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Contributions to the knowledge of fresh-water *Bryozoa* of the Masurian
Lake District

[With 7 figures and 2 tables in the text]

Abstract. 8 species of the *Bryozoa* have been recorded, and four of these [*Hyalinella punctata* (HANCOCK), *Plumatella casmiana* OKA, *Plumatella fruticosa* ALLM. and *Paludicella articulata* (EHRBG.)] are new to the Polish fauna.

The fresh-water *Bryozoa* are a group little known in Poland. Apart from the pioneer work of WIERZEJSKI (1887) only short reports (JARA 1956) or unpublished papers are available. WOLNOMIEJSKI (1964) and WITKOWSKI (1971) have studied the composition of the fauna inhabiting *Bryozoa* colonies and they recorded the *Bryozoa* in one of the lakes. So far, six *Bryozoa* species: *Fredericella sultana* BLUM., *Plumatella repens* L., *P. fungosa* PALL., *Lophopus cristalinus* PALL., *Pectinatella magnifica* LEIDY and *Cristatella mucedo* CUV. have been recorded in Poland.

In the present investigation the *Bryozoa* were studied in 19 lakes situated in the Masurian Lake District (Tab. I). In the area studied 8 *Bryozoa* species were recorded, with four of these never found in Poland before: *Hyalinella punctata* (HANCOCK), *Plumatella casmiana* OKA, *P. fruticosa* ALLM., and *Paludicella articulata* (EHRBG.).

The investigations were carried out in August 1979. In the littoral of the lakes *Bryozoa* colonies were collected from the natural plant breeding-ground and floatoblasts of these animals were caught. The samples were kept in 4% formalin. During the microscopic analysis of the material, particular attention was paid to the variability range of the sizes of floatoblasts. Size is one of the most important diagnostic features for determining most species. It is also

Table I. Occurrence of fresh-water *Bryozoa* in the Masurian lakes

Species	Lake																		
	Beldany	Czos	Gardyńskie	Głębokie	Inulec	Juksty	Kołowin	Kołowinek	Kuc	Lisunie	Majcz Mały	Mikołajskie	Lake*	Płociczno	Probarskie	Skok	Sutapie Małe	Sutapie Wlk.	Wierzbowskie
<i>Plumatella repens</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Plumatella fungosa</i>	+	+	+	+	+	+	-	-	+	-	+	+	+	-	+	+	+	+	+
<i>Plumatella fruticosa</i>	-	+	+	+	+	+	+	+	-	+	+	-	-	+	+	+	-	-	-
<i>Plumatella casmiana</i>	-	-	-	+	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-
<i>Hyalinella punctata</i>	+	+	-	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
<i>Fredericella sultana</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Cristatella mucedo</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
<i>Paludicella articulata</i>	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-

* A small lake with no official name, in Mikołajki

the basis of the key compiled by LACOURT (1968) which was used to determine the material collected. Statoblasts were measured by means of a measuring eyepiece with magnification of 100 times. 1085 statoblasts were measured, with 122 being the minimum for one species.

SYSTEMATIC REVIEW OF THE MATERIAL

Order *Phylactolaemata*

Plumatellidae

Plumatella repens (LINNAEUS, 1758). A very common species, occurring in all the lakes studied. In comparison with data published by LACOURT (1968) floatoblasts of *P. repens* were smaller and more variable in respect of the proportion of length and breadth ($L/B = 1.16-1.53$) (Fig. 1, Tab. II). Mean breadth of the annulus at the poles of a statoblast was significantly lower than the variability range (37-47 μm) given by LACOURT, and other parameters were generally close to the lower limit of dimensions found in the literature.

Plumatella fungosa (PALLAS, 1768). This species was recorded in 15 lakes. Mean dimensions of statoblasts were $415 \times 301 \mu\text{m}$ (Fig. 2, Tab. II). In the material collected the variability range of the basic dimensions of statoblasts did not exceed the values considered in the literature as extreme.

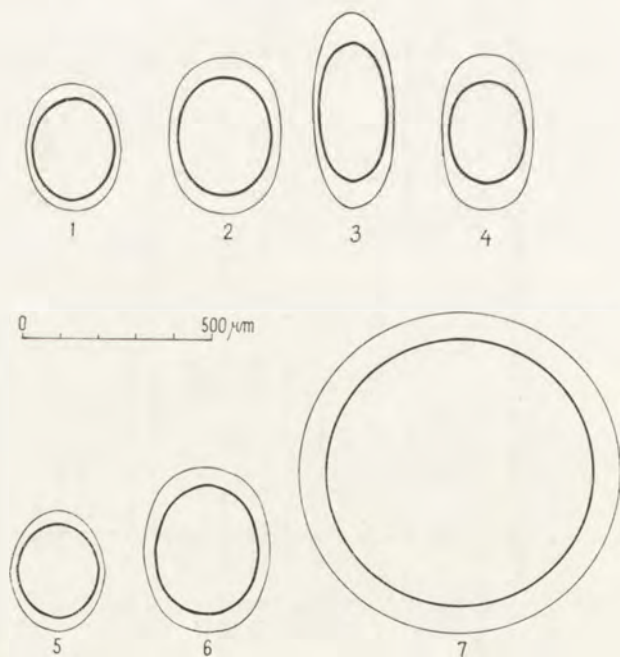
Plumatella fruticosa ALLMANN, 1844. A common species recorded in 12 lakes. Statoblasts of a typical elongate shape ($L/B = 2.43$ on average) and

Table II. Dimensions of floatoblasts of the *Bryozoa* from the Masurian lakes (in μm)

	L	B	l	b	pol.	lat.	L/B	pol./lat.	n
<i>Plumatella repens</i>	334 ± 22	254 ± 18	272 ± 17	217 ± 16	31 ± 5	18 ± 3	1.31 ± 0.05	1.72 ± 0.26	437
<i>Plumatella fungosa</i>	415 ± 25	301 ± 19	312 ± 19	255 ± 18	51 ± 7	23 ± 4	1.38 ± 0.06	2.27 ± 0.34	132
<i>Plumatella casmiana</i>	414 ± 24	235 ± 14	272 ± 16	203 ± 11	72 ± 10	17 ± 4	1.76 ± 0.11	4.48 ± 1.07	130
<i>Plumatella fruticosa</i>	511 ± 31	212 ± 12	360 ± 18	181 ± 10	76 ± 12	16 ± 4	2.43 ± 0.13	4.98 ± 1.18	122
<i>Hyalinella punctata</i>	309 ± 20	259 ± 20	254 ± 16	220 ± 17	27 ± 4	19 ± 3	1.19 ± 0.06	1.45 ± 0.22	124
	430 ± 31	339 ± 22	343 ± 32	284 ± 23	44 ± 5	27 ± 6	1.27 ± 0.10	1.66 ± 0.25	18
<i>Cristatella mucedo</i>	845 ± 50		697 ± 38		71 ± 12		1.00	1.00	122

L and B - total length and breadth of a statoblast, l and b - length and breadth of the capsule, pol. and lat. - breadth of the annulus at the poles and at the side of a statoblast, n - number of statoblasts measured,

a great range of length variability (438–598 μm) (Fig. 3, Tab. II). In comparison with the data from LACOURT's key statoblasts of *P. fruticosa* were shorter and more oval, had a narrower annulus at the poles of a statoblast and a relatively low ratio of the breadth of the annulus at the poles to the breadth of the annulus at the side of a statoblast. A species never recorded in Poland before. WIERZEJSKI (1887) used classification principles no longer in use and considered *P. fruticosa* as one of the synonyms of the species *Plumatella lucifuga* VAUCH found in Poland. Now it is impossible to establish to which species belonged WIERZEJSKI's material – to *P. repens*, *P. fruticosa* or *P. coralloides* ALLM. ?



Figs. 1–7. Typical shapes and sizes of floatoblasts of the *Bryozoa* species studied: 1 – *Plumatella repens*, 2 – *P. fungosa*, 3 – *P. fruticosa*, 4 – *P. casmiana*, 5 – *Hyalinella punctata*, the small form, 6 – *H. punctata*, the big form, 7 – *Cristatella mucedo*.

Plumatella casmiana OKA, 1907. A species rare in the area studied, recorded in 3 lakes. Dimensions of statoblasts agree with literature data (Fig. 4, Tab. II). "The thin walled" form described by ROGICK (1943) was not found. It is the first time the species was recorded in Poland.

Hyalinella punctata (HANCOCK, 1850). A common species that occurred in nearly all the lakes. It produced two kinds of statoblasts – big and small forms (Fig. 5, 6, Tab. II). In comparison with literature data the range of size

variability of statoblasts was very big. The smaller form ($L = 257-346 \mu\text{m}$) was bigger and the big form ($L = 346-490 \mu\text{m}$) generally smaller than the values given by LACOURT. So far never recorded in Poland before.

Fredericellidae

Fredericella sultana (BLUMENBACH, 1779). Recorded during very thorough investigations of the Mikołajskie Lake. The colonies found did not have any fully mature sessoblasts. Previously recorded in this area by KOCHAŃSKA (in litt.).

Cristatellidae

Cristatella mucedo CUVIER, 1798. A very common species. The diameter of statoblasts from 730 to 1010 μm (Fig. 7, Tab. II). In comparison with literature data statoblasts of *C. mucedo* from the Masurian lakes were generally smaller and had a narrower annulus. Its breadth was about one-twelfth of the diameter of a statoblast and not one-ninth to one-tenth as recorded by LACOURT.

Order *Gymnolaemata*

Paludicellidae

Paludicella articulata (EHRENBERG, 1831). Recorded in the Mikołajskie Lake. Colonies without hibernacula were found. A species never recorded in Poland within the present borders. It was recorded by KOŁACZKOWSKA (1936) in the tributaries of the river Pripjat' (USSR).

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STRESZCZENIE

[Tytuł: Materiały do poznania mszywiolów słodkowodnych (*Bryozoa*) Pojezierza Mazurskiego]

W pracy podano listę gatunków mszywiolów słodkowodnych występujących w 19 jeziorach Pojezierza Mazurskiego. Stwierdzono obecność 8 gatunków, w tym 4 nowych dla fauny Polski: *Hyalinella punctata*, *Plumatella casmiana*, *Plumatella fruticosa* i *Paludicella articulata*. Zwrócono uwagę na duży zakres zmienności wymiarów statoblastów pływających.

РЕЗЮМЕ

[Заглавие: Материалы к познанию пресноводных мшанок (*Bryozoa*) Мазурского поозѣрья]

В работе представлен перечень видов пресноводных мшанок, встречающихся в 19 озѣрах Мазурского поозѣрья. Отмечено присутствие 8 видов, в том 4 новых для фауны Польши: *Hyalinella punctata*, *Plumatella casmiana*, *Plumatella fruticosa* и *Paludicella articulata*. Было обращено внимание на большой диапазон изменчивости размеров плавающих статобластов.

Redaktor pracy — prof. dr A. Riedel