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# A B S T R A C T S



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The Late Tithonian index-species *Chitinoidea boneti* Doben, *Ch. Doheni* Borza, *Praetontinopsella andrusovi* Borza, *Crassicolaria brevis* Remane, *Cr. Colomi* Doben, *Tintinopsella remanei* Borza cease to exist here and they do not pass into the Late Cretaceous.

Index-species of the Early Berriasian *Calpionelloidea* complex *Remaniella dadayi* (Knauer), *Calpionellopsis oblonga* (Cadisch), *Calpionellopsis simplex* (Colom), *Calpionellites darderi* (Colom), *Lorenziella hungarica* Knauer et Nagy, *Amphorellina lancolata* Colom, *L. subacuta* Colom, *Coxiellina berriassiensis* Colom are not recorded anywhere in underlying deposits.

Based on the index-complexes for the adjacent Upper Jurassic-Lower Cretaceous sediments of the Southern slope of the Greater Caucasus, standard tintinid zones are developed (Todria, 2005): *Crassicolaria* (A) corresponds to the Late Tithonian, *Calpionella* (B,C) – to the uppermost Upper Tithonian and Lower Berriasian, *Calpionellopsis* (D) corresponds to the Upper Berriasian and the lower part of the Lower Valanginian, *Calpionellites* (E) – to the middle and upper parts of the Lower Valanginian and lower part of the Lower Hauterivian.

## PALEOBIOGEOGRAPHICAL ZONING OF THE EARLY JURASSIC MARINE BASINS OF THE CAUCASUS BY AMMONITES

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In the Early Jurassic, the Caucasian marine basin was a part of the Mediterranean province. In this geologic time interval, the geographic differentiation of ammonite fauna is feebly marked at the generic level and is manifested mainly at the species level. This fact complicates defining of paleobiogeographical units of lower rank. Despite the above mentioned, according to the detailed biofacies analysis in the Caucasus we have established four paleobiogeographic regions: 1. Lesser Caucasus (LC); 2. Transcaucasian intermountain area (TIA)

with the Dzirula crystalline basement; 3. Southern slope of the Greater Caucasus (SSGC); 4. North Caucasus (NC). In the LC area in the Sinemurian Age existed a shallow marine basin with normal temperature and salinity; it was favorable for intensive development of ammonite fauna. Here are established the Mediterranean: *Partschiceras*, *Eoderoceras* and *Epideroceras*, Middle European – *Camavartites*, *Arietites*, *Coroniceras*, *Paracorniceras* and *Metophioceras*; here also are fixed *Vermiceras*, *Arnioceras*, *Oxynoticeras*, *Echioceras*, *Microderoceras* observed in both provinces. In the Pliensbachian the fauna is poorer and is represented by the Mediterranean *Arietoceras*, *Liparoceras*, *Pleuroceras* and the Middle European *Tropidoceras*. A boreal genus *Amaltheus* appears for the first time. Toarcian ammonite complexes belong predominantly to the Mediterranean *Calliphylloceras*, *Peronoceras*, *Harpoceras*, *Phymatoceras* and the Middle European *Grammoceras*, *Pseudogrammoceras*, *Dumortieria*, *Leioceras*, *Costileioceras* and *Ludwigia*. The Middle European ammonites migrated to the territory of the Lesser Caucasus, apparently from the Central Europe along the northern margin of Neotethys via Northern Anatolia. In the Sinemurian Age the sea, invading from the LC throughout the wide strait, situated in the TIA, reaches the Dzirula salient. Ammonitic fauna is much poorer here and represented only by three genera – *Vermiceras*, *Arnioceras* and *Microderoceras*. Pliensbachian taphocoenosis of ammonites comprise the Mediterranean *Juraphyllites*, *Calliphylloceras*, *Arietoceras*, *Fuciniceras*, Middle European – *Cruciloboceras*, *Phricodoceras*, *Uptonia*, *Polymorphites*, *Acanthopleuroceras*, *Tropidoceras*, *Pseudogrammoceras* and a boreal genus *Pleuroceras*. The Toarcian ammonitic complex of the Dzirula salient (TIA basin) is rather rich. Here appear the Mediterranean *Calliphylloceras*, *Lytoceras*, *Harpoceras*, *Phymatoceras*, *Hammatoceras*, *Peronoceras*, *Catacoeloceras*, *Pseudolioceras*, *Polyplectus*, *Præhapploceras* and the Middle European *Hildoceras*, *Grammoceras*, *Pleydelia*. These ammonites migrated via North Anatolia, passing the LC basin by the strait in the region of TIA. In the Sinemurian, the sea advanced to the north and invaded the territory of the SSGC region, and in the basin settled a rich ammonitic complex (42 species) belonging to the genera observed in both Mediterranean and Middle European provinces: *Phylloceras*, *Partschiceras*, *Juraphyllites*, *Arietites*,

*Coroniceras*, *Vermiceras*, *Arnioceras*, *Euasteroceras*, *Oxynoticeras*, *Gleviceras*, *Radstockiceras*, *Echioceras*, *Paltechioceras*, *Leptechioceras*. In the Pliensbachian the Mediterranean *Partshiceras* and *Audaxhytoceras*, *Arietoceras*, Middle European *Zetoceras*, *Tropidoceras*, *Uptonia* and boreal *Amaltheus* are fixed. In the Toarcian the ammonites reached maximum of their flourishing. Here are observed the genera of both provinces: the Mediterranean *Calliphyloceras*, *Partshiceras*, *Harpoceras*, *Hammatoceras*, *Planammatoceras*, and Middle European *Hildoceras*, *Polyplectus*, *Grammoceras*, *Pseudogrammoceras*, *Dumortieria*, *Pleydellia*. In the Toarcian the Middle European representatives of ammonites penetrated into the marine basin of SSGC. In the Toarcian age, ammonites reached blooming peak. Here are observed the Mediterranean genera – *Calliphyloceras*, *Partshiceras*, *Harpoceras*, *Hammatoceras*, *Planammatoceras*, as well as the Middle European – *Hildoceras*, *Polyplectus*, *Grammoceras*, *Pseudogrammoceras*, *Dumortieria*, *Pleydellia*. Middle European representatives of ammonites in the Toarcian penetrated the marine basin of SSGC, apparently through the Carpathians and the Crimea. In the NC region the ammonite complex of the Sinemurian age consists of the genera typical for Middle European and Mediterranean provinces: *Arietites*, *Oxynoticeras*, *Echioceras* and *Microderoceras*. In the Pliensbachian are recorded the Mediterranean *Arietoceras*, Middle European *Tragophylloceras*, *Androgynoceras* and boreal *Amaltheus* and *Pleurocera* as well. In the Toarcian age amount of genus and species increased. Here occur the Middle European *Hildoceras*, *Grammoceras*, *Pseudogrammoceras*, *Dumortieria*, *Pleydellia* and the Mediterranean *Peronoceras*, *Dactylioceras*, *Harpoceras*, *Phymatoceras*, *Haugia* and *Brodieia*. Middle European Early Jurassic ammonoidea migrated to the NC marine basin passing the Southern European seas, directly through the Danish-Polish and pre-Dobroudja depressions, and the Mediterranean fauna migrated through the Balkans, the Carpathians and the Crimea. There also was a wide connection and fauna exchange between the Early Jurassic seas of the NC and SSGC.