



Two new bellerophontiform tergomyans (Mollusca) from the Early Devonian (Lochkovian) of the Barrandian Area, Bohemia (Czech Republic)

Radvan J. Horný

Department of Paleontology, National Museum, Václavské náměstí 68, CZ-11579 Praha 1, Czech Republic;
e-mail: radvan.horny@nm.cz

Received 29 April 2005

Accepted 13 May 2005

Abstract. Two new taxa of bellerophontiform tergomyans are reported from the Early Devonian (Lochkovian) Radotín Limestones from the Barrandian area: *Cyrtodiscus?* karlikensis sp. n. and *Kosorodiscus ruzickai* gen. n. et sp. n. While *Cyrtodiscus?* is a clear representative of the family Cyrtolitidae in which muscle scars have been found, the additional taxon is classified as a bellerophontiform tergomyan only tentatively.

■ Bellerophontiform molluscs, Mollusca, Tergomya, Cyrtolitidae, new taxa, Lower Devonian, Lochkovian, Barrandian Area, Czech Republic

INTRODUCTION

Bellerophontiform molluscs constitute a rare component of the Lochkovian epibenthic communities in the muddy limestone biofacies of the Barrandian Area. Only *Cyclocyrttonella eremita* (Perner, 1903) has been collected more frequently in the upper strata of the Radotín Limestones (graptolite Biozones *M. uniformis* – *M. hercynicus*) at sites in the Černá rokle (Black gorge) below the village of Kosoř, near Lochkov and in Praha-Podolí (the locality Dvorce). In 1997 Frýda and Manda reported *Kolihadiscus tureki* Horný, 1992 from the basal parts of *M. uniformis* Biozone in the Černá rokle (Black gorge) near the Barrande's rock in Praha-Hlubočepy. However already in 1964 was found a single specimen of a small sinuate cyrtoneid just above the Silurian/Devonian boundary in the Karlík valley near the village of Dobřichovice. Another sinuate shell, derived from the collection of R. Růžička and collected at the beginning of the 20th century, come from the upper part of the Lochkov Formation in the Black gorge near Kosoř.

Both specimens are deposited in the collections of the Department of Palaeontology, National Museum, Prague, Czech Republic.

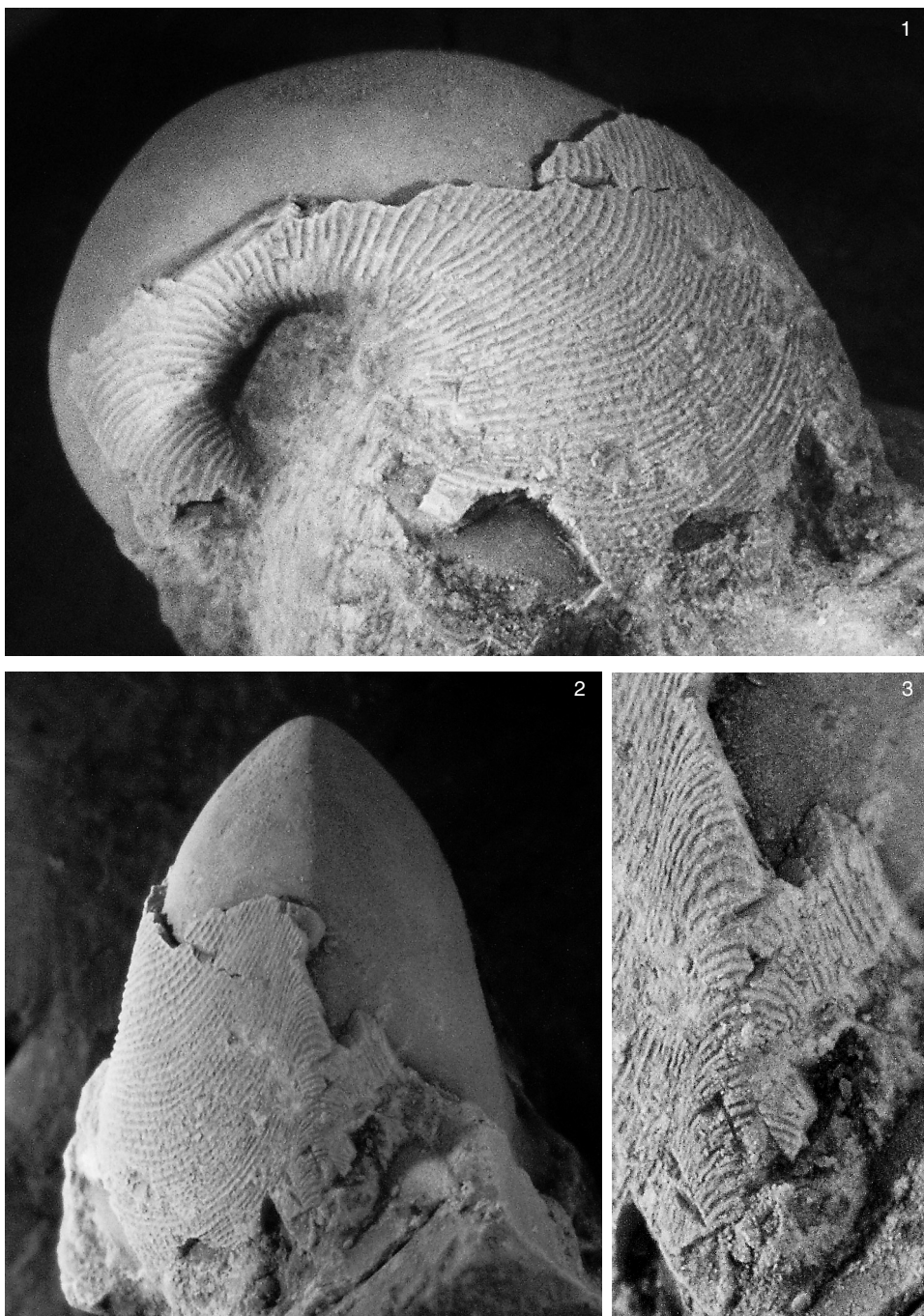
SYSTEMATIC PART

Cyrtoneid Horný, 1963

Cyrtolitidae S. A. Miller, 1889

***Cyrtodiscus* Perner, 1903**

Type species: *Oxydiscus* (*Cyrtodiscus*) *procer* Barrande in Perner, 1903. Upper Ordovician, Bohemia.



Figs 1–5. *Cyrtodiscus? karlikensis* sp. n. Holotype L 7670: (1) left lateral view, $\times 14$; (2) posterior view showing the low keel and narrow sinus; note the thick shell, $\times 14$; (3) enlarged dorsal sinus, $\times 27$; (4–5) enlarged ribs, some of them bifurcating, above the umbilical shoulder; note the local repaired injury (arrowed), $\times 35$ and $\times 50$. Specimen was coated with ammonium chloride before photographing.



4



5

***Cyrtodiscus? karlikensis* sp. n.**

Holotype: Specimen NM L 7670, figured here on figs 1–5.

Paratypes: None.

Stratum: Lower Devonian, Lochkovian, Lochkov Formation.

Type locality: Karlík valley near Dobřichovice, in the proximity of a ruin of the Karlík castle.

Etymology: Named after the small castle of Karlík, built by the king Charles IV in the 14th century.

Material: Holotype only.

Diagnosis: *Cyrtodiscus*-like shell wide, thick-shelled, with irregularly cancellate outer shell sculpture.

Description: Specimen preserved partly with shell, partly as a smooth internal mould. Shell involute, phaneromphalous, originally with 1–2 whorls, length 7.8 mm, height 5.8 mm, width 6.0 mm, l:w ratio 1.3; umbilical wall parallel with the shell axis, dorsum roof-like, sides containing an angle of 70 degrees; shell recrystallized, thick, 0.2 mm on umbilical shoulders, 0.1 mm on sides, 0.3 mm on keel; outer shell sculpture irregularly cancellate, spiral elements discontinuous, weak, but present even on keel; collabral ribs strong, on umbilical shoulder locally bifurcating, asymmetric, 8–10 per mm, with wide and slightly flaring adapertural part, bearing fine undulating threads; aperture with a narrow dorsal sinus about 0.9 mm wide, not forming a selenizone bordered with parallel lines; internal mould smooth, keel on internal mould moderately rounded, sides with obscure structures which may be traces of dorsal scars. Details of aperture and umbilicus are unknown. The specimen adheres to a fragment of grey bioclastic limestone with fragments of orthoconic nautiloids and large bivalves, locally characteristic for the basal strata of the Radotín Limestones.

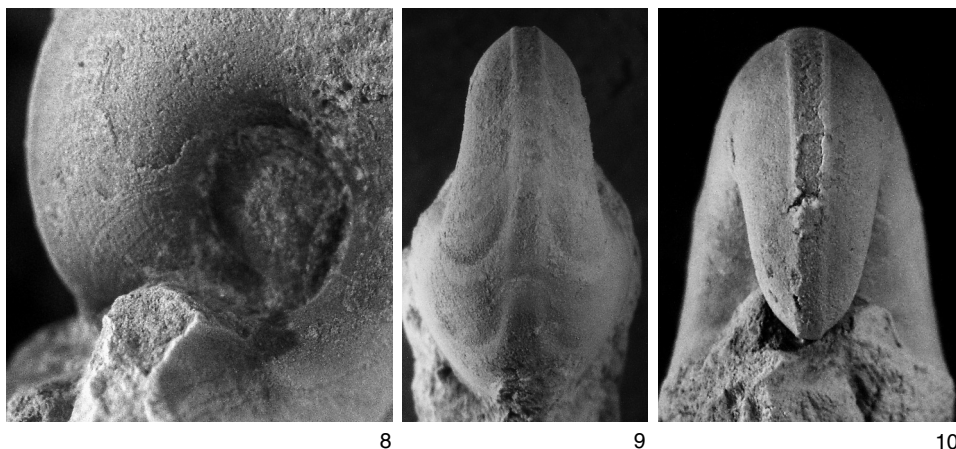
Discussion: The general shape of the shell resembles *Cyrtodiscus*, which occurs continuously during the Middle and Upper Ordovician and the lower part of Silurian (Horný 1963, 2002). It differs from typical representatives of this genus by a wide shell (l:w ratio = 1.3). Similarly wide shell has the Silurian (Ludlow-Přídolí) *Pharetrolites murchisoni* (d'Orbigny in Férussac and d'Orbigny, 1840). This species, refigured and redescribed by



6



7



Figs 6–10. *Kosorodiscus ruzickai* gen. et sp. n. Holotype L 7645. (6) left lateral view, $\times 11.5$; (7) oblique left lateral view showing the large, left, anterior inhalant channel, $\times 12$; (8) umbilical area with cancellate sculpture preserved in the youngest part of the final whorl, $\times 11.5$; (9) posterior view, dorsum with two major increments reflected on the internal mould, showing the depth of the dorsal sinus, $\times 5$; (10) anterior view with low, flat keel and the left inhalant channel, $\times 6.3$. Specimen was coated with ammonium chloride before photographing.

Reed (1921) and by Peel (1977), has higher keel and more dense collabral ribs. It is also related to *Kolihadiscus*, which, however, lacks spiral elements in outer shell sculpture (Horný 1992).

The thick shell may indicate high-energy life conditions. A local repaired injury of apertural margin is visible above the left umbilical shoulder (Pl. 1, figs 4, 5). More material is needed to specify the accurate generic determination.

Family indeterminate

Kosorodiscus gen. n.

Type species: *Kosorodiscus ruzickai* sp. n. Lower Devonian, Bohemia.

Diagnosis: Small, laterally compressed, involute shell; wide, flat keel probably with a selenizone; shell thin, outer shell sculpture regularly cancellate.

Discussion: *Kosorodiscus* gen. n. distinguishes from hitherto described cyrtolitid genera by continuous spiral ribs and the presence of a wide flat keel, which has the character of a selenizone. Continuous ribs are characteristic also for the Middle Ordovician *Sinuitopsina* Horný, 1997 but this genus has a V-shaped dorsal emargination. *Kosorodiscus* has strongly developed inhalant channels interpreted as anterior. The mode of preservation, however, does not allow the study of muscle scars and to verify its systematic position with certainty.

Included species: *Kosorodiscus ruzickai* sp. n. Lower Devonian, Lochkov Formation, Barrandian Area, Bohemia.

Kosorodiscus ruzickai sp. n.

Holotype: Specimen NM L 7645, figured here on figs 6–10.

Paratypes: None.

Stratum: Lower Devonian, Lochkovian, Lochkov Formation.

Type locality: Černá rokle (Black gorge) below the village of Kosoř near Praha-Radotín.

Etymology: Named for Ing. Robert Růžička (17. 9. 1879–28. 9. 1945), an outstanding collector of fossils, who found the specimen.

Material: Holotype only.

Diagnosis: See the genus.

Description: The specimen is preserved mostly as an internal mould with patches of shell in the adapical part. Shell involute, phaneromphalous, with at least 1½ whorls; initial part covered with rock. Length 10.1 mm, height 7.0, width 6.2 mm, l:w ratio = 1.6. Umbilical wall with a central spiral groove that corresponds to the keel of the previous whorl. Lateral sides smoothly convex, dorsum with a flat keel rising from shallow depressions, 0.4–0.9 mm wide on the final whorl, with fine shallow lunulae, its bordering rim weathered and thus insufficient to define the selenizone; shell thin about 0.05 mm; outer shell sculpture regularly cancellate, with straight continuous ribs about 10 per mm, sectioned by much thinner, dense collabral threads, joining the keel under a sharp angle; aperture with a narrow dorsal sinus and two lateral channels interpreted as anterior inhalant, similar to those e. g. in *Sinuitopsis* Perner, 1903. Two separate growth structures, probably corresponding to periods of retarded growth, are present near the aperture (Pl. 2, fig. 4).

According to the presence of the narrow dorsal sinus and inhalant emarginations, the species probably lived on soft muddy bottom, shallowly buried in sediment like e.g. *Sinuitopsis neglecta* Perner, 1903 (Horný 1991).

ACKNOWLEDGEMENTS

I am indebted to the late Ivo Chlupáč for his friendly cooperation at the locality Karlík and for checking up the stratigraphy of the Růžička specimen. Rudolf J. Prokop read and refereed the manuscript. Jana Nedomová kindly helped with photography. Financial support from the Ministry of Culture of the Czech Republic, project MK 00002327201, is gratefully acknowledged.

REFERENCES

- Frýda J., & Manda Š., 1997: A gastropod faunule from the *Monograptus uniformis* graptolite Biozone (Early Lochkovian, Early Devonian) in Bohemia. – Mitteilungen aus dem Geologisch-Paläontologischen Institut der Universität Hamburg 80: 59–121.
- Horný R. J., 1963: Lower Paleozoic Bellerophontina (Gastropoda) of Bohemia. – Sborník Geologických Věd, Series P (Paleontologie) 2: 57–164.
- Horný R. J., 1991: Shell morphology and muscle scars of *Sinuitopsis neglecta* PERNER (Mollusca, Monoplacophora). – Časopis Národního Muzea v Praze, Řada Přírodovědná 157 [1988]: 81–105.
- Horný R. J., 1992: New Lower Devonian Gastropoda and Tergomya (Mollusca) of Bohemia. – Časopis Národního Muzea, Řada Přírodovědná 159: 99–110.
- Horný R. J., 2002: Ordovician Tergomya and isostrophic Gastropoda (Mollusca) of Bohemia: Types and referred specimens in the collections of the National Museum, Prague, Czech Republic. – Acta Musei Nationalis Pragae, Series B (Historia Naturalis) 57 [2001]: 69–102.
- Peel J. S., 1977: Systematics and palaeoecology of the Silurian gastropods of the Arisaig Group, Nova Scotia. – Det Kongelige Danske Videnskabskabernes Selskab, Biologiske Skrifter 21 (2): 1–80.
- Reed F. R. C., 1920–1921: A Monograph of the British Ordovician and Silurian Bellerophontacea. – London: Palaeontographical Society, 92 pp.