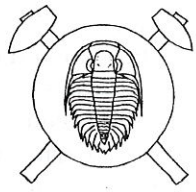
New information on trace fossils of the Early Ordovician of Prague Basin (Barrandian area, Czech Republic)



Nové poznatky o ichnofosiliích spodního ordoviku pražské pánve (Barrandienská oblast) (Czech summary)

(4 plates)

RADEK MIKULÁŠ

Geologický ústav AVČR, Rozvojová 135, 165 00 Praha 6

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Coarse–grained sandstones of the Třenice Formation (Tremadocian) at Jivina locality yielded trace fossils *Bergaueria* aff. *langi* and *Skolithos* ichnosp. *Spirophycus* cf. *bicornis* and ?*Urohelminthoida* ichnosp. are described from clay shales of the Šárka Formation at Praha – Jenerálka locality. Oolitic iron ores at the base of this formation (Ejpovice locality) contain frequent *Bergaueria* aff. *hemispherica*, *Phycodes* ichnosp., *Planolites beverleyensis*. From the facies of fine–grained sandstones with intercalations of clay shales (Velíz locality) derive the finds of *Didymaulichnus* ichnosp. and *Helminthopsis* ichnosp. The Dobrotivá Formation (Dobrotivian Stage) yielded trace fossil assemblages from the Ejpovice locality (rhythmical alternation of sandstones and shales; *Diplocraterion, Bergaueria, Isopodichnus, Phycodes, Planolites, Tomaculum*), from Praha, Pelc–Tyrolka locality (siltstones, greywackes, fine–grained sandstones; *Dictyodora, Zoophycos, Rhizocorallium*), from Praha–Žižkov (*Zoophycos*) and from Praha – I.P. Pavlov's square (*Phycodes*).

Introduction

The present paper is a contribution to the knowledge of the trace fossils and ichnofacies of the Early Ordovician in the Prague Basin. It follows the papers on ichnofossils from the siliceous concretiosns of the Šárka and Dobrotivá Formations (Mikuláš 1991) and on ichnofossils from the Klabava Formation (Mikuláš 1993). New collections and the study of older finds enabled to learn the ichnological characteristics of the Třenice Formation (Tremadocian Stage), and of the less extended facies of the Šárka and Dobrotivá Formations (Lanvirnian and Dobrotivian).

Třenice Formation

The Třenice Formation (Tremadocian) represents the basal formation of the Prague basin. It originated during the transgression of sea to the Central European area after a break of deposition in the Late Cambrian. The Prague basin appeared as a narrow depression very shallow all over its width, limited lateraly by elevations. It lacked deep axial depression, known in Arenigian (Havlíček 1982). The petromict conglomerates and coarse– or medium–grained sandstones prevail in the Třenice Formation, reflecting a very shallow–water marine environment. The basal breccia and conglomerates represent a reworked pre–Tremadocian regolith (Chlupáč – Kukal 1988).

The analysis of benthic, namely brachiopod assemblages of the Třenice Formation was presented by Havlíček (1982). The assemblages determined by him correspond to the benthic assemblage 1 to 2 according to Boucot's (1975) classification (tidal to shallow subtidal zone).

Because of the exceptional position on the base of sediments of the Prague basin, and because of a quite explicit interpretation of sedimentological and zoopaleontological data (Havlíček 1982, Chlupáč and Kukal 1988), finds of trace fossils cannot be expected to contribute to fundamental knowledge of the sedimentary environment of the Třenice Formation. Moreover,the traces are very rare, what is caused also by a rock composition unfavourable for preservation (coarse–grained clastic deposits). I have found only one *Skolithos* from the coarse–grained sandstone at Jivina. The same locality yielded specimens collected by C. Klouček. They are now housed in the National Museum, Prague, and comprise one specimen of *Skolithos* ichnosp. and three specimens of *Bergaueria* aff. *langi* (Hallam, 1960).

This poor trace fossil assemblage corresponds to the conclusions of above mentioned works. *Bergaueria*, interpreted as resting traces (cubichnia) of anemones, is (after Miller and Knox (1985) and additional authors) a foreshore, very shallow–water trace fossil. Environmental sense of *Skolithos*, which gave the name to Skolithos ichnofacies, is similar. A modern characteristics of the Skolithos ichnofacies have been given by Frey and Pemberton (1984) and by Frey, Pemberton and Saunders (1990). According to these authors, the Skolithos ichnofacies indicates the environment of a relatively high phys–