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BAFICRINUS GEN. NOV. (CRINOIDEA, INADUNATA) FROM THE BOHEMIAN EARLY DEVONIAN (THE CZECH REPUBLIC)

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Abstract. In washings of weathered Třebotov Limestone of Early Devonian, Late Emsian age, isolated radials and rarely, the almost complete calyxes of new zophocrinid crinoids, have been found. These crinoids are closely related to the genus *Tiaracrinus* and are described here as a new genus and new species, *Baficrinus vigilis* gen. nov. et sp. nov. A list of crinoid taxa and parataxa described from the Třebotov Limestone in the Barrandian Area is included herein.

■ Crinoidea, Inadunata, Zophocrinidae, *Baficrinus* gen. nov., Early Devonian, Emsian, Třebotov Limestone, Barrandian area, Bohemia.

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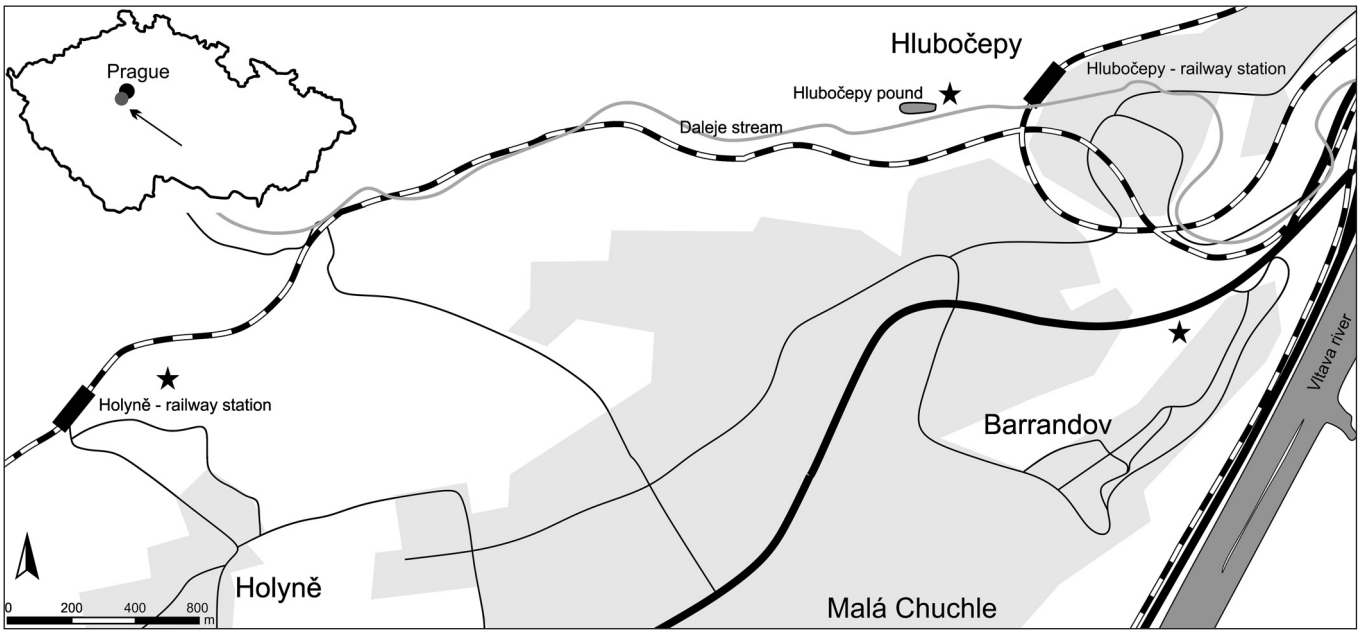
Introduction

Crinoid fossils from the washings of so called "white beds", are found in some abandoned and temporary exposures at different stratigraphic levels in the Barrandian area. They add fundamental contributions to our knowledge of Barrandian Devonian crinoids. This is also true of the Třebotov Limestone that was studied intensively during the 1980s and 1990s and has been regularly published (Prokop 1987, 1992). New information regarding Late Emsian crinoids from localities in Prague (1. Praha-Holyně, "V rokli" quarry, along the way to Slivenec; 2. Praha-Hlubočepy, abandoned quarry "U jezírka"; 3. Praha-Barrandov, road-cut) is discussed herein (Text-fig. 1). Extracted material from these washings continues to yield scientific information and continuing research is still in progress but slow paced because extracting fossils from washings is very time-consuming. A related aspect presented in this paper is a summary of currently known taxa, and their occurrences in the above-named localities.



Text-fig. 1. Location of the localities Praha-Holyně, Praha-Barrandov and Praha-Hlubočepy (asterisk).

During the systematic study of echinoderm assemblages from the Bohemian Devonian many isolated, morphologically prominent radial platelets and, fewer almost complete calyxes of an undescribed crinoid genus, have been recovered. They have been found in the washings of deeply weathered parts of the biomicritic Třebotov Limestone (Late Emsian). The new crinoid is closely related the genus *Tiaracrinus* (abundant in Early Devonian of Bohemia), and described here as *Baficrinus vigilis*. gen. nov. et sp. nov.

Systematic palaeontology

Subclass: **Inadunata Wachsmuth et Springer, 1885**
Order: **Disparida Moore et Laudon, 1943**
Family: **Zophocrinidae S. A. Miller, 1892**

Baficrinus gen. nov.

Type species: *Baficrinus vigilis* sp. nov., Early Devonian, Late Emsian (Dalejan), Bohemia.

D i a g n o s i s : Calyx minute, median globe to globular shaped (Ubaghs 1978, p. T99), widest at midheight, tapering abruptly to the tiny base which is composed of (probably) three low, poorly distinguished basals. Stem facet minute, smooth, tiny lumen not clearly visible. Calyx rounded square in oral or basal views, composed from four large, strongly vaulted, relatively massive radials. Sutures between the basal and radial platelets poorly developed. Tegmen and anal X unknown. Outer surface of the calyxinal platelets bear a complicated network of radial wrinkles in the central parts of radial plates and a similar network of convoluted transversal epispiral channels on their lateral parts. The arms (limbrachioids? after Haude 1993) unknown. In keeping with the straight, gently toothed upper margin of the radials; the tegmen was probably flat, similar to that of the crinoid genus *Tiaracrinus* (see Schultze 1867, Springer 1926, Moore et al. 1978, Le Menn 1990, Haude 1993).

Baficrinus vigilis sp. nov.

Pl. 1, Fig. 1–10

H o l o t y p e : Isolated almost complete calyx NM-L42360, figured on Pl. 1, Fig. 1a, 1b.

P a r a t y p e : Isolated almost complete calyx NM-L42361, figured on Pl. 1, Fig. 2a–2c.

T y p e h o r i z o n : Daleje-Třebotov Formation, Třebotov Limestone, Lower Devonian, Upper Emsian (Dalejan).

T y p e l o c a l i t y : Praha-Holyně, "V rokli" quarry, along the way to Slivenec

M a t e r i a l . In addition to the type specimens there are more than 38 isolated radial platelets from washings of the weathered well-bedded, light-grey, micritic and biomicritic limestones of the uppermost part of the Třebotov Limestone.

D e s c r i p t i o n . See diagnosis of the genus.

O c c u r r e n c e . Many specimens *Baficrinus vigilis* gen. et sp. nov. have been found in washings of weathered limestones from the type locality. Rarely, the isolated radials of these crinoids have been found in other localities of the Třebotov Limestone: Praha-Hlubočepy, "U jezírka" quarry, and in the road-cut section of the Praha-Barrandov motorway.

R e m a r k s : *Baficrinus vigilis* gen. et sp. nov. differs from the very similar crinoid genus *Tiaracrinus* by its minute, almost globular calyx with low and tiny base but primarily by the very complicated outer surface of radial platelets bearing deformed transversal epispires and various radial wrinkles. Plate boundaries are often poorly preserved.

Crinoid taxa from the Třebotov Limestone

A current list of crinoid genera from the washings of weathered parts of the well bedded light-grey micritic and biomicritic limestones of the Třebotov Limestone (Late Emsian) is included herein (Tab. 1, 2). This list complements older published reports (see Prokop 1987, 1992). The Třebotov Limestone was probably deposited in a quiet fairly deep neritic zone, with a disaerobic environment, and with only moderate current action. Transport of crinoid specimens to greater distances is not assumed – the limestones have yielded many crinoids in various growth stages (including very young minute specimens). These specimens include symbathocrinids, ramacrinids, calceocrinids, cyathocrinids and pygmaeocrinids.

All taxa presented here come from three significant localities of the Třebotov Limestone:

1. Praha-Holyně, "V rokli" quarry, along the way to Slivenec,
2. Praha-Hlubočepy, abandoned quarry "U jezírka",
3. Road-cut section on the Praha-Barrandov, motorway.

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Table 1. Calyxes, cups and their isolated parts. All taxons presented here come from three significant localities of the Třebotov Limestone: 1. Praha-Holyně, "V rokli" quarry, along the way to Slivenec. 2. Praha-Hlubočepy, abandoned quarry "U jezírka". 3. Praha-Barrandov, section at the road-cut of the motorway. For situation of localities see Text-fig. 1.

Calyxes and cups or their isolated parts			
Taxon	Locality		
	Praha-Holyně	Praha-Hlubočepy	Praha-Barrandov
Allagecrinus Carpenter et Etheridge, 1881	+		
Arthroacantha Williams, 1883	+	+	
Aureocrinus Prokop, 1982	+		
Bactrocrinites Schnur, 1849	+		
Briseocrinus Prokop, 1991	+		+
Catillocrinus Shumard, 1865	+	+	+
Edriocrinus Hall, 1852	+	+	+
Elicrinus Prokop, 1973	+	+	+
Eohalysiocrinus Prokop, 1970	+	+	+
Gemmacrinus Prokop et Petr, 1989	+	+	
Hexacrinites Austin et Austin, 1843	+	+	+
Holynocrinus Bouška, 1948	+		
Lecanocrinus Hall, 1852	+	+	+
Minicrinus Prokop, 1970	+	+	+
Prokopicrinus Frest et Strimple, 1977	+		
Pygmaeocrinus Bouška, 1947	+	+	+
Ramacrinus Prokop, 1969	+		+
Resetocrinus Prokop et Petr, 1991	+	+	+
Thalamocrinus Miller et Gurley, 1895		+	
Tiaracrinus Schultze, 1867	+	+	+
Timocrinus Prokop et Petr, 1994	+	+	+
Treocrinus Prokop et Petr, 1991	+	+	+

Table 2. Columnals, pluricolumnals and other isolated skeletal ossicles from the same localities.

Columnals, pluricolumnals and the other isolated skeletal ossicles			
Taxon	Locality		
	Praha-Holyně	Praha-Hlubočepy	Praha-Barrandov
Ammonocrinus Springer, 1926	+	+	+
Arachnocrins Meek et Worthen, 1866 (AxAx)	+	+	+
Arthroacantha Williams, 1883		+	
Asperocrinus Stukalina, 1975	+	+	+
Aulnocrinus LeMenn, 1970	+		
Cyclocharax Moore et Jeffords, 1968	+		+
Cyclocion Moore et Jeffords, 1968	+	+	+
Cyclocrista Moore et Jeffords, 1968			+
Diamenocrinus Oehlert, 1891	+		
Fabalium Moore et Jeffords, 1968	+	+	+
Floricyclus Moore et Jeffords, 1968	+	+	+
Gasterocoma Goldfuss, 1839 (BrBr)	+	+	+
Gilbertsocrinus Phillips, 1836	+	+	
Goniocion Moore et Jeffords, 1968	+		
Hapalocrinus Jaekel, 1895 (pinnulae)	+		+
Holamptocrinus Prokop, 2009	+	+	+
Laudonomphalus Moore et Jeffords, 1968	+	+	+
Mastigocrinus Bather, 1892 (plates of anal sac)	+	+	
Mediocrinus Stukalina, 1965	+	+	+
Mooreanteris Miller in Moore et Jeffords, 1968	+		
Noctuicrinus LeMenn, 1985	+		+
Pandocrinus Stukalina, 1965	+	+	+
Parisocrinus Wachsmuth et Springer, 1880	+	+	+
Pentacauliscus Moore et Jeffords, 1968	+	+	
Pentamerostella Moore et Jeffords, 1968	+	+	
Platyparalellus Moore et Jeffords, 1968		+	
Platystela Moore et Jeffords, 1968	+	+	+
Pterinocrinus Goldring, 1923	+	+	+
Simakocrinus Prokop, 2013	+	+	+

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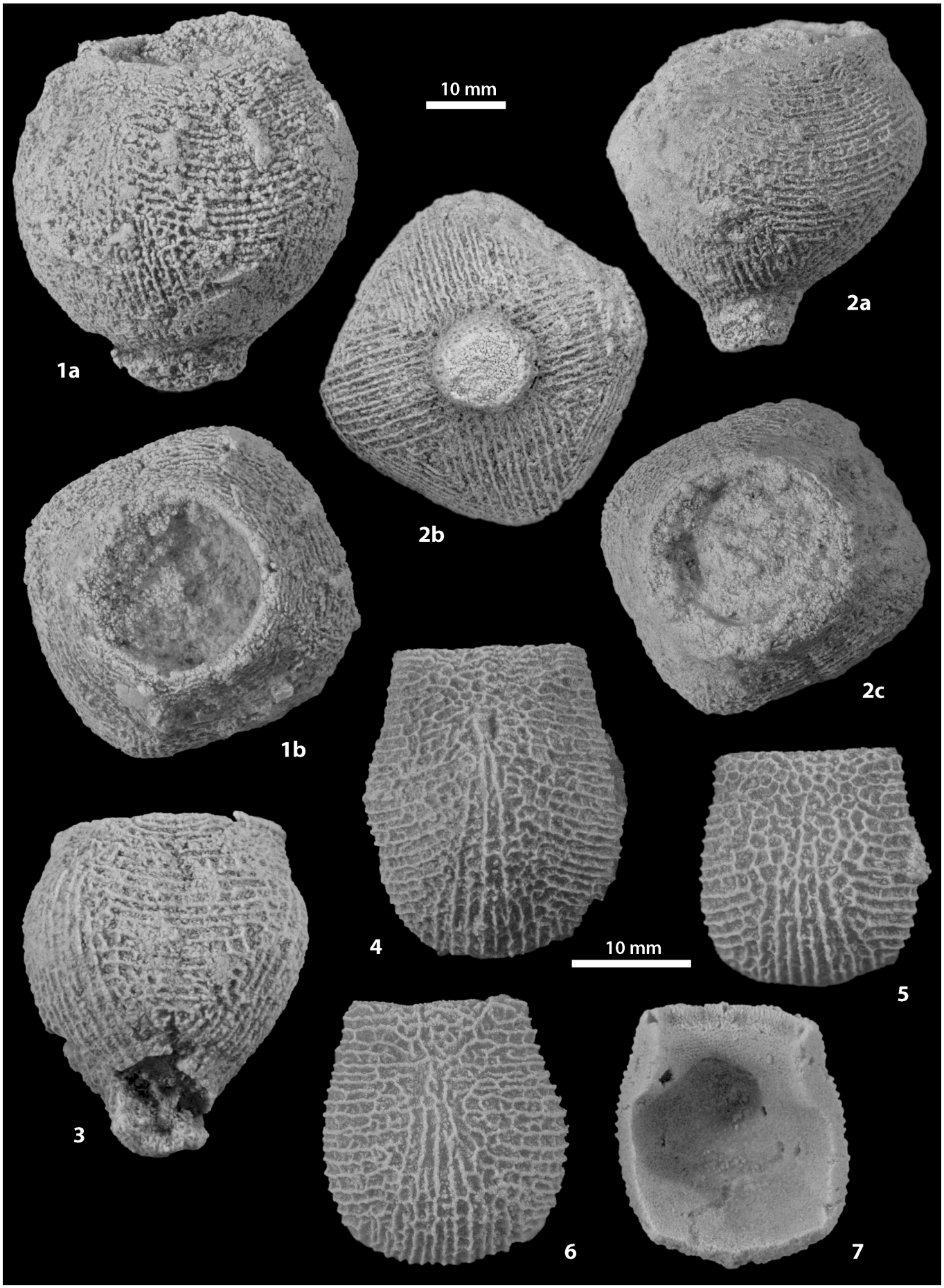
Explanation of the Plate

PLATE 1

***Baficrinus vigilis* gen. et sp. nov.**
Early Devonian, Late Emsian (Dalejan), Daleje-Třebotov Formation, Třebotov Limestone. Abandoned "V rokli" quarry,

1a. NM-L42360, holotype, calyx in lateral view.
1b. dtto, calyx in oral view.
2a. NM-L42361, calyx in lateral view.
2b. dtto, calyx in basal view.
2c. dtto, calyx in oral view.
3. Almost complete calyx, (specimen totaly disintegrated in the course of photography).
4. NM-L42364, radial plate, appears the outer surface with complicated network of epispires and radial wrinkles.
5. NM-L42365, dtto.
6. NM-L42363, dtto.
7. NM-L42362, radial plate, inner surface.

Note: Upper bar-scale at the Plate 1 is used for the complete specimen, the lower one for isolated radial plates. All specimens are deposited in the collections of the Palaeontological Department of the National Museum, Prague (abbrev. NM, catalogue L.)
Photos by V. Turek and Rudolf J. Prokop.


10 mm
1a
2a
2b
2c
1b
4
10 mm
5
3
6
7