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CHRONICLE

The Fourth All-Russia Conference "Cretaceous System of Russia and CIS Countries: Problems of Stratigraphy and Paleogeography"

E. Yu. Baraboshkin[a], V. A. Zakharov[b], B. N. Shurygin[c], O. S. Dzyuba[c], and A. E. Igol'nikov[c]

[a] *Moscow State University, Leninskie Gory, Moscow, 119992 Russia; e-mail: barabosh@geol.msu.ru*
[b] *Geological Institute, Russian Academy of Sciences, Pyzhevskii per. 7, Moscow, 119017 Russia*
[c] *Trofimuk Institute of Petroleum Geology and Geophysics, Siberian Branch, Russian Academy of Sciences, pr. Akad. Koptyuga 3, Novosibirsk, 630090 Russia*

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On September 19–23, 2008, the Fourth All-Union Conference "Cretaceous System of Russia and CIS Countries: Problems of Stratigraphy and Paleogeography" was held in the Trofimuk Institute of Petroleum Geology and Geophysics (IPGG), SB RAS, and sponsored by the Russian Foundation for Basic Research (project nos. 08-05-06089-g, 06-05-64284, 06-05-64439-a, and 06-05-64224-a). It was organized in commemoration of Professor Vladimir Anatolievich Prozorovsky, Chairman of the Commission on the Cretaceous at the Interdepartmental Stratigraphic Committee (ISC) of Russia. A letter from corresponding member of the RAS A.I. Zhamoida, Chairman of the ISC of Russia, was read out, in which V.A. Prozorovsky's contribution to the organization of active work of the ISC Commission on the Cretaceous was marked.

Prior to the conference, 101 applications were submitted to the Organizing Committee and a volume comprising 79 papers was published.[1] The conference attracted 71 specialists (see photo) from 11 cities and 22 organizations of the Russian Federation: Biological Institute (BIN RAS, St. Petersburg); Institute of Biology and Soil Sciences (IBSS FED RAS, Vladivostok); VolgogradLukoilNIPINeft (Volgograd); All-Russia Paleontological Society (VPO), Geological Institute (GIN RAS), Institute of Oceanology (IO RAS), Moscow State University (MSU), Paleontological Institute (PIN RAS, Moscow); Institute of Volcanology and Seismology (IVS FED RAS, Petropavlovsk-Kamchatski); Institute of Geology and Mineralogy (IGM SD RAS), Institute of Oil-and-Gas geology and Geophysics (IPGG SD RAS), Novosibirsk State University (NSU), Sibneftegeofizika, Siberian Research Institute of Geology, Geophysics, and Mineral Resources (SNIIGGiMS), Central Geological Exploration Expedition (TsGE) and Central Siberian Geological Museum (TsSGM, Novosibirsk), Saratov State University (SSU, Saratov), Siberian Research Center (SibNATs, Tyumen); St. Petersburg State University (SPSU, St. Petersburg); Tomsk State University (TSU, Tomsk); Central research Institute for Geology of Nonmetallics (TsNIIGeolnerud, Kazan); Chuvash Society of Natural History "Terra Incognita" (Cheboksary); and Rutgers University (USA). All in all, 49 oral and 11 poster presentations were submitted on different aspects of studying the Cretaceous: paleontology, stratigraphy, paleobiogeography, paleoecology, paleoclimatology, oil-and-gas geology, sedimentology, etc.

Academician A.E. Kontorovich, scientific supervisor of the IPGG SD RAS, addressed the participants to highlight the great importance of stratigraphic and paleogeographic studies of the Cretaceous for oil-and-gas geology of Russia.

At the beginning, memorial reports of V.V. Arkad'ev et al. (SPSU) and I.A. Mikhailova et al. (MSU, VSEGEI) devoted to V.A. Prozorovsky were presented. The plenary report elucidating the state of the art of the Cretaceous System in Russia and abroad was presented by E.Yu. Baraboshkin et al. (MSU, VSEGEI). Current problems and advances in studying the Cretaceous were considered in the report; zonal scales of different regions of Russia, as well as the Boreal and Tethyan standards were compared; the state of the art of the International Commission on the Cretaceous Stratigraphy was covered, and global stratotypes of stage boundaries were substantiated. In conclusion, the main lines and objectives of further studies of the Cretaceous in Russia were contemplated, which formed the base

[1] *Cretaceous System of Russia and FSU Countries: Problems of Stratigraphy and Paleogeography. Materials of the Fourth All-Russia Conference, Novosibirsk, September 19–23, 2008*, Ed. by O.S. Dzyuba, V.A. Zakharov, B.N. Shurygin (SD RAS, Novosibirsk, 2008) [in Russian].

for adopting the conference resolutions. In another report on the study of the Cretaceous, V.P. Devyatov (SNIIGGiMS), chairman of the Commission on the Cretaceous of the Siberian Regional Interdepartmental Stratigraphic Committee (SRISC), presented new regional stratigraphic schemes for the Cretaceous of Western Siberia, elucidated the problems of compiling a stratigraphic scheme for the Lower Cretaceous clinomorphic complex of the region, and pointed the way for their solution and further studies of Cretaceous sequences in Siberia.

Despite the different themes presented in reports, the conference was not subdivided into sections, which provided vivid and productive discussions of research results for different specialists.

Reports on paleontology elucidated the problems of morphology, taxonomy, and phylogeny of different animal and plant groups. Many reports were devoted to ammonites. I.A. Mikhailova and E.Yu. Baraboshkin (MSU) considered the phylogeny of the Ancyloceratataceae family, showed a possible relationship between global sea level fluctuations and variations in heteromorphs and the appearance of their monomorphic descendants. V.B. Sel'tser and V.V. Brekhov (SSU) presented evidence on heteromorphic ammonites of the Upper Cretaceous for the Saratov–Volga region. V.V. Arkad'ev (SPSU), A.E. Igol'nikov (IPGG SD RAS), A.Yu. Berezin ("Terra Incognita"), T.N. Bogdanova (VSEGEI), and I.A. Mikhailova (MSU) encompassed in their reports the peculiar features of ontogenesis and the evolution of different groups of Lower Cretaceous ammonoids.

I.S. Akimov and V.N. Ben'yamovskii (MSU and GIN RAS) elucidated a stepwise evolution of the benthonic *Neoflabellina* in the southern Russian Plate during the Campanian–Maastrichtian.

A.N. Soloviev with coauthors (PIN RAS) and A.V. Guzhov with coauthors (PIN RAS) devoted their reports to echinoids and gastropods respectively. It was shown in the first report that a series of Jurassic genera does not traverse the Tithonian/Berriasian boundary, and new specific groups of echinoids appeared in the Berriasian. The second report is devoted to the revision of the Lower Cretaceous gastropods of the Russian Plate and, as a result, 11 new species and genera were added to their list and the age of some well-known taxons was essentially refined.

A major part of the biostratigraphic reports was concerned with problems of the interregional correlation of different intervals of Cretaceous sequences. E.Yu. Baraboshkin (MSU) discussed the levels supplying the Boreal–Tethyan correlation of the upper Hauterivian and hypothesized that beds with *Speetoniceras* in Western Siberia, which traditionally were assigned to the lower Hauterivian, should be attributed to the upper Hauterivian. V.V. Mitta and Yu.I. Bogomolov (PIN RAS and VPO) revised the zonal subdivision of the "Ryazanian regional stage" on the Russian Plate and distinguished five zones and a series of faunal horizons in it. They once again confirmed that the distribution of *Garniericeras* and *Riasanites* representatives in the Russian Plate sections is discrete: the first are found exclusively in the upper Volgian Substage.

V.N. Ben'yamovskii et al. (GIN RAS, PIN RAS) and V.M. Podobina (TSU) considered zonal foraminiferal scales for the upper Cretaceous. The employment of a new infrazonal scale based on foraminifers of the East European province allowed for the assessment of a series of hiatuses in the Upper Cretaceous of Mordovia: the most extensive hiatuses were recorded in the Cenomanian, late Campanian, and late Maastrichtian. Santonian–Maastrichtian foraminifer complexes similar to coeval complexes of the East European Platform were found in the Slavgorod and Gan'kin formations in the southeastern part of Western Siberia.

The analysis of the taxonomic composition and the stepwise evolution (five stages were distinguished) of the late Albian–Maastrichtian flora from the Chulym–Yenisei region of Western Siberia, which was presented in the report of L.B. Golovneva (BIN RAS), showed that floras of the Chulym–Yenisei depression had clear relationships with floras of the Euro-Sinian paleofloristic realm throughout the Albian and Cenomanian; since the Turonian, peculiar floras with abundant endemics had been formed on that territory.

A series of reports comprised data on the biostratigraphy of different groups of organisms, which were obtained in the course of studies of Cretaceous sections in many regions of Russia. V.A. Zakharov and A.B. Kuz'michev (GIN RAS) presented the latest data on *Buchia* (bivalves) assemblages and substantiated the distinguishing of the upper Volgian, boreal Berriasian, and lower Valanginian on the Stolbovoi Island (New Siberian Islands). A.S. Alifirov with coauthors (IPGG SD RAS) presented information refining ideas about the structure of the section of Jurassic–Berriasian deposits on the Mauryn'ya River (Polar Urals), which is a reference one for Siberia. P.I. Alekseev (BIN RAS) characterized the results of the analysis of the taxonomic composition in the flora from the Upper Cretaceous Antibes locality (Western Siberia). E.S. Sobolev and V.A. Marinov (IPGG SD RAS) reported on the first finds of *Acanthoscaphites tridens* ammonites from Maastrichtian deposits of the southern Trans-Urals region, which allowed them to be correlated with the corresponding zone of Eastern and Western Europe (including the stage stratotype), as well as inferring short-term relationships between faunas of Western Siberia and Europe in the early Maastrichtian. T.N. Palechek with coauthors (GIN RAS, IVS FED RAS) dwelt upon the Cenomanian assemblage of radiolarians found in the Upper Cretaceous section in the southern part of the Kamchatski Mys Peninsula. The report presented by V.S. Zykin with coauthors (IGM and IPGG SD RAS, MSU) attracted the attention of the audience. The authors demonstrated the evidence for

the existence of Upper Cretaceous marine deposits in the Gornyi Altai region that indicates the penetration of a sea basin within the region, which coincided with the eustatic rise.

Some reports were devoted to the potentialities of the paleomagnetic and seismostratigraphic methods for solving stratigraphic problems. A.Yu. Guzhikov (SSU) elucidated the possibilities of the paleo- and petromagnetic methods using Jurassic and Cretaceous deposits as an example. The results of complex magneto- and biostratigraphic studies were presented in reports on the Neocomian of the Boyarka River basin (A.Yu. Guzhikov, SSU, and E.Yu. Baraboshkin, MSU), on the stratotype of the Volgian regional stage (M.V. Pimenov, SSU), and on the Cretaceous section in Borehole 8 in the Russian–Polyanskii region of the southeastern Western Siberia (Z.N. Gnibidenko et al., IPGG SD RAS). The authors of the reports believe that the integration of bio- and magnetostratigraphic data represents a promising way for carrying out interregional correlations of different Jurassic and Cretaceous intervals.

Several reports that initiated a lively discussion concerned the paradigm of stratigraphy: problems and methods for elaborating "geostratigraphic" scales, taxonomic aspects of classification of stratigraphic units, as well as the "systems–lithologic" approach to solving stratigraphic problems. For instance, Yu.N. Karagodina with coauthors (IPGG SD RAS) used such approaches for establishing system boundaries, as well as for the subdivision and correlation of Neocomian clinomorphs of Western Siberia. The principles and methods of compiling the geostratigraphic scale presented in the report of A.L. Beizel (IPGG SD RAS) are based on ideas about a discontinuity of the sedimentation on a continent and in a sea basin.

Many reporters were devoted to the paleogeography and paleobiogeography of different regions in the Cretaceous. V.P. Devyatov (SNIIGGiMS) presented in his report a series of paleogeographic reconstructions of Siberia for different intervals of the Cretaceous, as well as dwelt upon the sedimentogenesis of individual stages in the evolution of Cretaceous epicontinental seas of Siberia. Based on the analysis of the species' diversity and morphofunctional variations in the Upper Cretaceous foraminifers and radiolarians of the East-European Platform and adjacent territories, L.F. Kopaevich and V.S. Vishnevskaya (MSU, GIN RAS) established several short intervals of the Late Cretaceous' history for the studied region, during which essential changes in paleogeographic environments took place (late Cenomanian, early Campanian, and late Maastrichtian). T.A. Ryazanova and N.S. Solov'eva (SNIIGGiMS) used the complex analysis of the structure of a sedimentary sequence, indicator minerals, fauna fossils, etc. for detailed reconstructions of depositional environments in the Early Cretaceous basin of the Ust-Yenisei region. V.A. Marinov (IPGG SD RAS) reconstructed parameters of the environment and the spectrum of facies for the Early Cretaceous sea basin of the Anabar–Popigai region on the basis of the detailed paleoecological analysis of foraminifer assemblages. O.S. Urman and B.N. Shurygin (IPGG SD RAS) dwelt upon detailed reconstructions of macrobenthos distribution in the marginal zone of the Early Cretaceous basin in the southeastern part of Western Siberia.

A series of reports was focused on reconstructions of paleoclimates. V.S. Vishnevskaya with coauthors (GIN RAS, MSU, PIN RAS) relate the origin of high-latitude radiolarian assemblages to the Campanian cooling. L.B. Golovneva with coauthors (BIN RAS, Royal Institute of Natural Sciences, Belgium) presented the results of comprehensive studies of the Kakanaut flora and fauna (Koryak Highland, Maastrichtian), which showed that a joint burial of fossil plants and herbivorous and raptorial dinosaurs was related to volcanic activities. Remains of dinosaur eggs they found are indicative of the possibility of their reproduction in high latitudes. The adaptation of dinosaurs and evergreens found there to polar night conditions still remains an enigma.

A.B. Herman (GIN RAS) dwelt upon the results of reconstructions of paleoclimates and the geographic differentiation of Albian–Turonian floras of different Arctic regions, which were obtained on the basis of the CLAMP analysis. The author inferred that a gradual shift of the North Pole in the Santonian–Maastrichtian from the central regions of the paleo-Arctic region to the northern coast of Alaska resulted in Alaska's climate cooling and, as a consequence, in a significant difference between floras of the subregion and nearly coeval floras of the Anadyr–Koryak subregion.

Reports were also submitted elucidating the sedimentation of Cretaceous deposits in the Yenisei–Khatanga region (O.N. Zlobina, IPGG SD RAS), the genesis of unique coals of the Lipovetsk deposit (E.V. Bugdaeva, V.S. Markevich, IBSS FED RAS), the effect of benthos on the Cretaceous phosphate genesis in some regions of the East European Platform (S.Yu. Malenkina, GIN RAS), and tectonic–sedimentation models for the Neocomian Achima Sequence of Western Siberia (Z.Ya. Serdyuk et al., TsGE).

During the conference, an excursion was organized to the core storage in the IPGG SD RAS, where cores and macro- and microfauna collections from Cretaceous deposits of several boreholes drilled in the central and peripheral parts of Siberia were demonstrated to the participants.

Debatable problems of stratigraphy and paleogeography were discussed at the final meeting. Particular emphasis was placed on a wide range of themes covered at the conference and a shortage of reports on some aspects of recent chemostratigraphy.

The participants of the Fourth All-Russia Conference on the Cretaceous of Russia expressed their gratitude to the IPGG administration for the excellent organization of the conference. A definite progress in study-

Participants of the Fourth All-Russia Conference "Cretaceous System of Russia and CIS Countries: Problems of Stratigraphy and Paleogeography".

ing the Cretaceous of Russia for the last two years and an active participation of young specialists in these studies were underscored. Having discussed the proposals, the following resolutions were adopted.

1. To coordinate studies of the Cretaceous in Russia, the membership of the ISC Commission of the Cretaceous of Russia should be renovated.

2. Detailed elaboration of stratigraphic scales based on different (including those not previously used) fauna and flora groups and paleontological substantiation of regional stratigraphic schemes should be intensified.

3. Special attention should be focused on implementation of complex magneto-, chemo-, sequence-, and biostratigraphic studies to update the Cretaceous detailed stratigraphic scales, to reveal sections—possible candidates for establishing the GCSP of stages and to carry out Boreal–Tethyan correlation.

4. It is recommended that regional stratigraphic commissions intensify works on restudying the Cretaceous reference and type sections in Russia.

5. The rector of Ul'yanovsk State University should be asked to organize, hold, and host the Fifth All-Russia Conference of the Cretaceous.