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Notes on the genera *Carychiopsis* SANDBERGER, 1872 and *Carychium* O.F. MÜLLER, 1774 (*Gastropoda Pulmonata*: *Ellobiidae*) from the Neogene of Europe

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Abstract. Additions and corrections to the knowledge of some Neogene *Carychiopsis* and *Carychium* taxa based on examination of numerous specimens from Poland and Ukraine are given.

Key-words: fossil snails, *Carychiopsis, Carychium*, Neogene, Europe.

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INTRODUCTION

Snails of the genera *Carychiopsis* SANDBERGER, 1872 and *Carychium* O. F. MÜLLER, 1774 are represented in Europe by many forms from as early as the Paleocene (WENZ 1923). For a long time the systematics of the group was based on external shell characters, i.e. size, apertural dentition and sculpture of the surface. More recently a new and more profound system of the Neogene *Carychium,* based mainly on the structure of the lamellae forming a columellar apparatus inside the body whorl, in connection with the remaining characters, was presented by STRAUCH (1977). However, while not detracting from STRAUCH's merit, some groups need verification.

The examination of several thousand specimens from Polish and Ukrainian localities by the present authors has shed new light on the systematic position of some groups and demonstrated a greater variability of taxonomic characters than was previously known. This resulted in the present short note.

SYSTEMATIC AND NOMENCLATURAL REMARKS

Carychium (*Carychiopsis*) SANDBERGER, 1872 sensu STRAUCH.

T y p e s p e c i e s: *Pupa dhorni* DESHAYES, 1863

STRAUCH (1977) reduced the generic rank of *Carychiopsis* to subgenus referring to the structure of the columellar apparatus, as well as to the texture of surface sculpture and dentition of *Carychium* (*Carychiopsis*) *schwageri* (REUSS, 1868). Unfortunately, he was unable to make a preparation of the shell so as to examine the structure of the lamellae forming the columellar apparatus inside the body whorl because of the scarcity of material (probably the sole specimen of *C. schwageri* from Tuchořice – SMF 245495a) and the shell's being filled with sediment. However, he mentioned that "..einfache spiralige Verlauf wenig hervortretender scharfer Spiralfalten..." may be indicated.

Further studies of the material from Tuchořice showed (PRISYAZHNYUK 1984) that specimens regarded hitherto as *Carychium* (*Carychiopsis*) *schwageri* differ from one another not only on the grounds of shell shape (higher shells – slender and short ones – inflated), but are also distinguished by different types of extension of both parietal and columallar lamellae in the columellar apparatus (Fig. 1). Hence it follows that they represent two separate forms. As a result, only specimens with a higher and slender shell – according to the description of REUSS (1868) – and with folded lamellae of the columellar apparatus should be regarded as *Carychiopsis schwageri*. The smaller ones, inflated specimens with unfolded lamellae, regarded by PRISYAZHNYUK as *Carychium* sp. are very similar with respect to size and shape to those described by SANDBERGER (1863) from Hochheim as *Carychium costulatum* and also to those described from Bełchatów as *Carychiopsis* sp. n. (STWORZEWICZ in prep.). It should be mentioned, however, that specimens from Hochheim available to the junior author (Senckenberg Musem in Frankfurt am Main, SMF 12.3010a and b) were not prepared for examination of lamellae forming the columellar apparatus.

Taking into account the above remarks, some of the Neogene species should be referred to the subgenus *Saraphia* (*C. schwageri*), but others to *Carychium* s.str. (*Carychiopsis* sp. n.). However, the very characteristic appearance of specimens from Tuchořice and Bełchatów, distinguished by: 1 – the sculpture of regularly spaced strong radial ribs and very fine but well visible spiral lines between them, 2 – the presence of five teeth from which two situated on the parietal margin are sharply marked, and, above all 3 – the existence of two different types of columellar apparatus, i.e.

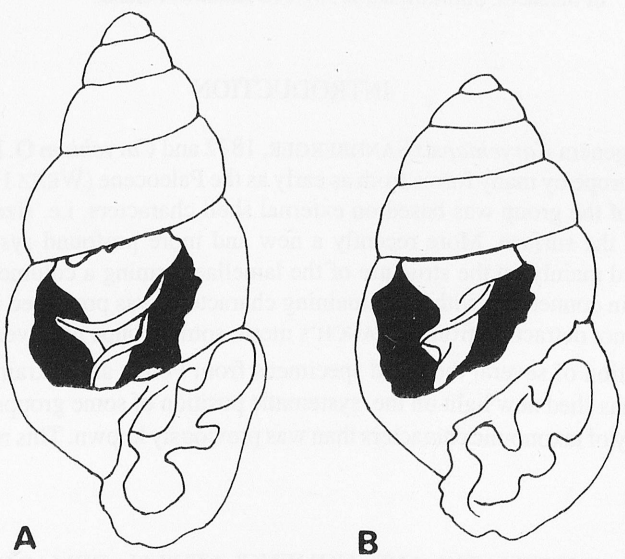

Fig. 1. *Carychiopsis*-species from Tuchořice with visible columellar apparatus: A – *Carychiopsis schwageri* (REUSS 1868), height = 2.1 mm; B – *Carychiopsis* sp. n. (STWORZEWICZ in prep.), height = 1.8 mm. E. STWORZEWICZ del. [after PRISYAZHNYUK 1978].

simple and folded, inclines the present authors to regard *Carychiopsis* as a separate group and to return it to full generic rank, according to SANDBERGER (1870-75) and WENZ (1923).

The miopliocene species *Carychium berthae* (HALAVATS, 1903) regarded by some authors as a representative of *Carychiopsis* (BARTHA 1959; STRAUCH 1977), should be referred to the subgenus *Saraphia*, whereas *Carychium gozhiki* PRISYAZHNYUK, 1974, similar to the former species in its general outline but distinguished by a simple structure of the columellar apparatus, to *Carychium* s. str.. Both *C. berthae* and *C. gozhiki* differ distinctly from Paleocene *Carychiopsis dhorni*, on the basis of which SANDBERGER described the genus *Carychiopsis.*

Previously LUEGER (1981) referred *C. berthae* to the subgenus *Saraphia* placing it in synonymy with *Carychium pachychilus* SANDBERGER, 1875. The present authors do not share this view because both the shell shape and the structure of the columellar apparatus sufficiently separate those two forms.

It is worth mentioning that the distribution of *Carychiopsis* members in the Neogene is limited to the Upper Oligocene-Middle Miocene, but a younger generation of *Carychiopsis*-like species (*C. berthae* and *C. gozhiki*) is separated from typical representatives of the genus *Carychiopsis* by a time hiatus not less than 3 Ma years.

Carychium (*Saraphia*) RISSO, 1826

T y p e s p e c i e s: *Saraphia tridentata* RISSO, 1826

The subgenus *Saraphia* is the most widely distributed and most numerous, with respect to the number of species, group in the Neogene. STRAUCH (1977) examined it in mostly detail, but the information on the Miocene species need to be revised. From the relationship pattern of the subgenus presented by STRAUCH (op. cit.:173, Abb.4) it appears that the occurrence of *Carychium starobogatovi* STEKLOV, 1966 and *Carychium sandbergeri* HANDMANN, 1887 was limited to the Pliocene, whereas they are both known from the Upper Miocene (SCHLICKUM 1964; STEKLOV 1966; GOZHIK & PRISYAZHNYUK 1978). It is also involved in *Carychium plicatum* STEKLOV, 1966, which was questionably placed by STRAUCH in synonymy with the Pliocene species *C. pachychilus*. The examination of several hundred specimens of *C. plicatum* from Ciscaukasia and Ukraine by the present authors showed, however, its systematic distinction; nevertheless it is the probable that from the latter species *C. pachychilus* may be derived.

LUEGER (1981) included also *C. sandbergeri* into *C. pachychilus* in consideration of the similarity of the columellar apparatus of *pachychilus*-type. However, such a type of apparatus is very common among representatives of the *Saraphia* subgenus, whereas as elongated and slender shell as well as a different shape of aperture sufficiently separate these two forms. The numerous specimens from Bełchatów provisionally assigned to *Carychium* sp. n. (STWORZEWICZ in prep.) showed the similarity of columellar apparatus but having more elongate and narrow shell.

In his description of *Carychium suevicum* O. BOETTGER, 1877 STRAUCH (1977) did not refer to MILLER's paper (1900), in which the only representation of the species was illustrated. This is probably why it was presented by STRAUCH as a slender form, resembling slender specimens of *Carychium nouleti* BOURGUIGNAT, 1857 (STRAUCH op. cit.: Taf.13 Fig.8 and Taf.15 Fig.27), instead of the typical one – not so high and somewhat inflated.

PRISYAZHNYUK (in: GOZHIK & PRISYAZHNYUK 1978) described a new subspecies *Carychium suevicum schlicumi* [sic!] from the Lower Sarmat of Ukraine, which is characterized by having additional small tooth on the parietal margin of the aperture. The parietal lamella in its columellar apparatus is very distinctive and similar to that presented by STEKLOV (1966) in *Carychium suevicum* (non BOETTGER) from the Upper Miocene of Ukraine. Somewhat earlier STRAUCH (1977) described a similarly distinguished form from the Pliocene of Germany as a subspecies of

a new species *Carychium schlickumi schlickumi* and referred *Carychium suevicum* (non BOETTGER) to it. Thus, *Carychium suevicum schlicumi* PRISYAZHNYUK should be considered as a younger homonym and synonym of *Carychium schlickumi schlickumi* STRAUCH, which appeared in the Upper Miocene and was widely distributed in the Pliocene both in Europe and in Asia.

Carychium (*Carychiella*) STRAUCH, 1977

Type species: *Carychium eumicrum* BOURGUIGNAT, 1860.

Strauch separated the subgenus *Carychiella* as having a very weakly marked columellar tooth and simple structure of a columellar apparatus of *minimum*-type. He included there, among others two species from the Miocene – the tiny (height = ca 1 mm) *Carychium eumicrum* and somewhat larger (height = ca 1.5 mm) *Carychium crossei* DENAINVILLIERS, 1875. The latter species is the only one within this subgenus that has the parietal lamella in the columellar apparatus folded (vide STRAUCH op. cit.: 174 Abb.5 and Taf.17 Fig.56 as well as material from Opole stored in Bayerische Staatssamlung für Paläontologie und historische Geologie in Munich, examined by the present authors).

The original description and illustration of *C. crossei* from France by DENAINVILLIERS (1875) clearly indicated that this species name should be synonymized with *C. eumicrum* by having a similar shell outline and very small size (height = 1 mm). On the other hand, specimens from Opole previously assigned to *C. crossei* which are as much as 1.5 mm high, seem to be a new species also occurring in Bełchatów (STWORZEWICZ in prep.). The structure of its columellar apparatus suggests that it should be included in the subgenus *Saraphia* rather than to *Carychiella*.

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