Journal of the National Museum (Prague), Natural History Series
Vol. 180 (9): 127-131; published on 30 October 2011
ISSN 1802-6842 (print), 1802-6850 (electronic)

Carpocrinus chlupaci sp. n. and *Bouskacrinus solus* gen. et sp. n. (Echinodermata, Crinoidea) from the Koněprusy Limestone (Lower Devonian, Pragian) of the Barrandian area, Czech Republic

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Abstract. Two new species and one new genus of crinoids: *Carpocrinus chlupaci* sp. n. and *Bouskacrinus solus* gen. n. et sp. n., from the Czech Lower Devonian (Pragian) are described in this paper.
Key words. Echinodermata, Crinoidea, *Carpocrinus, Bouskacrinus solus* gen. et sp. n. Lower Devonian, Pragian, Koněprusy Limestone, systematics, Barrandian Area, Czech Republic.

INTRODUCTION

In the private collection of amateur palaeontologist Josef Bouška recently acquired by the Department of Palaeontology of the National Museum, Prague, two remarkable specimens of crinoids hitherto unknown from the Czech Lower Devonian were discovered. Both specimens originated from white bioclastic or biosparitic limestones that sedimented in the detritic tallus of the coral-algal Koněprusy reef. Both specimens were obtained from weathered parts of these limestones probably by washing. Isolated calyx of the new species of the camerate genus *Carpocrinus* and isolated cup of the new inadunate crinoid described here as *Bouskacrinus solus* gen. et sp. n., are presented here.

SYSTEMATIC PART

Subclass: Inadunata Wachsmuth et Springer, 1885

Order: Cladida Moore et Laudon, 1943

Family: Gasterocomidae Roemer, 1854

***Bouskacrinus* gen. n.**

Type species: *Bouskacrinus solus* gen. et sp. n., Lower Devonian, Pragian, Bohemia, Czech Republic.

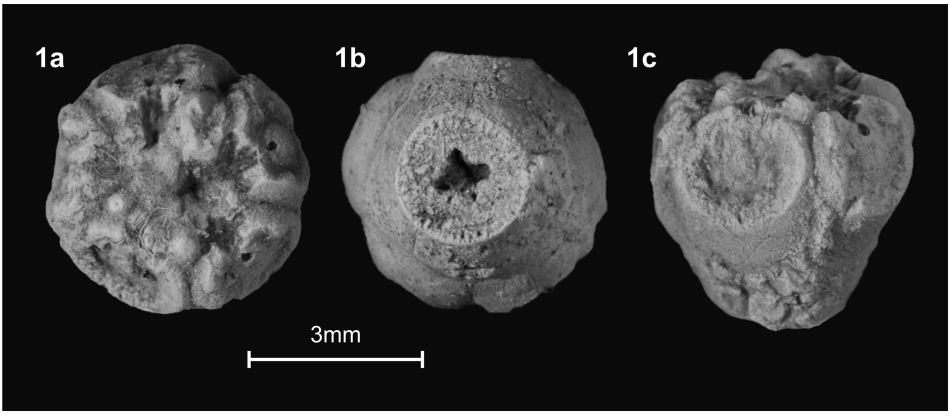

Fig. 1. *Bouskacrinus solus* gen. et sp. n. Holotype NMP L 40889, isolated cup: 1a - oral view, 1b - basal view, 1c - lateral view. Lower Devonian, Pragian, Praha Formation, Koněprusy Limestone; "Císařský lom" quarry in the "Zlatý kůň" hill near Koněprusy. Photographs by V. Turek and the author.

Derivatio nominis: In honour of Josef Bouška, an outstanding collector and amateur expert in palaeontology of crinoids from the Barrandian Area.

Diagnosis: see characteristic of the type species

***Bouskacrinus solus* sp. n.**
(Figs.1a-c)

Holotype: NMP L 40889, isolated cup figured on fig. 1a-c.

Type horizon: Lower Devonian, Pragian, Koněprusy Limestone.

Type locality: Koněprusy, "Císařský lom" quarry at "Zlatý kůň" hill.

Material: holotype only.

Description: Cup higher than wide, medium globe shaped with subhorizontal base. Infrabasals very low, fused. Five equal, tiny granulated basals. Anal plate absent. Radials with large circular facets which are sloping downwards and occupying most of the outer surface of radials. Axial canals large, leaded in the uppermost part of RR facets. Tegmen very low, composed from minute, vaulted platelets. In central part of tegmen is the anal (?) orifice. Stem and arms unknown. Stem facet at the base of cup circular, bearing short peripheral crenulae and relatively wide areola. Lumen large, cross shaped; peripheral canals largely connected with central canal.

Remarks: *Bouskacrinus* gen. n. is related to the Middle Devonian genus *Myrtillocrinus* Sandberger et Sandberger, 1856 described from Germany and USA. It differs in shape of calyx and above all by the size and shape of declivate radial facets. The steeply declivated radial facets remember crinoids from the genus *Nanocrinus* Müller, 1856 from the Middle Devonian of Germany.

Dimensions in mm: height of cup 4.2, max. width of cup 5.0, height of radial facets 1.8, height of cup base 0.6, max. width of base 2.0

Subclass: Camerata Wachsmuth et Springer, 1885

Order: Monobathrida Moore et Laudon, 1943

Family: Carpocrinidae DeKoninck et LeHon, 1854

***Carpocrinus* Müller, 1840**

Type species: *Actinocrinites simplex* Phillips in Murchison, 1839, Silurian (Wenlock), England.

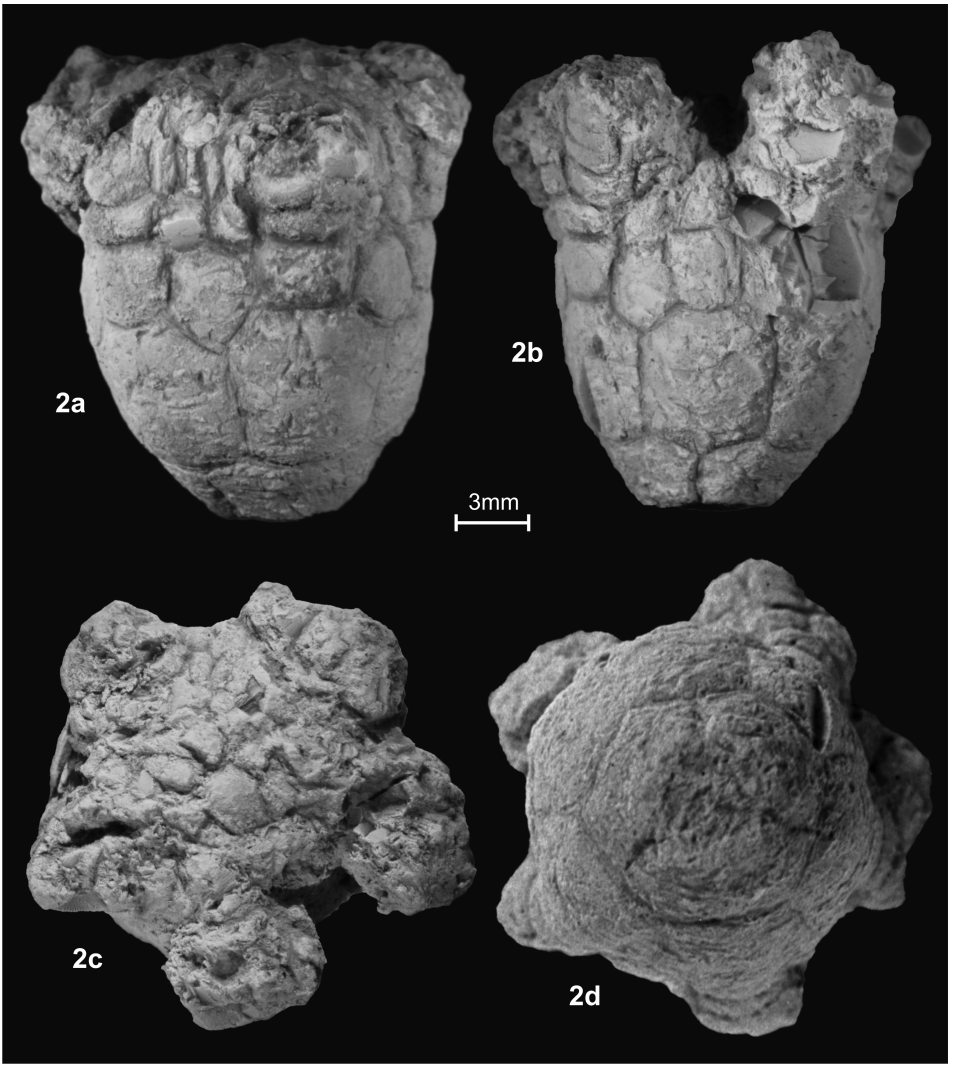

Fig. 2. ***Carpocrinus chlupaci* sp. n. Holotype NMP L 37922, isolated crown: 2a - anterior view, 2b - posterior view, 2c - oral view, 2d - basal view. Lower Devonian, Pragian, Praha Formation, Koněprusy Limestone. "Císařský lom" quarry in the "Zlatý kůň" hill near Koněprusy. Photographs by V. Turek and the author.**

***Carpocrinus chlupaci* sp. n.**

(Figs. 2a-d)

Carpocrinus sp. n.: Prokop 2000: 71.

Holotype: NMP L 37922, isolated calyx with preserved tegmen and the proximal parts of arms; figured on fig. 2a-d.

Type horizon: Lower Devonian, Pragian, Praha Formation, Koněprusy Limestone.

Type locality: Koněprusy, "Císařský lom" quarry at "Zlatý kůň" hill.

Derivatio nominis: In honour of my late friend, prof. Ivo Chlupáč (1931-2002), an outstanding specialist in the Devonian stratigraphy and palaeontology.

Material: holotype only.

Description: Calyx conical, medium bowl shaped with convex base. Basals three, equal, well laterally visible. Stem facet circular, poorly preserved (weathered). Radials large, 7-side, with large radial facets that occupied nearly central part of the distal margin of RR. Primanal X roughly of the same shape and size as radials. First primibrachial in the same way as primaxil ralatively narrow, quadrangular. Interbrachials numerous, connecting with tegmen. Tegmen solid, low dome shaped with distinct orals; other platelets small, undistinct. Only proximal parts of simple uniserial free arms are preserved. Distal part of free arms, pinnules and stem unknown.

Remarks: Carpocrinids are relatively common in the European and North American Silurian – inclusive the Silurian of the Barrandian Area (Prokop & Petr 1999). The first reported occurrence of the genus *Carpocrinus* in the Devonian was published by LeMenn (1987) who described the species *Carpocrinus sablensis* sp. n., from the Formation de Saint Ceneré (Lochkovian-Pragian boundary in age) in the Armoricain Masive, France. Indetermined carpocrinid was also published by Jell et al. (1988) from the Late Emsian-Eifelian, Broken River Group, eastern Australia (see Webster 2000). *Carpocrinus chlupaci* sp. n. represents next discovery of the genus *Carpocrinus* in the Devonian strata. Czech species differs from the French one by the broader-bowl shape of calyx, smooth calycinal plates, more simple building of anal ray and flat tegmen.

Dimensions (in mm): height of calyx 18.0, max. width of calyx 17.6, height of radials 7.0, max. width of radials 6.0, width of tegmen 16.2, width of stem facet 4.0

ACKNOWLEDGEMENTS

I am grateful to Vojtěch Turek (National Museum, Prague) for critical reading of the manuscript and Jan Sklenář (National Museum, Prague) for technical help. The study was carried out within the framework of the contact between Palaeontological Department of the National Museum (Museum of Natural History) and Management of the "Čertovy schody" Quarry, Koněprusy.

REFERENCES

Frest T.J. & Strimple H.L., 1977: *Carpocrinus* (Echinodermata: Crinoidea) from the Late silurian of Somerset Island, Northwest Territories, Canada. – Canadian Journal of Earth Sciences 14: 132-136.

Jell P.A., Jell J.S., Johnson B.D., Mawson R.. & Talent J.A., 1988: Crinoids from Devonian limestones of eastern Australia. – Queensland Museum Memoir 25: 355-402.

LeMenn J., 1987: Noveaux Echinodermes des schistes et calcaires du Dévonien inferieur du Bassin de Laval (Massif Armoricain, France). – Geobios 20: 215-235.

Moore R.C., Lane N.G. & Strimple H.L., 1978: Order Cladida. – In: Moore R.C. & Teichert C. (eds.): Treatise on invertebrate paleontology. Part T. Echinodermata 2/2: 578-756. Boulder, CO: Geological Society of America; & Lawrence: University of Kansas.

Müller J., 1856: Über neue Crinoiden aus dem Eifeler Kalk. – Monatsberichte der Königlichen Preuss. Akademie des Wissenschaften zu Berlin 1856: 353-356. [Text only.]

Müller J., 1857: Über neue Echinodermen des Eifeler Kalkes. – Abhandlungen der Königlichen Akademie der Wissenschaften zu Berlin, Physikalische Abhandlungen 1856: 243-268. [With illustrations to Müller 1856.]

Prokop R.J., 2000: Výzkum ostnokožců koněpruských vápenců Barrandienu (spodní devon, prag) [Study of echinoderms of the Koněprusy Limestone (Lower Devonian, Prag) in the Barrandian area]. – Zprávy o Geologických Výzkumech v Roce 1999: 71-73. [In Czech.]

Prokop R.J. & Petr V., 1999: *Carpocrinus ornatus* (Angelin, 1878) (Crinoidea, Camerata) from the Silurian of the Barrandian area (Czech Republic). - Journal of the National Museum (Prague), Natural History Series 168: 135-136.

Sandberger G. & Sandberger F., 1856: Die Versteinerungen des rheinischen Schichtensystems in Nassau. Part 8-9: 233-564 + 15 pp. + pls. 34-41. – Wiesbaden: Kreidel & Niedner.

Ubaghs G., 1978: Crinoidea, Camerata. – In: Moore R.C. & Teichert C. (eds.): Treatise on invertebrate paleontology. Part T. Echinodermata 2/2: 408-519. Boulder, CO: Geological Society of America; & Lawrence, KS: University of Kansas Press.

Webster G.D., 2000: Paleobiogeography of Devonian and Carboniferous crinoid faunas of Gondwana. – Records of the Western Australian Museum, Supplement 58: 403-420.