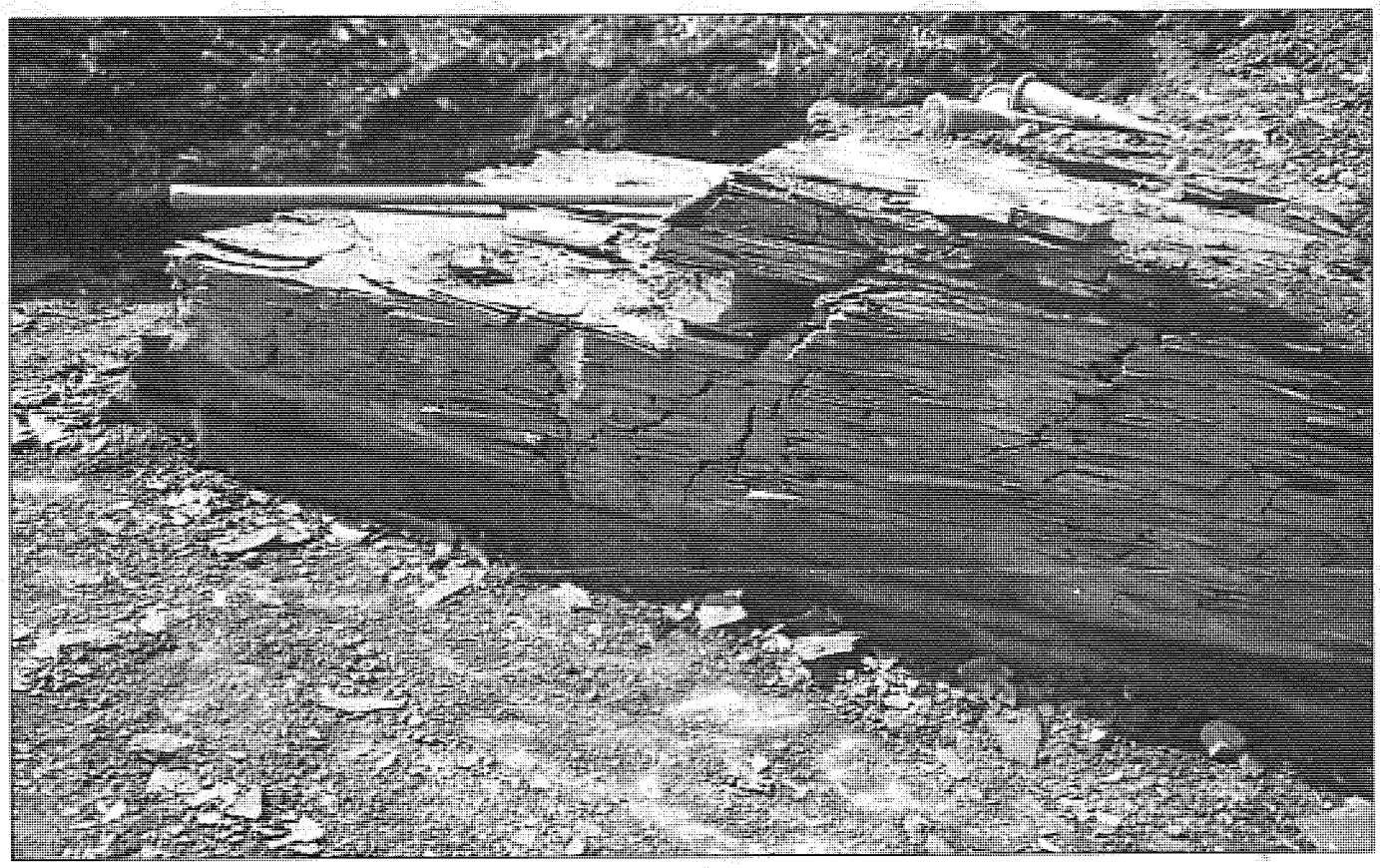
ProGEO NEWS

No. 4 1996



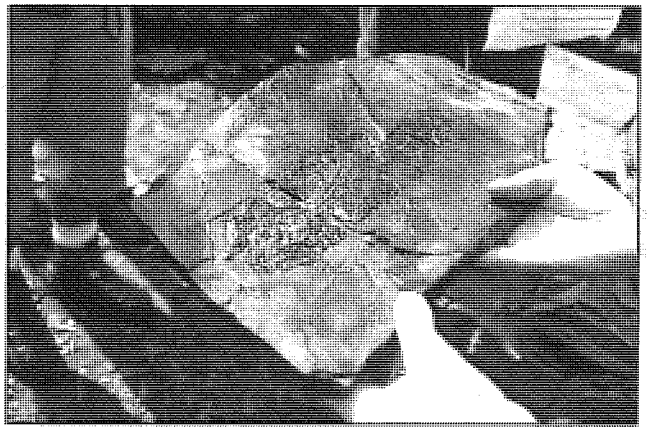
Typical block of oil shale from the Messel Pit Fossil Site, Germany, one of the few European geology sites included in the World Heritage Natural Sites. Photo: L. Erikstad.

ProGEO

From IUGS News magasine: "Episodes"

A new IUGS initiative to compile a global comparative site inventory, an aid to international and national conservation activity

Some geologists only notice that geoconservation is a fact of life and a necessity when a key site which they cherish is damaged or lost. Geoconservation is a vital support to the prosecution of geological research, education and training. Often nationally, and certainly internationally, geological conservation has been the Cinderella in nature conservation. However, geoconservation is a key element in conservation as a whole, and the physical and geological natural wonders of the globe deserve just as much recognition as other elements. Taking a holistic view, geology underpins all landscape and biotic nature, and biodiversity is frequently determined, or at least influenced strongly, by geodiversity. Geo(morpho)logical sites and terrains of outstanding global significance certainly merit conservation, on a par with other internationally significant sites, such as those protected for wildlife or their wilderness value. The geological story , time and its scale are a continuing source of wonderment to Earth scientists



The Messel Pit Fossil Site is wellknown for its fossils from the Eocene, as this fish found and demonstrated for a ProGEO excursion group during the ProGEO meeting in Germany some years ago. Photo: L. Erikstad.

and, always, to a lay public: the conservation of sites which encourage and foster such wonder and awe is a challenge we face as geologists. From that awe and an understanding of sites comes respect, and an appreciation of the need for conservation. The wonder and the importance of the geological record lies in and is demonstrated in sites and terrains.

Last year IUGS, on behalf of the international geological community, set up GEOSITES, an ambitious global scheme to promote geoconservation, focussing on the identification of globally significant sites.

Past attempts at selecting geological sites for World Heritage status have come up against the problem that there has been no international listing of key Earth-science sites. IUGS initiated GEOSITES (it is now also under the auspices of UNESCO) in part to address this problem, and to realise geologists' ambitions to have a representative selection of internationally significant sites and terrains included in world and regional listings, and site designations.

The GEOSITES project, under the guidance of the Global Geosites Working Group (GGWG), aims to produce an evolving, comprehensive inventory (and database, to be held at IUGS Trondheim) of the most valuable sites for geology: sites included will be Geosites. Such a project has potential usefulness for education and research: it certainly has potential for promoting a greater knowledge of geology amongst a wider public, and for use in broader initiatives in geoconservation, including schemes to define international designations of site. It particularly invites cross-border links and collaboration.

Only geologists can compile a global geosite inventory and justify the significance of localities. This task will certainly take some years to achieve. It requires the promotion of meetings and workshops that examine site selection criteria, selection methods or conservation of key sites, and these tasks are already involving specialists, research groups, associations etc. Ultimately, it will be possible to advise IUGS (and UNESCO) on the priorities for conservation in the global context. Without such a global inventory, and allied comparative assessments, designation of global sites would be much harder and open to the accusation that they were not based on an objective examination of the global picture.

GEOSITES methodology - the challenge The Earth is four and half thousand million years old. How do we demonstrate and judge what is valuable in that portion of history which survives in the rock record - evidence of plate growth, migration, collision and destruction, the evolution of life, of sedimentary basins, of mountain chains, rifts and volcanic provinces? To make any sense of the complex geology of any country or region, a concerted effort is needed to discern the patterns, to define the context and fit sites (compared and graded) into that context.

Fortunately, the same classifications of rocks and landforms, of minerals and fossils, and divisions of geological time apply worldwide, so site categorisation is fairly easy. The identification, suggestion and selection of potential sites for the international listing is the real task. The scale of this undertaking immediately requires that a systematic method be employed, including integrated inputs from national and supranational groups of contributors.

If geological and landscape history had been the same in all parts of the world, and if the environments, minerals, rocks and fossils had been of uniform distribution, then the task would have been a simpler one. A lesser number of sites might have sufficed to

President's Forth dimension

Remote sensing using sensors in different levels - aeroplane borne or satellite-carried - in connection with GIS is effective to get spatial and repetitive information on land and waters. However, it does not reveal all the truth of geology and landscape elements, but the methods give good indications and guidance where to perform ground investigations. Remote sensing images can also give smashing information on land and water conditions.

'The Fourth Dimension' may also be expressed as communication, for instance by e-mail or fax. They help a lot - when they really work. This is not always the case, sorry to say. I regret that my new communication functions have not worked to and fro. This 'Off-Fourth Dimension' may depend on hardware or software errors, or more probably the human factor, or some inhuman interference. This may be due to witches or other beings from Tellus or other planets. My information system is probably bewitched in some way or another. The human factor, however, is the most suspected one: I am probably not compatible with my new PC...

Hereby I promise to keep my PC, e-mail* and fax** much more open for communication.

It is a pleasure to state that the planning of ProGEO '97 proceeds quite well thanks to the systematic work of our Estonian friends. Veli Suominen and I have attended one constructive planning meeting in Tallinn in October. Rein Raudsep reported further progress to our Executive Committee in November. (See also this issue of ProGEO NEWS.) There are good chances to get funds from Sweden and Norway to support us. We think that ProGEO '97 can be used as a model of conveying know-how to plan, perform, document and inform on Geoscientific Nature Conservation especially in Eastern Europe but also Western Europe.

We can also report progress in the Northern European work on a draft Geosite framework and candidates. There are chances to get funds for a 2-year project from the Nordic Council of Ministers, and also for another 2-year project to show the importance of Geodiversity in Nature conservation. There is much co-operation between the Nordic, and Baltic countries.

I want to see more 'Geosite Candidates of the Year' presented in ProGEO NEWS and our Homepage. May I also suggest 'Geosite Inventory...' and 'Geosite Protection Plan...'? And 'Paper Presentation of the Year'?

I expect well-prepared contributions to ProGEO '97 to show Europe and other Continents how knowledge of Geoscientific Nature Conservation can be well conveyed and also support Geo-tourism and Employment.

It is really fascinating to find an a black-and white photo copy from China in ProGEO NEWS 3 - reproduced in multi-colour in our Homepage. That's another side of 'The Fourth Dimension'...

Carl Erik

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demonstrate global patterns. However, this is far from being the case. We have therefore to select a limited, but representative, set of sites, to produce a balanced coverage between countries and regions. That group of sites has to represent all, or at least many, of the truly significant processes and events, time periods, features and topics. Geology and landscapes do not respect national borders: therefore coverage of sites and terrains has to conform to regional patterns.

Any ad hoc method, would be unsatisfactory, for sites are then viewed in isolation, and the result would be a fairly random product, leaving too much to chance. The same could be said about selection based on particular kinds of sites, concentrating on, say, spectacular mineral sites, or sites related to Man, or certain geological periods. It would be no simple or obvious matter to choose five or ten token sites to represent a geological period or minerals worldwide! Also, this method ignores the complexity of the rock record, and it could not give a fair coverage of localities between the countries; broader patterns cannot be thus assessed, and some countries would finish by having few or no sites in the list.

What is more, all countries do not have their geological sites inventoried (although GEOSITES may help with that problem), let alone designated or protected in some way. Selecting a global list on the basis of pre-existing designations would therefore be difficult.

Time is of course the big factor which separates geology from other disciplines: in putting together a global listing, it is necessary to have representation not only of processes and features, but also to exemplify these through geological time. We avoid therefore the temptation of selecting just a few superlative localities ignoring the time matrix. It is not an easy task, however; using the fossil record as an example, GEOSITES has already come up against the puzzle posed by major extinction events in the Phanerozoic. Nineteen large-scale events that have been recorded (those with more than 50% species loss), each with varying degrees of clarity and precision. Some work is needed to decide which sites best represent an event, but first it has to be decided which events must be demonstrated.

Selecting the 'best' mineral or fossil sites, or one or two sites to demonstrate a system, say the Jurassic sounds simple. However, is it, if one considers the notion of geo- and palaeobiodiversity? The Jurassic, for instance, was over 75 million years long, with broadly distinctive, but changing, fauna and flora, reflecting in part climatic and topographic change, and fluctuating sea levels. Even such well known Jurassic sites as Tendaguru, Durlston Bay, Solenhofen, Stonesfield or Como Bluff (all included in the GEOSITES inventory, and superlative localities!) show only a fraction of what is special or typical in that period.

Avoiding the pitfalls of ad hoc and subjective approaches, we are looking to use methods which have scientific rigour, producing a balanced and fair coverage between the countries.

A method based on systematic survey and comparative assessment Having taken the first step of recognising the scale of the geological resource and the potential number of interests available, we have an indication of the potential for selection and the numbers of sites involved, based on various natural classifications of geological themes and time.

We wish to identify and document, not token examples, but those features, sites and areas which show broader patterns, which allow comparisons and correlations and give an in-depth understanding of the Earth's evolutionary story. In any balanced compilation of a regional or global inventory, certain kinds of site need to be included. These should show significant stages, the special and, especially, the representative. There is no possibility that GEOSITES could include all the vital stages of the inanimate or fossil record of every period, epoch or stage, or region although the ambition is to encompass many of them. The superlative nature of the site will ultimately determine selection; selection being carried out in a comparative and thematic way, comparing sites' interests and their merits in a defined context or pattern (Wimbledon et al., in press: Zagorchev, in press). The use of such topic, time and regional frameworks is vital, otherwise the enormous diversity of geological history would be too much to assess: we would 'drown' in the detail.

Contributions GEOSITES in practice relies on contributions of site suggestions from country committees, national agencies and individuals. The aim is to channel such suggestions of single localities through regional working groups, each endeavouring to place a locality within a meaningful time, rock or other setting. Such regional groups will be able to call on the advice of other specialists, including, for instance, IUGS subcommissions.

The inevitable corollary to the broader comparative approach, taking full cognizance of geological time and diversity, is that compilation of a definitive inventory for GEOSITES, if done properly, is a large task, which will take some years to complete. There is no 'quick fix' that will allow the instantaneous definition of any kind of geological site list, let alone larger inventories, and colleagues involved in pilot schemes in Europe have estimated that there it will take at least three years work to refine criteria, to define regional frameworks and to achieve a preliminary listing.

To make a professional job of it, inputs must be invited from all with an interest in the sites. Although regional comparative assessment and validation is important, indeed the key to the process, ultimately all selections will

be made by geo(morpho)logists within the countries: workers must be left to propose those sites which they judge represent the geological record of their region. Considering complementary sites, and not just the most obviously superlative ones, GEOSITES can accommodate sites or terrains ranging from those of high sub-national value, through national and regional, to those of the highest international significance.

Early application of GEOSITES technique In Europe, a number of national groups and individuals have already started to take up the challenge, and this work is acting as a pilot for GEOSITES in a global setting. ProGEO (the European Association for the Conservation of the Geological Heritage) is acting as an agent for IUGS in compiling a European inventory, and its regional working groups are assembling sub-European listings. As an example of the approach, Europe, as a geological entity, is being considered under its natural subdivisions - the Precambrian shield, the Caledonian orogen, the Variscide front, the Variscan massifs, the Alpine fold belts and so on. Within each tectono-geological framework element, stratigraphic, igneous or metallogenic successions or events can be considered. The aim will be to demonstrate the key features in, for instance, a tectonic setting such as the Variscan Front or a stratigraphic sequence within such a tectonic framework element, such as a Tertiary section in the Danish Triangle or volcanics in the Oslo Graben, or ice-front features from the Weichselian glaciation.

To compile regional inventories, selection will be made within regional geological contexts such as those just described, placing sites within national and regional contextual 'shells', like nested Russian dolls. In addition, specialist groups will be asked to work in parallel, contributing on particular topics, such as mineral groups of tectonic elements, within their purview. Work has already started on a draft international list of sites recording the salient features of palaeobotanical history (a first draft list was presented at the IGC in Beijing), and discussions are going on over a similar vertebrate listing. The former list will contain sites demonstrating the most important elements in the evolutionary story of plants, related to environmental and other change. It, like other specialist inputs, will be used to assist national efforts, and as an aid in documenting sites and a guide in making selections.

Conclusion GEOSITES offers prospects for strengthening efforts in both national and international conservation settings: lending support and helping to further national, internal initiatives and giving geologists regionally a focus for cross-border collaboration. It, for the first time, gives IUGS the possibility of having a database and an organic liaison network which it can use to advise on the scientific justification for global conservation priorities.

Geologists want to see a representative coverage of geo(morpho)logical sites in the World List. GEOSITES has the potential to lead to a justified world inventory, with truly validated selections. It can help to put geoconservation 'on the map', and perhaps allow the proposal of candidates for the World Heritage List based on objective judgements.

IUGS has already contacted all national committees to acquaint them of the start of the GEOSITES project. Pilot studies for the project set up in Europe, devising and testing criteria and selection methods, have been running there for some months. Enthusiasm for the work has been expressed in many countries, and contacts have been made in most continents to make a start on setting up networks of contributors.

If Episodes readers wish to further the aims of IUGS, in involving geologists in regional and global geoconservation efforts, they are asked to join in the work of the Global Geosites Working Group, to join one of the regional groups being set up (if in Europe, to contact ProGEO), and to take part in the proposal of geo(morpho)logical heritage sites from their country.

W.A.P. Wimbledon, S. Andersen, C.J. Cleal, J.W. Cowie, L. Erikstad, G.P. Gonggrijp, C.E. Johansson, L.O. Karis, V. Suominen. (in press) Geological World Heritage: GEOSITES - a global comparative site inventory to enable prioritisation for conservation. In Proceedings of the Second International Symposium on the Conservation of the Geological Heritage. Memoirs of the Geological Survey of Italy

ZAGORCHEV, I.S. (in press) Geological heritage of the Balkan peninsula (an overview) Geologica Balcanica 26

W.A.P. Wimbledon Chairman Global Geosites Working Group

ProGEO Executive Committee

Summary & Action points from ProGEO Executive Committee meeting: Stockholm, 18 November 1996

Present : President, Veli Suominen, Lars Karis, Rein Raudsep, Lars Erikstad, Bill Wimbledon, and Hanne Refsdal for items 4 and 5 (Apologies from Gerard Gonggrijp, George Black, Alf Grube, Odon Radai, Francesco Zarlenga and Patric Jacobs)

1) Estonia meeting Rein Raudsep outlined the programme. Small amendments were suggested. In particular, a double programme, so parallel sessions of talks could be run was agreed. It was agreed to concentrate on database rationale and form in one of the sessions (as an aid to the Geosite Trondheim database). It was agreed to charge a reasonable fee from 'western' Europeans (1250 Est Kr) so as to give a boost to finances. A vote of thanks was given to Rein. A final planning meeting was suggested to be held at the time of the next NW working group meeting in Tallinn in March.

2) Budget Lars Karis presented a paper on finances, based on consideration and dsicussions with Alf Grube. He thought possibilities on sponsorship were reasonable. The situation with membership subscriptions was not satisfactory. Secretary to place notice on this subject in next newsletter. Sponsorship discussions to continue.

3) Elections Discussed make-up of a new committee. Veli Suominen is to stand down, which was accepted with sadness by committee. Other possibilities for bringing in new blood were discussed. Names of possible candidates were suggested and agreed. It was agreed Executive Secretary should investigate further and report back.

4) External relations: Bill Wimbledon outlined the substance of his discussion in Beijing with Patric Jacobs and Guy Martini on the roles and relationships between ProGEO and Malvern group. Not much discussion was generated by this item. It has been noted that it is some doubt and concern about the relationship between the Malvern group and ProGEO in international fora like IUGS. This is a problem that is not caused by ProGEO. It was agreed that the issue must be solved within short time

5) Publicity Newsletter funding was discussed: it was agreed that discussion would be needed with Norwegian colleagues on continued funding. Published proceedings of major meetings were discussed Suggestion of a paper for Naturopa every second year. Childrens competition as per the Hungarian model: Secr. to consult Odon Radai. Trails with a common name in all countries Poster possibility: contact IUGS

6) Projects: discussion deferred.

WAPW 29 Nov. 1996

ProGEO "Geosite of the year"

The North Estonian Clint - a magnificent geological monument in Estonia

The south coast of the Gulf of Finland is bordered by a steep and high escarpment - North Estonian Clint (in Swedish and Estonian - klint). Geologically, it is part of a much more extensive landform - the Baltic (Baltic-Ladoga or Ordovician) Clint.

As is known, the Baltic Clint begins from the western coast of the Island of Öland in Sweden, continues under the sea to the western coast of Estonia, runs through Estonia to Russia and disappears under Devonian rocks on the southern shore of Lake Ladoga.

Situated in the transition zone from the crystalline rocks

of the Fennoscandian Shield to the Palaeozoic sedimentary rocks of the East-European Platform, the Clint serves as an important natural boundary.

The Geological section of the North-Estonian Clint is well known and rather simple. The Cambrian and Ordovician weak terrigenous rocks crop out in its lower part and are overlain by harder Ordovician carbonates. The rocks are dissected by two crossing systems of joints. These geological features have played an important part in development of the Clint.

The height of the Clint increases from west to east. On the Island of Osmussaar where the Clint emerges from the waters of the Baltic Sea, it is 6 metres high. On the Pakri Cape, at the first point on mainland, its absolute height is already 24 m.

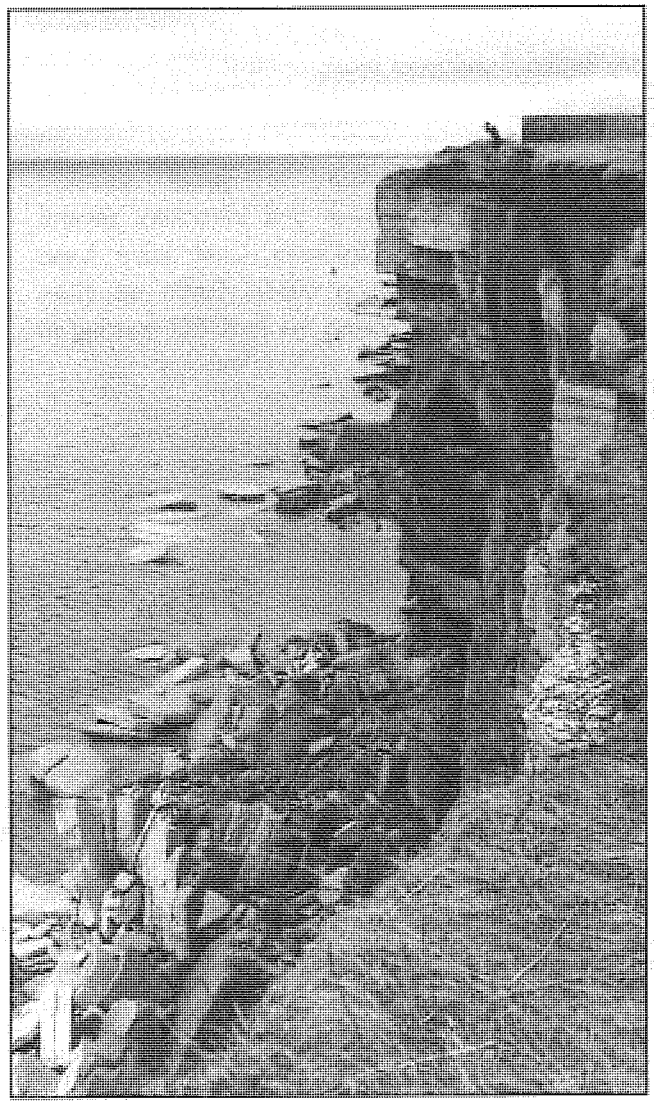
Its relative height is greatest at Ontika (55.6 m). To the East the height decreases gradually. In places the waves wash foot of the steep. At these sites a picturesque view opens from the edge of the Clint to the sea and multicoloured stony wall.

More frequently the Clint is represented either by limestone scarps with talus in its lower part or gentle slope, completely covered with vegetation.

The Clint is divided into peninsulas, stretching from mainland far away towards the sea, and interstitial bays. In clint bays the bedrock is often up to 100 metres below sea level.

After the retreat of the last ice sheet, North-Estonian rivers developed deep valleys with abundant rapids in clint bays. Spilling over the edge of the clint, the rivers form numerous waterfalls, 3-26 m in height, which together with the waterfalls in Russia make the unitary Baltic fall line.

Among numerous hypothesis, most popular is the opinion that the Clint is a denudational landform that is part of the cuesta-like bedrock topography of the East-European Plain. Most likely, the Clint developed and recessed as a



The Baltic Clint on the Pakri Cape. Photo by A. Miidel

scarp on the boundary of crystalline and sedimentary rocks, This process was triggered off by the activating of denudation in the Paleogene after the asymmetric uplift of Scandinavian Mountains and NW part of the East-European Platform.

The North-Estonian Clint is undoubtedly the most impressive natural monument in Estonia. In 1996, it was chosen as a symbol of the Estonian landscapes. It is a large outcrop of great international significance for geologists, investigating Cambrian, Lower and Middle Ordovician

rocks. On the basis of the Clint or close-lying type sections many regional and local stratigraphical units have been established.

Taking into consideration its great scientific significance, aesthetic power and attraction, several sections of the North Estonian Clint have been designated as conservation areas. Some on these sections will be visited during the ProGEO meeting in Estonia in 1997.

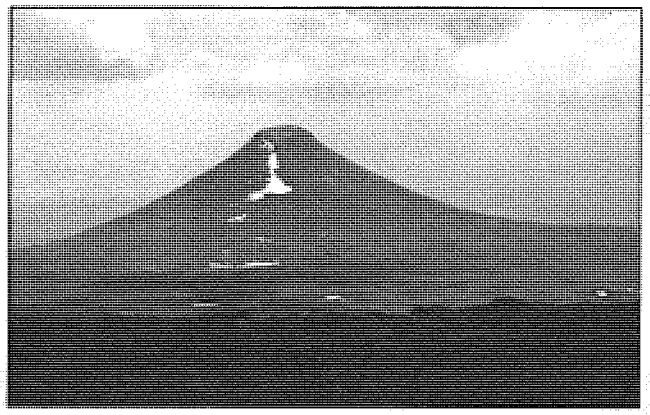
Avo Miidel
Institute of Geology,
Estonia

ProGEO regional meeting

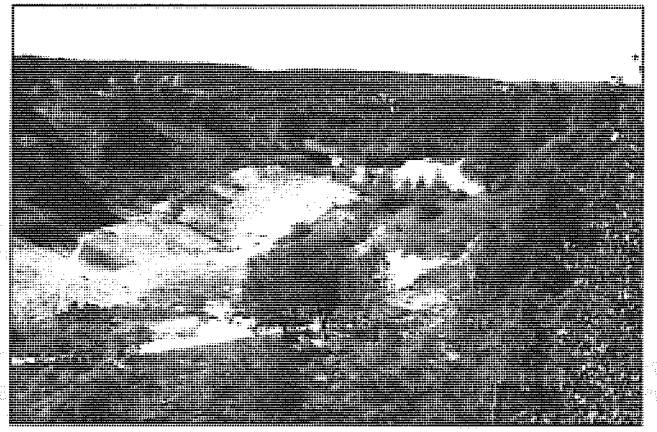
The Northwest Europe regional group of ProGEO had its 3d meeting in Stockholm in November. Representatives from UK, Estonia, Finland, Sweden and Norway were able to attend and discuss guidelines and draft candidate lists for Geosites. Hanne Refsdal from the IUGS secretariat was also present.

Dr. Lars Esping, SEPA, informed about the UNESCO World Heritage Committee. He appreciated very much the cooperation with ProGEO. More geological sites are required as a good basis for World Heritage Sites, although the number of sites on the actual World Heritage list in Europe will be very limited.

A concept of running the GEOSITE project in Northwestern Europe, drafted by Steen Andersen was discussed and will form the basis of the work. There are good chances of a grant from the Nordic Council of Ministers Environmental Protection Committee for the project Geological regions which is planned to support and match the Geosite work.



Städjan, an isolated remnant of the Lower Allochthon in the southernmost Swedish part of the Caledonides, reaching 1131 m a.s.l. The Srädjan - Nipfjället Mountain Nature Reserve. photo C. Fredén 1991.



The previously quarried Eke Kuröd shell deposit at Uddevalla, SW Sweden. The deposit, presently at 55 - 65 m a.s.l, carries more than 100 invertebrate and 15 vertebrate species and spanning the interval 13000 to 10200 BP. The area is a Nature Reserve since 1983. Photo C. Fredén 1986.

In the months to come drafting of a first tentative candidate list of sites will be given priority. A first draft list for Sweden was presented (see pictures). It comprizes ca 100 sites divided into types according to the National Atlas of Sweden: Geology. The compiling, i.a. based on the presentation in the book, took a few days. Draft lists from Estonia and Finland were also reported soon to be produced. In about 8 months a uniformed database will contain perhaps 1000 localities in the region. This is a rapid start for a draft candidate list.

Hanne Refsdal informed of the IUGS Geosite Database. The importance of essential data and future validation of information was emphasized. Further growth of the database was frozen and awaits the flow of sites generated by Geosite groups. It was agreed to concentrate on standardisation at the database workshop in Tallin in June.

The next meeting in the group will take place in Tallin March 9 or 23, 1997. The strategy concept is to be discussed, as well as the first draft candidate lists.

Curt Fredén
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Interim report from the financial subcommittee

Financial support to the European Association for the Conservation of the Geological Heritage, ProGEO.

Three members of the Executive Committee , Alf Grube (treasurer), Lars Karis and Veli Suominen, were appointed at the Sigtuna Meeting in June 1995 to form a subcommittee in order to improve the finances of the ProGEO organization. Analyses and marketing have been concentrated to this year.

At present, practically all ProGEO cash funds are based on membership fee, institutional as well as individual. Today, ProGEO has 50 registered members, but unfortunately this number does not have a corresponding level in our treasury box. 4 institutions are paying members, which give a substantial contribution to the cash flow. 10 to 12 new members joined ProGEO after the Rome Meeting, which is one of many exciting and promising results of the excellent Rome Symposium. However, we are all facing the brutal fact that present funds will have to multiply to meet future demands. One way to improve the situation is, of course, to urge all members to pay their fee, but still, there is a long way to go. In the discussions we have seen that there are large national differences in fund- rising, which means that only very general guidelines can be provided by the financial group. We ask all national representatives and their national networks to look into these matters from their national point of view and, if convenient, report back ot one of us in the next two months about their ideas. Maybe we can find some valuable general guidelines in your contribution. There is one thing you and your network can do right away; make ProGEO known in your community and also nationwise. This will definitely raise the status of our Association and make it more attractive to sponsors as a partner and consultant.

Membership fee ¥97. A new year lies ahead and we will ask you already now to plan for your payment to ProGEO in 1997. Please remember the formal deadline, March 31st, 1997. Those of you who transfer the membership fee before that date will get a membership certificate or card, valid for voting at the General Assembly or at a postal voting.

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Geotrip 97

Next year ProGEO organises Geotrip for the second time. The first one (1995) was rather successful. About 15 countries organised activities for the general public. In Rome we agreed on the continuation of Geotrip every

other year in the 3rd full week of September. In 1997 this means 20-28 September.

Organisations
The activities can be organized by the national representative ProGEO organisation or any ad hoc national committee or group.

Activities
The national committees are free to set up their own activities, for example:
- Excursions during the period 20-28 of September,
- Open days in nature reserves, museums and institutes focussed on earth sciences with some special attention on geoconservation,
- Special exhibitions on the subject,
- Meetings (symposia etc) on subjects like:
* geoconservation: from inventories to management
* human impact on geological landscapes
* importance of geo (morpho) logical and pedological structure for ecology and the necessity to protect the abiotic component
* importance of the geo (morpho) logical structure for cultural-historical development and the necessity to protect the geological component as well,
* etc, etc.
- Publications varying from special leaflets for a single site to books and meeting reports. Video's, CD-i or CD-rom,
- Establishment of a Geomonument or Georeserve. Sometimes it can easily be realized in an existing protected area. Just by raising a display, publishing a leaflet and a official opening. (Like in The Netherlands, where a special part of a protected ice-pushed ridge has been proclaimed as a geological monument).

Priority
Whatever you want to organise, we would ask you to participate at least in ProGEO's Eurpean Geoconservation Excursion Day: Geotrip. To hold geological excursions all over Europe at the same time can result in an enourmous positive publicity impact.

Guides
Some suggestions:
* Involve geography/geology teachers, museums, geologistts, geographers, soil scientists, professional as well as amateurs all over the country and ask them to organise the day in their region.
* The excursions can be organised on foot, by bicycle, by car or by coach and can vary from visiting a geological nature reserve to exploring a geologically important and interesting region.
* Locate an expert on an instructive or spectacular site and anounce permanent explanation on the site a special day.

Let people book in advance to avoid unpleasant surprises. Too many participants or vehicles for a fieldtrip is not comfortable (by foot ca 20, by bike ca 15-20, by car ca 5-6 cars, by coach 40-50 plus extra companion).
* Of course the excursions should attract the general public, so keep the costs as low as possible or obtain sponsorship.

Publicity
Use the ProGEO logo on all your correspondence!

Try to get all your activities organised in time so you can make a leaflet with all the information about the activities.

Inform the press, radio etc., national as well as regional and relevant journals. Send a Press Release some weeks before the event.

Contact the specialist journalists, who write about nature and the environment in national, regional and local papers depending on the scale of the activity by sending them advance information on the activity. Some time later, phone them as a reminder and persuade them to take notice.

National papers are interested in nationwide activities such as national and international symposia.

Regional/local papers are interested only in regional/local activities or national activities when they are organised in

their region, especially when organised by local people. These papers should be used for advertising the excursion(s).

For the national, regional and local radio and TV stations, the same strategy can be followed. For all media it is clear that personal contacts produce the best results.

Fund raising
Fund raising is a specialism. Be inventive! Maybe a coach company can be induced to provide some money or even a free coach if they get some publicity in a paper or on radio or TV. Oil and quarry companies etc. might be willing to finance a special exhibition if their logo is used. Most activities however, do not need too much money and can be executed with volunteers.

Reaction
Please send your detailed plans to the ProGEO co-ordinator (project officer Gerard Gonggrijp as soon as possible) who will spread the information to all ProGEO national co-ordinators and international organisations in order to show them what is going on.

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ProGEO Homepage (2)

The publishing of ProGEO News in the ProGEO Homepage is slowly coming to order. At present a deficit of staff in the computer department makes it difficult to manage a prompt transfer from text and pictures to html on external server (format for web pages). This will, hopefully, be overcome before the next issue.

This brings us to the next challenge, national sub-pages in non-English languages.

For those of you who arer willing to try a national page, within the magnitude of one text page to start with, are welcome to send your contribution to me either as an attached .txt-document to an e-mail: lkaris@sgu.se, or transmit it in the same format to http:// ftp.sgu.se/pub/incoming. Please accept slow handling in the first phase, I know how many obstacles there are to overcome.

Lars Karis
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ProGEO Subscriptions

Dear member,

This is a final reminder to to you as a ProGEO member to pay your
subscription.

Remember elections will take place next year. Election procedures start in
February. Then the Treasurer will inform the Secretary if you have
paid your subscription. If you have not paid, and have not been exempted
by the Treasurer, no voting papers will be sent to you.

So, if you wish to vote, pay your subscription by the last day of January
1997, or contact the Treasurer before well before 31st January, if there
is some doubt or problem over payment. (Contact the Secretary if you are
not sure about payments and voting procedures)

Executive Secretary

The remains of the upper Pleistocene fossils under menace in Slovenia

The case of the cave bear

Slovenia is considered as a Karst region par excellence. Many subterranean caves and abysses are in close connection with the Karstic phenomena. Several horizontal caves disclosed fossil remains of the cave bear (Ursus spelaeus, Rosenmüller & Heinroth 1794). Some 60 localities have been reported so far, however, a systematic investigation has been carried out only in the locations classified also as Palaeoliyhic sites, the most famous among them being: Divje babe (450 m above sea level) in the chains of the mountains called Kamniske Alpe, and Potocka zijalka (1700 m a.s.l.) on the Olseva mountain, in the ridges of the Karavanke. All of them contain sediments abundant with fossil remains of the cave bear and are regarded as outstanding Palaeolithic sites descending from the Mousterian and Aurignacian

The above-mentioned localities along with some other sites have always been besieged by the collectors of the cave bear teeth. At the time when things were legally not entirely regulated the more enterprising collectors did try to collect the bones, as well, to compose an entire skeleton. The result of such an effort is displayed in the Museum of Natural Sciences in Ljubljana and in the former karstic museum collection of the Institute for Karst Researches in Postojna. It was regarded as something absolutely common at the time.

In 1948 a law on safeguarding and protecting the natural and cultural heritage, was passed in Slovenia and particularly the archaeological sites, considered as entities, have been enjoying a very special protection. Palaeolithic sites including frequent fossil findings of the cave bear figure among them.

A great popularisation of archaeology in the mass media of Slovenia over the last couple of years, has aroused the interest of amateur collectors and resellers, increasingly aiming at the Palaeolithic sites with fossil remains of the cave bear. Individual teeth of cave bear were being sold at the Exhibition of Minerals in Trzic.

During the systematic diggings, carried out by the authorised institution in Divje babe I, collectors and "rubbernecks" did often rudely intrude upon the locality. In the cave of Mokriska jama, the profiles, as well as the major part of the surface left untouched due to temporarily abandoned legal excavations, were absolutely turned over. A similar intrusion was reported in Potocka zijalka.

The above-mentioned cases prove the existent legislation utterly inefficient. Inefficient and powerless in the respect, is also the services component for the safeguarding of the sites, particularly when the targets are out-of-the way localities. That is why, and it has occurred for the second time in Slovenia, a measure - generally used in similar circumstances - was taken in the case of the locality of Divje babe I, i.c. the entrance was barred. The landowner of the location was given the key and asked to keep an eye on the locality. It has proved, so far, to be the most efficient way of safeguarding the sites.

Another pain-demanding way, bearing fruits in the long run only, will be a constant building-up of the awareness through the education and bringing up of the large public and specially the young generation. Youth research camps do serve the purpose very well.

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Roadside geology

A pilote project for Sweden was initiated this autumn with the ambition to compile a geological road-log along E 14 between Sundsvall on the Baltic coast of Sweden to Trondheim at the Atlantic in Norway.

As you well know, the idea is not new, excellent geological road-logs exist, for instance, in some European countries and in a well established system in most states of the US. The Geological Survey of Sweden, in co-operation with the Swedish Environmental Protection Agency, national road and regional administrative authorities and ProGEO, as well as the Norwegian counterparts think it is time to introduce the system also in Scandinavia.

The road-log will be focused on a general geological description based on a framework of historical geology and it is planned to meet the broadest possible geological scope and attendance.

A draft of the E 14 rodside geology is planned for March 1997 and, if all good forces cooperate, a printed first edition before the next summer. It is, however, not likely to manage all information boards planned for the stops within the same time-frame.

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Acknowledgement

The editor wants to thank all contributors to ProGEO news for their efforts in producing 4 issues of the Newsletter in 1996. I will also thank the Norwegian Directorate for Nature Management for a sponsorship that has made this result possible. Further great thanks to my Swedish colleagues in the Geological survey of Sweden in developing ProGEO Home Page where ProGEO NEWS is integrated.

To all of you and all readers ProGEO NEWS will express the best wishes for the year to come. Send contributions to the editor as you have done in 1996 and the newsletter will continue its progress together with ProGEO.

Lars Erikstad

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ProGEO NEWS

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