— Calpionella zone (Early-Middle Berriasian), with the Alpina, Ferasini and Elliptica subzones

— Calpionellopsis zone (Late Berriasian-basal Valanginian), comprising the Simplex, Oblonga, and Murgeanui subzones

— Calpioellites zone (Early Valanginian pp), with the Darderi and Major subzones

— Tintinnopsella zone (Late Valanginian - Hauterivian)

The Tithonian-Berriasian boundary is placed at the base of the Calpionella zone, corresponding with the lower limit of the Jacobi-Grandis (ammonite) zone. In the same successions, the following nannofossil zones could be identified (Melinte, 1991):

— *Conusphaera mexicana* (Early Tithonian pp), corresponding with the Chitinoidella zone

— *Polycostella beckmanni* zone (Early Tithonian pp-Late Tithonian), covering the Chitinoidella (uppermost part), Praetintinnopsella and Crassicollaria zones

— *Nannoconus steinmanni* zone (Early Berriasian pp), correlating with the Alpina subzone

— *Micrantholithus obtusus* zone (Early Berriasian pp-Later Berriasian), including the intervals of the Ferasini, Elliptica, and Simplex subzones

— *Stradneria crenulata* zone (Late Berriasian pp-Early Valanginian pp), comprising the intervals of the Oblonga, Murgeanui, and the lower part of the Darderi subzones

— *Speetonia colligata* zone (Early Valanginian pp-Late Valanginian pp), corresponding with the upper part of the Darderi subzone and the Major subzone, as well as the lower (pp) part of the Tintinnopsella zone

— *Calcicalatina oblongata* zone (Late Valanginian pp-Early Hauterivian)

— *Lithraphidites bollii* zone (Early Hauterivian pp-Late Hauterivian)

The last two zones correspond with the middle and upper parts of the Tintinnopsella zone.

Calpionellid and nannofossil evolutive events, especially the first appearance of species, have been used for establishing this zonation. The biochronologic units are therefore essentially interval zones.

MARINE CRETACEOUS SEDIMENTS IN SOUTH MORAVIA

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On the SE slopes of the Bohemian Massiv, marine regression began in the Lower

Tithonian and culminated in the early Lower Cretaceous. It influenced the platform deposition in south Moravia. Heterogeneous Ernstbrunn limestones, which have been studied in borehole sections, are the only record of this regressive cycle. There is no evidence for uninterrupted Upper Jurassic-Lower Cretaceous shallow water sequences. The reason for this lies in the paleogeographic situation. Complete sequences of platform carbonates were deposited only locally, namely in morphological depressions. Furthermore, large parts of the carbonate platform were denudated in the Lower Cretaceous.

There is micropaleontological evidence for an early Lower Cretaceous (Upper Berriasian - Lower Valanginian) sedimentation. Upper Albian sediments have yielded redeposited calpionellids and cadosids, i.e. *Calpionellopsis simplex* (CLOM), *C. oblonga* (CADISCH), *Tintinnopsella longa* (COLOM), *Calpionella* sp., and *Cadosina minuta* BORZA. No extraclasts have been found which provide information about these early Lower Cretaceous rocks. It is assumed that they were of limited thickness, had a micritic texture and were relatively poorly lithified when they were exposed by the progressive regression.

More evidence exists for the late Lower Cretaceous from boreholes. Upper Albian black to greyish-black organodetrital-organogenic muddy limestones (rudstones to floatsones) have been penetrated by the borehole Nové Mlyny 2 in South Moravia, approximately 2 km SE of the Austrian border. These sediments have been named Oncoid beds by the author. The total thickness of the Oncoid beds is maximally 20 m. There are two different facies - girvanellous limestones and oyster limestones. Biomicrorudites of the Oncoid beds have a clayey to micritic muddy matrix. This matrix contains rock-forming blue-green algae nodules (oncoids as large as 3 cm in diameter) and oyster fragments (mostly Ostrea sp.). Less frequent are bryozoans, sponge fragments, echinoderms, worm tubes, gastropods and fragments of codiaceans. Foraminifera such as *Dorothia oxycona* (REUSS), *Trocholina* sp., *Nodosaria* sp., *Patelline* sp., and *Lenticulina* sp., have been recorded. Autochthonous microfossil assemblages consists of *Cadosina fusca* WANNER, *C. fusca ciescynica* NOWAK, *C. oraviensis semiradiata* olzae (NOWAK), Bonetocardiella conoidea (BONET), *Calcisphaerula innominata*, BONET, adn *Pithonella ovalis* (KAUFMANN). In addition, pyrite, organic substances, very rare silty to sandy terrigenous components, autochthonous gauconite grains and rare phosphate nodules occur. The Oncoid beds were deposited in a wave-protected environment between the intertidal zone and a water depth of 30 m. At least during high tide and storm periods this environment was in communication with the open sea.

Some boreholes revealed the Upper Cretaceous (Cenomanian - Campanian) glauconitic sand sequence of the Klement Formation. In unconformably overlies the Jurassic and Upper Albian carbonates and is up to 205 m thick. Greyish-green to grey fine-grained sandstones containing sponges form the transgressive basement. Upwards, they pass gradually into dark Pithonella marlstones. These facies dominate the lower part of the sequence. Bioturbations and sedimentary structures related to water movements are characteristic for both facies. In addition to abundant sponge remains, the basal sandstone less commonly contains the debris of echinoderms and bivalves. In the Pithonella marlstones, planktonic elements (foraminifera, calcisphaerulids, radiolarians) prevail.

The third facies is developed in the uppermost part of the Klement Formation. In consists of light green to ligth greyish-green sandy foraminiferal limestones. They have hitherto only been found in boreholes as gragments within the Zdanice flysh.

The microbiostratigraphy of the Klement Formation is based on foraminifera and calcisphaerulids: *Globotruncana* cf. *cretacea* (d' ORDIGNY), *Globigerinelloides aspera* (EHRENBERG), *Heterohelix globulosa* (EHRENBERG) *H. lata* (EGGER), *Hedbergella* cf. *monmouthensis* (OLSON), *H.* cf. *delrioensis* CARSEY, *Praeglobotruncana* cf. *turbinata* REICHEL, *P.* cf. *helvetica* BOLLI, *Rugoglobigerina* sp. *Stilostomatella* sp., *Bonetocardiella conoidea* (BONET), *Clacisphaerula innominata* BONET, *C. innominata lata* ADAMS, KHALALI & SAID, *Benetocardiella* gr. *betica* (AZEMAT), *Pithonella perlonga* ANDRI, *P. ovalis* (KAUFMANN), *P. sphaerica* (KAUFMAN). The cadosinid and stomiosphaerid assemblages contain *Cadosina fusca* WANNER, *C. fusca cieszynica* NOWAK, *Crustocadosina semiradiata olzae* (NOWAK), *Colomispaera modica* REHANEK, and *Stomiosphaera leporis* REHANEK.

The Klement Formation was deposited in an euphotic environment of the shallow neritic zone of the open shelf. It was partly epineritic with a maximal water depth of 50m.

The following conclusions can be drawn on the Cretaceous paleogeography of the southeast slope of the Bohemian Massiv:

1. Although the marine regression was rather advanced in early Cretaceous times, sediments were depositad in an environment which communicated with the open sea.

2. Upper Albian sediments were deposited after a stratigraphic hiatus. The sea extended from the Alpine - Carpathian geosyncline towards the west and northwest. It transgraded over the platform margins and extended as far as the northern vicinity of Brno.

3. A widespread Cenomanian transgression was directed westwards. Its sediments cover the Jurassic and Lower Cretaceous basements unconformly. The Upper Cretaceous lithostratigraphic units are arranged in narrow SW-*NE directed zones which cross denudated areas of the Jurassic basement.*