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Original article

Early perisphinctid ammonites from the early/late Bajocian boundary interval (Middle Jurassic) from Lókút, Hungary[☆]

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ARTICLE INFO

Article history:

Received 24 November 2010

Accepted 20 June 2011

Available online 1st May 2012

Keywords:

Ammonoidea
 Perisphinctidae
 Bajocian
 Hungary
 Systematics
 Origins

ABSTRACT

On the basis of an evaluation of data from the literature and a systematic study of rich material from the *Stephanoceras humphriesianum* and *Strenoceras niortense* Zones of the Bakony Mountains (Transdanubian Hungary), it is supported that leptosphinctids, the earliest Perisphinctidae s.str., most probably originated from Western Tethyan Stephanoceratidae. This descent is documented here with stephanoceratids very close to earliest leptosphinctids (*Phaulostephanus exilis* nov. sp. and *Ph. apertus* nov. sp.) and with very early leptosphinctids showing mixed stephanoceratid and perisphinctid characters. This latter group is represented by species described previously elsewhere plus new species (*Stephanosphinctes tuberculatus* nov. sp., a macroconch, and *Leptosphinctes* (*Cleistosphinctes*) *umbilicatus* nov. sp., a microconch). Possible migration routes of early perisphinctids are discussed and the Hispanic Corridor is suggested as the most probable.

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1. Introduction

Perisphinctids is one of the most characteristic and widespread groups of ammonites from the Middle Jurassic up to the Early Cretaceous worldwide. They belong to the Perisphinctoidea Superfamily and to the recently erected Suborder Perisphinctina (Page, 2008). This long-living and morphologically very diverse group is traditionally regarded as originating within the Stephanoceratidae. However, a closer look at the record presented in the literature on early perisphinctids indicates that this important group is polyphyletic. In this paper, latest *Humphriesianum* Zone and early *Niortense* Zone transitional stephanoceratids and very early leptosphinctids are studied alongside previously described ones; new species are erected, and origins of the *Leptosphinctes*-type early perisphinctids are discussed.

2. Locality and stratigraphy

The here-described ammonites come from the Lókút section of the Bakony Mountains (Transdanubian Central Range, western Hungary; Fig. 1). The section and the most important biostratigraphic data were briefly discussed in an earlier paper (Galácz, 1976); some stephanoceratids, including the genus *Lokuticeras* were also already described from here (Galácz, 1994). A more detailed description of the sequence is given by Galácz (2000).

The marly limestones exposed in the Lókút section (Fig. 2) yielded ammonite assemblages from the *Witchellia laeviuscula* to the *Strenoceras niortense* Zone, with exceptionally rich representation of the *Otoites sauzei* and *Stephanoceras humphriesianum* Zones. The ammonites become rarer and poorer in preservation above Bed 6, i.e., in the *Teloceras banksi* Subzone. Then the marly limestone passes into siliceous beds followed by radiolaritic cherts. While ammonites are very richly represented and mostly well preserved, the few beds and their reduced thicknesses indicate that the sequence is far to be stratigraphically complete. The 5 layers (Beds 7 to 3) which gave the here-discussed specimens are 47 cm thick altogether, representing at least 3 subzones. Understandably, tracing the finer stratigraphic succession, i.e., identifying the complete sequence of biohorizons meets difficulties.

The ammonites from Bed 7 clearly indicate the *Teloceras blagdeni* Subzone, i.e., the top of the *Stephanoceras humphriesianum* Zone (here and below the richly represented, but undiagnostic phylloceratids and lytoceratids are disregarded): *Oppelia subradiata* (Sowerby), *Lissoceras semicostulatum* Buckman, *Chondroceras delphinus* Buckman, *Stephanoceras* (*Stephanoceras*) *humphriesianum* (J. de C. Sowerby), *Stephanoceras* (*Normannites*) spp., *Teloceras acuticostatum* Weisert, *T. blagdeni* (Sowerby), *Lokuticeras rossbrunnense* Galácz, *L. fredericiromani* (Roché), *Masckeites densus* Buckman, and *Cadomites* (*Cadomites*) *lissajousi* Roché. The overlying Bed 6 yielded ammonites indicating the *Teloceras banksi* Subzone, i.e., the basal part of the *Strenoceras niortense* Zone: *Oppelia flexa* (Buckman), *Stephanoceras* (*Normannites*) *immutans* Pavia, *Teloceras blagdeniformis* (Roché), *Teloceras sparsinodum* (Quenstedt), *Lokuticeras sturani* (Pavia), *Masckeites psilacanthoides* (Sandoval). The

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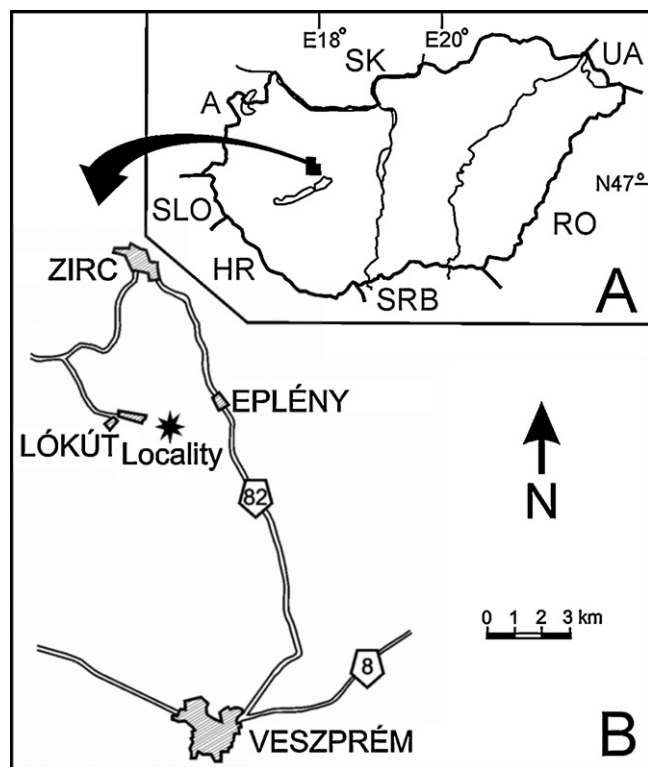


Fig. 1. Map showing the location of the Lókút area within Hungary (A) and of the Lókút Hill (B, asterisk).

higher ammonitic beds could all belong to the *niortense* Zone, with *Orthogarantiana* and *Spiroceras* appearing in Bed 3. Undeterminable *Leptosphinctes* specimens occur up to Bed 1, the highest fossiliferous layer.

3. Systematic paleontology

The specimens are deposited in the Paleontological Collection of the Natural History Museum of the Eötvös L. University, Budapest. All specimen measurements are given in Appendix A.

Class CEPHALOPODA Cuvier, 1797

Order AMMONOIDEA Zittel, 1884

Suborder AMMONITINA Hyatt, 1889

Superfamily STEPHANOCERATACEAE Neumayr, 1875

Family STEPHANOCERATIDAE Neumayr, 1875

Genus **Phaulostephanus** Buckman, 1927

Type species: *P. paululus* Buckman, 1927 (in Buckman, 1909–1930: pl. 754, figs. 1–3). The type comes from Clatcombe, near Sherborne, Dorset, from the *romani* Subzone (Parsons, 1976), i.e., from the *cycloides* horizon of the *humphriesianum* Zone (Callomon and Chandler, 1990).

Phaulostephanus exilis nov. sp.

Fig. 3

p. 1983. *Phaulostephanus diniensis* nov. sp. – Pavia, p. 122, pl. 22, fig. 6 (only).

Derivation of name: *exilis* (Latin) = slender, referring to the conch with narrow whorls and wide umbilicus.

Holotype: Specimen A1061 (Fig. 3(1, 2)).

Paratypes: Specimens A1039 (Fig. 3(3, 4)), A1041 (Fig. 3(5, 6)).

Material: Three well-preserved internal casts from Beds 7 and 6.

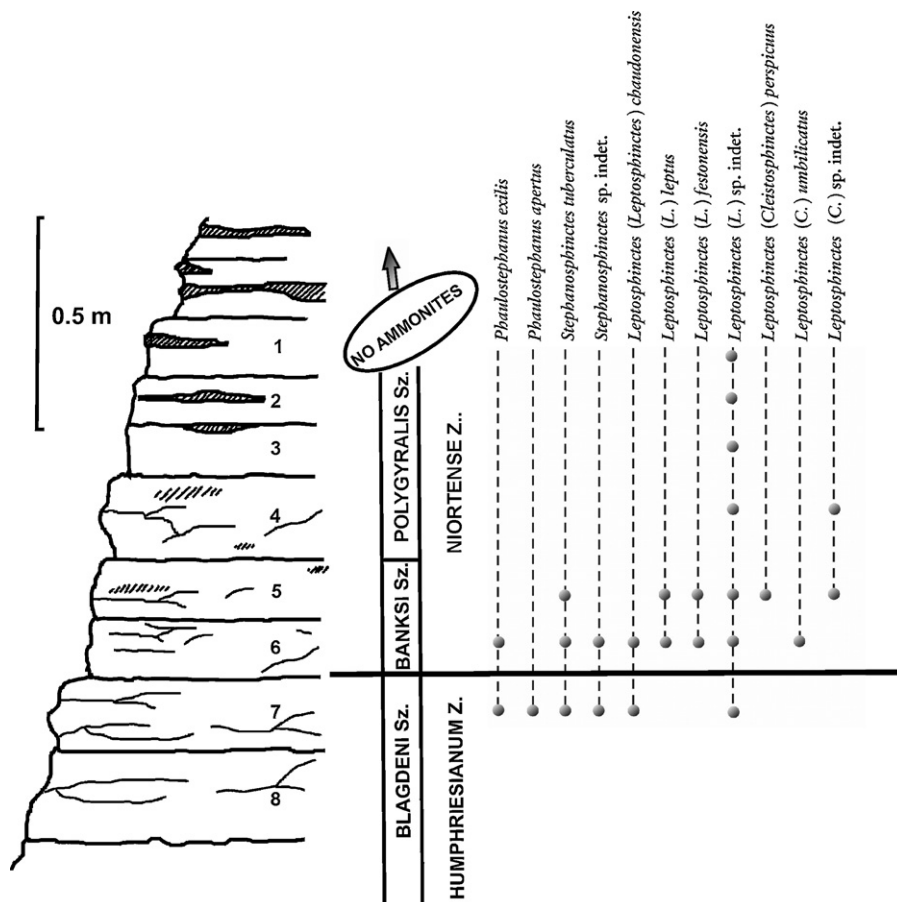


Fig. 2. Simplified section of the Bajocian Lókút Hill, with vertical ranges of the ammonite taxa discussed in this paper.

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