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Wojciech W.A. Kowalski

Department of Botany and Nature Conservation, West Pomeranian University of Technology in Szczecin, J. Słowackiego 17 St., 71–434 Szczecin, Poland; e-mails: wojciech.wakowalski@wp.pl, botanika@zut.edu.pl,

Desmidia from engravings made by Halina Ryppowa in the archival collection of the Department of Plant Systematics and Geography of the University of Warsaw (Poland)

The archival collection of iconographic materials from the interwar period, mostly by Alicja Lauer-Jeziorańska (1939) and Helena Humblet-Pawłowska (1939), includes original drawings illustrating the results of research carried out in the peat bog ecosystems of Wigry. Information about a part of the collection developed by Lauer-Jeziorańska and Humblet-Pawłowska was published by Kowalski (2017), and the entire valuable collection was handed over to Prof. Waldemar Surosz. Currently, it is at the disposal of the Department of Marine Biology and Ecology, Institute of Oceanography, Faculty of Oceanography and Geography, University of Gdańsk (Poland).

Figures of desmidia constitute a separate part of the preserved illustrative materials. These illustrations were not made by any of the above-mentioned authors who studied the plankton flora of the Jeziorka River (Lauer-Jeziorańska, 1939) and the variability of phytoplankton in the settler at the River Pump Station in Warsaw (Humbelt-Pawlowska, 1939). This is indicated by the different character of the handwriting presented next to the individual figures, the technique of their production, and the fact that they illustrate the cells of a specific systematic group, related primarily to the habitats of bog ecosystems. At that time, such type of research was conducted by Halina Ryppowa. Partial results of these studies were published in the article "*Algae of peat ponds, the so-called "Sucharów" near Wigry*" (Ryppowa, 1927).

The authorship of Halina Ryppowa of these extremely, interesting figures is indicated, among others, by her visiting card (Fig. 1) and a valuable drawing, concerning the *Euastrum virgense* Rypp. (cell, described for the first time for science by this author – Fig. 2). This drawing was included in all major world editions of monographs devoted to this systematic group.

The authorship of Halina Ryppowa's figures is also confirmed by the handwritten description for Table IV (Fig. 3) preserved in the materials, which is an integral part

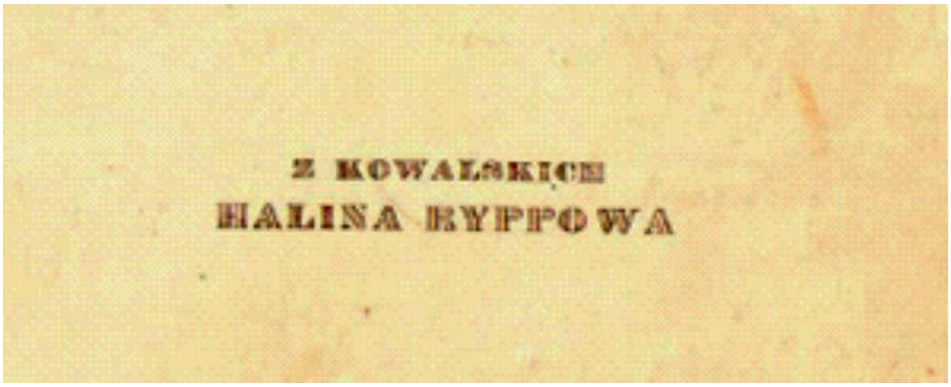


Fig. 1. The business card of the author of the drawings preserved among the figures

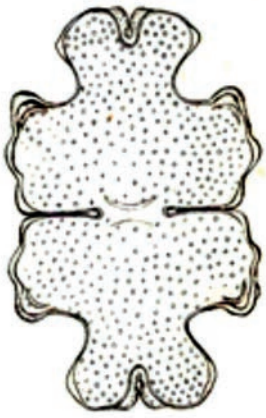
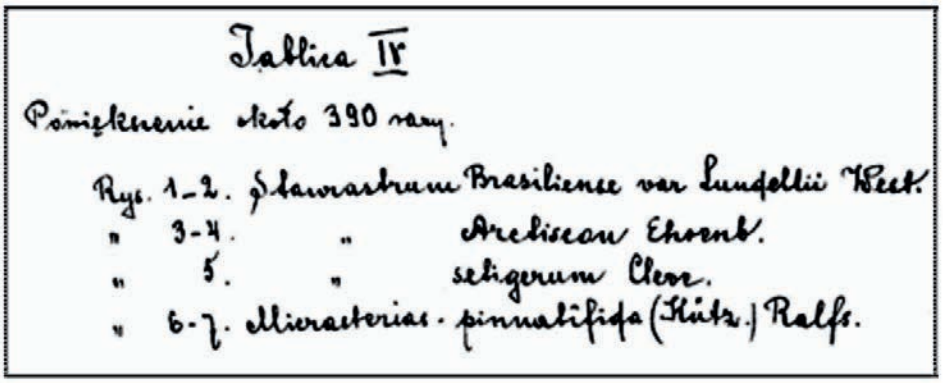


Fig. 2. The cell of *Euastrum virgense* Rypp., a new species for the world flora, described by Halina Ryppowa (published)


Tablica IV

Powiększenie około 390 razy.

Rys. 1–2. Staurastrum Brasiliense var Lundellii West.
" 3–4. " Areliscum Ehrenb.
" 5. " seligerum Cleve.
" 6–7. Micrasterias · pinnatifida (Kütz.) Ralfs.

Fig. 3. The original handwritten description to table IV with figures included in the work entitled "Algae of peat bogs, the so-called "Sucharów" near Wigry," by Halina Ryppowa (1927)

of the article published by her and devoted to the phycoflora of peat bogs in the vicinity of Wigry (Ryppowa, 1927).

The preserved collection includes a total of 56 drawings which are illustrations of various taxa of desmidia. Illustrative tables A–C (Appendix 1) contain figures whose state of preservation allowed them to be scanned quite legibly. Illegible captions next to individual figures required additional numbers to be attached to the taxa. Descriptions of the numbered specimens were made based on the original nomenclature introduced in the figures of the presented species, as well as on the basis of their illustrations in the author's article (Ryppowa, 1927). Taxa, in relation to which the current author had no identification doubts, and whose species signatures did not survive in the presented illustrative material, were given an appropriate name, with the reference number in parentheses (WK). Only some of the drawings can be found on the boards in the author's work as illustrative material – *Euastrum virgense* Rypp., *E. crassum* Kütz., *E. affine* Ralfs, and *E. arctiscon* Ehren.

This extremely interesting and valuable iconographic documentation was made mainly on small scraps of thin cardboard, less often on tracing paper. Figures were made with black ink or a pencil. In good condition, the documentation illustrating individual taxa has been preserved only in the figures made with ink (Illustration board A, C). The remaining part has become brightened with time (Illustration board B: 5–6, 8–9); hence the contours of some cells and their descriptions are poorly visible, especially on yellowed cardboard pages (Illustration board C: 9–10). It is a natural consequence of the influence of light, but also of the aging process of the drawings. This archival collection is almost 100 years old, and for its further preservation it will be necessary to record in digital technology and not to expose it to the effects of light.

A surprising fact is the very precise technique of the figures, reflecting the features of the cells that enable them to be recognized (e.g. Fig. 4: *Cosmarium portianum* Arch.). The lack of dimensions of the cells of *Staurastrum* sp. (Fig. 5), although with very characteristic ornamentation, does not allow the identification of this species.

The author's work on the flora of peat bogs (Ryppowa, 1927) contains the information that the figures are approximately 270 times magnified and were made with Reichert's drawing apparatus. However, this does not allow for a precise determination of this taxon (Fig. 5). The analysis of the available, basic bibliography and keys concerning this systematic group as well as the figures and descriptions presented in them (West, West, 1912; Hirano, 1959; Kosinskaja, 1960; Palamar-Mordvinceva, 1982; Croasdale, et al., 1994; Lenzenweger, 1997, Coesel, 1997; Coesel, Meesters, 2007) does not allow to be included in the previously described species, varieties and forms. In terms of some features of the sculpt, the top surface of the half-cell, and its side view, the undescribed drawing is the closest to the species *Staurastrum vestitum* Ralfs.

Fig. 4. *Cosmarium portianum* Arch. cell

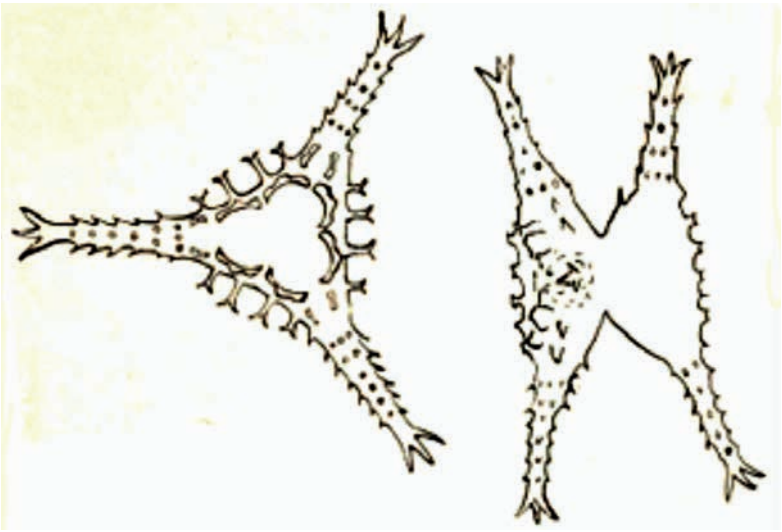


Fig. 5. Sculptura of the unsigned and possibly unidentified by H. Ryppowa species of the genus *Staurastrum* sp.

However, the ornamentation of its structure of the top cell surface does not correspond to any of the previously described varieties and forms of this taxon. It is possible that the cell found by the author belongs to a new, hitherto unknown taxon for science. The species with this kind of morphological features of cells was neither found in algological materials during later studies of the "Suchary" near Wigry (Tomaszewicz et al., 1996),

as well as monographic studies on the desmidia of Bory Tucholskie lakes (Oleksowicz, 1988) and the area of Mazovia (Tomaszewicz, 1988).

Most of the surviving figures have Latin taxa names. This mainly concerns the figures used in the article published by the author. In total, the entire archival collection includes 56 figures of desmidia cells, 2 drawings of Micocystis aeruginosa Kützing colonies, one of the *Ceratium hirundinella* cell (O.F. Müll.) Bergh and one of the cenobium *Pediastrum tetras* (Ehrenb.) Ralfs. (Tablica B: 6, 8 – Appendix 1).

The preserved drawings illustrate cells belonging to such genera as *Micrasterias* sp. div. *Closterium* sp. div., *Cosmarium* sp. div., *Tetmemorus* sp., *Staurastrum* sp. div., *Desmidium* sp. div., *Pleurotaenium sp., Netrium* sp., *Hyalotheca* sp. Not all of the illustrated taxa are provided with detailed information. Only for some genus the detailed information incl. the size of the cells or their species names is given. These data are included in relation to the species that the author used as an illustrative material, or their detailed descriptions are provided in the text of the work.

After setting in order of all the materials, they were transferred to the icon library, which is located in the Department of Algology of the Institute of Botany of the Polish Academy of Sciences, Władysław Szafer in Krakow.

Conflict of interest

The author declare no conflict of interest related to this article.

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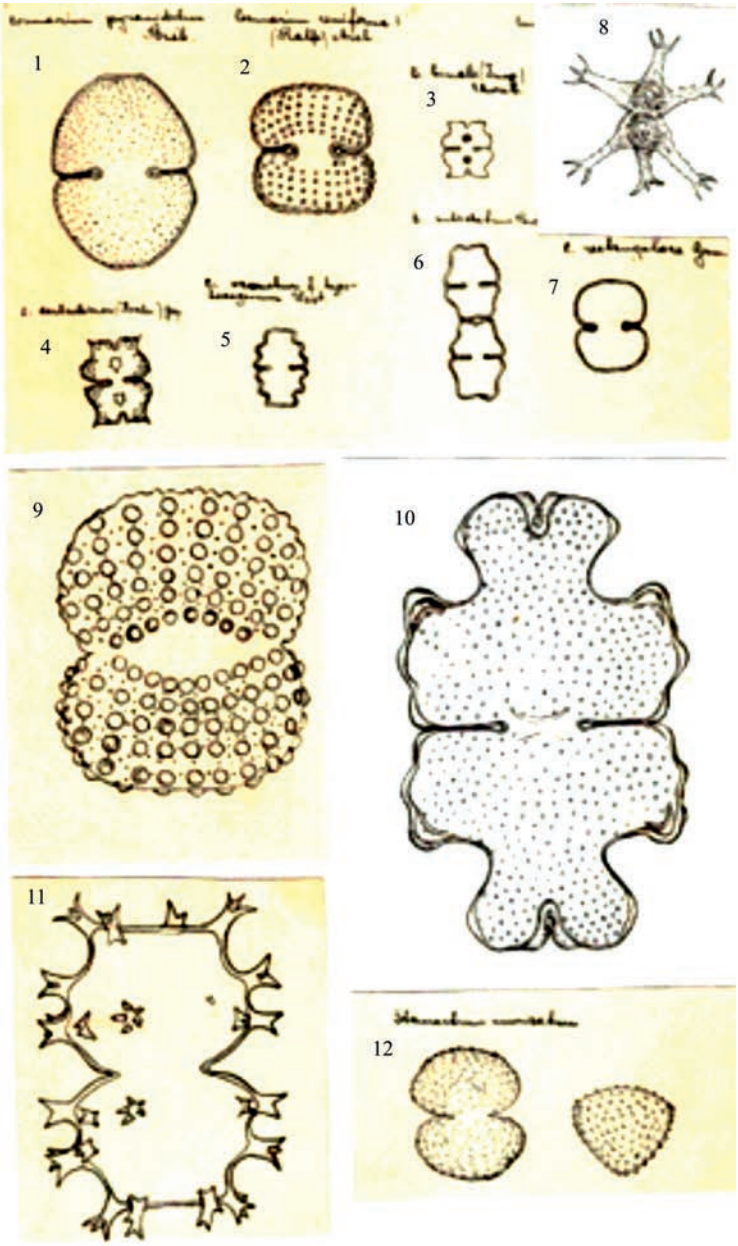

Illustration board A. 1 – *Cosmarium pyramidatum* Bréb., 2 – *C. reniforme* (Ralfs) Arch., 3 – *Euastrum binale* (Turp.) Ehenb., 4 – *Euastrum denticulatum* (Kirchn.) Gay, 5 – *Cosmarium venustum* f. *hypohexagonum* West, 6 – *Euastrum sublobatum* Bréb., 7 – *Cosmarium retangulare* Grund., 8 – *Staurastrum* sp., 9 – *Cosmarium conspersum* Ralfs, 10 – *Euastrum virgense* Rypp.(WK), 11 – *Xanthidium armatum* (Bréb.) Rabenh. (WK), 12 – *Staurastrum muricatum* Bréb.; (WK) – identified by Wojciech Kowalski

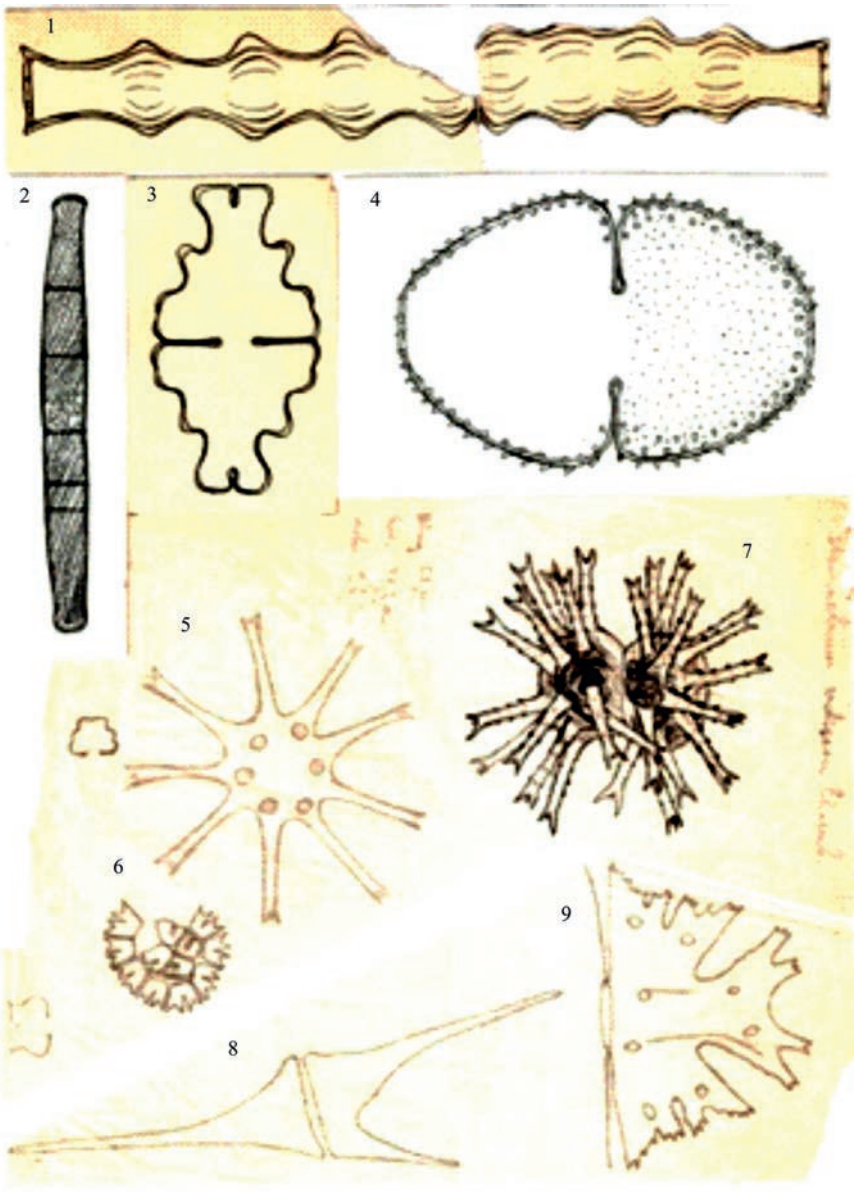

Illustration board B. 1 – *Pleurotaenium nodosum* (Bail.) Lund. (WK), 2 – *Penium spirostriolatum* Barker. cf. f. *amplicatum* (Schmidt) (WK), 3 – *Euastrum affine* Ralfs,(WK), 4 – *Cosmarium ovale* Ralfs, (WK), *Euastrum* sp., 5, 7 – *Staurastrum arctison* Ehrenb. (WK), 6 – *Pediastrum tetras* (Ehenb.) Ralfs, (WK), *Euastrum* cf. *binale* (Turp.) Ehrenc., 8 – *Ceratium hirundinnella* (O.F.M.) Bergh. (WK), 9 – *Micrasterias americana* Ehrenb. (WK); (WK) – identified by Wojciech Kowalski

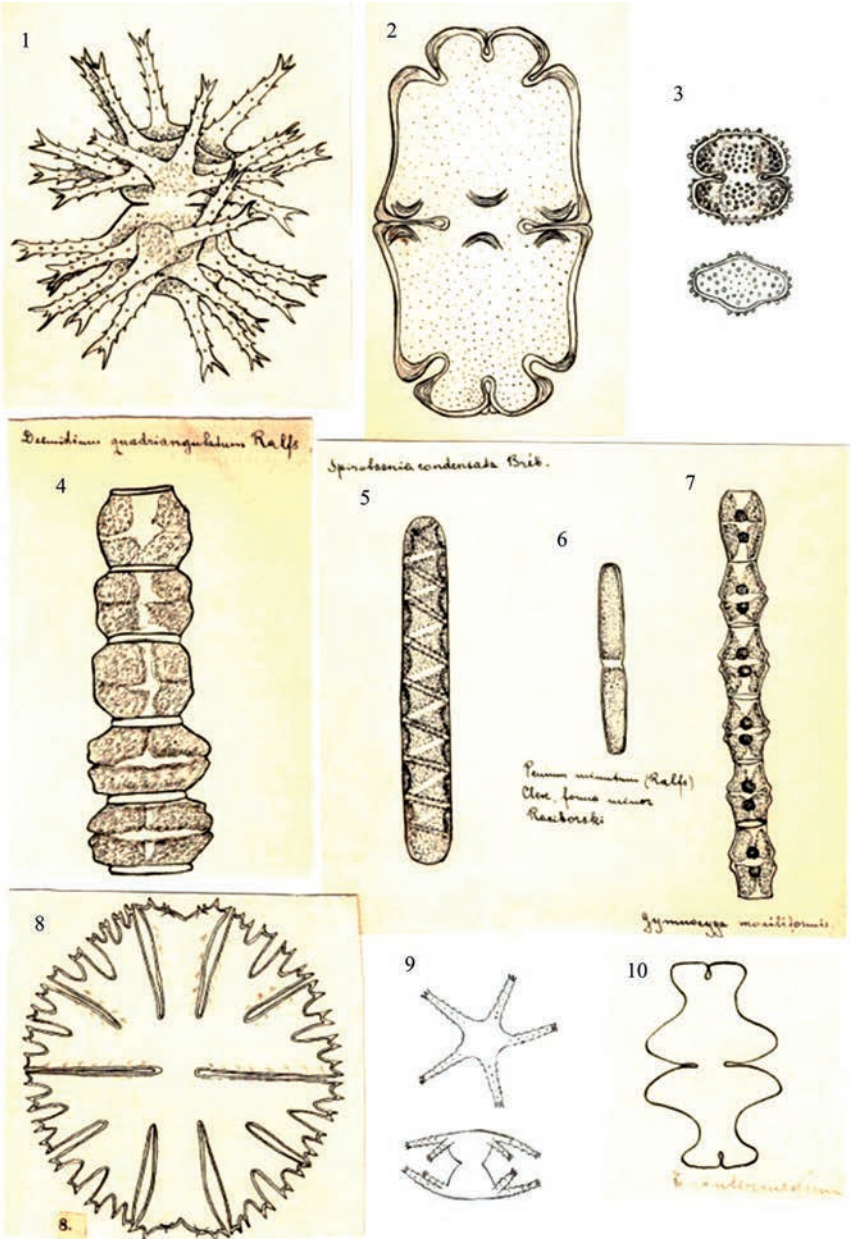

Illustration board C. 1 – *Staurastrum arctison* Ehrenb. (WK), 2 – *Euastrum crassum* Kütz. (WK), 3 – *Cosmarium* cf. *ornatum* Ralfs, 4 – *Desmidium quadrangulatum* (Ralfs) Roy., 5 – *Spirotaenia condensata* Bréb., 6 – *Penium minutum* (Ralfs) Cleve. f. *minor* Racib., 7 – *Gymnozyga moliformis* Ehrenb., 8 – *Micrasterias papilliferra* Bréb. (WK). 9 – *Staurastrum aranchn* Ralfs, 10 – *Euastrum intermedium* Cleve.; (WK) – identified by Wojciech Kowalski

Zbiór archiwalny rycin z badań fykologicznych prowadzonych w okresie międzywojennym w Katedrze Systematyki i Geografii Roślin UW (Polska)

Streszczenie

W pracy przedstawiono archiwalne ryciny desmidii, autorstwa Haliny Ryppowej z Kowalski. Są to oryginalne rysunki wykonane przez autorkę, ilustrujące fykoflore ekosystemów mszarnych z rejonu Wigier. Kolekcja obejmuje 56 rycin wykonanych na skrawkach kartonu, bądź kalce technicznej. Znaczna część tych rycin wykorzystana została jako materiał ilustracyjny w opublikowanej pracy pt. „Glony jeziorek torfowcowych tzw. „Sucharów" w okolicach Wigier" (Ryppowa, 1927). Na podstawie zawartych w materiałach notatek i rysunków udokumentowano wykonanie ich przez autorke. Ilustracje zestawiono na tablicach zbiorczych (A–C) oraz jako samodzielne rysunki w tekście.

Słowa kluczowe: desmidie, fykoflora, ikonografia, zbiory archiwalne

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