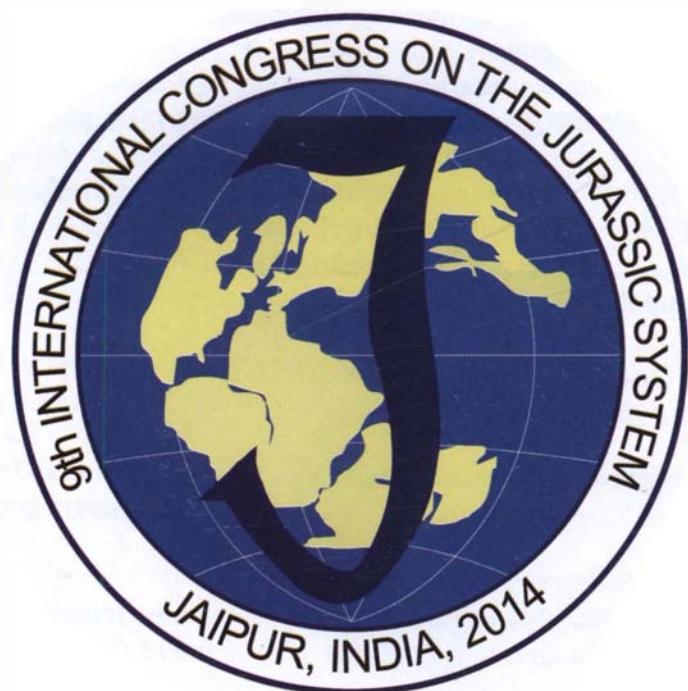


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Abstracts

Dhirendra K. Pandey, Franz T. Fürsich & Matthias Alberti (Eds.)



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Cover photographs

Front: The facade of the Hawa Mahal or Palace of Winds in Jaipur.

Back: A mural in the Nahargarh Fort near Jaipur.

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Jurassic geology and biostratigraphy of the Early Callovian in the Kanev district area (Cherkassy region, Ukraine)

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The Jurassic deposits of the Kanev district area (Fig. 1) are known since the first half of the 19th century, but yet studied poorly. Biostratigraphic schemes, available for the area, are still far from satisfying considering the modern level of knowledge in ammonite biostratigraphy with its detailed infrazonal subdivisions, and contains several inconsistencies. However, Jurassic rocks of the Kanev area potentially should provide a key to interregional correlations due to the location near the Pripyat strait connecting East European epicontinental seas with West European ones.

During the field seasons of 2011 and 2012 ten Jurassic sections, together forming the full succession, were studied by the authors in the Kanev area, accompanied with careful bed-by-bed sampling of ammonites and belemnites. Collection of studied fossils totally counts about 300 ammonites and over 750 belemnites. Some preliminary biostratigraphic results have already been published (KISELEV & IPPOLITOV 2011).

The Jurassic of the Kanev district is strongly tectonically disturbed and split into numerous tectonic slivers during the Pleistocene glacial epochs. The deposits are composed of a thick series of coastal terrigenous rocks (clays and sands) of mostly Bathonian age with no marine macrofossils, overlain by silt to clay deposits with abundant carbonate matter and numerous marine macrofossils of Early Callovian age. Contrary to old literature data, younger Jurassic rocks were not found in the district. Middle Jurassic strata are covered everywhere by sands of Cretaceous and Paleogene age, tectonically disturbed in the same way.

Biostratigraphic analysis of the ammonite record of the Lower Callovian succession allowed to distinguish the presence of 13 biohorizons (Fig. 2), 12 of which are known from NW Europe and European Russia, and one is new, with the index species transitional between typical *Paracadoceras elatmae* and *Cadochamousssetia tschernyschewi* and yet to be described. The sequence of biohorizons characterize four ammonite zones, the lower two of which (Elatmae and Subpatruus zones) are part of the regional succession of European Russia, and the upper two (Koenigi Zone including Gowerianus, Curtilobus, Galilaeii subzones and Calloviense Zone, including Calloviense and Enodatum subzones) are part of the Euporean Subboreal zonal standard.

Early Callovian ammonite successions of

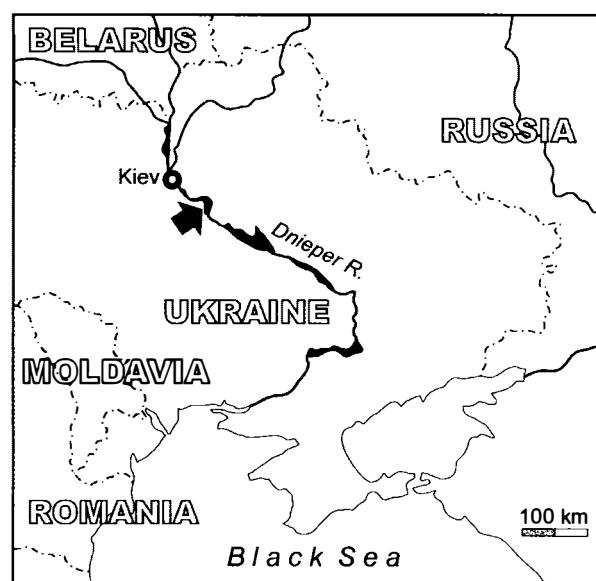


Fig. 1. Location of the Kanev district area (arrowed).

the Kanev district also have a good potential to provide further detailed infrazonal subdivision in the interval of the subgenus *Kepplerites* (*Gowericeras*) range (biohorizons K. toricelli to K. galilaeii), as it was proposed for Central Europe and England by MÖNNIG (2010).

Belemnite data can also provide detailed subdivision of the succession, in particular, in the interval of the Elatmae Zone to K. gowerianus biohorizon of the Gowerianus Zone, where the

solely boreal forms belonging to the family Cylindroteuthidae occur. In this interval 4 or 5 biohorizons can be established, and this is close to the resolution of the ammonite infrazonal scale. However, Boreal belemnite assemblages from this interval are almost not known in the adjacent regions (E and W Europe, European Russia) either due to the rarity of finds or to poor preservation. Thus, tracing this unit outside the Kanev area is a challenge for the future.

North-West Europe (modified after Callomon et al., 1988, 1989; Cariou & Hantzpergue (eds.), 1997; Cox, Sumbler, 2002; Dietze et al., 2007 etc.)			Eastern Europe					
ZONE	Sub-zone	England	Germany	Biohorizons		Subzone	ZONE	
CALLOVIENSE	Enodatum	Lacune	Lacune	C. enodatum aeeta	C. enodatum aeeta	European Russia (by Gulyaev, 2001, 2005; Gulyaev et al., 2002 etc.)	Kanev district area (present work)	
		C. enodatum enodatum [=enodat. γ] ('S. anterior')	C. enodatum enodatum [=enodatum γ]	C. enodatum enodatum	C. enodatum enodatum			
		C. enodatum planicerclus [=enodat. β] (A. difficulus)	C. enodatum planicerclus [=enodatum β]	C. enodatum planicerclus	A. difficulus			
		C. pagei [=enodatum α]	?Lacune	C. pagei	Pr. cracoviensis			
		S. micans		S. micans	S. micans			
		S. calloviense	S. calloviense	S. calloviense	S. calloviense			
		S. 'precalloviense' MS	K. 'copernici' MS	K. 'copernici' MS	K. galilaeii			
		K. copernici MS		?Lacune	K. curtilobus			
		K. galilaeii			K. densicostatus			
KOENIGI	Galili- eii	K. trichophorus	O. subcostarius	K. gowerianus	K. gowerianus	KOE NIGI	CALLOVIENSE	
		K. indigestus (sensu Page) Cad. tolype ('gregarium' MS)	M. macrocephalus	Ch. crobyloides (K. toricelli)	Ch. crobyloides (K. toricelli)			
		K. curtilobus (sensu Page)	M. megalcephalus β		C-ch. uzhovkensis			
		K. gowerianus	M. megalcephalus α	C-ch. subpatruus	C-ch. subpatruus			
		K. metorchus	M. polyptychus (M. kamptus γ)		C-ch. surensis II	SUBPATRUUS	ELATMAE	
		K. toricelli	M. kamptus	C-ch. surensis I				
		M. polyptychus (M. kamptus β)		?Lacune	C-ch. tschernyschewi			
		M. kamptus α (M. herveyi)	M. kamptus	Lacune	?			
		M. terebratus γ	Lacune		P. elatmae			
		M. terebratus β	M. terebratus	'Cad. suevicum β' 'Cad. suevicum α'	P. elatmae			
HERVEYI	Terebratus	M. terebratus α	Lacune		P. chvadukasyense MS (Cad. quenstedti)	Ammonites not found		
		M. verus	Cad. quenstedti	M. jacquoti	P. primaevum			
		K. keppleri (M. jacquoti)	K. keppleri (M. jacquoti)		P. poultoni			
		K. keppleri (M. jacquoti)	K. keppleri II					
			K. keppleri I					

Fig. 2. Infrazonal ammonite scale for the Early Callovian of the Kanev district area (grey column) and its correlation with infrazonal scales for European Russia and NW Europe. Abbreviations: A. – *Anaplanulites*, C. – *Catasigaloceras*, Cad. – *Cadoceras*, Ch. – *Chamoussetia*, C-ch. – *Cadochamoussetia*, K. – *Kepplerites*, M. – *Macrocephalites*, O. – *Oxycerites*, P. – *Paracadoceras*, Pr. – *Proplanulites*, S. – *Sigaloceras*.

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References

- CARIOU, E. & HANTZPERGUE, H. (eds.) 1997. Biostratigraphie du Jurassique ouest-européen et méditerranéen: zonations parallèles et distribution des invertébrés et microfossiles. – Bulletin des centres des recherches Elf, Exploration et Production, mémoire 17: 1-440.
- CALLOMON, J.H., DIETL, G. & PAGE, K.N. 1988. On the ammonite faunal horizons and standard zonations of the Lower Callovian Stage in Europe. – 2nd International Symposium on Jurassic Stratigraphy, Lisboa: 359-376.
- CALLOMON, J.H., DIETL, G. & NIEDERHOFER, H.-J. 1989. Die Ammonitenfaunen-Horizonte im Grenzbereich Bathonium/Callovium des Schwäbischen Juras und deren Korrelation mit W-Frankreich und England. – Stuttgarter Beiträge zur Naturkunde B 148: 1-13.
- Cox, B.M. & SUMBLER, M.G. 2002. British Middle Jurassic Stratigraphy. – Geological Conservation Review 26: 508 p.
- DIETZE, V., SCHWEIGERT, G., CALLOMON, J.H., DIETL, G. & KAPITZKE, M. 2007. Der Mitteljura des Ipf-Gebiets (östliche Schwäbische Alb, Süddeutschland). Korrelation der süddeutschen Ammoniten-Faunenhorizonte vom Ober-Bajocium bis zum Unter-Callovium mit Südengland und Frankreich. – Zitteliana A47: 105-125.
- GULYAEV, D.B. 2001. Infrazonal ammonite scale for the Upper Bathonian-Lower Callovian of Central Russia. – Stratigraphy and Geological Correlation 9: 65-92.
- GULYAEV, D.B. 2005. Infrazonal subdivision of the Upper Bathonian and Lower Callovian of the East-European Platform by ammonites. Jurassic System of Russia: Problems of stratigraphy and paleogeography. First All-Russian meeting. – Scientific materials: 64-70. [in Russian]
- GULYAEV, D.B., KISELEV, D.N. & ROGOV, M.A. 2002. Biostratigraphy of the Upper Boreal Bathonian and Callovian of European Russia. – 6th Intern. Symposium on the Jurassic System, Mondello, September 16-19, 2002. Abstracts and Program: 81-82.
- KISELEV, D.N. & IPPOLITO, A.P. 2011. New data on Callovian biostratigraphy of Kanev Dislocation area. – Jurassic System of Russia: Problems of stratigraphy and paleogeography. Fourth All-Russian meeting. Scientific materials: 103-106. [in Russian]
- MÖNNIG, E. 2010. On the systematic of the ammonite genus *Kepplerites* and its occurrence in the Koenigi Zone (Callovian, Middle Jurassic) of Central Europe and England. – Earth Science Frontiers 17, Special Issue: 117-119.