und vor jener des Badens wirksam.
2) Das N-S-streichende und W-fallende synsedimentäre Bockfließer Bruchsystem am W-Rand des Feldes mit zwei Aktivitätsphasen.
3) Das SW—NO streichende postsedimentäre Matzner Bruchsystem im N des Feldes, aus NW- und SO-fallenden Brüchen bestehend, nach dem Pannon entstanden.

ADDITION TO STRATIGRAPHY OF BORINKA LIMESTONE IN THE HAINBURG MOUNTAINS

Anna Kullmanová, Geologický ústav Dionýza Štúra, Bratislava, Czechoslovakia

The Borinka limestone is considered as a lithostratigraphic unit characteristic of the Malé Karpaty Mts. with stratigraphic assignment to the Liassic.

It is found in the SW and S part of the Malé Karpaty Mts. where it represents the Tatric unit. The most extensive occurrence of the Borinka limestone is observed in the area of the village Borinka (Propadlé valley) and continues in SW direction to the southernmost spur of the Malé Karpaty Mts. The Hainburg Mts. on Austrian territory are prevailingly built up of carbonates of Middle Triassic age. The lithological character of Middle Triassic carbonates occurring here is identical with carbonates found in the area of the villages Devín and Borinka in the underlier of the Borinka limestone. The carbonates found here have stratigraphic assignment to the Triassic.

The rock filling and stratigraphic assignment of the Borinka limestone changed in the course of several decades. Under the term Borinka limestone various lithological types of limestones were included (grey limestones, dolomitic limestones, laminated limestones of brecciated texture, organodetrical limestones) with assignment to Triassic — Liassic age. The works of M. Maheľ (1986), D. Plašienka (1987), M. Mišík (1986) and A. Kullmanová (1971, 1988) have contributed to solution of the problem of age of the Borinka limestone. D. Plašienka (1987) designates with the name Borinka unit the complex of Mesozoic sedimentary rocks of the Tatric unit in the Malé Karpaty Mts. According to this author the term Borinka unit represents a lithostratigraphic as well as tectonic unit. On the contrary, A. Kullmanová (1988) redefines the lithostratigraphic unit with the name Borinka limestone. On the basis of the results of lithological investigation the Borinka limestone contains thick-layered clastic, mostly organoclastic limestones with the stratigraphic range Lotharingian — Carixian. The macrofauna (lamellibranchs, brachiopods and belemnites) was studied at the locality Borinka (road cut of the Propadlé valley) and at the locality in the village Devín (castle rock and SW slope of elev. p. Devínska Kobyla).

The superposition relations of the Borinka limestone to the underlier and overlier were pursued in surficial outcrops and boreholes. In the underlier of the Borinka limestone dark — grey compact limestones, dolomitic limestones often with quartz spherolithes — Gutenstein limestones, grey dolomites and dolomitic limestones of brecciated texture are found. Stratigraphic assignment of the mentioned carbonates to the Middle Triassic is proved by algae (outcrop S slope of Devínska Kobyla) and foraminifers (Propadlé valley, outcrop 70 A).

At the outcrop in the Propadlé valley in the overlier of the Borinka limestone grey marly shales, sandstones — the Korenec formation (D. Plašienka, 1987) or Somár breccias are found. In the area of the village Devín, in the overlier of the Borinka limestone, grey marly shales with belemnites are found (railway cut Devínska Nová Ves).

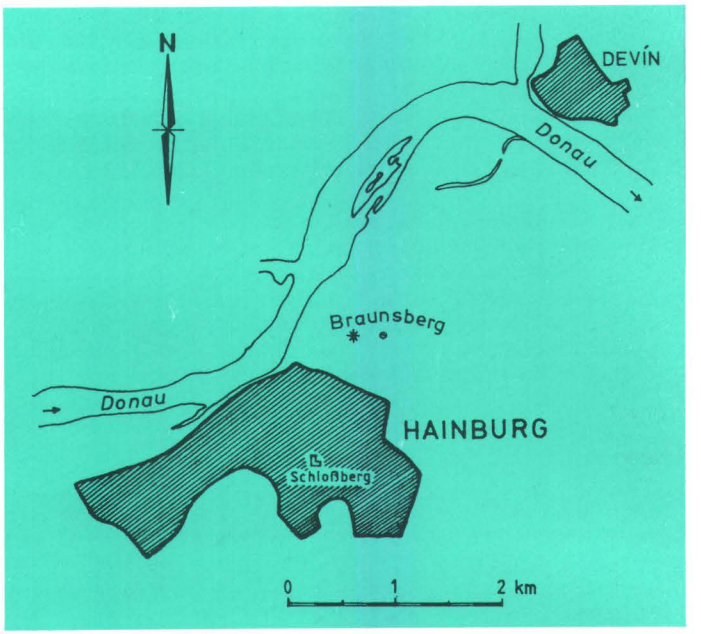
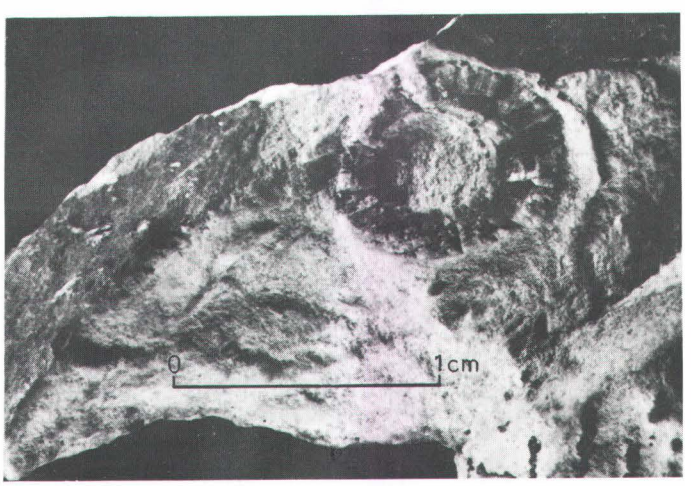


Fig. 1: Schematic situation of occurrence of belemnites at the locality of Braunsberg.

* Belemnite occurrences.

The Hainburg Mts. on Austrian territory are prevailingly built up of dark-grey micrite limestones, dolomitic limestones of brecciated texture and grey fine-grained organodetrical limestones. The Austrian geologists designate the above mentioned lithofacies with the term Borinka limestone. The organoclasts present in limestones in the Hainburg Mts. are represented by determinable crinoids, which enable to stratify the investigated rocks into the Middle Triassic, Anisian (Kristan-Tollmann-Spendlingwimmer, 1987). On our territory we observe identical rocks in the Propadlé valley (borehole 70 A) rock below castle ruins). The rocks studied at the mentioned locallity are of Middle Triassic age. In micrite matter Trochammina almtalensis Koehn-Zaninetti; Diplotremmina sp., Glomospira sp., Agathammina austroalpina Kristan-Tollmann, Meandrospira sp. are present. Similarly the southern and southwestern slope of Devínska Kobyla is bult up of the mentioned lithofacies. The present Dasycladacea sp. and Physoporella disita (Gümbel) enable to stratify the investigated carbonates as Anisisan (M. Mišík 1986).

Fig. 2: Belemnites from joint filling, western slope of Braunsberg.



The Borinka limestone (redefined lithostratigraphic unit) is characterized by dark-grey thick-layered clastic, prevailingly organoclastic limestone, which is found in the Propadlé valley (village Borinka). The Middle Liassic age of the Borinka limestone is proved by macrofauna. Lamellibranchs were found in dark-grey organoclastic limestones in the Propadlé valley — cut of the road to the cottage Košariská (Kochanová M. in Maheľ M., 1962). Brachiopods were investigated from the outcrop west of the rock below the Borinka castle (Pevný J. in Maheľ M., 1962). Belemnites determined by Činčurová M. (in Maheľ M., 1962) come from the locality mentioned.

In the area of the village Devín the Borinka limestone occurs in the upper part of the Devín castle rock and at the abandoned quarry at the western slope of Devínska Kobyla. Fragments of ammonites from the group Arietitidae are mentioned from the locality Devínska Kobyla by Mišík M. (1986).

The Borinka limestone in the Hainsburg Mts. is found in joint fillings of dolomitic limestones with brecciated texture. At the outcrop west of Braunsberg in joints of Middle Triassic brecciated dolomitic limestones belemnites are found (figs. 1,2).

It results from the mentioned that the masses of grey limestones, dolomitic limestones and brecciated limestones in the Hainburg Mts. are of Middle Triassic age. They are identical with the Middle Triassic limestones, dolomitic limestones with quartz spherolithes and brecciated limestones in borehole 70 A in the Propadlé valley and at outcrops at the S slope of Devínska Kobyla, which form the underlier of the Borinka limestone. The Borinka limestone has greatest thickness in the Propadlé valley (about 200 m) and in southern direction its thickness diminishes. At outcrops in the village Devín it attains thickness of about 60 m, in the Hainburg Mts. it is found in form of relicts in joint filling.

References:

Buday T. — Cambel B. — Maheľ M. et al. (1962): Vysvetlivky k prehľadnej geologickej mape ČSSR 1 : 200 000, list Wien-Bratislava, 1—247, Geofond, Bratislava.

Kristan-Tollmann E.-Spendlingwimmer R. (1978): Crinoiden im Anis (Mitteltrias) der Tatriden der Hainburg Berge (Niederösterreich) — Mitt. Österr. Geol. Ges. B. 68, 59—77, Wien.

Kullmanová A. (1971): Litofaciálny výskum devínskych a borinských karbonatických hornín v obalovej jednotke Malých Karpát, Archív GÚDŠ, Bratislava.

Maheľ M. (1961): Geologická stavba Malých Karpát. Sjazdový sprievodca, 78—79, GÚDŠ, Bratislava.

Maheľ M. (1986): Geologická stavba československých Karpát, 1—503, SAV, Bratislava.

Mišík M. (1986): Sedimentologisches und fazielles Studium der Trias und Lias der Devín — Entwicklung (Malé Karpaty). Acta geol. et geographica Univ. Comenianae. Geologica 41, 67—91, Bratislava.

Plašienka D. (1987): Litologicko-sedimentologický a paleotektonický charakter borinskej jednotky v M. Karpatoch. Mineralia slov. 13, 3, 217—230, Bratislava.

Abstrakt

Borinský vápenec, redefinovaná litostratigrafická jednotka liasového veku, vystupuje na JZ a J svahoch pohoria Malé Karpaty, kde predstavuje charakteristický litologický člen tatrickej jednotky pohoria Malé Karpaty.

Najväčšieho plošného rozšírenia dosahujú borinské vápence v oblasti obce Borinka (dolina Propadlé). Južnejším smerom borinský vápenec sa vyskytuje v oblasti obce Devín (J a JZ svah k. Devínska Kobyla), kde má menšie plošné rozšírenie.

Západný svah Hainburských vrchov je budovaný prevažne tmavosivými dolomitovými vápencami brekciovitej štruktúry a dolomitami. Totožné horniny sú v oblasti obce Borinka a Devín, kde tvoria podložie borinského vápenca.

Borinský vápenec (detritický a organodetritický vápenec) sa v Hainburských vrchoch (pravdepodobne v dôsledku erózie) vyskytuje vo výplni puklín strednotriasových dolomitových vápencov brekciovitej štruktúry. Liasový vek je potvrdený výskytom belemnitov. V odkryve Z od kóty Braunsberg, vo výplni puklín tvorenej organodetritickými vápencami, sa vyskytujú úlomky belemnitov a krinoidové články.

Zusammenfassung

Der Borinka-Kalk, eine redefinierte lithostratigraphische Einheit liassischen Alters, tritt an den SW- und S-Hängen des Gebirges der Kleinen Karpaten auf, wo er ein charakteristisches lithologisches Glied der tatrischen Einheit darstellt.

Die größte flächenmäßige Verbreitung erreicht der Borinka-Kalk im Raume der Ortschaft Borinka (Propadlé-Tal). In südlicher Richtung kommt der Borinka-Kalk im Raume der Ortschaft Devín (S- und SW-Hang der K. Devínska Kobyla) vor, wo er von geringerer flächenmäßiger Ausdehnung ist.

Der Westhang der Hainburger Berge ist überwiegend von dunkelgrauen dolomitischen Kalken von brekzienartiger Struktur und Dolomiten aufgebaut. Dieselben Gesteine sind im Gebiete der Ortschaften Borinka und Devín, wo sie das Liegende des Borinka-Kalkes bilden.

Der Borinka-Kalk (ein detritischer und organodetritischer Kalk) kommt in den Hainburger Bergen (wahrscheinlich infolge der Erosion) in der Spaltenfüllung von mitteltriassischen dolomitischen Kalken brekzienartiger Struktur vor. Das liassische Alter is durch Vorkommen von Belemniten bestätigt. Im Aufschluß W der K. Braunsberg, in einer von organodetritischen Kalken gebildeten Spaltenfüllung, kommen Bruchstükke von Belemniten und Krinoidenstielglieder vor.

"TISOVEC LIMESTONE" — AN EXAMPLE OF THE PROBLEMS OF LITHOSTRATIGRAPHIC CORRELATION BETWEEN THE NORTHERN CALCAREOUS ALPS AND THE CENTRAL WEST CARPATHIANS

Krystyn, L.[1], Lein, R.[2], Mello, J.[3], Riedel, P.[4] & Piller, W.[1]
1 Universität Wien, Inst. f. Paläont., Wien, Austria
2 Universität Wien, Inst. f. Geol., Wien, Austria
3 Geologický ústav Dionýza Štúra, Bratislava, Czechoslovakia
4 Universität Erlangen, Inst. f. Paläont., Erlangen, Federal Republic of Germany

1. Introduction

The unification of stratigraphic nomenclature is an important prerequisite for the coordination of geological events on an international scale. This is especially true for the Alps and the Carpathians. The similarities in facies and geodynamic development have been hidden by a mass of local names. Thus our joint goal must be to work out the similarities and differences in stratigraphy and lithofacies of this large area. This is only possible using an accepted and convenient stratigraphic nomenclature. One of the prerequisites for such a venture is the detailed review of the current lithostratigraphic terminology. The following new investigation of the Tisovec Limestone in its type locality is to be seen in this respect. This unit was set up in the central West Carpathians and used later in the Calcareous Alps. It seems, however, that this term has been used in a different sense in both regions. One part of the problem is the different use of the term „Dachstein Limestone" in both regions. In the West Carpathians this term has been used primarily for the Upper Norian — Rhaetian lagoonal facies of the Dachstein Formation.

2. Historical outline: the installation of the term "Tisovec Limestone" in the Central West Carpathians

The existence of unnamed light-grey massive limestones of Upper Triassic age in the southernmost zones of the Western Carpathians was known for a long period (STÜRZENBAUM 1879, UHLIG 1903, ZOUBEK 1932, and others; compare review in ANRUSOV 1959). It was supposed that parts of these limestones were Carnian in age, what was