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ABSTRACTS
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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

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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 Standard 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. *kepleri*. 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
- 2) To be published, = *Cadoceras bodylevskyi* Frebald, 1964 sensu Puolton (1987).
- 3) The *Jaquoti* Biohorizon is allocated in Volga basin, the *Poultoni* and *Primaevum* Biohorizons - in Pechora basin.
- 4) To be published, = *Chamoussetia saratoviensis* Callomon et Wright, 1989 sensu Mitta (1999).
- 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.

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SUBSTAGE	Great Britain		European Russia			Ranges of the main ammonite genera in European Russia		
	Subzone	Biohorizon	Biohorizon	Subzone	ZONE			
UPPER CALLOVIAN	LAMBERTI		still not subdivided	Lamberti	LAMBERTI	Quenstedtoceras Eichwaldiceras K. (Kuklokosmokers) Pocutisphinctes Euaspidoceras Alligaticeras Bimatisphinctes Paracida Peltooceras s.l. Pseudopeltooceras		
		Henrici		Henrici				
	ATHLETA	Spinosum		spinosum	Spinosum		ATHLETA	
		Proniae		proniae	Proniae			
		Phaeinum		phaeinum (interpositum)	Phaeinum			
	CORONATUM	Grossouvrei		grossouvrei	Grossouvrei		CORONATUM	
		Obductum		obductum	Obductum			
		JASON		Jason	Jason			JASON
				Medea	Medea			
	MIDDLE CALLOVIAN	CORONATUM		Grossouvrei	Grossouvrei		CORONATUM	Longavriceras Erymocerases s.l. Funiferites ¹⁰ K. (Lobokosmokers) K. (Zugokosmokers) Hectioceras s.l. Bimatisphinctes Paracida Peltooceras s.l. Pseudopeltooceras
Obductum			obductum	Obductum				
JASON		Jason	Jason	JASON				
		Medea	Medea					
LOWER CALLOVIAN		CALLOVIENSE	Enodatum	Enodatum	CALLOVIENSE	Sigaloceras Catasigaloceras K. (Gulielmites) K. (Lobokosmokers) K. (Zugokosmokers) Hectioceras s.l. Indosphinctes Parapatoceras Proplanulites Homoeoplanulites K. (Gowericeras) Macrocephalites Kepplerites s.s. Cadoceras s.s. Kepplerites s.s.		
			Calloviense	Calloviense				
			Galilaei	Galilaei				
		KOENIGI	Curtilobus	Curtilobus	KOENIGI			
			Gowerianus	Gowerianus				
			Kamptus	Kamptus				
	HERVEYI	SUBPATRUIS	Terebratus	Terebratus	SUBPATRUIS			
			Kamptus	Kamptus				
			Keppleri	Keppleri				
		ELATMAE	Elatmae	Elatmae	ELATMAE			
Keppleri			Keppleri					
Keppleri			Keppleri					
UPPER BATHONIAN		no correlation		Infimum	INFIMUM			

Fig. The biostratigraphic subdivision of the Upper Boreal Bathonian and Callovian of European Russia, its 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).