periodic bottom currents. The dissolution of aragonite skeletons proves that the water was undersaturated with respect to aragonite. It can be the result of relatively high depth of deposition or the specific water circulation.

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**BIOSTRATIGRAPHY OF THE UPPER BOREAL BATHONIAN AND CALLOVIAN OF EUROPEAN RUSSIA**

Gulyaev¹ D.B., Kiselev² D.N. and Rogov³ M.A.

¹Moscow State University  
²Yaroslavl State Pedagogical University  
³Geological Institute of the Russian Academy of Science (Moscow)

Much new information on the ammonite biostratigraphy of the Upper Boreal Bathonian and Callovian of the European Russia is reviewed (Gulyaev, Kiselev, 1999; Gulyaev, 1999, 2001; Kiselev, 1999; 2001). The 34 biohorizons, 14 subzones and 9 zones can now be recognized (see Figure). Close correlation with British Sub-Boreal Standart scale is possible from the Koenigi Zone to the end of Callovian. The lowermost Callovian (Elatmae and Subpatruus Zones) correlation is still only partially possible because of the poorly overlapping bioprovincialism of the ammonites. The base of the Elatmae Zone and therefore - of the Russian Callovian is defined by the first appearance of Macrocephalites jaquoti, which indicate the beginning of steady connection of the East-European (Russian) sea with the Tethyan basins. This species is well known from the base of the Herveyi Zone (Keppleri Biohorizon) of Western Europe. In central Russia it also associated with Kepplerites ex gr. keplleri. Direct correlation between the Upper Bathonian Infimum Zone and the Western-European standard pre-Callovian zonations is impossible because of the absence overlapping bioprovincialism of the ammonites. This Zone correlated with the Calyx Zone of east Greenland.

Notes on Figure:
1) Less coarsely ribbed, than nominal subspecies  
3) The Jaquoti Biohorizon is allocated in Volga basin, the Poultoni and Primaevum Biohorizons - in Pechora basin.  
5) =Chamoussetia saratoviensis Callomon et Wright, p.812.  
6) Kepplerites curtilobus (Buckman, 1922) sensu Callomon and Page (Callomon et al., 1988) correspond to K. indigestus (Buckman, 1922).  
7) Kepplerites trichoforus (Buckman, 1922) correspond to K. galilaeii (Oppel, 1862).  
8) The Pagei Biohorizon is precisely now allocated only in the Saratov area.  
9) Probably, the layers 9, 10 of the Medea Subzone stratotype (Kidlington), which are not characterized by ammonites.  
10) To be published, group of Amm.fimiferus Phillips, Amm. patruus Eichwald, etc.

References

Fig. The biostratigraphic subdivision of the Upper Boreal Bathonian and Callovian of European Russia, it correlation with the standard scale of Great Britain and stratigraphic ranges of the main ammonite genera (the notes see in the text of the abstract).