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A new species of *Bythinella* from Poland

(Prosobranchia: Hydrobioidea).

By

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With 38 figures.

Abstract: The author describes a new species of *Bythinella* from southern Poland, characterized especially by the particular shape of the bi-armed penis with the right arm broad, long and massive, compared with the narrow, short and sharply ending left arm. The description of the shell, head pigmentation, verges, flagellum, and female reproductive organs of this species is given and comparison is made with some Polish species of *Bythinella*.

Bythinella zyvionteki n. sp.

Diagnosis: A species of *Bythinella* MOQUIN-TANDON 1855 with a bi-armed verge, with the right arm broad, long and massive, and the left arm narrow, short and sharply ending.

Description.

Shell (figs. 1-12, 28-29, 31, 34, 38): egg-shaped or cylindrically-egg-shaped, moderately slender, rather bulgy. The whorls' growth rather regular. The body whorl usually weakly but sometimes strongly inflated, relatively high, fairly variable in height. Whorls rather convex and sutures rather deep. The maximal number of whorls variable, ranging from 4⅔-5⅛ (depending on the station), but usually equal of somewhat more than 5. The average most often 4½ (the range: 4⅓ - almost 5). The apex wide, usually flattened. The mouth oval in outline, with the angle in its right upper part usually poorly marked or absent. The mouth often markedly protruded. The peristome not always continuous, the lip absent. The umbilicus variable, sometimes absent but sometimes strongly marked in the form of a trough. The shell height: 1·85-3·45 mm, average: 2·2-2·9 mm (depending on the station). The shell breadth: 1·2-1·95 mm. The shell rather bright, often seeming bluish-grey, because of the mantle visible through the shell walls. Relatively big white spots, a result of corrosion, occur frequently on the surface.

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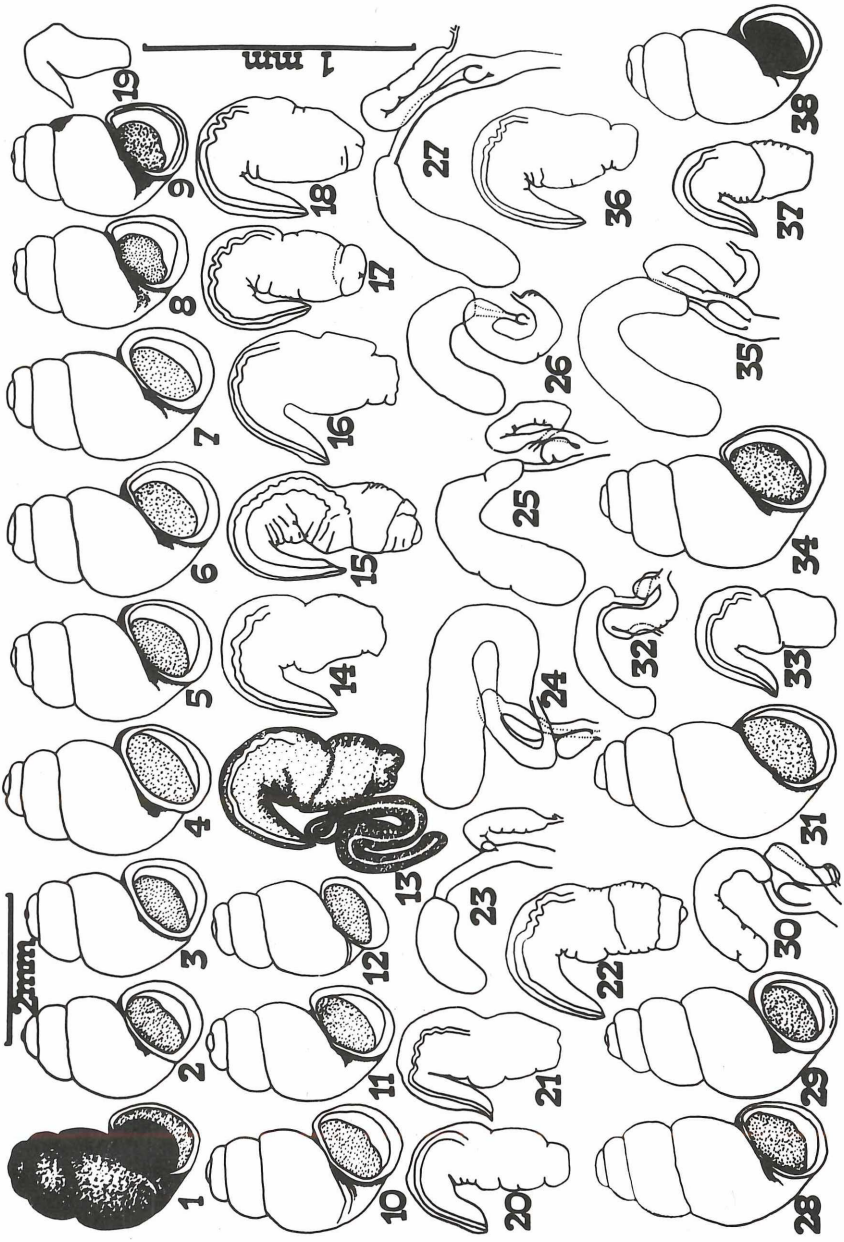

Figs. 1-38. *Bythinella zyvionteki* n. sp. — 1) holotype, 2-12) shells of paratypes, 13) verge with flagellum, 14-22) verges, 23-27) female reproductive organs with loop of oviduct, receptaculum seminis and bursa copulatrix; 28-29, 31, 34, 38) shells of paratypes, 30, 32, 35) complex of loop of oviduct, receptaculum seminis, and bursa copulatrix, 33, 36-37) verges. — 1-27 from Siedem Źródeł (type locality), 28-38 from Kwaśnik-Golczowice, Biała Przemsza River catchment area.

Head pigmentation: on a narrow area, unspotted. Often intensive or very intensie, but can be poor or absent (more often in males).

Verge (figs. 13-22, 33, 36-37): bi-armed, relatively small, the right arm (containing the terminal part of the flagellum) always longer than the left one (containing the terminal section of vas deferens), often markedly, and always significantly thicker. The tip of the left arm always sharp, and the terminal part of the right arm usually not visibly separated. The terminal part of vas deferens inside the penis often well visible, but the terminal part of the flagellum nearly always invisible.

Flagellum (fig. 13): relatively long and narrow.

Female reproductive organs: the complex of the loop of the oviduct, receptaculum seminis and bursa copulatrix (figs. 23-27, 30, 32, 35) highly variable. The duct of the bursa copulatrix usually (not always) markedly distinguishable from the bursa itself. The proximal end of the bursa sharpened only exceptionally. The shape of the bursa is very variable — the populations from the vicinity of locus typicus characterized by U-shaped, rarely arched bursas, while within other populations the U-shaped bursas are rare but those J-shaped or straight are numerous. The duct of the bursa usually narrow, the diameter of it usually lower than that of the oviduct in the section reaching the receptaculum seminis. The length of the duct of the bursa is variable inside a wide range, but usually moderate. The receptaculum seminis from extremely small to small, or even of medium size. Its shape variable within a wide range.

Locus typicus: Siedem Źródeł, a tributary of Centuria River, a tributary of Biała Przemsza River in Jura Krakowsko-Częstochowska, southern Poland.

Distribution and habitat: Kwaśnik-Golczowice is another known station in Jura Krakowsko-Częstochowska. Outside Jura *B. zyvionteki* has been found in Mszana Dolna (Beskid Wyspowy Mountains) and at 4 stations in Beskid Wysoki Mountains — among them 3 in Zawoja, and 1 at Krowiarki Pass. A more detail description of the variability, including the stations outside Jura, will be published in the monograph of Polish Prosobranchia. The data on the distribution of *B. zyvionteki* being known till now seem to show, that this species never occurs at arboreous stations, it is absent among fallen away foliage. It inhabits big springs as well as spring areas and even a small meadow stream (Mszana Dolna). On Babia Góra Mountain (Beskid Wysoki Mountains) the vertical vicariance of *B. zyvionteki* and *B. cylindrica* (FRAUENFELD 1856) has been observed (the sympatric occurrence at Krowiarki Pass, higher *B. cylindrica*, lower *B. zyvionteki*). *B. zyvionteki* seems to be characteristic of habitats located rather low above the sea level.

Holotypus: as well as the paratypes, in the collection of the Zoological Museum of Jagiellonian University, Kraków, Poland. Some paratypes deposited also in Senckenberg-Museum (SMF 305943/7, 305944/5).

Discussion.

In comparison with *B. austriaca* (FRAUENFELD 1856) and *B. cylindrica* also occurring in Poland, the shell of *B. zyvionteki* is more often egg-shaped and also less slender, more bulgy. Whorls of *B. zyvionteki* are more convex and sutures more deep than in these 2 species. The colour of the shell is rather more bright. It has to be pointed out, however, that the shell can not be acknowledged as a good, but only limitedly useful diagnostical feature within *Bythinella*. The shell of *B. zyvionteki* does not differ enough from those of other *Bythinella* species to make the determination of even only the majority of specimens possible.

The most characteristic and specific trait of *B. zyvionteki* is the shape of its verge; no penis shaped similarly occurs in any other *Bythinella* species. The massiveness of the broad right arm, compared with the shortness of the relatively narrow and sharply ended left arm is striking. The value of thickness proportion between the arms is the highest in all the known *Bythinella.*

The complex of the loop of the oviduct, receptaculum seminis and bursa copulatrix shows a great variability, often parallel to those characteristic of other *Bythinella* species. Especially the shape of the bursa varies within a wider range than in any other Polish *Bythinella* species. The duct of the bursa is usually narrow, similarly as in *B. cylindrica* and unlike in *B. austriaca.* Differing from both these species, the diameter of this duct is usually smaller than that of the oviduct at the section reaching the receptaculum seminis. The shape and size of the receptaculum also is more variable than in other Polish *Bythinella* species. The structure of the female reproductive organs can not be, therefore, considered a feature which makes the determination of *B. zyvionteki* easy and certain.

B. zyvionteki differs in respect of several features from the other Polish *Bythinella* species, as well as from any *Bythinella* described in the literature (a. o. JUNGBLUTH 1971, BOETERS 1973, RADOMAN 1973, 1976, GIUSTI & PEZZOLI 1977 and JUNGBLUTH & BOETERS 1977). In my earlier paper (FALNIOWSKI 1980) this taxon was recognized as *B. austriaca* by mistake. The present level of knowledge of Polish *Bythinella* makes it necessary to describe this taxon as a new species.

References.

BOETERS, H. D. (1973): Die Gattung *Bythinella* und die Gattung *Marstoniopsis* in Westeuropa, I. Westeuropäische Hydrobiidae, 4. (Prosobranchia). — Malacologia, **14**: 261-285. Philadelphia.

FALNIOWSKI, A. (1980): *Bythinella micherdzinskii* n. sp. — new species from the family Bythinellidae s. RADOMAN (Gastropoda, Prosobranchia). — Bull. Acad. polon. Sci. (S. sci. biol.) (II) **28** (4): 225-230.

GIUSTI, F. & PEZZOLI, E. (1977): Primo contributo alla revisione del genere *Bythinella* in Italia. — Natura Bresciana, Ann. Mus. civ. Sci. nat. Brescia, **14**: 3-80. Brescia.

JUNGBLUTH, J. H. (1971): Untersuchungen an *Bythinella compressa* FRAUENFELD und *Bythinella dunkeri* FRAUENFELD. — Dissertation. Giessen.

JUNGBLUTH, J. H. & BOETERS, H. D. (1977): Zur Artabgrenzung bei *Bythinella dunkeri* und *bavarica* (Prosobranchia). — Malacologia, **16**: 143-147. Philadelphia.

RADOMAN, P. (1973): New classification of fresh and brackish water Prosobranchia from the Balkans and Asia Minor. — Prir. Muz. Beograd, Pos. izdanja, **32**: 1-30. Beograd.

RADOMAN, P. (1976): Speciation within the family Bythinellidae on the Balkans and Asia Minor. — Z. zool. Syst. Evolutionsforsch., **14** (2): 130-152.