat. 11,5—12,4 μ ; isth. 5,5—6 μ ; lat.: lg. 1—1,2x. Breadth of the cells exceeds slightly the dimensions given by West.

Cosmarium bioculatum Bréb.; lg. 15,6—17,8 μ ; lat. 16—17,8 μ ; isth. 4,4—5 μ ; lat.: lg. 1—1,05x.

Cosmarium contractum Kirchn.; lg. 39,1—44,6 μ ; lat. 26,7—27,6 μ ; isth. 6,9—8 μ ; lg.:lat. 1,4—1,6x.

Cosmarium margaritiferum Menegh.; lg. 40,1—46,2 μ ; lat. 30,2—34,6 μ ; isth. 10—11,1 μ ; lg.:lat. 1,3x. The dimensions of the cells slightly smaller than those given by West.

Cosmarium pyramidatum Bréb.; lg. 63,6—67 μ ; lat. 41,3—44,6 μ ; isth. 11—12 μ ; lg.:lat. 1,4—1,6x.

Cosmarium subtumidum Nordst.; lg. 31,2—33,4 μ ; lat. 24,5—28,9 μ ; isth. 8—8,9 μ lg.:lat. 1,1—1,2x.

Xanthidium Ehrenberg 1837

Xanthidium antilopaeum (Bréb.) Kütz.; lg. sine spin. 62,4—63,7 μ ; lat. sine spin. 51,2—53,5 μ ; lat. cum spin. 71,3—78 μ ; isth. 15,6—17,8 μ ; lg. sine spin.:lat. sine spin. 1,1—1,2x. Some cells in hyaline sheets.

Xanthidium antilopaeum (Bréb.) Kütz. var. *triquetrum* Lund.; lg. sine spin. 50,6—57,5 μ ; lg. cum spin. 64,4—75,9 μ ; lat. sine spin. 46—50,6 μ ; lat. cum spin. 66,7—75,9 μ ; isth. 11,5—18,4 μ ; lg. sine spin.:lat. sine spin. 1,1—1,2x.

Xanthidium armatum (Bréb.) Rabenh.; lg. sine spin. 115,9—126,5 μ ; lat. sine spin. 68—78,2 μ ; lat. cum spin. 87,4—103,6 μ ; isth. 28,9—34,5 μ ; lg. sine spin.:lat. sine spin. 1,5—1,8x. Some cells in hyaline sheets.

Arthrodesmus Ehrenberg 1838

Arthrodesmus extensus (Anders.) Hirano; lg. 15,6—17,8 μ ; lat. sine spin. 11,1—15,6 μ ; isth. 5—7 μ ; lg.: lat. 1,1—1,4x.

Arthrodesmus incus (Bréb.) Hass.; lg. 15,6—17,8 μ ; lat. sine spin. 13,3—14,5 μ ; isth. 6,6—8,9 μ ; lg.:lat. 1,2x.

Arthrodesmus octocornis Ehrenb.; lg. sine spin. 17,8—23 μ ; lat. sine spin. 15—16,11 μ ; isth. 6,6—6,9 μ ; lg. spin. 8,9 μ ; lg.:lat. 1,2—1,4x.

Staurastrum Meyen 1829

Staurastrum aciculiferum (W.West) Andersss.; lg. 25,3—28,9 μ ; lat. sine proc. 22,3—25,3 μ ; lat. cum proc. 29,9—37,9 μ ; isth. 8,7—9,2 μ ; lg.:lat. sine proc. 1—1,2x. Some cells in hyaline sheets.

Staurastrum controversum Bréb.; lg. 23—27,6 μ ; lat. cum proc. 34,5—41,4 μ ; isth. 9,2—11 μ ; lat. cum proc.:lg. 1,3—1,8x.

Staurastrum denticulatum (Näg.) Arch.; lg. 20,7—23 μ ; lat. sine spin. 20,7—23 μ ; isth. 6,9—9,2 μ ; lg.:lat. sine spin. 1x.

Staurastrum echinatum Bréb.; lg. 20—24,5 μ ; lat. sine spin. 17,8—20 μ ; isth. 6,6—8,9 μ ; lg.:lat. sine spin. 1,05—1,2x.

Staurastrum furcatum (Ehrenb.) Bréb.; lg. sine proc. 24,5—26,7 μ ; lat. sine proc. 21—22,4 μ ; lat. cum proc. 24,5—26,7 μ ; isth. 8,9—11,1 μ ; lg. sine proc.:lat. cum proc. 1x.

Staurastrum glabrum (Ehrenb.) Ralfs; lg. 17,8—21,8 μ ; lat. sine spin. 17,8—20,7 μ ; lat. cum spin. 23—27,6 μ ; isth. 6,6—8 μ ; lg.:lat. sine spin. 1—1,1x.

Staurastrum hirsutum (Ehrenb.) Bréb.; lg. 34,5—36,9 μ ; lg. cum spin. 39,1—41,4 μ ; lat. 29,9—32,2 μ ; isth. 11,5—12 μ ; lg.:lat. 1,1—1,2x.

Staurastrum margaritaceum (Ehrenb.) Menegh.; lg. 24,5—31,1 μ ; lat. 22,5—24,5 μ ; isth. 7,5—8,9 μ ; lg.:lat. 1,1—1,2x.

Staurastrum muricatiforme Schmidle; lg. 34,5—50,6 μ ; lat. 29,9—41,4 μ ; isth. 8,8—13,8 μ ; lg.:lat. 1,1—1,2x.

Saurastrum o'mearii Arch.; lg. 17,8—20 μ ; lat. sine spin. 15,6—19 μ ; lat. cum spin. 24,4—33,4 μ ; isth. 6,6—8,9 μ ; lg.:lat. sine spin. 1—1,2x.

Staurastrum paradoxum Meyen; lg. sine proc. 17,8—20 μ ; lat. sine proc. 12—15 μ ; lat. cum proc. 35,6—40,1 μ ; isth. 6—7,5 μ ; lg. sine proc.:lat. sine proc. 1,3—1,4x.

Staurastrum polymorphum Bréb.; lg. 24,5—28,9 μ ; lat. cum proc. 24,5—30 μ ; isth. 8,2—8,9 μ ; lg.:lat. cum proc. 1—1,1x.

Staurastrum punctulatum Bréb.; lg. 25,3—32,2 μ ; lat. 18,4—23 μ ; isth. 9,2—10,5 μ ; lg.:lat. 1,3—1,4x.

Staurastrum vestitum Ralfs; lg. 32,2—37,9 μ ; lat. sine proc. 27,6—36,8 μ ; lat. cum proc. 60,2—82,8 μ ; isth. 11,5—15,6 μ ; lat. cum proc.:lg. 1,6—2,2x.

Spondylosium de-Brébisson 1844

Spondylosium pulchellum Arch.; lg. 13,3—17,8 μ ; lat. 11,1—13,5 μ ; isth. 2,5—4 μ ; lg.:lat. 1,1—1,3x.

Hyalotheca Ehrenberg 1840

Hyalotheca dissiliens (Sm.) Bréb.; lg. 20—23 μ ; lat. 32,8—34,5 μ ; isth. 27,9—32,2 μ ; lat.:lg. 1,4—1,6x. Filaments sometimes in gelatinous sheets.

Hyalotheca dissiliens (Sm.) Bréb. var. *minor* Delp.; lg. 14—16,1 μ ; lat. 17—18,4 μ ; isth. 16—17 μ ; lat.:lg. 1,1—1,2x.

Desmidium Agardh 1824

Desmidium cylindricum Grev.; lg. 23—27,6 μ ; lat. 43,7—48,3 μ ; isth. 39,1—41,4 μ ; lat.:lg. 1,7—2,1x.

Gymnozyga Ehrenberg 1840

Gymnozyga moniliformis Ehrenb.; lg. 21—27,6 μ ; lat. 15—23 μ ; isth. 13—20,7 μ ; lg.:lat. 1—1,5x.

RESULTS

1. On the area studied a total of 67 species of desmids was found, 6 varieties and 1 form, belonging to 18 genera. The particular genera were represented by the following number of taxonomic units: *Mesotaenium* 1, *Cylindrocystis* 2, *Netrium* 1, *Penium* 1, *Closterium* 19, *Pleurotaenium* 3, *Tetmemorus* 3, *Euastrum* 6, *Micrasterias* 5, *Actinotaenium* 1, *Cosmarium* 7, *Xanthidium* 3, *Arthrodesmus* 3, *Staurastrum* 14, *Spondylosium* 1, *Hyalotheca* 2, *Desmidium* 1, *Gymnozyga* 1. As seen from the foregoing list, *Closterium* and *Staurastrum* were the dominating genera as regards the number of species found.

2. Among the species occurring during the whole period of study should be quoted: *Cylindrocystis brebissonii*, *Netrium digitus*, *Closterium intermedium*, *Cl. parvulum*, *Cl. pronum*, *Cl. pronum f. brevius*, *Cl. striolatum*, *Cl. tumidum*, *Cl. ulna*, *Tetmemerus brebissonii*, *Euastrum binale*, *Micrasterias truncata*, *Actinotaenium cucurbita*, *Cosmarium bioculatum*, *Co. contractum*, *Co. margaritiferum*, *Co. subtumidum*, *Xanthidium antilopaeum*, *X. armatum*, *Arthrodesmus extensu*, *Staurastrum echinatum*, *St. furcatum*, *St. margaritaceum*, *St. muricatiforme*, *St. o'mearii*, *St. paradoxum*, *St. polymorphum*, *Gymnozyga moniliformis*.

3. Rarely found species are: *Penium spirostriolatum*, *Closterium co-statum*, *Cl. dianae* var. *pseudodianae*, *Cl. exiguum*, *Cl. lunula*, *Cl. venus*, *Pleurotaenium trabecula*, *Euastrum ansatum*, *Eu. denticulatum*, *Staurastrum controversum*, *St. denticulatum*, *St. punctulatum*, *Desmidium cylindricum*, *Hyalotheca dissiliens* var. *minor*.

4. In samples taken in the winter months (Dec.—Feb.) when the ice cover varied in the limits of 1—40 cm no new species were found as compared to the other vegetation periods (table). Therefore it does not seem purposeful to carry out floristic investigations of this kind in winter months.

5. The absence of some species only in the winter months (*Pleurotaenium minutum*, *Tetmemorus granulatus*, *T. laevis*, *Cosmarium amoenum*) may be explained by the fact that in this period sampling was done only in deep peat hags (table) since the shallow water bodies were frozen down to the bottom.

Acknowledgement

The present study was prepared in the Department of Plant Taxonomy and Geography, Institute of Botany, Warsaw University under the guidance of Professor A. Skirgiel&łlo to whom the author is deeply indebted for help and ready advice. The help of Dr. H. Tomaszewicz during field work and of Dr. G. Bujalska-Grüm who made available to the author materials of the deceased Dr. H. Wysocka concerning desmids is gratefully acknowledged.

Plate I

1. *Mesotaenium de-greyi* Turn. f. *breve* (W. West) Kossinsk.; ($\times 500$).
2. *Cylindrocystis brebissonii* Menegh.; ($\times 500$).
 " *crassa de-Bary*; ($\times 500$).
4. *Netrium digitus* (Ehrenb.) Itzigs. et Rothe; a. ($\times 250$), b. ($\times 325$), c. ($\times 400$).
5. *Closterium baileyanum* Bréb.; ($\times 325$).
6. *Penium spirostriolatum* Barker; ($\times 325$).
7. *Closterium costatum* Corda; ($\times 325$).
8. " *lunula* (Müll.) Nitzsch; ($\times 150$).
9. " *parvulum* Näg.; ($\times 500$).
10. " *venus* Kütz.; ($\times 500$).
11. " *exiguum* W. et G. West; ($\times 500$).
12. " *navicula* (Bréb.) Lütkem.; ($\times 500$).
13. " *setaceum* Ehrenb.; ($\times 325$).
14. " *acutum* (Lyngb.) Bréb. var. *linea* (Perty) W. et G. West; ($\times 500$).
15. " *tumidum* Johns.; ($\times 400$).

Plate II

1. *Closterium dianae* Ehrenb.; ($\times 500$).
2. " *dianae* Ehrenb. var. *pseudodianae* (Roy) Krieger; ($\times 325$).
3. " *ulna* Focke; ($\times 400$).
4. " *macilentum* Bréb.; ($\times 325$).
5. " *gracile* Bréb.; ($\times 450$).
6. " *pronum* Bréb. f. *brevius* (W. West) Kossinsk.; ($\times 500$).
7. " *pronum* Bréb.; ($\times 500$).
8. *Tetmemorus laevis* (Kütz.) Ralfs; ($\times 500$).
9. *Pleurotaenium trabecula* (Ehrenb.) Näg.; ($\times 500$).
10. " *tridentulum* (Wolle) W. West; ($\times 325$).
11. " *minutum* (Ralfs) Delp.; ($\times 500$).
12. *Tetmemorus brebissonii* (Menegh.) Ralfs; ($\times 500$).
13. " *granulatus* (Bréb.) Ralfs; ($\times 400$).

Plate III

1. *Closterium striolatum* Ehrenb.; ($\times 500$).
2. " *intermedium* Ralfs; ($\times 500$).
3. *Euastrum ansatum* (Ehrenb.) Ralfs; ($\times 500$).
4. " *denticulatum* (Kirchn.) Gay; ($\times 500$).
5. " *binale* (Turp.) Ehrenb.; ($\times 500$).
6. " *elegans* (Bréb.) Kütz.; ($\times 500$).
7. " *insulare* (Witt.) Roy; ($\times 500$).
8. " *affine* Ralfs; ($\times 500$).
9. *Micrasterias truncata* (Corda) Bréb.; ($\times 500$).
10. " *truncata* (Corda) Bréb. var. *neodamensis* (A. Braun) Dick; ($\times 500$).
11. " *truncata* (Corda) Bréb. var. *bahusiensis* Witt.; ($\times 325$).
12. " *truncata* (Corda) Bréb. var. *crenata* (Bréb.) Reinsch; ($\times 500$).
13. *Actinotaenium cucurbita* (Bréb.) Teil.; ($\times 500$).
14. *Cosmarium subtumidum* Nordst.; ($\times 500$).

Plate I

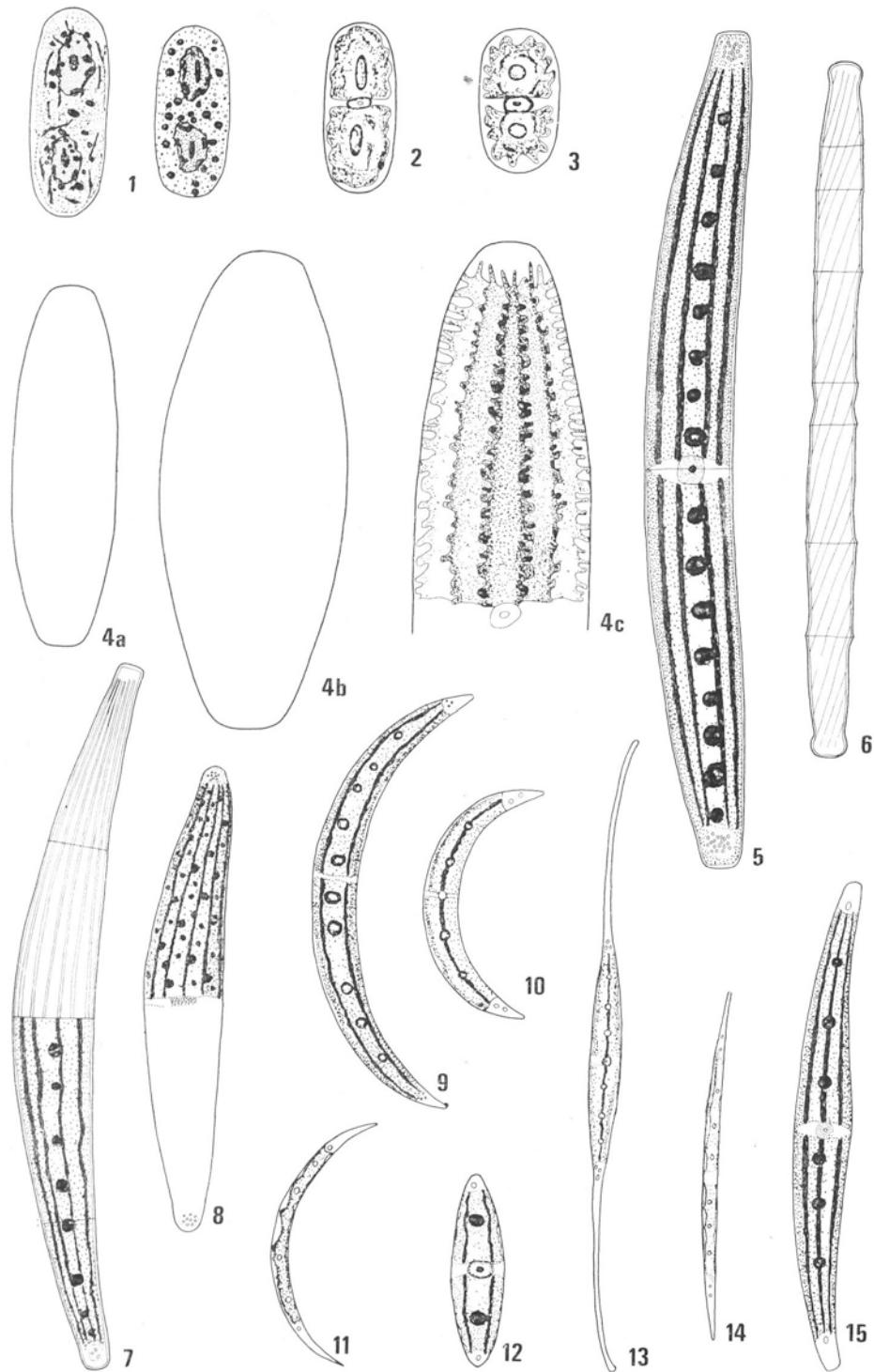


Plate II

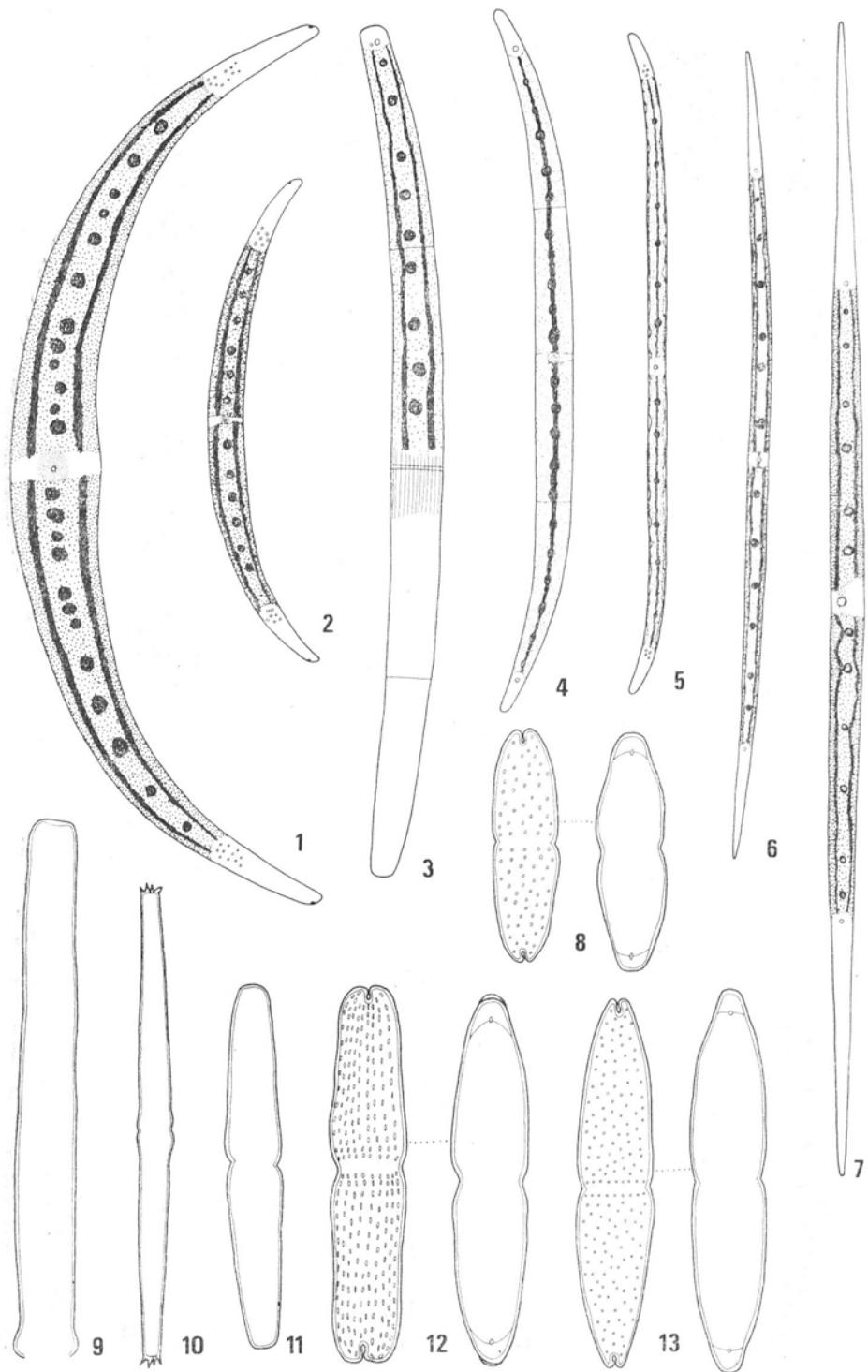


Plate III

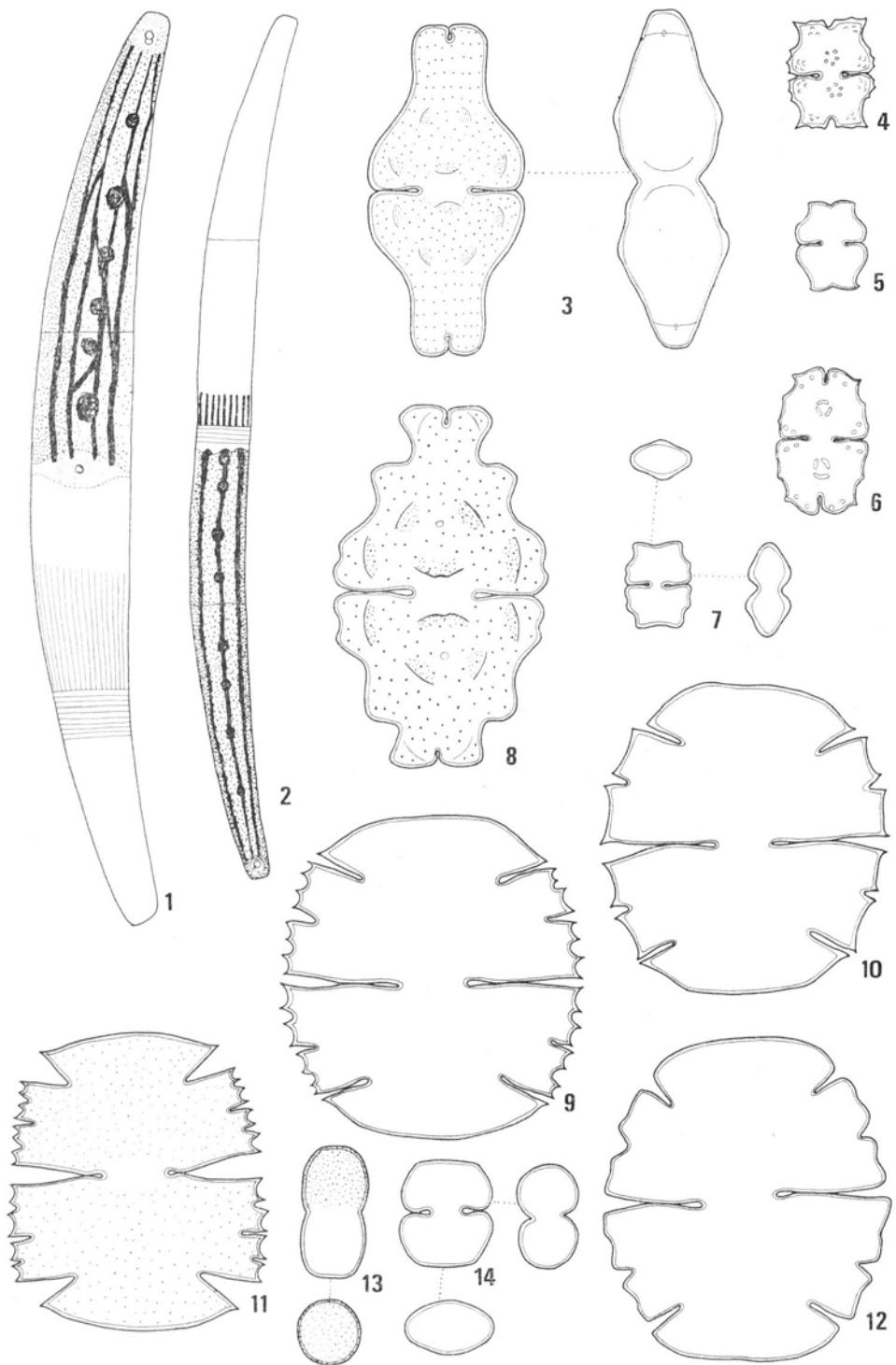


Plate IV

1. *Xanthidium armatum* (Bréb.) Rabenh.; ($\times 500$).
2. *Cosmarium asphaerosporum* Nordst. var. *strigosum* Nordst.; ($\times 1250$).
3. „ *bioculatum* Bréb.; ($\times 500$).
4. „ *contractum* Kirchn.; ($\times 500$).
5. „ *pyramidalatum* Bréb.; ($\times 500$).
6. „ *amoenum* Bréb.; ($\times 500$).
7. „ *margaritiferum* Menegh.; ($\times 500$).
8. *Xanthidium antilopaeum* (Bréb.) Kütz.; a. ($\times 500$), b. ($\times 375$).
9. „ *antilopaeum* (Bréb.) Kütz. var. *triquetrum* Lund.; ($\times 500$).
10. *Staurastrum margaritaceum* (Ehrenb.) Menegh.; ($\times 500$).
11. *Arthrodesmus extensus* (Anders.) Hirano; ($\times 500$).
12. „ *incus* (Bréb.) Hass.; ($\times 500$).
13. „ *octocornis* Ehrenb.; ($\times 500$).

Plate V

1. *Xanthidium armatum* (Bréb.) Rabenh.; ($\times 500$).
2. *Staurastrum aciculiferum* (W. West.) Andersss.; ($\times 500$).
3. „ *furcatum* (Ehrenb.) Bréb.; ($\times 500$).
4. „ *vestitum* Ralfs; ($\times 425$).
5. „ *denticulatum* (Näg.) Arch.; ($\times 500$).
6. „ *echinatum* Bréb.; ($\times 500$).
7. „ *punctulatum* Bréb.; ($\times 500$).
8. „ *muricatiforme* Schmidle; ($\times 500$).
9. „ *hirsutum* (Ehrenb.) Bréb.; ($\times 500$).
10. „ *controversum* Bréb.; ($\times 500$).
11. „ *paradoxum* Meyen; ($\times 500$).
12. „ *o'mearii* Arch.; ($\times 500$).
13. „ *glabrum* (Ehrenb.) Ralfs; ($\times 500$).
14. „ *polymorphum* Bréb.; ($\times 500$).
15. *Spondylosium pulchellum* Arch.; a. ($\times 500$), b. ($\times 825$).
16. *Desmidium cylindricum* Grev.; ($\times 375$).
17. *Gymnozyga moliniformis* Ehrenb.; a, b, c ($\times 500$).
18. *Hyalotheca dissiliens* (Sm.) Bréb. var. *minor* Delp.; ($\times 500$).
19. „ *dissiliens* (Sm.) Bréb.; ($\times 500$).

Plate IV

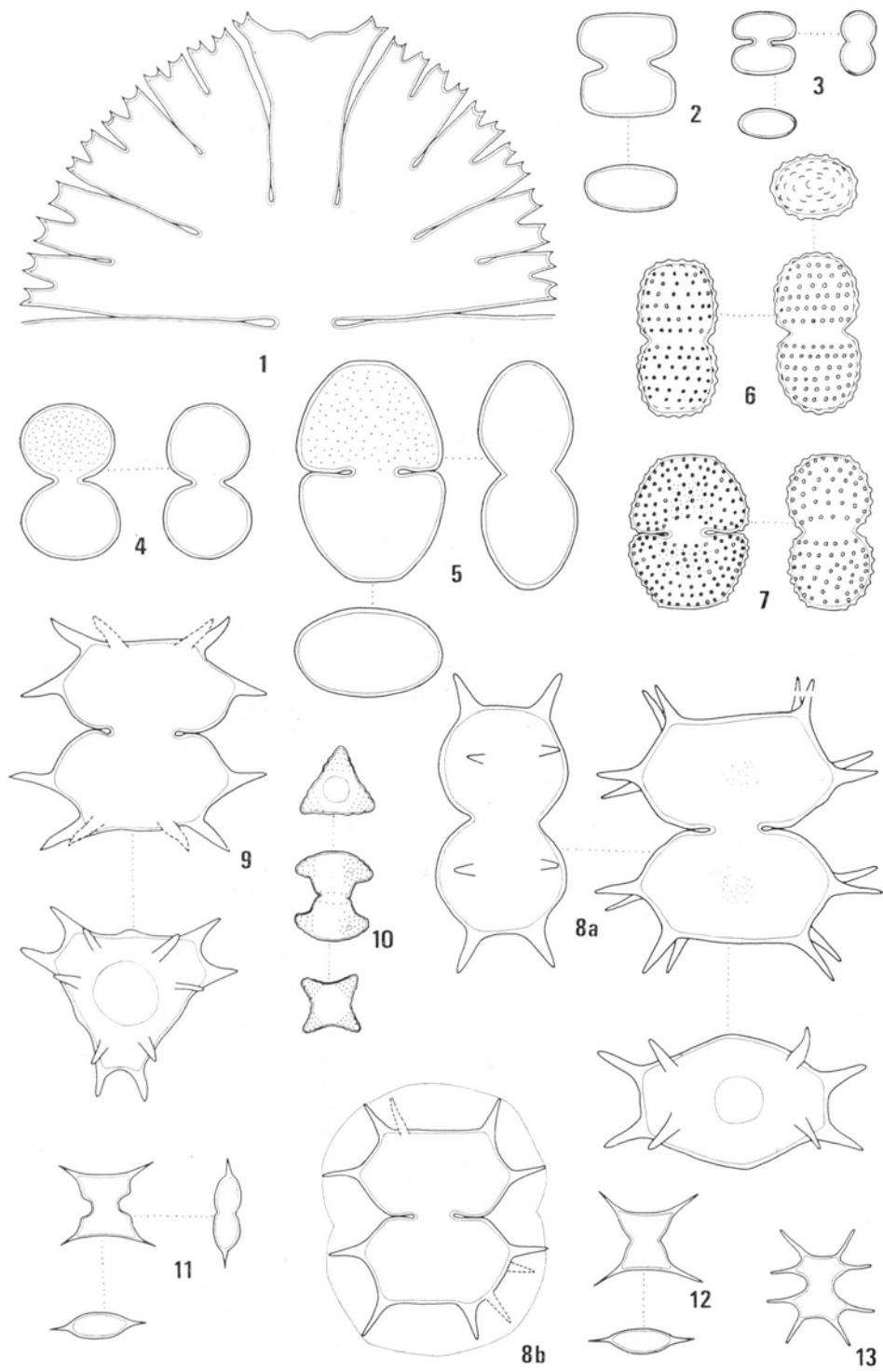
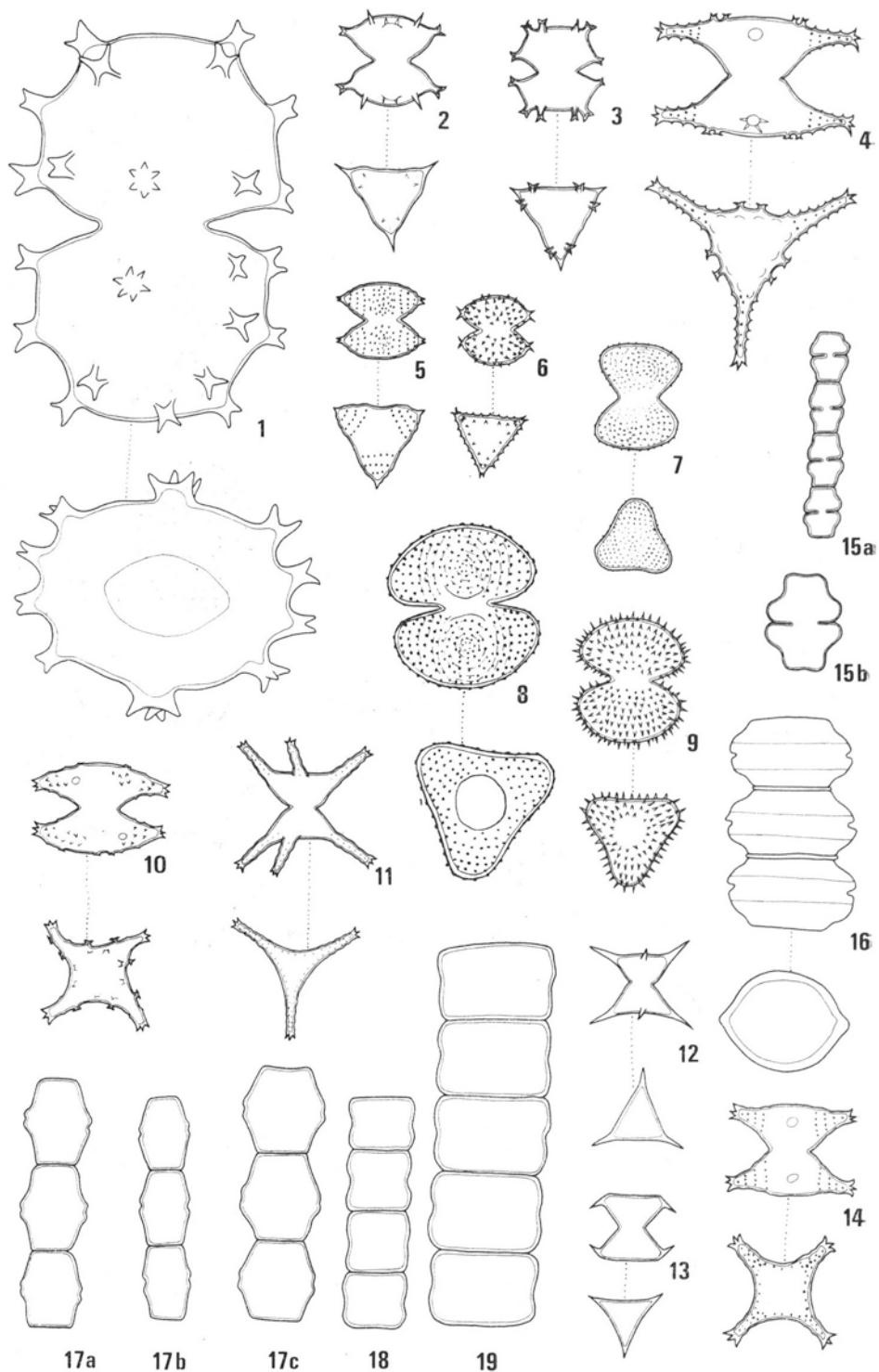


Plate V



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Desmidie torfowiska przejściowego w Koniku Starym koło Warszawy

Streszczenie

Praca niniejsza dotyczy całorocznych badań nad florą desmidii torfowiska przejściowego w Koniku Starym koło Warszawy. Ogółem na badanym terenie stwierdzono występowanie 67 gatunków desmidii, 6 odmian i 1 formy, należących do 18 rodzajów (*Mesotaenium*, *Cylindrocystis*, *Netrium*, *Penium*, *Closterium*, *Pleurotaenium*, *Tetmemorus*, *Euastrum*, *Micrasterias*, *Actinotaenium*, *Cosmarium*, *Xanthidium*, *Arthrodesmus*, *Staurastrum*, *Spondylosium*, *Hyalotheca*, *Desmidium*, *Gymnozyga*). Wyraźną dominację pod względem ilości znalezionych gatunków wykazywały rodzaje *Closterium* i *Staurastrum*. W próbach pobieranych w miesiącach zimowych (XII—II) nie stwierdzono występowania gatunków nowych w stosunku do pozostałych okresów wegetacji.