



## Forenings- meddelelser

### Kommende møder

Dansk Mineralogisk Selskab

Møderne afholdes fredage på Geologisk Museum, Øster Voldgade 5-7, København.

### DGF FORUM

For Anvendt Geologi

Marts 1999: 2 møder med titlen: *Den usynlige geolog*. Et møde i Århus og et i København. Endelige datoer, steder, indlægsholdere m.m. annonceres senere. Eventuelle spørgsmål rettes til Poul Henrik Due, DTI-Byggeri, tlf 4350 4118.

Tirsdag d. 20. april 1999: *Møde om oliegeologi* arrangeret i samarbejde med Mærsk Olie og Gas samt SPE. Detaljerne annonceres senere. Eventuelle spørgsmål rettes til Poul Henrik Due, DTI-Byggeri, tlf. 4350 4118

### Malmgeologisk Klub

Møderne afholdes på Geologisk Institut, østervoldgade 10, København.



### Palæontologisk klub

Tirsdag d. 15. december 1998: S. Turner (Brisbane): *Palæozoiske vertebrat-mikrofossiler og stratigrafi*.

Tirsdag d. 9. februar 1999: Fedor Steeman (Amsterdam): *Arctaspis, an armoured fish from the Devonian of Spitsbergen, with thoughts on Placoderm systematics*.

### Petrologisk klub

Møderne finder sted onsdage kl. 12.15-13.00 i mødelokale 3, trappe B, 3. sal på Geologisk Institut, Øster Voldgade 10, København.



### Sedimentologisk klub

Alle fordrag holdes onsdage kl. 15.00 i mødelokale 3, trappe B, 3. sal på Geologisk Institut, Øster Voldgade 10, København.

## Afholdte møder

### DGF FORUM

For Anvendt Geologi

Torsdag d. 26. november 1998: **Geologiske og geofysiske metoder til opstilling af geologiske modeller - nye anvendelser?**

Erik S. Rasmussen (GEDS): *Sekvensstratigrafi - teori og baggrund*

Erik S. Rasmussen (GEDS): *Eksempler på anvendelse af sekvensstratigrafi*

Niels Peter Jensen (Dansk Geofysik): *Eksempler på anvendelse af geofysiske metoder i geologisk kortlægning*

Henrik Olsen (Rambøll): *Kan georadar anvendes til andet end råstoffer?*



### Palæontologisk klub

Tirsdag d. 22. september 1998: Sorin Baciú (Mus. Sci. Nat., Piatra Neamt): *Oligocene fauna from Vrancea Nappe, Romanian East Carpathians - stratigraphic, faunistic and palaeoecological aspects*. In the external flysch of East Carpathians, the Oligocene formations are involved in the Tarcáu, Vrancea (Marginal Folds) and Subcarpathian Nappes. Vrancea Nappe is covered by Tarcau Nappe and appears like tectonic windows and demi-windows. The lithostratigraphy of the Oligocene formations in the demi-window Bistrita-Risca is: lower menilites, bituminous marls, lower dyssodilic shales, Kliwa sandstone, upper dyssodilic shales. Oligocene fauna described were discovered in bituminous marls and lower dyssodilic shales.

Insects: Carabidae - *Calosoma grasui*, Paucá & Ciobanu, 1973.

Crustaceans: Crangonidae - *Pontophilus bâcescui*, Ciobanu, 1977. - *Proidotea haugi*, Racovita & Sevastos, 1910.

Crabs - incertae sedis (possibly *Portunus oligocenicus*, Pauca, 1933.)

Sharks: *Cetorhinus* sp., *Odontaspis* sp., *Lamna* sp.

Fish fossils: Clupeidae, Argentinidae, Gonostomatiidae, Sternoptychid, Myctophidae, Centriscidae, Berycidae, Caproidae, Zeidae, Priacanthidae and some Pleuronectiformes.

Turtle: *Chelonia* sp.

Ecologically the fauna is dominated by tropical/subtropical, oceanic, pelagic forms. Very well represented are mezo- and bathypelagic fish and some bottom and coast fish. The Oligocene fauna from P. Neamt is similar with faunas from Caucasus, Polish Carpathians and Moravian Alps, and most fossil genera are similar with recent genera.

## Nordie - Baltic Cooperation for Impact Crater Studies - NBCR

Herbert Henkel and Jiiri Plado

### Background

It is only 80 years ago that the well-preserved Meteor Crater in Arizona was recognized as a cosmic collision structure - an impact crater. In 1928, the Estonian mining engineer Ivan Reinwald proved that the ~100 m Kaali main crater and the surrounding smaller craters in Saaremaa, western Estonia, were caused by a cosmic collision. However, the first suggestions of meteoritic origin of the Kaali crater were made within the correspondence between R. Meyer and Alfred Wegener in 1921. In 1922, the Estonian teacher Juhan Kalkun supposed the meteoritic origin in his study book "General Geology". After the Meteor Crater, Kaali was the second terrestrial object, which extraterrestrial origin was recognized. It was the only known impact structure in Europe for several decades.

About 40 years later similar structures were found all around the world and today about 150 such craters are known worldwide. The number increases for each year. In the Baltic shield and its nearest surroundings, 16 impact craters were recognized 1992 and since then another 5 structures have been identified. As knowledge about impact generated lithologies is increasing, also cases occur where coptogenic rocks are found but no nearby crater structure. One of the largest impact events occurred 65 million years ago at what is now the Yucatan peninsula. This event extincted a very large portion of terrestrial and marine life, including most of the dinosaur species. The resulting crater is about 200 km in diameter. Catastrophes of this dimension may only occur once every 30 million years, however smaller cosmic projectiles in the 1 km size range collide more frequently with the earth - about one every few million years. Their impact craters may have become eroded away or covered under sedimentary sequences. Although still relatively scarce, impact cratering has been recognized as an important geological process also on earth.

### Nordie-Baltic cooperation

A deeper knowledge of the impact cratering processes will increase our understanding of the evolution of the earth and the solar system. We are now in the beginning of this research field and it would thus be of importance to inspire and to educate new researchers. On a national basis, the competence profile is usually too narrow to cover the topic, but by cooperation, a considerable widening of competence may be achieved. Up to a few years ago, small groups within each country have studied impact craters with a limited width in the scientific approach. However, cooperation across the discipline boundaries and between the different universities could take advantage of the unique situation in the Baltic shield: Here many crater structures have been detected, several more can be identified, and a well developed infrastructure makes it possible to study them in detail.

*The Nordie-Baltic Network for Impact Crater Studies, funded by NorFA*

The network was initiated in 1996 in order to promote this particular field of geoscience, and especially to facilitate coordinated post-graduate courses in impact geology and

-geophysics. Such courses contain theoretical studies with lectures combined with field practice in impact geology and -geophysics. Since the start of the network in 1997, two summer schools / short courses have been organized. The first in Delsbo within the 20 km diameter *Dellen* crater, where 12 students and 5 teachers participated, the 10 days studies concentrated on impact lithologies, like impact melt and suevite, and geophysics of impact structures. The second course was held 1998 in Nesbyen close to the 6 km diameter *Gardnos* crater, with 11 students and 5 teachers. That course concentrated on marine impact craters and impact crater modeling and gave the unique opportunity to study a large impact crater that has been obliquely eroded.

### The next course

For 1999, the third short course is planned to be held mainly in Kuressaare, close to the *post-glacial Kaali craterfield*. The 9 day course will concentrate on the study of post-glacial crater morphology and -geophysics, thermal evolution of impact craters and the dating of impact events, among other topics as listed below. Eight teachers have been invited to present their specialities and there will be frequent opportunities for field studies. Research students and students within geosciences from the Nordie-Baltic region (Iceland, Denmark, Norway, Sweden, Finland, NW Russia, Estonia, Latvia and Lithuania) are invited to participate. Travel costs, housing and living costs are covered by the network funding. Priority will be given to research students. In case of remaining capacity, undergraduate students and students from outside the Nordie-Baltic region can participate. Non-Nordie-Baltic participants would need to bring their own financing for travel costs and a fee of 500 USD. Within EU, grants may be applied for from ESF.

### The research course *Post-glacial impact craters and physico-chemical aspects of impact structures*

- will be held at Kuressaare, Nõva and Viitna in Estonia from June 14 to 22, 1999,
- can host 20 students,
- has the following topics included:

The environment of impact cratering in Fennoscandia, impact related phenomena in sedimentation, dating of impact events, geochemistry of impactites, thermal evolution of impact craters, hydrothermal alteration of impact rocks, electrical and electromagnetic methods in impact crater studies, field work at the Kaali crater and Neugrund structure.

### The following teachers have been invited:

Prof. Christian Koeberl, Vienna, Prof. Alexander Deutsch, Muenster, Doc. Herbert Henkel, Stockholm, Dr. Bo Olofsson, Stockholm, Prof. Väino Puura, Tartu, Prof. Anto Raikas, Tallinn, Dr. Tonu Meidla, Tartu, Mrs. Reet Tiirmaa, Tallinn, and MSc. Kalle Suuroja, Tallinn.

### Applications for participation are sent before March 31, 1999 to:

Väino Puura, Institute of Geology, University of Tartu, Vanemuise 46, 51014 TARTU, Estonia. Tel: +372 7 375 834. Fax: +372 7 375 836. Email: puura@math.ut.ee

An application should contain a *curriculum vitae*, the applicants *scientific background* and a *motivation* for participation. For undergraduate students, a *letter of recommendation* from their university department or professor is required.