

A DISCOVERY OF *EUDOLATITES DELO*, 1935 (DALMANITIDAE, TRILOBITA) IN THE LIBEŇ FORMATION (LOWER SANDBIAN, UPPER ORDOVICIAN, PRAGUE BASIN, BOHEMIA)

Václav Vokáč¹, Josef K. Moravec² & František Hartl³

¹ Ke Kukačce 21, 312 00 Plzeň, Czech Republic; e-mail: vokacvacl@seznam.cz

² Prehistoric World Images, Srby 56, 335 01 Nepomuk, Czech Republic

³ Glenn Millerweg 55, 1311 RP Almere, The Netherlands

Abstract: A pygidium of *Eudolatites Delo*, 1935 (Dalmanitidae, Trilobita) was found in the quartzose sandstone lithofacies (the Řevnice Quartzite) of the Libeň Formation (Lower Sandbian, Upper Ordovician) exposed in the quarry on the Rumpál hill near Rokycany. The incomplete pygidium designated herein as *Eudolatites* sp. represents the first reported discovery of this taxon in the Libeň Formation. It also represents the stratigraphically oldest occurrence of this genus in the Prague Basin. The accompanying trilobite fauna indicates a shallow-water environment and belongs to the benthic Drabovia-Deanaspis Assemblage (Havlíček and Vaněk 1990) characteristic of the upper parts of the Libeň Formation.

Key words: Ordovician, Bohdalec Formation, Prague Basin, *Eudolatites*

INTRODUCTION

The occurrence of representatives of the genus *Eudolatites* Delo, 1935 in the Prague Basin has been constrained to strata of the Sandbian and lower Katian stages (Berounian regional stage, Upper Ordovician). The hitherto stratigraphically youngest Barrandian species *Eudolatites simaki* Přibyl and Vaněk, 1980 from the Králův Dvůr Formation (Katian Stage, Kralodvorian regional stage) was reassigned by Budil (2001) with some reservation to the genus *Dreyfussina* Hupé, 1956. Therefore, the youngest undoubted representatives of *Eudolatites* in the Prague Basin come from the lower Katian Bohdalec Formation.

The Libeň Formation was hitherto the only stratigraphic unit within the Sandbian of the Prague Basin from which this genus had not been recorded (Budil et al. 2008). In 1999, however, we discovered an incomplete pygidium undoubtedly belonging to *Eudolatites* during field collections from the Řevnice Quartzites (Libeň Fm.) exposed in the large quarry on the Rumpál hill near Rokycany. The unique specimen, described in this report as *Eudolatites* sp., has been deposited in the collections of the West-Bohemian Museum in Plzeň (ZCMP) under the No. JKM-3075.

SYSTEMATIC PART

Dalmanitidae Vogdes, 1890

Eudolatites Delo, 1935

Type species: *Eudolatites angelini* (Barrande 1852), Bohdalec Formation, lower Katian, Prague Basin, Bohemia.

Eudolatites sp. (Fig. 1)

An incomplete holaspid pygidium 15 mm long (ex-sag.) is known. The posterior part of axis with 8 segments is preserved together with the part of the left pygidial lobe. The pygidium was collected as an internal mould of the exoskeleton in brownish-yellow "quartzite" (quartzose sandstone). We do not exclude the possibility that a new species of *Eudolatites* Delo is involved. However, the incomplete and unfavourably preserved specimen does not permit more precise determination. This isolated find in the Libeň Formation is nevertheless highly significant in representing the stratigraphically oldest known occurrence of *Eudolatites* Delo in the Prague Basin. The specimen was discovered on the Rumpál hill in layer No. 8 of Horný (1952), which contains an abundant but mostly fragmentary fauna together with oval clay lithoclasts (galls) or cavities. In contrast to the underlying and overlying strata, layers No.8 and 9 (lower parts) are

richly fossiliferous (Horný 1952, J. Kraft 1982), having yielded 23 trilobite taxa (Table 1).

Table 1. Trilobite taxa occurring in the Řevnice Quartzite (the upper parts of the Libeň Formation) at the locality Rumpál hill (quarry). Abbreviations: vc – very common, c – common, r – rare, vr – very rare.

Trilobite taxon	Occurrence
<i>Dalmanitina</i> (<i>D.</i>) <i>cilinensis</i> Šnajdr, 1956	vc
<i>Kloučekia trixi</i> Šnajdr, 1982	vr
<i>Eudolatites</i> sp.	vr
<i>Zeliszkeia hawlei pandora</i> Šnajdr, 1987	vr
<i>Actinopeltis</i> cf. <i>completa</i> (Barrande, 1872)	r
<i>Actinopeltis</i> sp. (cf. <i>A. spjeldnaesi</i> Hammann, 1972)	r
<i>Eccoptochiloides</i> sp.	vr
<i>Eccoptochile</i> cf. <i>clavigera</i> (Beyrich, 1845)	vr
<i>Placoparia</i> (<i>Hawleia</i>) <i>irregularis</i> Moravec, 1990	vr
<i>Prionocheilus derceto</i> Vaněk, 1995	r
<i>Colpocoryphe grandis grandis</i> Šnajdr, 1956	r
<i>Calymenella krafti</i> Vokáč, 1988	vr
<i>Platycoryphe</i> sp.	vr
<i>Deanaspis parviporus</i> (Příbyl et Vaněk, 1969)	c
<i>Stenopareia</i> (<i>Vysocania</i>) cf. <i>panderi</i> (Barrande, 1852)	c
<i>Zbirovia arata</i> (Barrande, 1872)	r
<i>Ectillaenus?</i> <i>holubi</i> Šnajdr, 1956	vr
<i>Ulugtella?</i> sp.	vr
<i>Cekovia</i> cf. <i>transfuga</i> (Barrande, 1852)	r
<i>Birmanites</i> cf. <i>ingens</i> (Barrande, 1846)	r
<i>Selenopeltis buchii haglasta</i> Šnajdr, 1984	r
<i>Primaspis primordialis oxitron</i> Šnajdr, 1984	r
<i>Heterocyclopyge rutila</i> Hörbinger, 1988	vr



Figure 1. *Eudolatites* sp., Libeň Formation, Řevnice Quartzite, Lower Sandbian, Ordovician, Rumpál hill (quarry) near Rokycany, internal mould of an incomplete pygidium. JKM-3075; scale bar 5 mm.

The faunal association encountered on Rumpál (quarry) belongs to the shallow-water benthic *Drabovia-Deanaspis* Assemblage (*sensu* Havlíček and Vaněk 1990). The trilobite fauna corresponds with that of the upper part of the Libeň Formation, as evidenced by the absence of the species *Placoparia* (*P.*) *petri* Moravec and *Ormathops* (*Mirops*) *inflatus mirus* Šnajdr. Both these species are abundant in the lower parts of the Libeň Formation, for example in outcrops of the Řevnice Quartzite (lower parts): the Čilina hill near Rokycany, the quarry above the D5 highway (Bouček 1940, Moravec 2004); Mýtský vrch (hill), the small quarry (Vokáč and Grigar 1991); Praha-Motol, the railway cutting, lower parts of the succession (Havlíček and Vaněk 1996); Praha-Libeň, quarries below Bulovka (Röhlich 1960); Beřín (village) near Jince (Šnajdr 1956). Conversely, some trilobite taxa in the above list of the Rumpál fauna have not been found in the lower parts of the Libeň Formation, such as *Zeliszkeia hawlei pandora* Šnajdr, *Calymenella krafti* Vokáč, *Platycoryphe* sp., *Primaspis primordialis oxitron* Šnajdr and also the presented *Eudolatites* sp. These taxa probably migrated into the Prague Basin in a stepwise fashion, possibly during a series of transgressive and regressive events in the Darriwilian and early Sandbian (Chlupáč and Kukul 1988). Other localities known to yield the trilobite fauna typical for the upper part of the Libeň Formation are the outcrop U sloupu on the Čilina hill (Moravec 2002) and the fields near the Zbiroh railway station and Kařížská hora (hill) near Kařížek yielding pieces of fossiliferous rock weathered out of the underlying bedrock (Šnajdr 1956).

The shallow-water character of the trilobite association collected on Rumpál (quarry) in beds No. 8 and 9 is supported by the rich occurrence of the species *Dalmanitina* (*D.*) *cilinensis* Šnajdr and the presence of homalonotid and calymenid taxa, viz. *Calymenella krafti* Vokáč, *Platycoryphe* sp. and *Colpocoryphe grandis grandis* Šnajdr, which correspond to the Dalmanitid-Calymenacean Assemblage (*sensu* Fatka and Mergl 2009). These species are very rare (*Dalmanitina* (*D.*) *cilinensis* Šnajdr) or entirely unknown at localities in the dominantly grey-black Libeň Shale facies containing the deep-water *Paterula* Assemblage (Havlíček and Vaněk 1990). This association occurs, for example, at the following localities: Praha-Libeň, excavations in the Kandertova street (Pek and Prokop

1984, Vaněk 1995) and in the former Bečkova brickyard (Vaněk 1960); Praha-Motol, the railway cutting (upper layers of the succession); Drahelčice, Na Židu (Marek 1966). These shales have typically provided a sparse trilobite fauna of mesopelagic taxa *Heterocyclopyge violator* Vaněk and *Girvanopyge* sp., epiplanktic or epibenthic *Corrugatagnostus libeniensis* Vaněk and nektobenthic *Selenopeltis buchi haglasta* Šnajdr. Benthic trilobites have been documented by rare fragments of large specimens of *Birmanites* aff. *ingens* (Barrande), sparse *Dionide* cf. *formosa* (Barrande) as well as very rare *Dalmanitina* (*D.*) *cilinensis* Šnajdr, *Deanaspis parviporus* (Příbyl et Vaněk), *Prionocheilus derceto* Vaněk and, in the lower parts, *Ormathops* (*Mirops*) *inflatus mirus* Šnajdr (cf. Havlíček and Vaněk 1966, 1996).

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