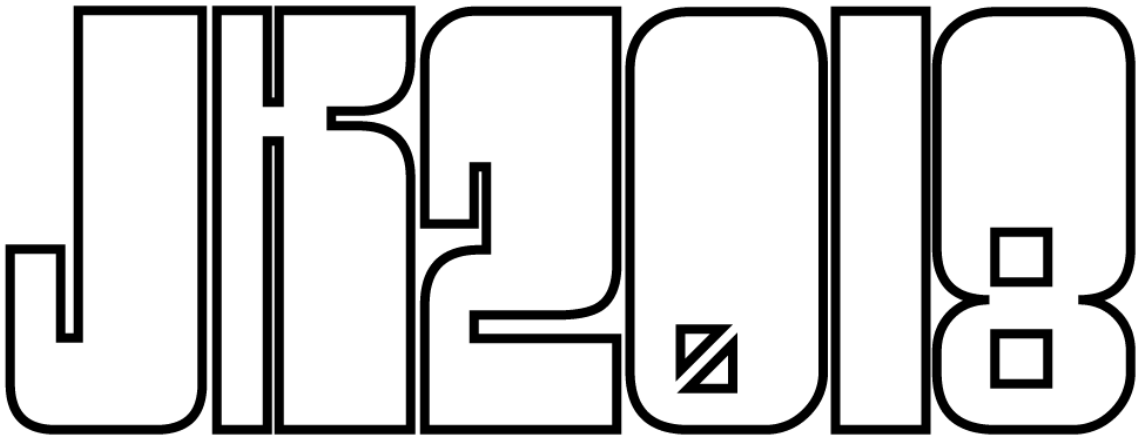

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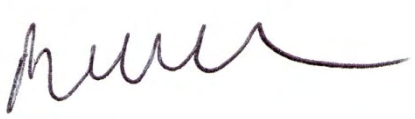
FOREWORD

The **JK2018** International Symposium focuses on a ca. 20 My interval of time spanning the Tithonian – Berriasian / Volgian – Ryazanian / – Valanginian interval (eventually overlapping slightly its lower and upper boundaries) in the Tethys area, as well as in the Panthalassa, Boreal and Austral regions.

This meeting is intended to bring together people with interests in the transition period spanning the latest Jurassic to the earliest Cretaceous times and to feature disciplines covering the many aspects of stratigraphy (litho-, bio-, magneto-, chemo-, cyclo-, sequence), as well as sedimentology, paleontology, paleogeography and global tectonics, at all scales, from the SEM – Scanning Electron Microscopy – to basin analyses.

The meeting is hosted by the **Muséum d'Histoire naturelle de Genève** and I take this opportunity to acknowledge the support provided by Jacques AYER (Director of the Museum), Dr Nadir ALVAREZ (Head of the 'Research and Collections' Unit), Dr Lionel CAVIN (Curator, Editor-in-Chief of *Revue de Paléobiologie*), their staff and colleagues, among whom are Dr Christian MEISTER, Dr André PIUZ, and Dr Éric MONTEIL. The organizing committee, which also includes Prof. Rossana MARTINI, Prof. Jean J. CHAROLLAIS, and Prof. Andreas STRASSER, thanks the 15 national and international organizations that agreed to be our scientific partners.

This abstract volume comprises 59 contributions, which is already an achievement. More than 70 participants representing at least 25 nationalities are attending and we wish you will all enjoy contributing to this stimulating meeting and to the debates.



Bruno GRANIER
President of JK2018

Note: In order to have fair, unbiased, and open discussions on the system boundary during the **JK2018** meeting and to give all sides the possibility to defend their views, it was suggested that, in both abstracts and figures, the author(s) should refrain as much as possible from using "JK system boundary", and should preferably refer to stage boundaries instead. We did not censor any abstract. Accordingly, you will find some abstracts stating that the system boundary equates to the Tithonian-Berriasian boundary (more specifically the base of the acme /abundance/ zone of *Calpionella alpina*), which was not the conclusion of the meeting.

41. Singular aragonitic foraminifers from the Berriasian of Bosnia

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The use of aragonite in the construction of foraminiferal tests has been identified in both tubular (*e.g.*, Involutinida, Tubulastellidae) and multichambered, benthic (*e.g.*, Robertinina) and planktonic (Favusellidae) forms. All aragonitic foraminifers that have been described so far have shown a test made up of aragonite needles presenting a c-axis more or less perpendicular to the wall surface. We here illustrate for the first time three aragonitically-preserved fossil foraminifers, the tests of which are made of more or less randomly arranged bundles of aragonite needles.

These new multichambered foraminifers have been found in exceptionally well-preserved Berriasian levels of Bosnia. Due to their metastable nature, aragonitic tests are extremely rarely preserved in the fossil record. However, based on morphological and structural characteristics, we suspect that the newly described group may have a long but hidden evolutionary history. Morphologically comparable foraminifers have been found in a moderate state of preservation in the Jurassic and in the Triassic. The discovery of a new wall-type in Mesozoic aragonitic foraminifers questions the long-accepted monophyly of the order Robertinida.

42. Panboreal and Boreal-Tethysian correlation of the Volgian Stage by ammonites

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The Volgian Stage, terminal stage of the Jurassic System, has been introduced by S.N. Nikitin (1881) for European Russia but during the last decades it is became widely used throughout the Panboreal Superrealm. Strong restrictions of latitudinal faunal immigration between different basins in the latest Jurassic lead to significant problems in Boreal-Tethysian correlation and also to a high level of provinciality within superrealms. However, although zonal and infrazonal successions applied for different Boreal areas sometimes lack any similarities in zonal index species (good examples are successions of NW Europe, the Russian Platform and Northern Siberia, which have no common zones and subzones), substage boundaries are very well correlated throughout the Panboreal Superrealm. The lower boundary of the Volgian Stage coincides with the appearance of key virgatitid and dorsoplanitid genera (*Ilowaiskya* and *Virgatosphinctoides* respectively), which show independent disappearance of lappets, typical for their ancestral taxa. In the Subboreal and Submediterranean areas this boundary is also marked by the extinction of aulacostephanids (Rogov, 2010; Gallois, 2011). The lower boundary of the middle Volgian substage is marked by important evolutionary events (appearance of *Zaraiskites*, *Pavlovia* and *Dorsoplanites*) as well as by palebiogeographic changes, which

lead to very wide distribution of early dorsoplanitids throughout the Boreal areas. In spite of strong differences in zonal and infrazonal subdivision of the middle Volgian, its upper boundary can be easily traced, being marked by evolutionary turnover (appearance of *Craspedites* and Craspeditinae subfamily, which were common in the nearly all basins except NW Europe), and slightly postdating the late middle Volgian crisis (ROGOV, 2013) marked by significant decreases of shell size, weakening of ribbing and changes in suture line patterns in Boreal ammonoid lineages as well as by a long-term drop of Boreal ammonoid diversity. The boundary between the Volgian and Ryazanian stages cannot be precisely identified in the Russian Platform, the type region of these units, due to a regional unconformity, but it is easily traceable in other Boreal areas. It is marked by the disappearance of *Volgidiscus* and the appearance of typical Ryazanian genus *Praetollia*.

Boreal-Tethysian correlation of the Volgian Stage with the Tithonian and lowermost Berriasian is only partially based on occurrences of Submediterranean ammonites in Subboreal regions and Subboreal *Gravesia* in Submediterranean areas. These ammonite records provide a good background for precise correlation of the lower Volgian in its type area with the Tithonian succession (ROGOV, 2010). Above the lower Volgian, biogeographic segregation of ammonite faunas became very strong and the lack of any common ammonites in the Boreal and Tethysian areas prevents usage of these fossils for correlational purposes. The uppermost part of the middle Volgian Scythicus Zone in Poland contains calpionellids typical for the middle-late Tithonian Boneti Subzone of the Chitinoidella Zone (PSZCZÓŁKOWSKI, 2016). The uppermost middle Volgian and upper Volgian could be correlated with the Tethysian succession only by means of magnetostratigraphy (HOUŠA *et al.*, 2007; BRAGIN *et al.*, 2013; SCHNABL *et al.*, 2015). The lower boundary of the Volgian Stage is the only level which could be easily traced in both the Boreal and Tethysian areas by ammonites, but substage boundaries of the Volgian Stage lie far from well-correlated levels in the Tithonian Stage and vice versa. Although diverse and numerous occurrences of Tethysian-derived ammonites in the Ryazanian Stage of the Russian Platform are have been well-known for more than one hundred years, their taxonomy and correlational potential still remain matters of controversies.

This study has been supported by Program of the Presidium of RAS no. 19.

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43. Stratigraphy and lithologic characterization of the Jurassic-Cretaceous boundary across the Arabian Plate

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The Jurassic-Cretaceous boundary in the Arabian Plate varies from conformable to unconformable in different parts of the basin. The boundary was the subject of early investigations that were associated with the exploration for hydrocarbons in the Middle East during the first half of the last century. Both Jurassic and Cretaceous strata were primary exploration targets and were subjected to extensive stratigraphic and paleontological studies in both outcrops and the subsurface. The first work on the Jurassic - Cretaceous boundary was the identification of the Jurassic ammonites in the mountains of Kurdistan, northern Iraq which was adapted and used later in different parts of the world (SPATH, 1950). Presently, there are three stratigraphic configurations that describe the contact across the Arabian Plate that extend from northern Iraq to Oman. In the deeper parts of the basin, such as northeastern Iraq, it is believed that the sedimentation was continuous across the boundary, as represented by the Chia Gara Formation (middle Tithonian - Berriasian). The thickness of this formation is around 232 m and it consists of radiolarian, ammonite-bearing, thin-bedded limestone and bituminous shale. Ammonite zonation was carried out on the formation outcrops by the geologists of the oil companies working in the region in the middle of the last century. The major ammonites identified include *Berriasella calisto* ORBIGNY and *Berriasella carpathica* ZITTEL. In the subsurface, where it is difficult to get full ammonite samples, tintinnids and calpionellids were used for dating the strata encountered. Three zones have been recognized. These are, on the generic level, the Tithonian *Calpionella* zone; the lower Berriasian *Tintinnopsella*/*Calpionella* zone and the upper Berriasian *Tintinnopsella* zone, which indicate that sedimentation was continuous across the Jurassic-Cretaceous boundary in the subsurface also. This part of the basin is called the Permeant Basin, or Kirkuk Embayment in Iraq and Garau Basin in western Iran (AQRAWI *et al.*, 2010).

On the shallower, shelfal areas of the Plate, the Gotnia Basin was the dominant sedimentation location during the middle Tithonian. At the center of the basin, sediments were of a condensed, low-stand nature and consist of organic and evaporitic shales and thin-bedded micritic limestones. The Gotnia Basin eventually evolved into the full evaporitic flat lands of the Hith Anhydrite Formation that marks the upper Jurassic boundary in most of the southern parts of the Plate such as Saudi Arabia and United Arab Emirates (Fig. 1; GOFF, 2005). On the flanks of the basin, normal, shallow-water carbonates were forming, such as the limestones and dolomites of the Najmah Formation and the Arab Formation to the west and the Surmeh Formation to the east. Although there are no specific foraminifera species that can be used to identify the Jurassic-Cretaceous boundary but there are certain foraminifera population that differentiate between the Jurassic and the Cretaceous sediments. These are formed of large benthonic foraminifera.