Geoconservation, in its broader sense, is as practical as it is a theoretical matter. An important facet of the many ProGEO gatherings is a demonstration of the geoconservation status in the country hosting the meeting.

This year, added to the rewarding Prague scientific sessions, a group of some 30 people had the opportunity to study the very advanced state of protection and maintenance in the Czech Republic under the guidance of a.o. Drs. Jiří Klíž, Ivo Chlupáč and Pavel Havlíček.

The excursion programme in the Bohemian Massif included three themes, the Barrandien of the Prague Basin, the Cretaceous Basin in northern Czechia, and the Pleistocene–Holocene history and karst development of Moravia, Southern Czechia.

During the first two days, the importance of the French-Czech scientist Joachim Barrande in the understanding of the Palaeozoic of the Prague Basin was nicely demonstrated. His work published in 1852, *Système Silurien du Centre de la Bohême*, is still the framework of Cambrian to Devonian stratigraphy and palaeontology in the Basin. The general esteem of the palaeontologist at that time
from all parts of society is well-known and Geology marked its by the Barrande's Monument at Skryje, erected in 1969. The nearby Luh section of the Middle Cambrian was also a nice place for a picnic lunch.

The Lower Palaeozoic of the Prague Basin is dominated by non-carbonate rocks, carbonates dominate the Devonian. Cambrian is onlapping folded Proterozoic sediments and close to Skryje at the Berounka River, Middle Cambrian conglomerates, greywackes and fossiliferous shales are found below Upper Cambrian volcanics. In younger strata, fossiliferous section in the Telčian (L. Sil.) and the global stratotype of the Silurian/Devonian boundary at Kloun and the Lower Devonian limestone sequence were demonstrated. Spectacular exposures of Middle Silurian volcanics at Butovice (Nová Ves volcano) were studied. In the volcanic setting, basalts as well as several generations of pyroclastic flows can be seen in contact to fossiliferous Middle Silurian shales. Not far from the volcano, Upper Silurian, rather thin limestones, rich in cephalopods are found.

Požáry Quarry, the global stratotype of the Ludow/Přidolí boundary was a very special locality, where exciting geology paired with relaxing barbecue.

The excursion spent the third day in the Bohemian Cretaceous Basin. Close to the German border, magnificent highlands of Cretaceous sandstone cover large areas and most of the day the party walked a tourist path to the Hřensko–Pravčická Brána Rock Bridge, a magnificent, almost 20 m high, monument of nature in a frame of beautifully cross-bedded sandstone, locally with honeycomb weathering. In late afternoon, different aspects of the Cainozoic volcanism was demonstrated, ending in the impressive intrusion of Panská Skála with its fan-shaped jointed columns of basalt.

The fourth day brought the party to Moravia in the southern part of the country, where Pleistocene and Holocene stratigraphy in Mid-European loess development was demonstrated at the Dolní Věstonice Section. The sequence covered some 35 000 years, including the level of the Early Palaeolithic Pavlovian settlements of hunters c. 28 000 years BP. A fascinating museum with finds from the excavations and some reconstruction of the daily life, artefacts and burials was visited in the town.

The last day in the vicinity of Brno demonstrated the extensively eroded Devonian limestone sequence of Macocha Formation near Blansko. The Macocha Abyss was observed from above and below, a difference of some 140 m. Paths brought the party down to the lowest level, previously seen from a platform at the top. Later, a tour through the tourist Punkva Caves demonstrated the grandness of the cave systems, as did the Kúla Cave with its magnificent sequence from the Riss Glacial onwards.

As a grand finale of the field-trip and of the scientific part
Dr. Ivo Chlupáč demonstrates the geology of the Bohemian Massif. Photo: L. Karis

of the ProGEO 2000 meeting, there was a reception at the Anthropos Museum, Brno, including high spirits, fascinating displays, plenty of food and wine, and an excellent performance of folk music and dance, an evening to remember.

According to our field-trip experience and an overall impression regarding geocconservation in the Czech republic, it is a country with a high level of awareness and an advanced state of protection for environments and geological features with exceptional values. It is also evident that the work of Barrande’s during the first half of the 19th century, as well as those of his followers, are important factors in bringing the level of geological science in the country to a very high level. The historical background as well as its geographic position motivates a special attention and responsibility, nationally and internationally.

Lars Karis

The ProGEO web-address

This as a reminder of our a new web address. Here you can find among a lot of other things old issues of ProGEO NEWS

http://www.sgu.se/hotell/progeo

Dr. Jiří Král as guide on the excursion. Photo: L. Karis
Lower Proterozoic in Mäntsälä, Finland

Introduction

The Mäntsälä region has four bedrock geotopes registered by the geotopy survey made by the Geological Survey of Finland and the Ministry of Environment of Finland (Kanajano & Grönholm 1993). Site 108 represent granite-gabbro association in the Soukkio Complex and sites 109-111 are located in metavolcanics, representing pyroclastics and lave structures (Kanajano & Grönholm 1993).

Recent fieldwork in the region revealed other interesting Precambrian bedrock sites. Some of these are located in private gardens and were exposed by local inhabitants. Some general aspects related to this phenomenon are briefly exposed here. The work was recently presented at the Annual Meeting of Finnish Geographers in Turku, Finland (Eerola 1999). A detailed description of the outcrops will be given by Eerola (in prep.).

Bedrock outcrops in private gardens and courtyards in Mäntsälä region

Garden and courtyard bedrock outcrops are found on volcanics, graniteoids and gabbros, representing the main lithological units of the region (see Härme 1978, Kallaro 1986) and reflecting the Svecofennian geology of southern Finland. The peculiar aspect of such outcrops is that local inhabitants have uncovered them from under several centimeters thick grass and lichen cover, common in polished rock surfaces in Finland. The inhabitants have also washed outcrops after exposure with pressured waterjets and brushes. This work have been carried out by women from 40 to 80 years.

Art and geology

The local people saw beauty in rocks, their structures and textures and wished to expose them to be integrant parts of their gardens, completed by flower arrangements and rock installations, forming very aesthetic units. There is a clear perception of art in rocks (cf. Pestroy 1994), approaching the concept of environmental art. The most aesthetic elements of rocks seem to be related to their heterogeneities (e.g. colors, enclaves, folds, layering, lineations, dykes and glacial boulders).

Geological information offered by outcrops

Outcrops reveals important processes and features, such as the occurrence of mingling and mixing of contrastant magmas in the Soukkio Complex (Eerola 1999, 2000), previously thought as representing granitization of gabbro by K-metasomatism (e.g. Site 108, Härme 1978), as well as the layered nature of the Mäntsälä gabbroic association. Some key outcrops, located in private gardens and courtyards, with spectacular exposures made by local people, permitted a proposal of the Soukkio Complex as an MASLI-type intrusion (Mafic-Silicic Layered Intrusions, Wiebe 1993) by Eerola (2000).
Relationship and attitudes of local people toward geology and geologists

The act of exposure, management and conservation seems to reveal a special and intimate relationship of the local people with the local geology.

Generally inhabitants do not have knowledge of rocks or geological phenomena which they represent. They are usually seemingly satisfied and honoured by geologist’s interest in their work. Fear for destruction of their environment by mineral exploration has been shown, however. They also do not wish any official form of conservation for these outcrops, resistance due to the fear of the EU’s Natura 2000 Programme which probably will restrict the right for land use in certain regions of Finland.

Use in education

Many of these outcrops are among the region’s most representative. Outcrops are used as excursion stops during geologists’ visits. Regarding the use of such sites for educational purposes there is a problem of privacy, which should not be violated. Groups of students or general public should be limited in number, and it is recommendable to ask permission to visit the sites. Application of interpretative principles is not
recommended for those sites. Such principles could be implemented on those outcrops with status of geosites or with some other special importance.

The role of local people in geological conservation

The local community participation is important in geological conservation and education (O'Halloran et al. 1994), especially in inhabited milieu (Bennett et al. 1996). In the present case, the local inhabitants are the best preservers of the mentioned outcrops. Exposing and maintaining bedrock outcrops by inhabitants is a great contribution to geoscientists who study a determined area (Eerola 1999).

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Toni Eerola

Fig. 4.
Fine grained gabbro with felsic ameboid layers (front). Note the rock instillation (back) and a glacial boulder (hammer). Photo by the author.
A conservation story from Oslo, Norway

An early morning last autumn a report in the local radio of Oslo woke us up. A decision by the local authorities was launched to secure, at least temporarily, a pot-hole in a private garden in the southern part of Oslo. As active workers in nature conservation on different levels of nature management in the 1980’s and 90’s the geotope was indeed known to us, with a small amount of bad conscience. This is the story of a geocentury case where central authorities were unable or unwilling to do the job, but where local enthusiasts did not give up, and now they hopefully and steadily move towards victory.

It has something to learn us about the importance of local initiatives, the limitations of bureaucratic institutional conservation schemes, nature evaluation criteria and the local responsibility to secure local geodiversity.

The geotope

The first description of the pot-hole was published by Brøgger & Reusch in 1874. These two (later nestors, then students in Norwegian geology) was in 1873 participants on a field trip with their professor Th. Kjerulf along the main faultline coast of the Oslo fiord. Here they discovered 19 potholes within a very small area near the coastline. These were all destroyed when a railroad was constructed in the area.

During this fieldtrip Brøgger remembered a hiding place he had used as a child on his grandfathers property in the area. This way the pothole at Bekkelaget was found. It was dug out the following winter revealing an impressive depth of 13 meters compared with the rather modest width of 2,5 meters. Based on the investigation Brøgger and Reusch wrote an article that for long was regarded as a classical description of potholes. Reusch, known for his many nice geological sketches, illustrated the article with a sketch from the dig (fig 1).

However, the pothole was not registered in the country plan for areas and sites of conservation value (Jesang 1979, Erikstad 1984), nor was it included in the review of important Quaternary localities in the Oslo and Akershus counties (Sørbøl & Strandvik 1987, Erikstad 1994b).

How to protect a pothole in a garden

Later this pothole was more or less forgotten. A local historian, Egil Schelderup, rediscovered the pothole in 1973 in a back garden between new houses under a concrete wall. It was filled with rubbish and closed.

Egil Schelderup has later worked hard to protect the pothole. He has even paid to empty it for rubbish (fig. 2). He has had good support from the local welfare organisation (Selskapet til Bekkelagets vel). The area has been cleaned and a nice iron work fence has been erected to protect people.

Fig. 1. Digging out the pothole in 1873. Illustration from Brøgger & Reusch 1874.
Jettegryten utgravd etter 20 år

Etter 20 år arbeide ble den sørgeløse jettegryten på Nedre Bekkelaget avpennen i går - fordyt utgravd.

18 MÅN. VÅNEN, Fylke og borger

Jettegryten, som naturkonservatoren, var den sist til randen, og mest sporet av et menneske i.

Schjelderup med sin ytterligere voldfri, tøff og energisk, en kinesisk, en forvirret, og bekymret er det noen dam til å liv fylte med. Fast for et eller så det har Schjelderup besluttet, Oslo kommune har så det vil belte, og ferdigheter er fremmed, men det helhetlig har dammet i sin best.

10.000 år


Schjelderup med sin ytterligere voldfri, tøff og energisk, en kinesisk, en forvirret, og bekymret er det noen dam til å liv fylte med. Fast for et eller så det har Schjelderup besluttet, Oslo kommune har så det vil belte, og ferdigheter er fremmed, men det helhetlig har dammet i sin best.

from falling into the hole.

It is generally a high area pressure in this part of Oslo, and it is a real danger that the geotope will be destroyed. It has therefore been an effort to make central authorities aware of the geotope and launch a formal protection. This has not been easy, and it is here we indeed has something to learn from the story.

In 1986 the property where the pothole is situated, was taken in arrest by creditors due to private economical circumstances. This increased the danger for the ground to be sold for building purposes. Since then the local welfare organisation has worked to protect the site.

In October 1992 they addressed the County governor for a permanent protection of the pothole according to the nature conservation act (Erikkstad 1994a). However the county governor passed the question on to the Oslo city government, and supposed that the community could buy the ground, and erect a nature monument. The fol-

In October 1998 they renewed their application and addressed different state- and community authorities to take action to protect the pothole.

The Department of Environment at the County governor wrote to the Directorate for nature management and suggested a temporary protection by the nature conservation act, until the question of permanent protection was settled.

Various departments as the city inspectorsate of ancient monuments and historic buildings, the city authorities for environment and health as well as the University of Oslo, strongly supported protection.

Too much support has not arrived from the central authorities, but in 1999, the Oslo community council agreed with their planning - an building office to prohibit building on the ground until a final land use regulation could be established as, a part of a district regulation (hopefully in 2001).

What to be learned

From this unfinished tale, yet without a permanent happy ending, we can learn at least four important lessons:

- About the bureaucracy: It is slow and difficult to penetrate when you first have missed your aim, even if you are reasonable up to date and within the system. Moreover as decision-makers, they always "do know best" in the sense that it is fairly useless to ignore signals regarding change in policies and practice. Then new approaches must be tested to adapt to the situation.

- About evaluation criteria: During the last decades it has been a shift in evaluation criteria from small single objects as trees, erratics and potholes towards larger systems as forests, ice marginal deposit systems and landscapes. It is easy to forget that high natural value also can be found in the details. Probably this is what has happened here. It is clear for us that this small geotope is important of the following reasons: In this part of the country it is not many of them left. It is representative in shape and location. It is situated near universities and schools and have a high educational value. It is classic in Norwegian ge-
The fence erected around the pot-hole protecting people falling into the pothole


Lars Erikstad & Jon Markussen

Changes in treasury function

As a consequence of a decision made at the ProGEO 2000 Prague Meeting, Gunnel Ransed is replacing Alf Grube as the Treasurer of ProGEO. A certain number of weeks will be needed to make all formal arrangements and to open a new bank account for ProGEO. Until then, the registration of membership payments requires personal handling, and the Financial Committee asks you to postpone this or next year’s payment until further notice. Gunnell and others will check the financial status of the Association as soon as Alf had the opportunity to settle the business in Germany. After that, as a reminder, an invoice will be sent to all registered members in October. New members will have to register with the Secretary (or the Treasurer) in order to get an invoice for membership payment, and, after payment, a membership card. In connection to the invoice procedure, the different rates for different nations will be decided. We will provide more information as soon as formalities are settled.

For the Financial Committee,

Gunnel Ransed, Treasurer and Lars Karlssen

References

## Adresses

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<tr>
<th>Name</th>
<th>Address</th>
<th>City</th>
<th>Country</th>
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<tbody>
<tr>
<td>Toni Eerola</td>
<td>Department of Geology and Mineralogy</td>
<td>Helsinki</td>
<td>Finland</td>
</tr>
<tr>
<td></td>
<td>University of Helsinki</td>
<td></td>
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<tr>
<td></td>
<td>P.O. Box 11</td>
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<td></td>
<td>E-mail: <a href="mailto:tonieve.eerola@kolumbus.fi">tonieve.eerola@kolumbus.fi</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. L. Karis</td>
<td>Geological Survey of Sweden</td>
<td>Box 670</td>
<td>Sweden</td>
</tr>
<tr>
<td></td>
<td>S-75128 UPPSALA</td>
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<td></td>
<td>Sweden</td>
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<td></td>
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<tr>
<td>Vladimir Makarikhin</td>
<td>Inst. of Geology</td>
<td>11 Puskinskaya str.</td>
<td>Russia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>185610 Petrozavodsk</td>
<td></td>
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<tr>
<td>Miljøvernadvelingen i</td>
<td>Oslo and Akershus</td>
<td>8111 Dep</td>
<td>Norway</td>
</tr>
<tr>
<td>Oslo</td>
<td>0032 Oslo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gunnel Ransted</td>
<td>Geological Survey of Sweden</td>
<td>Box 670</td>
<td>Sweden</td>
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<td>Sweden</td>
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<tr>
<td>Lars Erikstad</td>
<td>NINA</td>
<td>Box 738 Sentrum</td>
<td>Oslo</td>
</tr>
<tr>
<td></td>
<td>N-0105 Oslo</td>
<td></td>
<td>Norway</td>
</tr>
<tr>
<td>Jon Markussen</td>
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**Deadline for contributions to next issue of ProGEO NEWS: 15.09.00**

**ProGEO:** European Association for the Conservation of the Geological Heritage. **Treasurer:** Gunnel Ransted. **Membership subscription:** personal: 50 DM/yr., institutional: 300DM/yr. **President:** Dr. T. Todorov, Geological Institute of Bulgarian Academy of Sciences, George Borchov St. 24, Sofia 1113, Bulgaria. **Executive Secretary:** W. A. P. Wimbledon, Postgraduate Research Institute for Sedimentology University of Reading, Whiteknights, READING RG6 6AB, United Kingdom.

**ProGEO NEWS** - A ProGEO newsletter issued 4 times a year with information about ProGEO and its activities. **Editor:** Lars Erikstad, NINA, Box 738 Sentrum, N-0105 Oslo, Norway. Phone: +47 23 35 51 08, Fax: +47 23 35 51 01, e-mail: lars.erikstad@ninaost.ninaniku.no. Contributions preferred on diskette (Word- or ASCII-format) or by e-mail if possible.