

## New locality of Late Pliocene land snail fauna from Przemiłowice 3 in the Cracow-Wieluń Upland, Poland

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**Abstract.** Fossil representatives of land snails are rare in Pliocene sediments in Poland. This paper reports eight taxa from cave sediments of the quarry in Przemiłowice, including *Aegopinella lozekiana* STWORZEWICZ, 1976, *Chilostoma (Drobacia) banaticum* (ROSSMÄSSLER, 1838) and *Soosia diodonta* (FERUSSAC, 1821) as well as two fragments belonging to a species of *Campylaea* unknown from Poland until now. The coexisting rodent fauna assemblage indicates biozone MN 17.

**Key words:** Pliocene, *Gastropoda*, Poland.

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### I. INTRODUCTION

Land snails are rare fossils in Pliocene deposits in Poland. Until now the rich snail fauna has been known only from the Early Pleistocene of Kielniki (= Kielniki 3A) (STWORZEWICZ 1981; NORDSIECK 1986). Somewhat later, the next fossil-bearing deposits were found in the other part of the quarry in Kielniki (Kielniki 3B), and correlated on the basis of rodent assemblages with the Late Villányian, MN 17 (NADACHOWSKI 1990). Although the snail fauna is rather scanty, it resembles that from Kielniki 3A (STWORZEWICZ, unpublished data).

The new locality in the quarry at Przemiłowice is located not far from Kielniki, near the village of Olsztyn, in the central part of an Upper Jurassic (Oxfordian) limestone hill. A description of the geology and a faunal list (with the exception of *Gastropoda*) are given by NADACHOWSKI et al. (1991).

The fossils were found in the sediments partly filling some destroyed caves in the walls of the quarry, but snail remains were collected only in the one of them (fauna A of unit 4 in Przemiłowice 3). This part of the deposits contains the oldest faunal assemblage with

several rodent index taxa of Upper Villanyian (Late Pliocene) age. The predominance and absence of some rodent species indicate biozone MN 17.

The material was collected during field work carried out by the Institute of Systematics and Evolution of Animals, Polish Academy of Sciences at Cracow in July 1989.

## II. DESCRIPTION OF FAUNA

The fragmentary and scarce material contains some noteworthy species. Of the eight taxa discussed herein, three are known from Poland only as fossils and among them only *Chilostoma (Drobacia) banaticum* was found from more than one locality (STWORZEWICZ 1989). Two fragments of helicid shells belong to a species not known from Poland previously.

The following taxa were recognized in the sediment of unit 4 (fauna A) in Przemyłowice 3:

*Vallonia pulchella* (O. F. MÜLLER, 1774)

*Discus rotundatus* (O. F. MÜLLER, 1774)

*Aegopinella lozekiana* STWORZEWICZ, 1976

*Aegopinella* sp.

*Perforatella vicina* (ROSSMÄSSLER, 1842)

*Soosia diodonta* (FERUSSAC, 1821)

*Chilostoma (Drobacia) banaticum* (ROSSMÄSSLER, 1838)

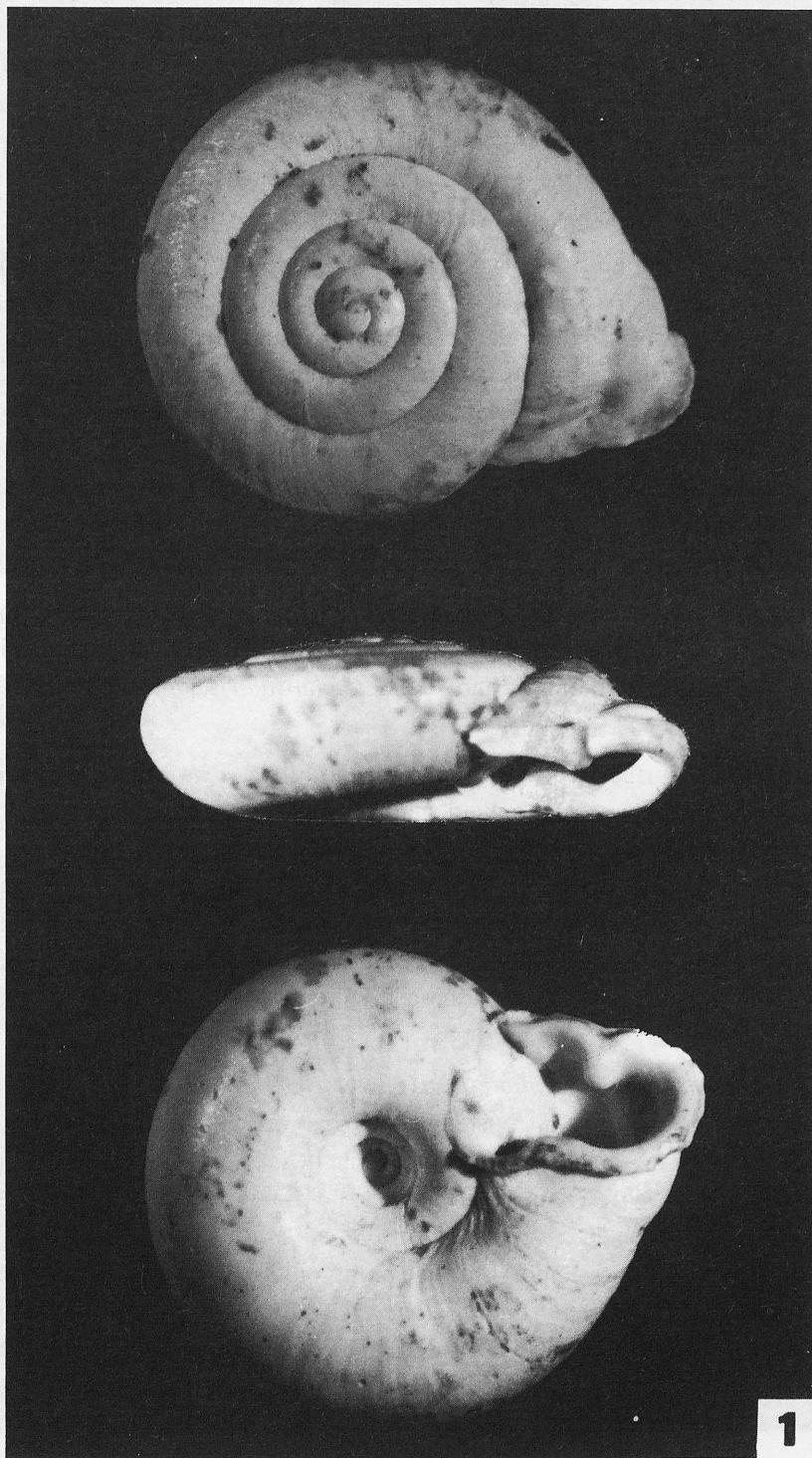
*Campylaea* sp.

Only four species (*Vallonia pulchella*, *Discus rotundatus*, *Perforatella vicina* and *Aegopinella* sp.) in this assemblage belong to the Recent fauna of Poland. They are also known from several Pleistocene localities including Kielniki 3A. The shells referred to *Aegopinella* sp. are closely similar to those recorded from Kielniki as *Aegopinella* cf. *nitidula*, although RIEDEL (1988) stated that the occurrence of this snail in the Cracow-Wieluń Upland is rather doubtful.

*Aegopinella lozekiana* was previously known only from Kielniki site (STWORZEWICZ 1975; 1976), both from Kielniki 3A and 3B, and the occurrence of this species also in unit 4 (fauna A) of Przemyłowice 3 may have stratigraphical significance for the Late Pliocene-Early Pleistocene.

The other group is made up of two snails, *Chilostoma (Drobacia) banaticum* and *Soosia diodonta* (Fig. 1), which in the fossil assemblages have a relatively northern distribution in Europe, but recently are restricted to its southern part (STWORZEWICZ 1981). These species suggest that the fauna A of unit 4 of Przemyłowice 3 lived under warmer and moister conditions than those which exist in Poland today. The presence of *Soosia diodonta* in Przemyłowice 3 indicates that it occurred as early as the Middle Villanyian (MN 17) (see NORDSIECK 1986 after FREUDENTHAL et al. 1976).

The most significant is the finding of two fragments of helicid shells represented by the upper part of three first whorls (Fig. 2). Taking into account their outline and size (width



1. *Soosia diodonta* (Fer.) from Przymiłowice 3; width = 9.2 mm, height = 3.15 mm.



= 8.35 and 9.1 mm) one may deduce that they are representatives of a large snail species with a flattened shell. A very characteristic sculpture of their surface (Fig. 3) distinguishes them from all other snails recently living in Poland. The embryonic whorls are covered with very fine but very distinct and thickly plotting papillae which seem to be in oblique order. The papillae on the remaining whorls are relatively thinly spaced and quincuncial, and under high magnification uniform granulation of the whole surface is also visible. In addition, the sculpture consists of irregular but distinct growth lines.

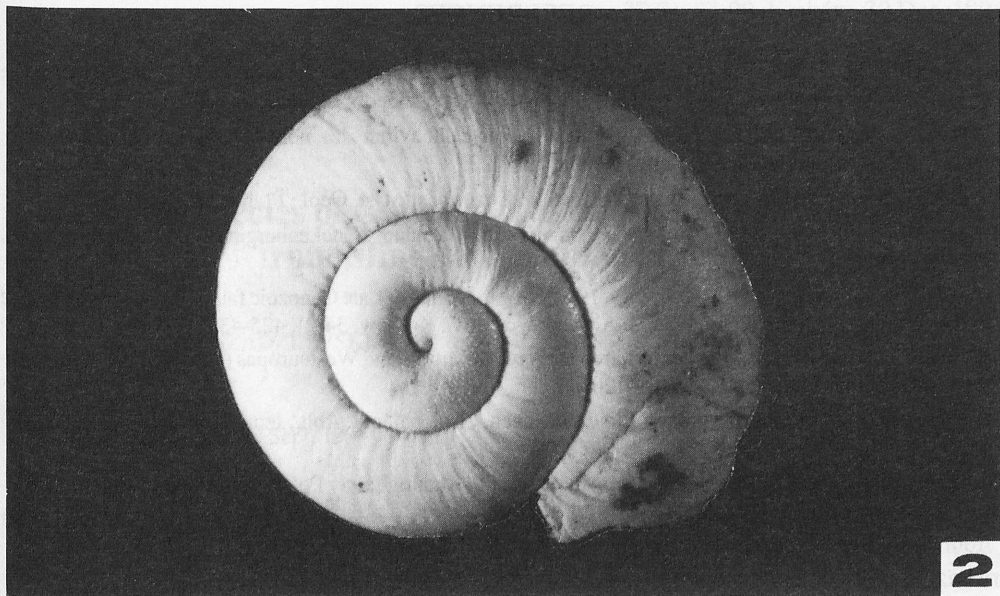
Based on the descriptions of the shell surface sculpture of many fossil and recent *Helicacea* species (PFEFFER 1929; ZILCH 1959/60) and on the contemporaneous materials from South Europe (coll. of Institute of Systematics and Evolution of Animals PAN, Kraków), those fragments might be assigned to a representative of the subgenus *Campylaea* s.str. or *Liburnica*, both of *Campylaea* BECK, 1837. For example, they are quite similar both in the outline of the first three whorls as well as in the surface sculpture (granulation and papillation) to *Campylaea lefeburiana* (FERUSSAC, 1822) (Fig. 4) from the vicinity of Triest. However, they differ from two available specimens of that species in having somewhat thinly spaced papillae and being somewhat larger.

Another possibility is the association of those two fragments with one of form of other Campylaeen species – *C. planospira* (LAMARCK, 1822). This very variable snail is widely distributed over the southern Europe and, like *C. lefeburiana* is connected with calcareous substrate.

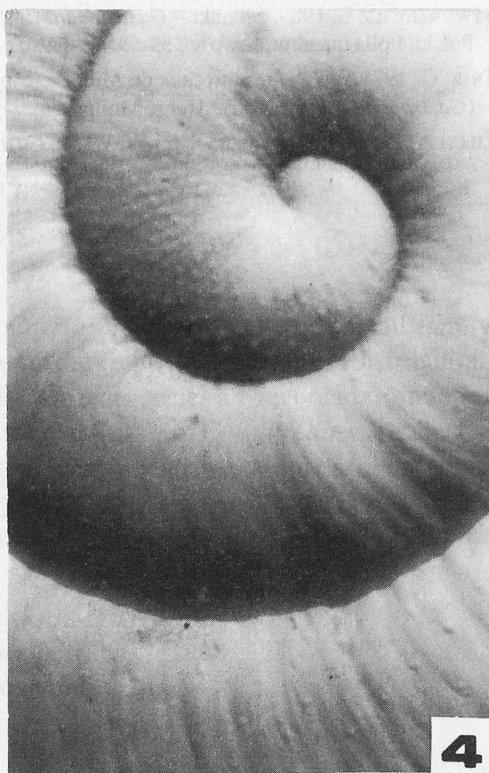
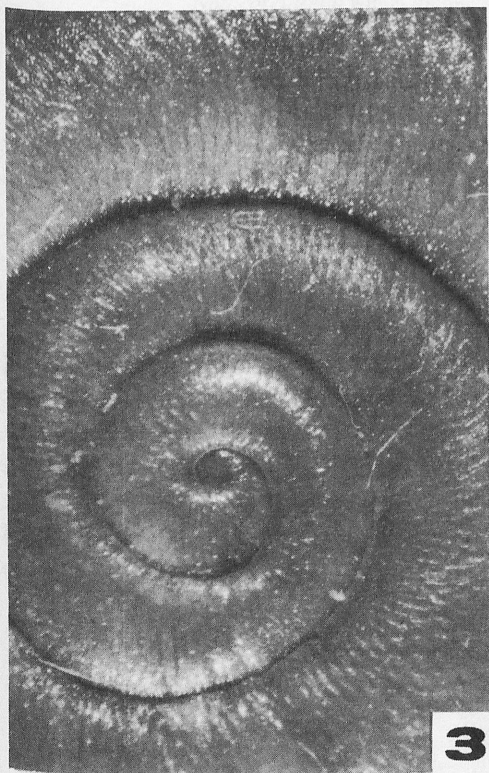
Furthermore, the surface sculpture of the fragments from Przemyślówice 3 shares some characteristics with some extinct helicid snails. *Helicigona* (*Campylaea*) *čapeki* (PETROBOK, 1922) is known from several Early Pleistocene localities from the former Czechoslovakia, as a component of so called "banatic fauna", characteristic for warm phases (LOŽEK 1955). It is composed, among others, of *Soosia diodonta* and *Chilostoma* (*Drobacia*) *banaticum* which also accompany Campylaeen fragments in Przemyślówice 3. Therefore, it is great probability that these fragments under discussion belong to the mentioned species.

The shell of *Metacampylaea papillifera* (KLIKA, 1891) shows the similar granulation, papillation and striation but on the postembryonic part only, while the embryonic whorls are smooth and the spire is rather conoidal (KLIKA 1891); moreover the range of *Metacampylaea* group in the Neogene is known to be Upper Oligocene to Lower Miocene (NORDSIECK 1986). Species of subgenus *Tropidomphalus* (*Pseudochloritis*) have also similar sculpture, both on postembryonic and embryonic shells. For example, the surface of *Tropidomphalus* (*Pseudochloritis*) *mollonensis* TRUC, 1971 agrees well with that of two fragments from Przemyślówice 3 (see TRUC 1971, Pl. 17, fig. 11-12), but the nucleus of the latter form is distinctly narrowed. *Pseudochloritis* snails appear to be restricted to the Miocene (NORDSIECK 1986).

Unequivocal identification of two Campylaeen fragments from Przemyślówice 3 requires, however, better preserved material.



2. Fragment of shell referred to as *Campylaea* sp.; width = 8.35 mm.



3. Shell sculpture of *Campylaea* sp.;  $\times 22$ . 4. Fragment of *Campylaea lefeburiana* (FER.) from vicinity of Trieste (coll. ISEZ PAN, Kraków);  $\times 16$ .

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