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**ASSEMBLY GENERAL - Agenda**  
**ASSEMBLÉE GÉNÉRALE - Ordre du jour**  
**GENERALVERSAMMLUNG - Tagesordnung**

La Chaux-de-Fonds, Switzerland, Europe  
High School

***First Session-Première Séance - Erste Sitzung***

August 10, 1997, 8.30 am

1. Opening of the Assembly General - Ouverture de l'Assemblée Générale - Eröffnung der Generalversammlung
2. Ascertainment of the number of voting delegates - Constation du nombre des délégations votantes - Feststellung der Anzahl der stimmberechtigten Delegierten
3. Salutations and thanks - Salutations et remerciements - Begrüßungen und Danksagungen
4. Approval of Minutes of the UIS Assembly General from Beijing (1993) - Approbation formale du proces-verbal de l'Assemblée Générale de l'UIS de Beijing (1993) - Approbation des Protokolls der Generalversammlung der UIS in Beijing (1993)
5. Reports concerning activities of the UIS, Commissions, Working Groups and Committees - Rapport concernant les activités de l'UIS Commissions, des Groupes de Travail et des Comités - Bericht über die Tätigkeit der UIS, der Kommissionen, der Arbeitsgruppen und der Komitees
6. Election of two auditors - Elections de deux Commissaires aux Comptes - Wahl zweier Rechnungsprüfer
7. Election of a Commission for the elections of the new UIS Bureau - Election d'une Commission des candidatures pour le prochain Bureau - Wahl einer Kommission für die Kandidaturen für das nächste Büro
8. Presentation of candidate countries to organize the 13<sup>th</sup> International Congress of Speleology - Présentation des candidatures pour le 13<sup>me</sup> Congrès International de Spéléologie - Vorstellung der Bewerber für den 13. Internationaler Kongreß für Speläologie (2001)
9. Admission of new Member Countries of the UIS - Admission de nouveaux membres de l'UIS - Aufnahme neuer Mitglieder der UIS
10. Presentation of proposals and motions (e.g. UIS Constitution, ...) - Présentation de propositions et motions UIS Statut, ...) - Vorstellung eingebrachter Vorschläge und Anträge (Statut der UIS, ...)
11. Different interventions - Interventions diverses - Ergänzende Informationen

***Second Session - Deuxième Séance - Zweite Sitzung***

August 17, 1997, 10.00 am

1. Report concerning the future activity of Commissions, Working Groups and Committees, and confirmation of Presidents by the Assembly General - Rapport concernant l'activité future des Commissions, des Groupes de Travail et des Comités, et autorisation de leurs Présidents par l'Assemblée Générale - Bericht über die zukünftige Tätigkeit der

- Kommissionen, Arbeitsgruppen und Komitees, und Bestätigung der Vorsitzenden durch die Generalversammlung
2. Report of the Advisory Committee concerning the proposals, motions and decisions - Rapport du Comité Consultatif sur les propositions et motions et décisions - Bericht der Beratungskomitees über eingelangte Vorschläge und Anträge und Beschlußfassung darüber
  3. Report of budget auditors of past-UIS Bureau - Rapport des Commissaires aux Comptes et Délibération du Bureau sortant - Bericht der Rechnungsprüfer und Entlastung des scheidenden Büros
  4. Elections for the period 1997-2001- Elections pour la période 1997-2001 - Wahl für die Zeit 1997-2001 of the President and two Vice-Presidents of the UIS - du Président et des deux Vice-Présidents de l'UIS - des Präsidenten und der zwei Vizepräsidenten der UIS of Secretary General of the UIS - du Secrétaire Générale de l'UIS - des Generalsekretärs der UIS of other members of the UIS Bureau - des autres membres du Bureau - der übrigen Mitglieder des Büros
  5. Statement of the new UIS Preseident - Allocation du nouveaux Président de l'UIS - Ansprache des neuen Präsidenten der UIS
  6. Election of country organizing the 13<sup>th</sup> International Congress of Speleology (2001)- Election du pays organisant le 13<sup>me</sup> Congrès International de Spéléologie (2001) - Wahl des Gastlands für den 13. Internationaler Kongreß für Speläologie (2001)
  7. Information concerning speleological events inbetween the International Congresses of Speleology - Information concernant les manifestations spéléologiques prévues entre les Congrès Internationaux de Spéléologie - Informationen über geplante höhlenkundliche Veranstaltungen zwischen den Internationalen Kongressen
  8. Interventions and supplementary information - Interventions diverses et informations supplémentaires - Allfälliges und Informationen
  9. Thanks and closure of the Assembly General - Remerciements et clôture de l'Assemblée Générale - Danksagungen und Abschluß der Generalversammlung

Note: *The Agenda of the second session of the Assembly General is only provisional, changes can occur related to results of the first session*

## **REPORTS ON ACTIVITIES RAPPORTS DES ACTIVITÉS**

### **Commission d'archéologie en grotte de l'UIS Rapport d'activité 1993-1997**

La Commission d'archéologie a été créée en 1993, lors du 11<sup>e</sup> Congrès de l'UIS à Pékin par une poignée de chercheurs présents. La nouvelle de la création d'une Commission d'archéologie au sein de l'UIS a été diffusée dans diverses revues dont "Spelunca 51/1993" et "NSS News 308/novembre 1993".

Une liste d'adresse de plusieurs centaines de chercheurs et de personnes intéressées a été établie via les divers «membres» de la Commission.

Un 1<sup>er</sup> colloque d'archéologie en grotte s'est tenu dans le cadre de la NSS Convention 1994 (Texas, organisateur: Janet Steele). Les conférences données à cette occasion ont permis de confronter les données et les différents modes d'approche en Mésoamérique et en Amérique du Nord. Une réunion de la Commission s'est tenue à cette occasion.

Un 2<sup>ème</sup> colloque a été organisé lors de la NSS Convention de 1995 (West Virginia: organisateur: David Hubbard). Le thème principal en a été l'archéologie en grotte de l'est des USA.

Un 3<sup>ème</sup> colloque a eu pour cadre la NSS Convention de 1996 (Colorado, organisateur: Jerald Jay Johnson). Les quelques conférences présentées traitaient principalement de l'archéologie en grotte de l'Ouest et du sud des USA. Une réunion de la Commission s'est déroulée.

Le 4<sup>ème</sup> événement à mettre à l'actif de la Commission d'archéologie depuis sa création est l'organisation d'un Symposium d'archéologie et de paléontologie dans le cadre du 12<sup>e</sup> Congrès de l'UIS. Une soixantaine de conférenciers venant de près de 20 pays vont pouvoir présenter leurs résultats et confronter leurs méthodes. Le Symposium sera également une excellente occasion de juger des diverses manières d'aborder les relations entre chercheurs et spéléologues. Le nombre élevé de participants devrait permettre de poursuivre l'activité entamée par la Commission et de redéfinir ses buts.

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## **Commission on Artificial Cavities Report for 1993-1997**

This is the official report of the UIS Commission on artificial cavities for the period 1993-1997. It is also a start for the next 4 years.

In 1993 the UIS the Commission had a newsletter that came out once or twice a year and was spread to a select number of people world wide. This range was considered too small and too slow, so ideas were generated for a wider and faster media. There were ideas to set up a BBS, but just in time the Internet presented itself.

In January 1995 the Souterrains Internet site was set up. It started with a single simple text page, but gradually grew to a site with 500 pages of information in two languages (English and Dutch), still growing. The site contains information on the following topics:

- Names, addresses and areas of interest from persons interested in artificial cavities (17 people),
- Organizations with addresses related to artificial cavities (28 organizations),
- Musea and other sites to visit artificial cavities (83 musea),
- Congresses, symposia and other meetings related to artificial cavities,
- A lexicon of words in English, French, German, Dutch and Italian (hundreds of words),
- Country information (34 countries),
- Publications. Summaries of publications related to artificial cavities. (Under construction),
- Questions and answers. Groups or people who are working at certain subjects and want to pose a question to the world of artificial cavities.

All of this information is stored in a database and can be addressed via the World Wide Web pages. The Souterrains web site can be visited at: <http://www.xs4all.nl/~jorbons/souterrains.html> or via E-Mail at: [jorbons@xs4all.nl](mailto:jorbons@xs4all.nl) Mailing list: There is also an internet mailing list. This is an internet mailing that goes to people that showed interest in artificial cavities. So as soon as there is any new information, like an activity or publication, a mail goes out. On average once every 6 weeks a mail goes out to a group of more then 100 persons on this mailing list.

### **Planned activities for the next four years:**

Some new projects will be working on for the next four years:

- The database structure is ready now, so we will fill the database further. All of the incoming information will be fed into the database and can be reached through the Souterrains Internet site.
- The database should also be made available for people who have no access to Internet. We will work out an idea to revive the paper version of Souterrains.
- We will freshen up the contact with the speleologists to be a bridge between the natural cavities and the artificial cavities.
- We will extend the mailing list through an automated mailing program.
- Extend the number of languages on Souterrains.

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## **Working Group "Karst Hydrogeology and Speleogenesis" Report for 1994-1997**

The Working Group "Karst Hydrogeology and Speleogenesis" (KHS WG) was initiated in September 1994 during the International Symposium "Changing Karst Environment" (England) and approved by the UIS Bureau in November, 1994.

The rationale of the Working Group had been developed in agreement with the new approach of the UIS Bureau concerning UIS specialist bodies: they should be created, or re-organized, in order to solve or conduct concrete, well-defined problems or projects within a finite time-scale.

The main goal of the KHS WG was set up to prepare a fundamental book "Speleogenesis: the Evolution of Karst Aquifers" which would summarize recent advancements in the theory of speleogenesis and emphasize the role of speleogenesis in the development of permeability and in general evolution of karst aquifers.

Other relevant aims include:

- to promote scientific co-operation within the UIS, and with other karst/caves related international bodies (IAH and IGU Karst Commissions in particular), in a specific field of Karst Hydrogeology and Speleogenesis;
- to promote the role of speleogenetic studies as one of core problems of karst hydrogeology;
- to encourage and sponsor a discussion of karst hydrogeology and speleogenesis topics within karst-related symposiums organized under auspices of the major relevant international organizations.

Because of a great number of meetings that overburden schedule of active scientists, it was decided not to search organizing separate special meetings of the KHS WG but arrange an effective communication via E-mail and WG Circulars. Nevertheless, the members of the KHS WG took an every opportunity to gather for discussion of the group affairs. Such a working meetings, where several members participated, have been held during symposiums in Turkey (September, 1995), Switzerland (October, 1995) and Postojna (July, 1996). The special scientific session on speleogenesis, as well as the major meeting of the KHS WG, are to be held during the 12<sup>th</sup> Congress at La Chaux-de-Fonds.

Currently the KHS WG has 38 members from 18 countries.

Main activities of the KHS WG have been focused upon the preparation of the above mentioned book. The rationale and outline of the book has been developed throughout an extensive discussion conducted via E-mail and hard Circulars distributed between members. The adopted outline is structured in order to present:

- 1) theoretical fundamentals of speleogenetic processes and modeling approaches, including recent advances,
- 2) geological and hydrogeological controls of speleogenesis,
- 3) summaries of ideas and models of cave development in all major environments (settings): unconfined circulation, confined circulation (including deep-seated and hydrothermal settings) and coastal settings. These summaries are illustrated by a number of case studies which are selected to check validity or limitations of established models and ideas,
- 4) cave morphogenesis on meso- and micro-scales,
- 5) speleogenesis in non-carbonate lithologies,
- 6) influence of climate and glaciations onto speleogenesis.

The final chapters are intended to discuss and emphasize the role of speleogenesis in evolution of aquifer properties, and to review practical geological and environmental problems relevant to speleogenesis.

According to the developed structure, 35 authors have been selected to write chapters and sections. Up to now, about 70% of the planned writings are already prepared and submitted to a coordinator. The current task for the period until the Congress is to evaluate some modification of the book structure according to the actually available materials. The ultimate goal is set up to finalize and edit the book until the end of 1997, in order to publish it within the first half of 1998. There is a preliminary agreement that publication of the book will be undertaken by the National Speleological Society (United States), under auspices of the UIS.

The KHS WG activity has promoted and consolidated research efforts conducted by members on various theoretic aspects of speleogenesis and related topics, such as chemistry and modeling of speleogenetic processes (Dreybrodt, Palmer, Groves), the role of strong acids in speleogenesis (Gunn, Lowe, Bottrell), early stages of speleogenesis (Lowe), speleogenesis in coastal zone (Mylroie, Lowe, Gunn), speleogenesis under confined conditions (Klimchouk), hydrothermal speleogenesis (Dubljansky), speleogenesis in gypsum (Klimchouk), salts (Frumkin) and quartzites (Martini), and others.

### **Suggestions for 1997-2001**

The main project to which the KHS WG activity was devoted, has entered its final stage and is to be completed until the end of 1997. However, the Working Group has apparently proved to be an important mechanism for cooperation within the UIS of scientists working on karst hydrogeology and speleogenesis, the fields of ultimate importance in cave/karst sciences. There is an obvious need to protrude the group activity into the next period of 1997-2001 in the elevated status of a UIS Commission. This issue is to be discussed and decided on the main KHS WG meeting during the Congress and approved by the UIS General Assembly. Once again, concrete and well-defined projects should be set up for the possible KHS Commission. The following two projects are suggested, run by a corresponding working group within the Commission, each one aimed to an organization of a special symposium and preparation of a fundamental volume:

1) speleogenesis under hydrogeologically confined settings. It is increasingly understood by karst and cave researchers that karstification (speleogenesis) in deep-seated, primarily confined, settings is a widely occurring phenomena. Speleogenetic processes under confined conditions have specific characteristics, in terms of hydraulics, chemistry, time-scales, morphological effects, etc., as related to "normal" phreatic speleogenesis in hydrogeologically open karsts. Moreover, permeability structure developed during the confined stage influences speleogenesis on the successive stage of unconfined karst. However, this study area has been relatively neglected, as compared to exposed karst settings. The project is intended to consolidate the existing knowledge and to promote further researches on karst hydrogeology and speleogenesis in confined environment, and will eventually result in preparation of a fundamental book on the topic. The project would be a good ground for cooperation with the IAH Karst Commission, and could be jointly sponsored by this body and the UIS KHS Commission. The rationale, tasks, sub-topics and structure of the proposed project can be discussed during the KHS WG meeting at the Congress,

2) the nature, hydraulic functioning and morphogenetic role of epikarst. The topic is of increasing interest of many karst scientists. Its ultimate importance is justified by that genetic and functional relations between superficial and underground karst landforms in exposed karsts are actualized through epikarstic processes and hydraulic and morphogenetic mechanisms operating in the epikarstic zone. Also, epikarst hydrology is important for speleogenesis in the vadose zone and for functioning of a whole karst system. The informal project "Global Comparison of Epikarst" initiated two years ago and aimed to collect formalized characteristics of epikarst from around the globe, have not achieved its announced goal probably due to unrealistic structure of a form suggested for data collection. However, this project has revealed and consolidated a group of researchers strongly interested in further cooperation on the topic. Furthermore, the epikarst topic provides a good link with one of the main area of interest of the recently approved IGU Commission "Sustainable Development & Management of Karst Terrains", specified as "Clastic sediment dynamics in karst". Such a link is determined by the soil-forming and soil-destructive role of epikarst at different stage of its development. Thus, the proposed project could be jointly sponsored by the UIS KHS Commission and IGU Karst Commission. The rationale, tasks, sub-topics and structure of the proposed project can be discussed during the Epikarst Session at the Congress (Friday, August 16).

The UIS Commission "Karst Hydrogeology and Speleogenesis", if approved, should take efforts in searching funds to support coordination costs, planned symposiums and final publications related to the above projects, that could be attempted through cooperation with IAH and IGU Karst Commissions and through applying for grants to international or national foundations and programs.

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### **Informatics Commission Commission pour l'informatique**

Formed in 1986 at the 9<sup>th</sup> International Congress of Speleology, the role of UISIC is to encourage and facilitate the systematic collection and responsible use of cave, karst and related data on an international basis.

## Projects

**Cave data exchange.** Establish standards to enable the valid transfer, comparison and consolidation of cave/karst data between different databases. The standards necessary to achieve this are: (1) record identifiers, (2) field and field value definitions, and (3) interchange format.

Pilot record identifier and field definitions are in operation and are being discussed prior to eventual voting. A pilot interchange format has been working, but has not yet been opened for discussion.

Standardization of definitions for new fields will be an ongoing requirement, so a clearing-house mechanism will be set up.

**Bibliography of Cave/Karst Informatics.** A worldwide speleo informatics bibliography is being compiled by Günter Stummer. Please send details to him at: Karst-und Höhlenkundliche Abteilung, Messeplatz 1, Stiege 10/1, A-1070 Wien, Austria.

**Cave/Karst database software.** Shareware software embodying the above pilot systems is being produced, and will conform to the finally agreed standards.

**Speleological Subject Classification (SSC) scheme.** Currently we have been classifying data fields according to a compatible UISIC extension of the UIS *Speleological Abstracts* scheme, however a proposal has been made to produce a more comprehensive and detailed scheme for general speleological use, and UISIC will be co-operating in this work.

## Operations

**Internet.** The Internet is widely used to assist UISIC operations. Our web address is: <http://rubens.its.unimelb.edu.au/~pgm/uisc/>.

**Newsletter.** An occasional newsletter, *Informatics Bulletin*, contains news and descriptions of cave documentation systems in different countries. The print/post version has been generously sponsored by various organizations, and in future maximum use will be made of the Internet where possible to reduce distribution costs. The text of the latest edition is available on our web site.

**Contact list** *UISIC*contact, our worldwide list of cave databases and interested people is published and posted occasionally. An up-to-date version is always available on the web. This list also shows who is the official UISIC delegate for each country.

**Discussion group.** We have set up an Internet email mailing list called *CaveData* to facilitate timely discussion, news, announcements, and questions on cave documentation etc topics. Any email sent to it is automatically resent to everyone on the list. To join (free), send an email to [majordomo@techpkwa2.curtin.edu.au](mailto:majordomo@techpkwa2.curtin.edu.au) with "subscribe cavedata" (omit the quotes) in the body of the message. After joining, you are invited to introduce yourself by sending a brief summary of your documentation activities or interests to the list.

**Other services** provided We have also initiated and currently maintain the following services for speleology in general:

-the *UIS International Speleological Calendar* on the web at:

<http://rubens.its.unimelb.edu.au/~pgm/uis/events.html>

-the UIS web pages: <http://rubens.its.unimelb.edu.au/~pgm/uis/>

-draft speleo documents web page, where anyone can include documents which they want put up for wider than local discussion: <http://rubens.its.unimelb.edu.au/~pgm/uis/drafts.html>

## Invitation

If you are interested in the commission's work and want to get on our contact list, please either fill in and email the form on the web at:

<http://rubens.its.unimelb.edu.au/~pgm/uisc/forms.html>

or else write to me, advising also of any organization or database you are involved with.

And don't forget to join our *CaveData* Internet mailing list. These days, if you want to take part fully in desktop speleology, you really need to have Internet access.

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## **Commission on Physical Chemistry and Hydrogeology of Karst Report for 1993- 1997**

After two Commission meetings in Bergen, 1996 the Commission has been restructured to improve its activity. Now it have national representatives producing contacts between members and board of commission and responsible for activities of members from each country. Commission formed number of sections on specific topics: "Cave Mineralogy", "Speleothem Research", "Cave Climate", "Karst Geology and Geomorphology", "Karst Geochemistry", "Techniques for Location of New Caves", "Hydrochemistry", "Infiltration Research", "Climatic Impact on Karst" and "Radioactivity in Caves".

The Commission have 93 members from 28 countries, 2 International programs and a working group:

The International programme "*Cave Minerals of the World*" of the Commission led by C. Hill and P. Forti published 2nd completely new edition of the book "Cave minerals of the World" to be available at the UIS Congress in Switzerland. Over 15 commission members are authors of different special topics and top 10 caves chapters of this book. It is complete up-to date, the state-of-the-art review of entire cave mineralogy, based on papers of over 4,000 authors. The book is prepared to be interesting and useful to every caver, but have high scientific value.

The "*Luminescence of Cave Minerals*" program, led by Y. Shopov prepared a manuscript of monograph "Luminescence of Cave Minerals" in 1993, but is still not published, because of lack of money for printing. This program will continue to collect data for luminescence of cave minerals until all types of luminescence of all luminescent cave minerals will be determined.

It has been demonstrated that uplift of bedrock with the cave can be detected and precisely dated if speleothem luminescence is due to epithermal mineral forming waters in the older part of speleothem, but mixing of this waters with surface waters containing organics appear in younger parts of the speleothem.

Now "Luminescence of Cave Minerals" program is working in very close collaboration with the Study Group on "Speleothem Records of Past Environmental Changes" and is producing most of the progress in studies of the Study Group.

Study Group on "*Speleothem Records of Past Environmental Changes*" have a number of leaders and is coordinated by Y. Shopov. It achieved a significant advance in speleothem records of paleo environments. In fact the range of paleoenvironmental records in speleothems has been doubled in result of the work of this Study group and "Luminescence of Cave Minerals" program in the last 4 years. It has been demonstrated that:

1. Calcite speleothems luminescence depend exponentially upon soil temperatures that are determined primarily by solar infrared radiation in case that cave is covered only by grass or upon air temperatures in case that cave is covered by forest or bush. In the first case, microzonality of luminescence of speleothems can be used as an indirect Solar Activity (SA) index, but in the second as a paleotemperature proxy. So in dependence on the cave site we may speak about "solar sensitive" and "temperature sensitive" luminescent speleothem records like in tree-ring records, but in our case record may depend only on temperature either on solar irradiation:- In case of Cold Water cave, Iowa, US we obtained high correlation coefficient of 0.9 between the luminescence record and Solar Luminosity Sunspot index and reconstructed sunspot numbers since 1000 AD with precision in frames of the experimental error of their measurements;- in case of Rats Nest cave, Alberta, Canada we measured correlation of 0.67 between luminescence intensity and air temperatures record for the last 100 years and reconstructed annual air temperatures for last 1,500 years at the cave site with precision of 0.35°C, but of the direct measurements 0.1°C. No paleoclimatic method has ever demonstrated such good precision. Intensity of luminescence was not dependent on actual precipitations and sunspot numbers (zero correlation).

2. Striking correlation (with a correlation coefficient of 0.8) was demonstrated between the calibration residue delta C record and a LLMZA speleothem record. The C record represents the Cosmic Ray Flux (CRF) and modulation of the CRF by the solar wind. Using a luminescent record from Duhlata cave, Bulgaria we obtained a reconstruction of the solar modulation of the CRF during the last 50,000 years with resolution of 28 yrs. The original luminescent record exhibited correlation of 0.78 with an independent record of variations of intensity of the geomagnetic dipole for the

same time span. Observed dependencies of the geomagnetic dipole intensity on the orbital variations and solar luminosity variations correlates excellent with the established theoretical equations.

3. Speleothem growth rate variations represent rainfall variations. Speleothem luminescence visualize annual microbanding, we used to derive proxy records of annual precipitations for the cave site. In case of Rats Nest cave, Alberta, Canada we reconstructed annual precipitations for last 280 years at the cave site with precision of 80 mm/year. By comparison of luminescent records with other solar proxy records we obtained reconstruction of growth rates and precipitations in Bosnek karst region near Duhlata cave, Bulgaria for the last 50,000 years and for the last 6,400 years with averaged step of 41 years (157 points) for Iowa, near Cold Water cave, US.

4. Luminescence microzonality was used to reconstruct Galactic Cosmic Rays Flux variations (beyond of the Solar System) during the last 6,500 years with 20 yr resolution by subtracting of an inverted luminescent SA record from the residual C record. Last result is a qualitative confirmation of recent views on origin of Cosmic Rays from superposition of Supernova explosions in our Galaxy.

5. NASA used a record of luminescence of a flowstone from Duhlata cave, Bulgaria to obtain a standard record of variations of Solar Irradiance ("Solar constant") for the last 10,000 years by calibration of the luminescence record with satellite measurements of the variations of the Solar Irradiance.

Due to the extremely rapid expanding of the range of paleoenvironmental records in speleothems the Study Group still didn't prepared any monograph on it, but we plan to prepare a monograph for the next UIS Congress. Results achieved by this Study Group are of great interest for a very broad range of fundamental and natural sciences and attract scientific interest to UIS. The Study Group attracted and involved many top main- stream scientists in Speleology.

Dr. R. Pavusa suggested initiation of a new International Program on "Cave Radioactivity". Dr. L.T. Tsankov (Dept. of Nuclear Physics and section Speleology, Sofia University) has been authorized to prepare a draft for proposal for such program to be discussed at the UIS Congress.

Intensive search for external funding of commission activities is in progress. Commission call for proposals for new International programs.

#### **Section on "Cave minerals"**

Chair - Carol Hill- Box 5444A, Route 5, Albuguergue, N.M. 87123, USA.

Purpose- standardization of cave minerals and speleothem types and subtypes with respect to their classification and nomenclature.

Time duration- unlimited.

Activities- preparation of a book on "Cave Minerals of the World" to be published before the Speleological congress in 1997.

#### **Section on "Speleothem research"**

Chair - Yavor Shopov

Purpose- advance in research speleothem records of past environmental changes, speleothem structure and growth.

Means- establishment of large multidisciplinary joint research projects for solving of significant methodical problems and obtaining of very high quality complex results.

Time duration- unlimited.

Foreseen activities- preparation of a book on "Techniques for obtaining of Speleothem Records of Past Environmental Changes" to be published before the next Speleological congress in 2001.

The rest of sections still have very few members to allow nomination of chair persons and to define their activities. This will be done at the Commission meetings during the 1997 UIS Congress in Switzerland.

*Minutes of 1 session of the Commission on Physical Chemistry and Hydrogeology of Karst held on August 1, 1996 in Bergen, Norway*

Members present: D.C. Ford, Joyce Lundverg (CDN), W. Dreybrodt (D), Bogdan Onac (RO), P. Williams (NZ), Amos Frumkin (IZR), Y. Shopov (BG)

The Commission president presented a proposal for restructuring of the Commission prepared after intensive consultations during personal meetings of the Commission president with the UIS President P. Forti in November 1995 in Bulgaria and the Commission member J. Mikuszewsky in Poland in July 1996. J. Mikuszewsky proposed to refresh the Commission by involving more young and better motivated scientist. He also requested copy of the protocol of UIS



Burro meeting which decided to split the Commission, to be discussed at the Commission meeting before UIS General Assembly.

Commission members decided to restructure the Commission to have national representatives producing contact between members and board of the Commission and responsible for activities of members from each country. Commission decided formation of number of sections on specific topics: "Cave Minerals", "Speleothem Research", "Cave Climate", "Karst Geology and Geomorphology", "Karst Geochemistry", "Techniques for Location of New Caves", "Hydrochemistry", "Infiltration Research", "Climatic Impact on Karst" and "Radioactivity in Caves".

Bogdan Onac presented the proposal of Carol Hill for formation of section on "Cave Minerals". It was approved and Carol Hill was elected for chair of this section.

Y. Shopov proposed to form section on "Speleothem Research" from Commission members working in the Study Group on "Speleothem Records of Past Environmental Changes". It was approved.

The rest of sections still have very few members to allow nomination of chair persons and to define their activities. This will be done at the Commission meetings during the 1997 UIS Congress in Switzerland.

It was discussed to transform the Study Group on "Speleothem Records of Past Environmental Changes" into International Programme, but no decision was made.

*Minutes of second session of the Commission on Physical Chemistry and Hydrogeology of Karst held on August 2, 1996 in Bergen, Norway*

16 Commission members was presented.

This meeting was made in presence of many karst scientist non- members of the Commission, but members of UIS Commission on Paleokarst and Dating; IGCP 379 and PEP activity of PAGES project of IGCP. All this bodies made subsequent open meetings in presence of the others.

The Commission president presented information on Commission and its activities and intentions for new projects. Following the proposal of J. Mikuszewsky to refresh the Commission. Y. Shopov invited more young and better motivated scientist to join the the Commission. Several young persons became members of the Commission.

No any new decisions was made on this meeting.

Two days later Y. Shopov had personal meeting with J. Mikuszewsky in Poland. J. Mikuszewsky proposed to open a home page of the Commission on World Wide Web to attract more young and better motivated cave scientist.

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## **Commission on Glacier Caves and Cryokarst in Polar and High Mountain Regions**

### **AUSTRIA:**

#### **1993-1994:**

The emphasis of the glacier research is placed in the region of the central Hohe Tauern (Eastern Alps), in the Stubach Valley ("Land" Salzburg, Community of Uttendorf) within the area around the Alpine Centre Rudolfshütte. Since 1960, glacier research has been carried out in the western part of the Glockner Massif as well as in the Granatspitz massif. The emphasis of the glaciological investigations lies in the measurement of the mass balance and movement of the Stubach Sonnblick Glacier, the movement of the Ödenwinkel Glacier, as well as measurements of the length variations of a number of other glaciers in these areas.

Concerning activities on cryokarst phenomena, several observation and investigations have been carried out during the glaciological research partly accidentally, partly in a systematic way.

#### **1995-1996:**

The main activity in this period was to organize the 4<sup>th</sup> International Symposium on glacier Caves and Cryokarst in Polar and High Mountains Regions which was held at the Rudolfshütte, Austria during the period of September 1-7, 1996. At the moment, we are working on the edition of the proceedings of this symposium which will include a

CR-Rom.

Another main effort was the planning, scientific consulting and realization of an informative exhibition in co-operation with artists on the topic "Glaciers" in an information centre on Mooserboden in the Kaprun Valley, Hohe Tauern, it was done on behalf of the "Tauernkraft", and electric power plant company.

Heinz Slupetzky's contribution to the book "Franz-Josef-Land" which was published in 1995, as volume 8 of the Polar Handbooks of the Norwegian Polar Institute (Editor: Susan Barr).

The research programmes dealing with mass balance measurements on Stubacher Sonnblick Glacier and other glaciological investigations on the glaciers in the central part of the Hohe Tauern were carried out routinely. By occasion, several observations could be done on cryokarst phenomena.

#### **Future activities:**

The research program on the glaciers in the area of the Alpine Centre Rudolfshütte is being continued to gain long time series considering the effects of global warming on glaciers. It is planned to start a survey of the 300m long glacier tunnel under the Klockering Glacier in the Kaprun Valley (Glockner Massif).

#### **CANADA:**

##### **1993-1994:**

An agreement was signed between the University of Québec in Montréal (UQM) and the Silesian University. Jacques Schroeder works in relation with Jacek Jania. Mission on the Hans Glacier in August-October 1994. He used the results of the radio echo-sounding investigations made by the Russians on the Hans Glacier. He works on an aquifer in this glacier. The first accurate map (1/25,000) of the Hans Glacier has been published by the Silesian University, Poland and the University of Québec in Montréal; authors: J. Jania, K. Kolondra, J. Schroeder.

The video "Svalbard, 78 - latitude Nord", finished in 1993, was nominated for the 42<sup>nd</sup> Mountain Festival of Trento (Italy) and for the 42<sup>nd</sup> International Film and Video Festival of Columbus, Ohio, USA.

#### **CZECH REPUBLIC:**

##### **1993-1994:**

The Czech Speleological Society and the firm Speleo realized the second polar expedition to Spitsbergen in the Hornsund region:

Two members of the expedition studied the caves system in the Werenskiold and Torell glaciers and made documentation for 4 months.

Three new caves about 500 m long were discovered and the new status of known caves have been also checked. With the help of the Polish Polar Station, the basic documentation of caves in the Horn glacier was made.

From the vertical caves, the abysses Lipertaven, Eimfjelltaven and Glasiolegeraven in the Werenskiold glacier were investigated.

Our expedition made valuable photo and map documentation which will be essential to compare changes of cave's system in five-year period.

The expedition followed the joint plan of research, which was made together with the Silesian University of Sosnowiec (Poland),

##### **1995:**

We visited the 15<sup>th</sup> Speleological School in Poland and we presented the lecture on "Changes in the glacier caves in glacier Werenskiold, Hans and Torell, 1988-1993, Spitzbergen" by Speleo and Czech Speleological Society, as a contribution to the international programme which is running for the understanding of global climatic changes.

##### **1996:**

The 3<sup>rd</sup> glaciopedological expedition Spitzbergen 1996. The expedition had first to reconstruct the heavily damaged field polar base around Hans, Werenskiold and Torell glaciers. New important findings concern the first discovery of thermal glaciokarst in the area of the station. The longest cave found, Isfjellelva, reduced its size from 1,200m to appr. 750m due to the entrance melting.

The organization of Czech Speleological Society Nr. 7-01 Bohumin realized the expedition to mountain glaciers in northern Norway and explored the area Bonnes above Isvatnet lake in an elevation of 950-1,400 m a.s.l. They discovered and documented several caves including a cave some 100s m long with an active glacier river. The largest

dome of the cave is appr. 30 x 10 x 5 m.

## **FRANCE:**

### **1993:**

*Argentiere glacier*: The measurements of the velocities of the continuous sliding at the base of the glacier were maintained by the "cavitometer". The records allow us to correlate the movements of the glacier at its bottom with the decrease of the thickness of the ice in the seracs fall area and the water ways.

*"Inlandsis 93" expedition* (Greenland ice cap): exploration of the moulins, measurement of the temperatures and the ice deformation in some fifteen moulins over than 100 m deep, reaching 173 m for the deepest one: "Isortoq".

*Spitsbergen*: Hydro-glaciological expedition on the Loven East glacier: in addition to the speleo-glaciological prospection which allowed us to reach the bed of the glacier from the surface by the intra-glacial network, samples of water and ice were taken and analyzed.

### **1994:**

June: realization of a video of the ice core drilling at the Col du Dôme, altitude 4,350 m.

For the 30<sup>th</sup> anniversary of the French Base of Spitsbergen, a 30 minute video film was realized. For half of its duration, this film shows the hydro-glaciological investigations carried on in the depth of the Loven East glacier.

Organization of the 3<sup>rd</sup> International Symposium Glacier Caves and Cryokarst in Polar and High Mountain Regions (Nov. 1-6, 1994).

*"Inlandsis 94" expedition* revealed the filling of Isortoq moulin until 110 m, with fast variations of the level of the lake.

The *"Grand Moulin"* of the Mer de Glace offered us a 90 m descent without reaching the water level by lack of rope (# 15m below). The moulin showed a recent filling and emptying. Realization of video pictures.

*Spitsbergen*: More sampling of water in the intramorainic plain of the Loven East glacier and investigations about the genesis and the growth mechanism of the pingos (coast plain of Adventalen, near Longyearbyen) on one hand, and pedogenetic investigations on the secondary carbonates on the King's Bay (Ny Alesund) on the other hand.

### **1995:**

Edition of the Proceedings of the 3<sup>rd</sup> International Symposium Glacier Caves and Cryokarst in Polar and High Mountain Regions

### **1997-1998 projects:**

Polar research is not in good shape in France. However, we hope to find money to go ahead in our hydro-geochemical investigations in Svalbard. We hope to be on the field (Loven East, Svalbard) in autumn 1997.

## **GERMANY:**

### **1984-1996:**

Detailed investigations were carried out at a small glacier on the foot of the Watzmann East Face with a sub-glacial tunnel called "Eiskapelle". The investigations included a detailed survey. The results are documented in a thesis.

## **ITALY:**

### **1993:**

Expedition (Hunza 94) to the Karakorum with the aim of understanding the karstic possibilities in limestone and glacier in the Batura Peak regions, Northern Pakistan. The glaciological part explored the Batura glacier that seems to be the best karstic glacier explored yet. The karst is less huge than that of the Biafo glacier, less dense than that of the Perito Moreno or Gorner, but better defined and with many more structures. Thanks to this was produced a video documentary on glaciers karst. In the lateral moraine, 40 km from the mouth, was found a new insect species (*Ecatos badinoi*).

During October, participation in a small expedition with three Russian glaciologists in the Tian Shan regions (Kyrgyzstan) to see the Inilchek glacier, characterized by an annual jökulhlaup from a big lateral lake (Mertzbakher). Unfortunately, we only had three days of operation on it due to great logistic problems, but there seems to be a very unusual and interesting karst around the lake.

**1994:**

Very light expedition on the Perito Moreno glacier (Argentinian Patagonia) an excellent, beautiful karstic glacier. We have studied the logistics of the Uppsala glacier (the widest and probably the best of the region), and of the Grey glacier. Later on, we went to Punta Arenas to study the possibility of a future expedition on the Marinelli glacier, the most southern of the South America, on the Darwin Ridge.

In the summer, we made a new visit to the Miage glacier: the karstic area seems to be limited, and with small caves.

This year we started the computer modelization of the deep glaciers drainage system, with first parameters as discharge, ice depth, water depth, surface slope.

**1995-1996:**

The group of Padova reports research on ice caves in limestone of the Venetian Prealps. They are studying the morphology of blue ice zones in Victoria Land (Antarctica).

**THE NETHERLANDS:****1994-1995-1996:**

After the initial 1992 Iceland field trip for glacier caves and other features, during 1994, 1995 and 1996 follow up trips were made to observe the development and/or recurrence of these objects. Due to the apparently warm summers, many of these objects were melted or in ruins during our August visit. Future projects are unsure due to the very limited amount of Dutch glacier cave speleologists and funds.

**1997:**

During 1997, two different parties will visit Iceland from the Netherlands.

- A group of Dutch cavers, some of them have been several times to Iceland, is planning a tour in July/August, and will try to investigate several glacier caves.

- The other one will go to Iceland after the UIS congress in Switzerland to continue observations around Vatnajökull (mainly south-coast) end August/begin. September.

**POLAND:****1993-1994:**

During this period, the group of the University of Silesia did not carry out investigations on glacier caves.

The data from former expeditions were elaborated and one of the results is the book on glacier karst written by Adolfo Eraso and Marian Pulina: *Cuevas en hielo y ríos bajo los glaciares* (ed. McGraw-Hill, Madrid, 1994, 242 pp).

The team of Josef \_ehák cooperated with expeditions of University of Silesia exploring caves in the region of Torell, Werenskiöld and Horn glaciers (Spitsbergen).

**1995-1996:**

Our polar activity was connected with Czech group. In 1996, it was common Czech-Polish expedition to Spitsbergen and International Table-Ronde French-Russian-Polish in East Siberia in July.

**RUSSIA:****1994:**

Spring; Franz Josef Land (FJL). Airborne radio-echo sounding of the biggest ice caps for hydro-thermal state thickness and regime, ground mass balance measurements for zones of ice formation identification using satellite images, looking for the best sites for deep ice core drilling.

**1995:**

January: Antarctica, South Shetland, ice cap of King George. Mass balance measurements and ground radio-echo sounding for understanding the present hydro-thermal state and zones of ice formation and compare field data with satellite information and past field data (15 years ago).

**1996:**

Spring: FJL. Deep ice core drilling on Graham-Bell ice cap and possible investigations on glacier caves on Lunnyy Ice Cap. Field work by the project was performed from November 9, 1996 to February 5, 1997.

**1997:**

In the frame of seasonal detachment of 42<sup>th</sup> Russian Antarctic Expedition using Bellinshausen station for accommodation and its logistical resources including transport means (cross-country vehicle GAS-71).

Field investigations were conducted along the main ice divide in western part of King George Island ice sheet, between two ice caps (A and B) and in drainage basin of outlet Lange glacier, flowing from the ice cap B into Bransfield strait, including its upper and side ice divides, central flow line and cross-section profile upward crevassed zone.

The following investigations of structure and regime of the glacier were carried out along the profiles of total length of 30 km with an interval of 0,5 km:

1) the radio-echo sounding (RES) measurements of ice thickness, amplitude of bottom reflected signals and the RES studies of internal structure of glacier sequence using a low-frequency monopulse radar with central frequency of 40 MHz;

2) the barometric measurements of glacier surface altitude and the positioning of radar points with a portable GPS.

3) the net of stakes was created for following determination of annual mass balance.

The data obtained will be useful to identify and interpret the satellite images of visual and microwave ranges from King George Island ice sheet and to determine the mass balance and ice discharge into the Southern Ocean from outlet Lange glacier.

Taking into account the modern possibilities of radar interferometry ERS-1 SAR images to determine the glacier surface altitude, the ice velocity and the electrophysical characteristics of snow-firn and ice sequences, the data obtained will allow for the first time:

- to compare the surface and volume electrophysical parameters of snow-firn sequences defined both from ground-based RES data and satellite radar interferometry images and to identify the boundaries and types of ice formation zones in the selected drainage basin;
- to estimate the mass balance and the ice discharge of outlet glaciers as most active elements of Subantarctic ice caps;
- to perform the numerical modelling of their regime, dynamics and response to short-term climate change in the southern polar region.

**SPAIN:****1993:**

August-September: XI International Congress of Speleology in Beijing, China. Presentation of the activities of the International Working Group "Glacier Caves and Karst in Polar Regions", since 1989, year of its creation in Budapest, until 1993. The General Assembly of UIS of that Congress agreed to elevate the Working Group to the "International Commission" status.

**1994:**

March: Preparation of a "Joint Research Project" on the glaciology within the European Union (INTAS-510) with the scientific participation of:

- The Mines Institute of Perm (Russia);
- The Underground Laboratory of Moulis, CNRS (France);
- The Polytechnical University of Madrid (Spain),

June-July: Expedition "Urals 94" with a trip going from Solikamsk to Ufa.

October: Participation and organization of the 3<sup>rd</sup> International Symposium Glacier Caves and Cryokarst in Polar and High Mountain Regions, Chamonix, France.

Publication of the *Cuevas en hielo y ríos bajo los glaciares*, authors: Adolfo Eraso and Marian Pulina, ed. McGraw-Hill, Madrid, 242 pp.

**1995:**

Participation to the International Glaciological Expedition "Hielo Patagónico 95" with the following activities:

- Investigation of the glaciers: Perito Moreno, Upsala, Viedma, Fitz-Roy environment.

- Explorations in the Perito Moreno glacier (February and March 1995),
- Coloration with fluorescein in its endoglacier drainage system,
- Application of the Prediction Method of the subglacier detected drainage network.
- Preparation and computing of the work to publish in the 4<sup>th</sup> International Symposium of our International Commission Glacier Caves and Cryokarst in Polar and High Mountains Regions (Salzburg, 1996) and in the XII Congress of UIS (Switzerland, 1997).

#### **1996:**

Glaciological Expedition "Islandia 96" (Madrid-Vatnajökull):

- Exploration of the NW part of the Vatnajökull glacier in Bardarbunga and Kverfjöl. The unusual increase in the drainage flows make us leave the place, this was due to the activation of hydrothermal subglacier focal points. A few weeks later, there was a great volcanological subglacier eruption in this point.
- Exploration of subglacier rivers in two glacier tongues, in the SE part of Vatnajökull glacier: Kviarjökull, Virkisjökull, Twin, Falljökull.
- Application and contrast of the Prediction Method in the subglacier rivers we explored in both glacier tongues.
- Preparation of our works for its publication in the XII Congress of UIS (Switzerland, 1997) and in the 5th International Symposium of our International Commission of Glacier Caves and Cryokarst in Polar and High Mountains Regions (Italy 1998).

#### **Future Projects:**

1997: Aug.-Sept.: Glaciological Expedition "Islandia 97" with the monitorization of the Kviarjökull glacier and investigation of the subglacier drainages occurred after the Jökulhlaup (outburst) of the subglacier volcanic eruption in Vatnajökull glacier.

1998: 5<sup>th</sup> Symposium of our International Commission (Italy).

2000: 6<sup>th</sup> Symposium of our International Commission (Iceland).

#### **SWITZERLAND:**

##### **1993:**

During the last years, our researches concerned two glaciers: The Mer de Glace (Chamonix, France) and the Hornergletscher (Zermatt, Suisse):

- On the Mer de Glace, several moulins were explored. The "Grand Moulin" was descended like other bordering cavities. The investigations always stopped on too narrow passages or because of water presence. A very particular moulin, presenting a morphology comparable to those of limestone cavities with a succession of shafts and short galleries, was explored.
- On the Gornergletscher, twenty or so moulins were observed. Nine were descended 45 meters deep. Stops exclusively on too narrow passages.

Our researches suffer from the absence, within our group, of a specialist in glaciology. We do not encounter difficulties in the exploration, but, our collecting of information remains, unfortunately, fragmentary.

##### **1995-1996:**

We had very few activities on glacier caves in Switzerland for the 1995-1996 years.

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**Working Group G.T.I.C.E.K. (Grupo de Trabajo Internacional sobre Cuencas Experimentales en el Karst):**

This Working Group, created in 1992, was accepted as external organization of UIS and its inclusion within UIG and AIH was to be gestioned.

Up to now, it has not been yet accepted within these two organizations in spite of the gestions made by the two executive presidents who have succeeded me since 1994.

Moreover, as its activity has been limited to only the organization of symposia within the country, Cuba. I suggest that UIS do not accept any longer this Working Group within its organization, waiting for the acceptance of AIH and UIG (according to the fundational agreement of this Working Group). Only therefore we could reconsider its inclusion within UIS.

Adolfo Eraso

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**Working Group Children and Caving**

The UIS Working Group "Children and Caving" was constituted during the 10th Congress at Budapest within the Department of Education.

The list of addresses of children and youths groups leaders has been prepared and circulated yet in 1993. Information about activities of these group has been collected. The list has been updated in 1995.

Distribution of this list has been very important. The leaders of children and youth caving groups got an opportunity to change information, experience and arrange joint field camps, trips, expeditions, etc. Young cavers made friends in different countries.

Coordination of children caving activity is perhaps more important for Russia and Ukraine as there is a great number of active children caving groups in these countries. There is also specialized children caving activities in France, Romania, Czech Republic, Bulgaria and some other European countries. In Asia there are such caving groups in Turkmenistan and Asiatic part of Russia. There are also some children caving groups in the United States. In many countries cave trips and lectures about caves are in practice of scouts and other common outdoor groups.

During last years there were some field caving camps for children and youth organized, with seminars, various educational activities in caves, and competitions (Russia, Caucasus 1990, 1991; Ukraine, Crimea 1995, Western Ukraine 1994, 1995; Romania 1996; etc.). Such camps, attended by groups from different places and countries, seem to be the most effective means of exchange of experience between children cavers and their leaders.

Conservation projects make a big part in teaching and training of young cavers. Some cave clean-up projects and cave ecological camps have been organized in different countries, special booklets have been published on cave conservation for children.

Speleological activity with children and youths commonly includes some basic important aspects, such as:

- Environmental education
- Health, physical training
- Social behavior
- Teaching and training of safe and soft caving practice

Several meetings have been held of leaders of groups, which allowed to discuss experience about speleological activity with children and youths of different ages and programs of their education (Belgium -1992; Ukraine - 1994, 1996, 1997; Italy -1996, Russia 1996 etc.)

Nataly Yablokova

**Working Group "Hydrothermal Karst"  
Report for 1993-1997**

Short description of activities

1. Detailed study on the problem: reconstruction of hydrothermal karst environment by cave minerals (fluid inclusions, stable isotopes, luminescence, trace elements) was performed at McMaster University (Ford, Dublyansky);
2. Studies of hydrothermal karst in Hungary was extended from Buda Hills to some other areas (Gerecse, Bükk, Aggtelek-Rudabánya); field and laboratory studies were carried out (Takácsné-Bolner, Kraus, Szünyogh, Nador, YD, Reutsky);
3. Laboratory studies of minerals from North Algerian hydrothermal caves were continued (Collignon, YD);
4. Theoretical study of subaerial speleogenesis in hypogene caves was initiated (Pashenko, YD);
5. Paleo-hydrothermal karst was determined in Bohemian Karst, Czech Republic (Čilek, Suchý, Bosák, Zeman, Dobeš, Hladíková, Ja\_ková);
6. Isotopic studies of waters and travertines in French Mediterranean hypogene karst have been carried out (Bakalowicz);
7. The bibliographic database on hydrothermal karst is maintained;
8. The project of the book "Hydrothermal Karst" has been prepared, discussed and approved by group members. However, due to current involvement of the group members and other potential contributors in several major publication projects (Cave Minerals of the World, 2<sup>nd</sup> edition; Speleogenesis: Evolution of Karst Aquifers; Geology of Guadalupe Mountains; Karst Hydrology and Geomorphology, 2<sup>nd</sup> edition) the decision was taken in 1996 to put the project on hold until already launched projects are accomplished.

**Planned activities**

1. Continuation of detailed study of hydrothermal karst environments including transition between hypogene and hypergene settings;
2. Initiation of field and laboratory studies on subaerial speleogenesis in hypogene caves (aerosols, gases, aerosol speleothems, etc.);
3. Preparation of the book on hydrothermal karst;
4. Maintenance of the bibliographic database on hydrothermal karst.
5. Launching of the Hydrothermal Karst Web page.

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**UIS Commission for Speleochronology and Paleokarst  
Report for 1993-1997**

*Period of 1993-1995.* The Commission undergone a substantial change inbetween International Congresses of Speleology. The new Commission President was elected in 1995/1996 by postal procedure (extraordinary elections permitted by the UIS Constitution). Prof. Dr. Stein-Erik Lauritzen of Bergen (Norway) obtained a majority of valid votes from distributed voting cards and obtained valid answers. In the period of August 1993 to 1996, the Commission activity was focused only to try to start the compilation of proposed speleochronology project and we have to admit, that the activity itself continuously decreased.



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*Period of 1995-1997.* Since the successful publication of the book «*Paleokarst-a systematic and regional review*», edited by Pavel Bosak (Prague, Czech Republic), former President of the Commission (1986-1996), our interest has focussed on the other aim of the Commission: speleochronology and paleoclimatology. On August 1996, the symposium «*Climate Change: the Karst Record*» was held at the Department of Geology, University of Bergen, Norway. The symposium had 70 attendants and 71 presentations, including 3 keynote lectures by W. Dreybrodt (*Chemical kinetics, speleothem growth and climate*), D.C. Ford (*Dating cave deposits*), and H.P. Schwarcz (*Paleoclimate inferences from stable isotopic studies of speleothem*). Extended abstracts of the symposium were published in the Karst waters Institute Publication No. 2 (ISBN 0-9640258-1-7, 196 pp). For list of contents, see the KWI web homepage at: <http://www.uakron.edu/geology/karstwaters/publist.html>.

Speleothems and cave deposits have a vast potential as a paleoclimatic data base, but are not widely recognized among mainstream Quaternary geologists and paleoclimatologists. In order to change this situation, I have launched a new sub-project under the PANASH Pole-Equator-Pole(PEP) traverses. These are three global, N-S traverses along which paleoclimatic proxy data shall be gathered. PEP-I covers North and South America, PEP-II Asia-Australia, and PEP-III Europa-Africa. The new subproject focusses solely on data from speleothems and is named *Speleothem PEP* (SPEP). The description of this project is published in a recent PAGES report, edited by prof. Françoise Gasse of Universitet Paris Sud. The purpose of the SPEP project is to formalize a vehicle to which one may refer to when applying for national funding for speleothem research. Many of the SPEP participants will present papers at the 12<sup>th</sup> International Congress of Speleology in Switzerland this August.

Another book project, previously incepted by Pavel Bosak: «*Speleochronology in palaeogeographic analysis*», will be revived during 1997.

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### **Commission on Techniques and Equipment**

Since our last report, the Techniques and Equipment Commission has:

- \* Conducted a survey of SRT Techniques and Equipment, which will be reported on at the UIS meeting in Switzerland.
- \* Produced an issue of "Techniques News," the periodic newsletter of the Commission for distribution at the UIS meeting in Switzerland.
- \* Organized a session for the August 1997 UIS meeting, as follows:

#### *General information*

UIS Techniques and Equipment Commission Session, chaired by David McClurg, Commission President.

*Tuesday August 12, 09:00 to 17:00, Room 413.*

This session will have formal and informal presentations including: rope testing, new bolting technology, 35 years of American vertical techniques, worldwide survey of SRT equipment, and brief verbal descriptions by members from several countries covering the techniques and equipment used in their countries. Additional papers and verbal presentations are welcomed.

Schedule: UIS techniques and equipment session (preliminary)

09:00--09:20 General remarks and introductions. Distribution of "Techniques News" the T&E Commission newsletter.

09:20--10:30 Informal 10-15 minute presentations by members from various countries describing current SRT techniques in their country.

10:30--10:40 Break

10:40--11:00 "35 Years of American Style Vertical Caving," Slide presentation by David McClurg, Commission President.

11:00--11:30 "Testing New and Used Ropes in Britain," Owen Clarke, Rope Testing Officer, National Caving Association.

11:30--12:00 "Replacing Old M8 Spits with Resin Placed Stainless Steel P Anchors in British Pits," by Nick Williams, Equipment Officer, National Caving Association.

12:00--14:00 Lunch Break

14:00--14:30 Report on Results of SRT Equipment Survey Conducted by T&E Commission, David McClurg, Commission President.

14:30--15:00 Discussion of Commission plans and goals for the future.

15:15--15:30 Break

15:30--17:00 Additional papers and presentations.

David McClurg  
e-mail: dmclclurg@halcyon.com

### **UIS Commission for Bibliography Report for the period September 1993 to July 1997**

#### *Editing activity:*

Since the SA/BBS N°30 for 1991 (published February 1993), the following annual issues of the bibliographic bulletin "Speleological Abstracts" have been edited:

SA/BBS N°31 for 1992 (published November 1993)

SA/BBS/CTS N°32 for 1993 (published August 1994)

SA/BBS/CTS N°33 for 1994 (published August 1995)

SA/BBS/CTS N°34 for 1995 (published September 1996)

This last one contained 331 pages and 5.452 titles and abstracts. In the long history of editing Speleological Abstracts since 1970 the n°34 is the biggest.

Furthermore, this issue includes the first CR-ROM containing the data base of the last seven SA/BBS/CTS issues from n°28 for 1989 to n°34 for 1995. This CD-ROM is readable on computers with Mac-OS 7.0 (or higher) or PC-Windows 95 or PC-Windows 3.1. The CD ROM represents an enormous tool facilitating bibliographic researches by author's name, geographical names, or key words in a total of 31.826 records over seven years.

Furthermore, since two years the Speleological Abstracts are also available on a WWW version in Internet (<http://www.geo.unizh.ch/Heller/SSS/BBS/index.html>).

Since issue N°32, the former "Current Titles in Speleology" (published by the BCRA British Cave Research Association) are incorporated in the former "Bulletin Bibliographique Spéléologique BBS/ Speleological Abstracts"; the unified and enlarged issues are now called "Speleological Abstracts SA/BBS/CTS".

Many thanks to all correspondents and contributors for their support and help; especially to BCRA (Ray Mansfield and Bryan M.Ellis) for fair cooperating; to Ray Mansfield for compiling English literature; to Patrick Dériaz for achieving the CD-ROM; to Martin Heller for his support on Internet.

*Other activities:*

No international working session, but a lot of correspondence, and some internal meetings.

The care for finance in order to ensure, in the future, printed annual issues of the SA/BBS/CTS and updated editions of the CD-ROM is always a current topic. The printing and mailing costs represent almost the totality of the SA/BBS/CTS-costs. Thanks to all subscribers; in particular we are grateful for the grant awarded by the Swiss Academy of Natural Sciences, covering the part of costs not covered by collective and individual subscriptions.

*Plans for 1996-1997:*

We work now on the next issue n° for 1996; it will be published in summer 1997, of course before the 12th International Congress of Speleology. During the 12th International Congress of Speleology at La Chaux-de-Fonds, Switzerland, in August 1997, we plan a working session of the Commission for Bibliography.

Taking into consideration the wants of the IUS Working Group "Karst Hydrogeology and Speleogenesis" (A.Klimchouk), a completely reworked classification of the matters reviewed in the Speleological Abstracts SA/BBS/CTS has been prepared with the assistance of P.Y.Jeannin and J.P.Tripet; this paper will be discussed at the working session August 1997.

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**Commission de Spéléothérapie de UIS  
Report on working period 1993-1997**

Modern speleotherapy started first of all in the karst caves in Hungary and in Slovakia after in 1949 first medical reports from the Klutert Cave in Ennepetal (North Rhine Westfalia, Germany) had praised the good therapeutical effects of the cave climate on certain illnesses of the respiratory tract.

Extensive Hungarian and Slovak speleoclimatic basic research made it possible to develop speleotherapy into an efficient medical treatment especially for lung diseases.

After the constitution of the Commission de Spéléothérapie UIS in 1969 the increasing interest on the part of mining institutions to use operating and also closed mines for medical purposes have considerably promoted the development of speleotherapy. This is why today we can distinguish among three categories of speleotherapy sites which are determined by specific microclimatic factors.

**1. Cold caves** with an average temperature of 6°C - 10°C and with a relative humidity of approx. 80 - 100 %. These caves are particularly indicated for the treatment of respiratory diseases. For these purposes so far natural cavities in karst and other geological formations as well as artificial cavities (metal ore and mineral containing mines) have been used.

In Central European countries as well as in the Caucasus speleotherapy centers have been predominantly installed in cold caves.

**2. Rock salt and potash mines** with average temperatures of approx. 13°C - 20°C and a relative humidity content ranging between 45 - 70 %. This speleoclimate characterized by its strong aerosol effect, apart from respiratory diseases, is also indicated for the treatment of other illnesses, among them cardiovascular diseases, bacterial and atypical dermatitis, neurodermites, psoriasis and burns.

In Eastern European countries with their extensive rock salt and potash deposits generously dimensioned speleotherapy centers, have been set up 100 - 400 m below the ground. The favorable temperature conditions permit long-term stays which has enabled the development of different treatment methods for different illnesses. Poland and Romania have a more than 30 year long tradition of this type of speleotherapeutical treatment. In the Ukraine (Solotvino), Biellorussia (Starobin salt mines (Minsk region) and Russia (Berezniki, Perm Region, Western Urals) the application of speleotherapeutical treatment has been not ably improved thanks to the introduction of technical novelties.

**3. Natural and artificial thermal caves** with warm and hot air temperatures as well as with or without increased radioactivity.

The medical indications for these particular microclimates are numerous and manifold. A particular focus is set on a large group of rheumatological diseases. Treatment in thermal caves has a long tradition in Mediterranean countries, but only a few of the natural caves are used for modern speleotherapeutic purposes.

In Central Europe the Gastein speleotherapeutic caves play a special role among other speleotherapy centers. The cave climate is characterized by a radon content of  $RN^{222}$  4.5 Nano Curie per liter of air with temperature ranging between 38°C - 41,5°C and a relative humidity content of 70 - 95 %. The Gastein caves are the most important hot air emanatorium in Europe which has been in operation since 1952.

4. In most Central and Eastern European countries the further development of speleotherapy is promoted by the foundation of national speleotherapists associations.

It is a proven fact that these associations have convinced the competent health authorities to attribute to speleotherapy a certain importance in preventive and rehabilitative forms of treatment. Furthermore, the promotion of speleological-speleotherapeutic projects and programs is another focus of these organizations.

5. Speleological-speleotherapeutic research has given rise to an extensive interdisciplinary cooperation between the field of medicine and natural sciences. This is why a great number of scientific programs are long-term projects the intermediate results of which are in part subject of lectures and publications.

In the working period 1993 - 1997 the following long-term projects have been carried on:

a) Slovenian working group Sezana:

Since 1993 an extensive clinical scientific project has been carried on the aim of which is the incorporation of speleotherapy in the treatment and rehabilitation of chronic lung diseases. The venue of this project is the Therapy and Rehabilitation Hospital (Bolnica za Pljvčne Bolezni) in Sezana and the neighboring artificial cave (EU-Phare Projects).

In preparation of the existing clinical speleotherapy project and also in view of a possible future utilization of karst caves in the framework of an intensive interdisciplinary cooperation from 1991 to 1995 several caves near Sezana were examined for speleotherapeutically efficient parameters the consistency of which were stated with the help of regular measurements. Four caves have been found to entirely fulfil the required speleotherapeutic requirements.

A further scientific program deals with the distribution of aerosols and their deposit in the upper and lower respiratory tract. Measurements of Radon  $RN^{222}$  and its affiliate products in karst caves and also in speleotherapy chambers are thus one of the scientific long-term projects, and what is important, this is also in line with the regulations concerning exposure of workers to radiation who are exposed to an increased radioactive ambient radiation on their place of work.

b) Slovakia

The Institute of Geotechnics SAS, Kosice, and the Management of the Slovak Caves has elaborated well founded papers including measurements of the microclimatic factors and radioactivity in seven caves which should be examined for use in speleotherapy.

From a medical point of view studies about children suffering from atypical and infectious diseases of the respiratory tract in the framework of Phare projects are being carried on by the pediatric clinic of Banská Bystrica in the Bystra caves.

c) Czech Republic

In 1995, the Phare Project Ec/HEA/10 *Natural scientific aspects of the speleotherapeutic effects of caves* was focused on the measurements in speleotherapeutic centers in the Javoricko Caves, Zlaté hory, Ostrov u Macochy and Mladec. The measurements performed by the Department of Chemistry of the Military Academy followed correlations between radon and its daughters, air temperature inside and outside the caves, and correlations between air pressure, humidity, air currents, gas concentrations ( $SO_2$ ,  $NO$ ,  $CO_2$ ,  $CO$ ,  $O_2$ ) as well as concentrations of positive and negative ions and the gamma dosis.

A correlation between radioactivity and the concentration of ion was found.

Members of the Faculty of Electronics of the Brno Polytechnics studied various parameters of cave air in correlation to the number of visitors to the Moravian Karst caves which were strongly and moderately or not at all frequented by visitors.

With the help of aspiration condensers it was stated that the concentration of single parameters varies according to air currents, while the concentration of light ions (with negative and positive load) remains unchanged. The reason for the stable ion concentration is considered to be attributable to the permanent ionization of the air due to

alpha radiation of radon and the negative electric load of the cave walls.

In the Czech Republic there are three speleotherapy centers which are in operation all year round (Ostrov near Macocha, Zlate Hory and Mladec) the focus of which is the application of speleotherapy to respiratory diseases in children and young people.

The good cooperation with the medical institutions of the universities in Brno and Olomouc has given a notable contribution to the scientific foundation of this treatment method. A tight coordination in the interdisciplinary cooperation between the fields of medicine and natural sciences continues to remain the basis of speleotherapeutical research. The pediatric clinic Ostrov near Macocha is planning to enlarge its existing premises which will be realized with the help of Norwegian sponsors.

#### d) Ukraine

The fact that speleotherapy has been an academic study subject in the countries of the former USSR as well as its incorporation in the study program of scientific institutions doing research on medical rehabilitation and spa sciences has had the advantage that research findings can be subject to a methodologically uniform examination and comparison. As far as Solotvino is concerned the state universities of Uzhgorod and Kiev are the competent partners.

At the onset of speleotherapy treatment methods in 1968 an allergological hospital above ground was built. In 1979 an underground ward was added where long-term stays of different lengths have been made possible. The fairly constant microclimate is characterized by an air temperature ranging between 21° and 22°C, a relative air humidity content between 40 % and 60 % and a high concentration of NaCl aerosols.

In numerous clinical studies the antibacterial, antiinflammatory and immunomodulatory effect of the cave climate has been proven with success.

In case of asthma bronchiale and chronic bronchitis a distinct long-term improvement of lung functions has been found. Hormonal and immunologic disturbances and changes in the endocrine system induced by metabolism often found in patients suffering from asthma bronchiale showed a good improvement. Furthermore the normalization of the renine-angiotensine (aldosterone) system expresses an objective improvement of the organs affected.

Future medical research programs will therefore not be limited to basic lung diseases but will also include to a major degree the behavior of collateral disturbances.

#### e) Russia

The development of speleotherapy in one of the biggest potash deposits of the world on the western rim of the Urals was particularly enhanced by the cooperation between the Mining Institute of the Perm branch of the Russian Academy of Sciences, the Perm Polytechnics and the Speleotherapists Association in the Urals. In 1977 one of the most modern underground hospitals was built in the still operating potash mine. This underground hospital operation is connected with a hospital and the sylvinite speleoclimatic chambers above ground. The technical structures are a remarkable engineering performance in view of the particular speleoclimatic requirements.

#### f) Hungary

The Szemlő-hegyi Cave is a very special model of a speleotherapeutical site. It proves that it is possible to set up required microclimatic conditions for speleotherapy under so big a city like Budapest.

In addition, the radon measurements in Hungarian karst caves have been a traditional field of research.

The latest meteorological-hydrological observation systems in the Pál-völgy Cave in Budapest have supplied interesting findings.

#### g) Italy

The Castelvita Cave (180 km from Naples) has two speleotherapeutical stations. Their effects are extraordinarily good. But the authorities have not yet given an official permission to open them which caused to the responsible medical manager a lot of problems in continuing to run this scientific institution.

#### **Events so far performed:**

1) International symposium on speleotherapy  
Solotvino (Ukraine), 22-25 September 1993

2) Sezana (Slovenia), 26-29 October 1995 first meeting of working groups from nearby Central European countries. The meeting was focused on organizational questions in order to be able to reach in the future an intensive

speleological and speleotherapeutical scientific cooperation among the various therapy stations. The following countries were invited to participate: Austria, Czech Republic, Italy, Slovenia, Slovakia, since in these countries the speleotherapy stations present fairly the same endoclimatic conditions. Here we have mostly cold caves (natural and artificial cavities) with an air temperature of 6°C - 10°C and a relatively high air humidity ranging between 80 % - 100 % which are characterized by specific microclimatic parameters.

The existing practical therapy findings which as a whole represent an extensive medical experience now need urgently to be substantiated by a scientifically objective proof that speleotherapy can be efficiently applied as a multifactorial physical treatment method.

The working program of Sezana includes the following:

- Determination of uniform criteria for the evaluation of speleological and speleotherapeutical working methods.
- Foundation of speleotherapists associations for promoting speleotherapy in every country.
- Institution of well functioning information modalities capable of intensifying and coordinating cooperation between the various speleotherapy centers.
- Intensification of speleological-speleotherapeutical publications.

This working program continues to be valid also for the years to come.

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### **Commission on Volcanic Caves Report on activities 1993-1997**

The IUS Working Group on Volcanic Caves became its Commission on Volcanic Caves in 1993. Its purpose is to advance the scientific exploration, study, and preservation of lava tube caves and other caves in volcanic rock. Currently it has one member each from 19 nations. Members are expected to keep the Commission informed about progress and problems in vulcanospeleology and to disseminate vulcanospeleological information to other speleologists in their country or study area.

The Commission collects and disseminates information through its newsletter, through sponsorship of international symposia and conferences and exchange visits, through meetings of its chairman with individual Commission members, and through data compilation on lava tube caves in a NASA-sponsored world data base at Arizona State University. The newsletter appears approximately twice each year. It contains reports and abstracts in addition to current information. It is archived in two U.S. Geological Survey libraries, and is abstracted in **Volcano Quarterly**. Several Commission members presented papers at the 7th International Symposium on Vulcanospeleology in the Canary Islands in 1994; the Proceedings of this symposium have been published. Also the Proceedings of the 1<sup>o</sup> Encontro Internacional de Vulcanoespeleologia das Ilhas Atlanticas (1992) is now in print. In 1996 Stephan Kempe and I presented papers at the Annual Meeting of the National Speleological Society in Colorado, USA. There, we also met with the IUS President and Secretary General. Later Dr. Kempe and I studied lava tube and other pseudokarstic and karstic caves in Colorado, Utah, Arizona and New Mexico. In September 1996, I spent eight days with Yurii Slezin in Kamchatka, visiting the Tolbachik cave area and speaking at the Institute on Volcanic Geology and Geochemistry. In late 1995 and 1996 the Commission joined the Hawaii Speleological Survey of the National Speleological Society in opposing plans for segmental collapse of Kazumura and other important caves by a road project. Although still being monitored, this effort apparently was successful. The Commission also provided recommendations to the American Geological Institute for the new 4th Edition of **Glossary of Geology and Related Sciences**. More than 2000 lava tube caves in 40 nations now are included in the world data base.

Notable field investigations have occurred in Tenerife (extension of Cueva del Viento to 17.18 km), Réunion (systematic studies by P. Audra), Mauritius (systematic studies by G. Middleton), Pico (extension of Gruta da Torres to 5.2 km by ERS of Barcelona), Hawaii (extension of Kazumura Cave to 61 km + 0.6 km unmapped, by Kevin and Carlene Allred and others, with a vertical extent of 1.102 km, and also mapping of Na One Pit to a depth of 263 m

(Allred) and current mapping of Hue Hue Cave to about 10 km by S.Kempe and D. and H.Medville), and Mexico and Iceland. Important books have been published on the Undara cave system (Australia) and Cueva del Viento (Canary Islands), and caves of Iceland in general. Important current studies include Grand Comoro Island (G.Middleton) and Kilauea Crater (W.Halliday).

The Commission meets during international congresses of speleology and during international and regional vulcanospeleological and regional vulcanospeleological symposia. The Commission solicits and approves sites for these symposia. The next meeting will be in Switzerland in August 1997, during the 12<sup>th</sup> International Congress of Speleology. Also it will meet in Nairobi in February 1998 during the 8th International Symposium on Vulcanospeleology and in Catania, Italy during the 9th Symposium.

Future activities will include expansion of all current projects, discussion of when pit craters should be considered speleological phenomena, discussion of whether vertical extents of lava tube caves should be included in deep cave lists, discussion and possible adoption of a Mission Statement for the Commission, further discussion of the present closure of Korean lava tube caves to vulcanospeleological studies, and increased liaison with the IUS' Commission on Glacier Caves and proposed Working Group or Commission on Pseudokarst. A replacement for the present Chairman is needed no later than March, 1998, and the next Chairman should develop a mechanism for funding Corresponding Members. (To date, all Commission expenses have been funded personally by the present Chairman, which has precluded mailings to more than the present membership.)

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### **Bericht des Departements für Schutzmassnahmen**

Auf dem 4. Internationalen Kongress für Speläologie in Ljubljana (Slowenien) im Jahre 1965 wurde die Kommission für den Höhlenschutz und Höhlentourismus vorgeschlagen. Die Kommission gewann ihre volle Bedeutung erst während des 6. Internationalen Kongresses für Speläologie in Olomouc im Jahre 1973. Damals sind die Fragen des Schutzes von Höhlen und Karstlandschaften bereits aktuell geworden. Zahlreiche Mitgliedländer folgten den Anregungen in Olomouc. Danach im Mai 1975 wurden zum Jahre des Höhlenschutzes unter Mitwirkung des österreichischen Höhlenforscherverbandes und der Kommission praktische Schutzmassnahmen über die Säuberung, Verschliessung und Überwachung der gefährdeten Höhlen offiziell gestellt.

In zahlreichen Ländern entstand Nationalverbände, die in ihrem Rahmen eigene Kommissionen für den Höhlenschutz gründeten. Leider war die Verbundenheit dieser Kommissionen mit der Kommission bei der Internationalen Union für Speläologie kaum wirksam. Doch waren manche Kommissionen in Mitteleuropa recht effektiv, so in Frankreich, Italien, Österreich, Ungarn, Tschechoslovakei wie auch in Slowenien, wo die Kommissionen zusammen mit den Regierungen mehr oder weniger strenge Anordnungen für den Schutz der Karstlandschaften und Höhlen aufzustellen versuchten. Schon im Jahre 1982 hob der französische Speläologe Chopy die Stimme gegen massenhafte Besuche in den Höhlen, G.Stummer wies in der Zeitschrift *Die Höhle* auf die Gefahr der Höhlen-Trekkinge. Mehrere Jahre hat diese Revue Aufsätze über die Tragbarkeit der Höhlen und schädliche Propaganda der Besuche in den Höhlen veröffentlicht.

So hat sich eine Reihe Länder entschlossen eigene nationale Kommissionen oder Arbeitsgruppen zu errichten. In Verbindung damit ist die Internationale Union für Speläologie zur Reorganisierung gekommen und im Rahmen der Internationalen Union 16 wurden Kommissionen und Arbeitsgruppen aufgestellt. So teilte sich das Departement für Schutzmassnahmen in die Kommission für Karst- und Höhlenschutz (Habe) und die Kommission für Schauhöhlen (Gurnee). Im Rahmen der Nationalverbände wurde aufgrund der Forschung der unterirdischen Karstflüsse auf Anregung der Internationalen Union für Speläologie besonderes Interesse dem Karstwasser gewidmet. Von Jahr zu Jahr stieg die Verunreinigung des Wassers durch Urbanisierung und Industrialisierung und in der Zeit von 1972-1975 organisierte das Institut für Karstforschung der slowenischen Akademie der Wissenschaften und Künste zusammen mit unserer Kommission und ausländischen Fachorganisationen eine internationale hydrologische Dekade, in der auf dem

Gebiet der Ljubljanaquellen in Slowenien mit 14 Markierungsmitteln festgestellt wurde, dass das Wasser sowohl zum Adriatischen als auch zum Schwarzen Meer seinen Weg findet.

(Underground Water Tracing, 1976). Gerade das Problem einer Industriezone zwischen Italien und dem damals jugoslawischen Karstgebiet bei Seana und Divaja wurde wegen kräftigen Protesten seitens der Umweltschutzorganisationen Italiens und damaligen Jugoslawiens wie auch der Internationalen Union für Speläologie abgelehnt. Seit 1960 stellt die Verschmutzung des Ponorflusses Reka das Hauptproblem des Triester Karstes dar, verursacht durch die Säure- und Lesonit Fabriken, Transportunternehmungen und Stadtabfälle. Dunkles Wasser mit Geruch bedrohte die Schauhöhle, 5 km lange Škocjanske jame so wie Trinkwasserin der Triester Bucht. Deswegen hat die Internationale Union für Speläologie auf Anregung der Internationalen Schutzorganisation "Ecological Bricks for our common House of Europe" ihre Kommission für Karstschutz und Höhlen ein Programm für die Gründung eines internationalen Karstparkes zwischen Italien und Slowenien vorgeschlagen. Auf Anregung der Karstgemeinde Seana hat die republikanische Regierung schon im Jahre 1971 eine Kommission für Sanierung des Flusses Reka und damit auch Škocjanske jame gegründet. In diesen jahrelangen Sitzungen mit Anteil aller karstorgenden Institutionen, hat auch unsere Kommission viel beigetragen. Sie organisierte in Seana und Lipica ein internationales Symposium über den Karstschutz 1982 und 1990, gewidmet vor allen den Problemen des Ponorflusses Reka und Škocjanske jame mit grossem Anteil an Speläologen aus Europa und Amerika. Die Resultate dieser Symposien erschienen in separaten Publikationen. Als Vorsitzender der UIS-Kommission publizierte ich auch in den Publikationen Naše Jama (Unsere Höhlen) mehrere Beiträge zu den Problemen der Škocjanske jame. In der selben Zeit erschien auch die farbige Monographie "Il Timavo" in italienischer und "Reka - Timavo" in slowenischer Sprache, in welcher 11 Autoren ihre Beiträge zum Karst von Škocjanske jame vorgelegt haben. Bei der Sitzung von UNESCO wurden die Škocjanske jame als einzige europäische Höhle in die Liste der Natur und Kultur Erbschaft der Welt angenommen. Dieser Proklamation folgten seitens der damaligen Besitzer (Gastwirtschaft Seana) wie auch seitens verschiedener speläologischer Organisationen und Institutionen mehrere Symposien, die zukünftige Verwaltung der Höhle vorzeigten. Doch hat das slowenische Parlament erst im Oktober 1996 mit besonderem Gesetz den "Regionalen Park Škocjanske jame" als besondere staatliche Anstalt anerkannt. Bei diesen Beschlüssen des Parlaments war auch unsere Kommission tätig. Auf der Feier der 10-jährigen Proklamierung organisierte die Anstalt für den Naturschutz und Kulturerbschaft in Matavun bei Škocjanske jame ein breites Symposium, wo in 22 Referaten alle Probleme des Regionalen Karstparkes Škocjanske jame dieser neuen Anstalt vorgetragen wurden. Das Symposium unterstützte auch die Revue KRAS (Karst), in welcher einige Probleme dem Parkes angedeutet wurden. Als Vorsitzender der Kommission UIS habe ich dabei einen längeren Aufsatz "Škocjanske jame - eine Weltperle und zugleich eine Weltsorge des Karstes" gehalten. Die Folge davon war: der Fluss Reka ist nicht mehr verunreinigt und ein Besuch der Škocjanske jame ist angenehm geworden. Auf das Gesetz wartet auch ein äusserst interessantes Gebiet des Flusses Ljubljana, das unter Namen "Notranjski Park" (Innerkrainer Park - 1,627 km<sup>2</sup>) in dem innerkrainer Karstpoljen (Cerkniško, Loško polje und Karstplateau Bloko) gelegen ist. Das neugewählte Parlament der Republik Slowenien wird die schon vorbereitete Fläche gesetzlich schützen. Im Laufe dieses Jahres wird aber auch ein Gesetz über die Höhlen erscheinen, das fast 7,000 Karsthöhlen schützen wird. Die Arbeit unserer Kommission war munigfaltig. Sie beteiligte sich auf allen internationalen Kongressen so wie auf jugoslawischen Höhlenforscherkongressen. Im Jahre 1991 ist wegen der Angriffe Serbiens in Kroatien und Bosnien-Herzegowina zum Zerfall der Föderation der Höhlenforscher Jugoslawiens gekommen. So wurde durch den Angriff der berühmte von UNESCO anerkannter mediteraner Karstpark Trsteno bei Dubrovnik vernichtet, die weltberühmten Plitwitzer Seen in Lika in Kroatien wurden stark beschädigt, die Wasserfälle Slunjčice am Wege zu Plitwitzer See aber samt den Ansiedlungen vollkommen zerstört.

Schon auf der europäischen Konferenz in Helec in Belgien, als ich in Namen der Kommission für den Karstschutz über die Verhältnisse wegen des Angriffs Serbiens referierte wurde vom Verband slowenischen Höhlenforscher vorgeschlagen, Slowenien in Mitgliedschaft UIS aufzunehmen. Das geschah auf der Generalsitzung zur Sitzung des Kongresses UIS in Beijing in China. Die Kommission für den Karstschutz beteiligte sich an den Protesten gegen geplante internationale Autorennbahn im Gebiete des Divajakarstes bei Petrijnje. So wurde auch von der Seite der slowenischen Regierung in Ljubljana dieser für den Karst äusserst schädlicher Plan aufgelassen. Auf Anregung der TriesterSektion "Ecological Bricks for our common House of Europe" kam in mehreren Sitzungen in der Zeit von 1991 bis 1994 zu der Gründung des internationalen Karstparkes im Grenzgebiet des Triester Karstes, wo sich gerade unsere Kommission stark beteiligt hat. Wegen der ungünstigen politischen Verhältnisse und verschiedener Ansichten über die Regelung eines solchen Parkes wurde diese Idee auf ein günstigeres politisches Verhältnisse zwischen Italien und Slowenien verlegt. Die Kommission für den Karstschutz hat eine Anregung zum Zusammentreffen der Höhlenforscher der drei Länder, Österreichs, Friaul-Venetiens und Sloweniens vorgeschlagen. Schon 17-mal kam zu diesem "Dreiländertreffen", jedesmal in anderem Lande. Unsere Kommission UIS hat an diesem Treffen mit Besprechungen



über den Karstschutz teilgenommen. Sie hat auch an vielen Symposien und Konferenzen der Nachbarländer teilgenommen. Als Vorsitzender der Kommission publizierte ich in slowenischen wie auch in italienischen, österreichischen und deutschen Publikationen Themen aus dem Bereiche des Karstschutzes.

Als solcher bin ich in vielen Höhlenforscherorganisationen Ehrenmitglied geworden, so im Verband Sloweniens, Italiens und Österreichs.

Zum Abschied von der Kommission habe ich mit Hilfe der Jugend-Lager und Verband der Organisationen für technische Kultur Sloweniens zwei Bücher: Mühlen und Sägewerke im Karst auf Wasserbetrieb, die den Zerfall fast 100 Betriebe behandelt (Postojna 1996 und Ljubljana 1997).

Dr.France Habe

### **Commission des Grandes Cavités Rapport d'activité, 1994-1997**

Comme les années précédentes, la Commission des Grandes Cavités a poursuivi son travail d'enregistrement et de diffusion des données émanant de ses correspondants a travers le monde entier, avec le même rythme de difficultés, les uns disparaissant (absence de correspondants par exemple), les autres apparaissant (écartements politiques en Europe, par exemple). Durant la période écoulée, la Commission a dû ralentir le travail habituel sur les cavités calcaires au profit des cavités non-calcaires, a partir du projet ébauché en 1989 au Xe Congrès International de Budapest. Au moment où nous rédigeons ce rapport, février 1997, nous avons l'espoir de voir le travail de la Commission se concrétiser sous la forme d'un ouvrage intitulé **Atlas des grandes cavités non-calcaires du monde**, conçu comme le prolongement de l'**Atlas des grandes cavités mondiales** de 1986, a défaut de n'avoir pu en être une annexe comme nous le pensions a l'origine. Projet a certains égards moins ambitieux, mais plus difficile a réaliser dans la mesure où il est inaugural et surtout dans la mesure où les grottes non-calcaires (il faudrait dire plus exactement non carbonatées) sont moins prisées des spéléologues.

Mais un problème désormais se profile a l'horizon qui est celui de trouver un successeur a son actuel président, de façon a ce que la Commission des Grandes Cavités trouve un souffle nouveau et prenne un nouvel essor.

### **Rapport d'activité de la commission des speleo-secours de Septembre 1993 a Juillet 1997**

Du fait de l'aggravation des problèmes économiques des pays de plusieurs membres du Bureau, du manque total de subsides ou aide quelconque et parce qu'aucun pays ne s'est proposé pour organiser une Rencontre Internationale, aucune Réunion du Bureau, aucun Symposium International de Secours n' a pu se tenir durant cette période. Les Réunions de Bureau ont de ce fait été remplacées par une nombreuse correspondance et certaines visites entre le Président et les membres du Bureau.

La Commission a cependant fourni diverses activités.

- Les membres du Bureau encouragent la prévention et le secours spéléo, soit au sein de leur Fédération Nationale, soit lors d'expéditions ou de cours de formation dans d'autres pays.
  - De nombreux articles traitant de prévention ou de techniques de sauvetage ont été diffusés, certains ont été traduits (français, anglais, espagnol).
  - La Commission a répondu a diverses demandes (informations sur des techniques ou du matériel, adresses de spécialistes, etc.).
  - Un listing des responsables du secours spéléo et de spécialistes (médecins, paramédicaux, artificiers, plongeurs, etc.) a été établi et est tenu a jour dans la mesure du possible.
  - De nouveaux contacts ont été établis avec des pays ne possédant pas encore un organisme de secours structuré; malheureusement, d'autres contacts ont été perdus avec certains pays de l'Est de l'Europe.
- Une relance afin de rétablir ces contacts a été entreprise mais avec peu de résultats.
- Lors du Congrès 1994 de la Fédération Française de Spéléologie qui était ouvert aux spéléologues étrangers

s'est tenue une séance d'informations et d'échanges de vues. Au cours de celle-ci, le Président de la Commission, André Slagmolen, a fait appel à la collaboration de chacun.

- Un résumé de l'article du Dr. J.M.Ostermann concernant certaines maladies sévissant dans le Sud-Est asiatique et pouvant affecter les spéléologues se rendant dans ces régions a été publié dans le Speleo Soccorso et le Cave Diving.

D'autres informations sont en préparation et des pourparlers ont eu lieu pour pouvoir les insérer également dans "Subterranea" la revue nationale de la Federacion Española de Espeleologia.

- La Commission encourage les Spéléo-Secours nationaux à ouvrir leurs stages de formation aux spéléologues étrangers, c'est déjà le cas dans plusieurs pays (notamment la France, l'Espagne, Puerto Rico, la Bulgarie) qu'elle tient à remercier.

- Elle utilise au maximum les possibilités de rencontres que présentent les Congrès organisés par les Fédérations nationales; en 1995, elle a notamment participé à des réunions en France et à Cuba; en 1996 en France, à Puerto Rico, en Espagne; début 1997 au Congrès de la FEALC qui se tenait en Argentine; la participation de délégués de différents pays à ces Congrès lui permet de nouer des contacts et de mieux connaître leur organisation.

- De nombreux contacts ont été établis avec la Commission Enseignement de l'UIS, entraînant une excellente collaboration entre les deux Commissions.

D'autre part, le Président actuel de la Commission Plongée de l'UIS est également membre du Bureau de la Commission des Spéléo-Secours.

- À la demande de la Commission, les organisateurs suisses du prochain Congrès de l'UIS organiseront une *Journée du Sauvetage Souterrain*.

Immédiatement après le Congrès, le Spéléo-Secours Français donnera une formation au sauvetage à l'intention des spéléologues du monde entier.

- Lors du Congrès de la FEALC qui s'est tenu en février 1997 à Malargüe (Argentine), une journée a été consacrée aux thèmes de la prévention et du sauvetage, qui ont été largement abordés et commentés. Ensuite, des cours théoriques et pratiques de sauvetage en ne disposant pas d'un matériel sophistiqué ont été donnés.

- Pour sa part, André Slagmolen a donné un bref aperçu de l'UIS et exposé le travail de la CSS devant les participants au Séminaire de Spéléo-Secours à Aguadilla (Puerto Rico) en avril 1996, aux Jornadas Nacionales de Espeleologia à Jaca (Espagne) en novembre 1996 au Congrès de la FEALC à Malargüe (Argentine) en février 1997 et fourni un article sur ce sujet pour le Spelaeus Flumen '96 à Porderone (Italie) en novembre 1996.

Depuis sa création, la Commission reste toutefois confrontée au problème crucial de l'absence totale de moyens financiers, ne bénéficiant d'aucune subvention ou aide quelconque, tous les frais administratifs, toutes les activités étant supportés par les membres du Bureau.

#### Réalisations en cours:

À la demande du Bureau de l'UIS qui s'est tenu fin 1996, la Commission s'est penchée sur le problème du secours lors d'expéditions dans des pays ou des régions ne possédant pas d'organisme de sauvetage spéléo ou d'ayant pas le nombre de sauveteurs ou le matériel nécessaire au moment d'un accident.

Une première réunion s'est tenue sur ce sujet lors du Congrès de la FEALC en février 1997. Il semble que le problème majeur sera l'appel à des secouristes extérieurs au pays où s'est produit l'accident (fierté, susceptibilité nationale; risquant de retarder la demande de renfort et compromettant la réussite de sauvetage au point de le rendre trop tardif).

Dans les pays de l'Union Européenne ce problème se pose moins, les spéléologues se connaissant et appel à des spécialistes étrangers ayant déjà été fait à diverses reprises. Il serait toutefois nécessaire que des **Conventions Transfrontières** soient établies et signées afin de renforcer la rapidité et l'efficacité des secours.

Dans ce but, la Commission a établi un **Protocole d'accord-type** qu'il tient à la disposition de toutes les Fédérations qui en feront la demande.

D'autre part, une nouvelle structure, décentralisée, de la Commission est à l'étude. Elle sera proposée lors du Congrès de l'UIS en Suisse.

Cela permettra de couvrir plus efficacement les cinq continents mais nécessitera un plus grand nombre de collaborateurs, répartis de par le monde.

André Slagmolen

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## **NEWS FROM MEMBER COUNTRIES AND RELATED ORGANISATIONS**

### **RUSSIA**

On December 1996, the First Congress of Russian Union of Speleologists took place in the city of Chelyabinsk. The Union was founded on May 1996 at the Urals Mts. when representatives of 10 greatest caving clubs met. The representatives of the Union are as follows: the President - Yuri Kosorukov (Moscow), the Vice-Presidents: Aleksandr Vishnievski (Yekatinburg) and Aleksandr Osintsev (Irkutsk), the Responsible Secretary: Konstantin Dubrovski (Moscow). The official address is: Russian Union of Speleologists, P.O.Box 41, 119270 Moscow, Russia, fax: ++7-095-2926511 box 595, e-mail: dubrovsk@barrier.mipt.ru

### **FEALC**

The III<sup>rd</sup> Speleological Congress of Latin America and Carribean (III-CEALC) and Assembly General of the Speleological Federation of Latin America and Carribean (FEALC) was held on February 2 to 8, 1997 at Malargüe, Argentina. Hereafter, important sections of minutes from the Assembly General prepared by Carlos Benedetto are mentioned in original language. Congratulations to new representatives!

#### *Elección de nuevas autoridades*

Como último punto del Orden del Dia, la Asamblea procedió a constituir el nuevo Comité Ejecutivo de la FEALC para el período 1997-2001, que por el voto unánime de los presentes quedó constituido así:

Presidente: Carlos A. BENEDETTO (Arg)

Vicepresidente: José G. PALACIOS VARGAS (Mex)

Secretario General: José Ayrton LABEGALINI (Bra)

Secretarios Adjuntos: Franco URBANI (Ven)

Antonio NU\_EZ JIMENEZ (Cuba)

Rodolfo BECERRA DE LA ROCA (Bol)

Guillermo CORTES PADILLA (Costa Rica)

Abel VALE (PR)

#### *Comisiones de Trabajo*

La FEALC considera de interés el trabajo en comisiones, para lo cual se estima oportuno la creación de los respectivos espacios, bajo las siguientes condiciones:

- el Comité Ejecutivo de la FEALC hará prevalecer el criterio de que las comisiones no serán permanente, sino sujetas al cumplimiento de objetivos concretos y a plazo.

- una vez que un país asuma la responsabilidad de una comisión y designe a una persona encargada, se dará al responsable un plazo de 2 meses para que presente un programa de trabajo, más cronograma.

En ese marco, se establecen las siguientes comisiones:

BIOSPELEOLOGIA: José G. Palacios Vargas (Mex)

CONSERVACION DEL PATRIMONIO

ESPELEOLOGICO: Abel Vale (PR)

CATASTRO:

ESPELEOSOCORRO: Abel Vale (PR)

CAVIDADES ARTIFICIALES: Luis Carabelli (Arg)

ANTROPOESPELEOLOGIA: Walter Calzato (Arg)

CUEVAS TURISTICAS:

FISICO-QUINMICA DEL KARST: Franco Urbani (Ven)

HISTORIA DE LA ESPELEOLOGIA:

GRANDES CAVIDADES:

ENSEÑANZA DE LA ESPELEOLOGIA:

#### *Creación de un Consejo Asesor*

La FEALC considera oportuno y necesario crear un Consejo Asesor, integrado por no más de 5 personas de comprobada actividad y que estén colaborando activamente con la FEALC. Los consejeros designados tendrán la calidad de tales en el lapso que medie entre cada Asamblea General. El Comité Ejecutivo está facultado a agregar consejeros (hasta un máximo de 5) a los nombrados en la presente Asamblea. Se designa, por unanimidad, a los siguientes colegas: André Slagmoles (B), Adolfo Eraso (E).

#### *Relaciones UIS-FEALC*

La FEALC resuelve exhortar a sus miembros a regularizar su situación financiera y su integración efectiva a la UIS.

Los países miembros de la FEALC propiciarán que más países de América Latina se incorporen a su seno y al seno de la UIS.

#### **IUCN World Commission on Protected Areas**

Within the IUCN Protected Area Programme, the WCPA Working Group on Cave and Karst Protection prepared ***Guidelines for Cave and Karst Protection*** (John Watson, Ely Hamilton-Smith, David Gillieson and Kevin Kirnan) published by Environmental Australia, Biodiversity Group P.O. Box 636, Canberra, ACT Australia 2601 in 1997. The brochure of 63 pages is available from: IUCN Publication Services Unit, 181a Huntington Road, Cambridge, CB3 0DJ, UK or from IUCN Communications Division, Rue Mauverney 28, CH-1196 Gland, Switzerland and from Australian Committee for IUCN, Level 1, 71 York St., Sydney, NSW 2000 Australia. Except of interesting information concerning principles of management of karst and cave regions, the brochure contains a lot of e-mail addresses and WWW contact addresses concerning karst topics. Contact: Prof. Ely Hamilton-Smith, P.O. Box 36, Carlton South, Victoria 3053, Australia, ☎ (+613) 9489.7785, fax: (+613) 9481.2439, e-mail: elery@melb.alexia.net.au

## **OBITUARIES/OBITUAIRES**

### **A la mémoire du Professeur Bernard Geze**

Bernard Geze n'est plus ... Cette triste nouvelle vient juste de nous arriver au moment où ce numéro de Spelunca devait partir pour le maquettage. Triste nouvelle, a plusieurs titres pour le spéléologue. Bernard Geze était spéléologue dans l'âme depuis son jeune âge et avait été formé à l'école de Robert de Joly, tout en étant en contact avec

le grand maître Édouard-Alfred Martel.

Bernard Geze a été l'un des grands promoteurs de la spéléologie, aussi bien dans notre pays qu'à l'échelle internationale, avec la création, "sous son égide" comme il aimait le dire, de l'Union Internationale de Spéléologie, notre chère UIS.

C'était un grand explorateur, au sens noble du terme, assoiffé de découverte spéléologique et scientifique et ne dissociant jamais les deux aspects. On le vit à l'œuvre dans une grande partie du sud de la France: Garrigues languedociennes, Grands Causses, Quercy, Aude. À l'étranger, il s'intéressa à bien des pays et régions, dont l'Algérie, le Maroc, le Cameroun, le Tchad, le Liban, Cuba et les îles du Pacifique. Ses nombreux articles informèrent dans une égale mesure le monde scientifique et les spéléologues. Qui ne se souvient de son célèbre ouvrage "La Spéléologie scientifique", publié en 1965, qui mettait les acquis de la science à la portée des spéléologues et les acquis de la spéléologie à la portée des scientifiques? Cette action didactique a prévalu dans sa carrière. Même à une époque où science et exploration semblaient vouloir diverger quelque peu, il ranimait la flamme avec son article "Le Trou" et son environnement, qui fit le bonheur des spéléologues et leur rappelait que le "trou" ne peut pas se comprendre hors de son contexte géologique, étant lui-même un phénomène géologique, et donc que l'exploration vraie ne peut se concevoir ni être efficace sans une recherche d'ensemble sur le massif. Depuis, le message est passé.

Bernard Geze a toujours suivi de très près l'actualité spéléologique, même dans son plus grand âge, et a toujours montré une grande curiosité, une vivacité d'esprit certaine et un regard fort pertinent sur les événements. Il suivait avec une égale passion les progrès de l'exploration et ceux de la science et était le plus souvent présent dans les grandes manifestations spéléologiques. Il venait avec son épouse Clémence et tous deux donnaient l'image d'un vieux couple remarquablement uni, un modèle certain.

Ceci nous amène tout naturellement à parler de ses grandes qualités. Tout d'abord l'enthousiasme et l'éclectisme, qui le firent s'intéresser à tous les aspects de la spéléologie. Puis la perspicacité, qui lui faisait entrevoir les différents aspects d'un problème et dont il débattait volontiers en exposant sa vision des choses avec une clarté teintée de respect pour les convenances et d'une touche d'humour. Bernard Geze était plus d'une fois en avance sur son temps, ce qui le conduisit à écrire des articles, clairs et logiques, pour débattre de phénomènes que la Science de l'époque ne permettait pas encore de bien comprendre, par exemple il y a eu quarante ans sur l'influence de l'évolution des climats au Quaternaire sur l'évolution des cavernes. Enfin, Bernard Geze était soucieux de défendre la langue française. Il y était aidé par un style agréable qui rendait ses écrits fort didactiques. Son regard humoristique porté avec précision et clairvoyance sur les faits lui assuraient un talent consommé de conteur.

Sa "Geste de Robert Joly", publiée en 1974, en est le plus bel exemple.

Mais on ne peut parler de Bernard Geze seulement en traits généraux, car ce serait occulter son œuvre immense en spéléologie, consignée en partie dans un très grand nombre d'articles et aussi en géologie. Jamais il ne dissocia vraiment les deux disciplines, et garda toujours une prédilection pour le karst. Il peut être opportun de retracer sa carrière en termes chronologiques, ce qui a l'avantage d'associer ces aspects liés dans sa vie et dans son œuvre, avec son rôle dans les institutions spéléologiques nationales et internationales.

Il débuta l'exploration spéléologique à la fin des années 20 dans la région montpelliéraine, où son père résidait, mais son activité dans cette région se réduisit lorsqu'il devint étudiant à l'Institut National Agronomique (INA) de Paris en 1932. Après avoir participé en 1930 à la fondation du Spéléo-Club de France avec de Joly, il proposa sa transformation en Société Spéléologique de France, ce qui fut réalisé en 1936. Il était déjà membre du Spéléo-Club de Paris à sa fondation la même année. À cette époque, il explore dans le Lot, avec Joly, de Lavarat ... Ses recherches quercynaises sont couronnées en 1937 par un mémoire renommé sur l'hydrogéologie du karst et les poches de phosphorites. Cette même année, il devint assistant de géologie à l'INA. En 1939 il partit pour une mission géologique au mont Cameroun, dont il utilisa les temps libres pour explorer les tubes de lave entre 3000 et 4000 m d'altitude. Il publia les tubes de lave pour les spéléologues et en 1943 un gros mémoire de géologie qui lui permit de devenir docteur de l'Université de Toulouse.

En 1945, il contribua sous l'égide de Fage et Jeannel et avec Trombe à la création d'une Commission de Spéléologie au CNRS. Il obtint la même année la mise sur pied d'un Service de Spéléologie au BRGG (l'actuel BRGM). En 1946, il parvint à associer la Société Spéléologique de France et le CAF pour la publication de la nouvelle revue **Annales de Spéléologie**. En 1949, sa thèse de géologie structurale sur les nappes paléozoïques de la Montagne Noire lui permit cette fois de devenir docteur d'État en Sorbonne.

Puis il devient second président du Comité National de Spéléologie fondé en 1948. En 1953, il est secrétaire du premier Congrès International de Spéléologie. En 1954, le Laboratoire Souterrain de Moulis, créé en 1948 sous l'égide de Vandiel, est inauguré. B. Geze sera membre de son comité de direction. À cette époque, il obtient avec Trombe

la création de quelques postes de chercheurs en sciences du karst, dont résultent ses travaux sur l'aragonite avec Thérèse Pobeguïn et les thèses de H.Roques (1964) et de Ph.Renault (1966). Il provoque en tant que président du CNS la tenue à Cahors en 1959 du premier Congrès National de Spéléologie depuis celui de Millau en 1939. En 1965, l'Union Internationale de Spéléologie est créée dans le Karst yougoslave sous son égide. Il en fut le président lors des deux premiers mandats. 1965 est aussi l'année de son ouvrage "La Spéléologie Scientifique".

En 1988, il dirige le Symposium d'Histoire de la Spéléologie associé au Centenaire de la Spéléologie française à Millau.

Professeur de géologie en retraite de l'INA, il était aussi Président d'Honneur de l'UIS.

Bernard Geze connaît presque tous les Grands de la spéléologie (Martel, de Joly, Viré, de Lavour, Vandel, Jeannel, Casteret, Chevalier, etc.) et fut de presque toutes les nouvelles institutions. Il connaît toutes les personnes qui comptent en spéléologie et beaucoup d'autres.

Un article sur son époque était prévu pour ce Spelunca, mais il n'a pu l'achever, malgré l'enthousiasme qui l'animait. Il en éprouvait lui-même un grand regret qu'il me confiait très récemment par écrit. Son écriture moins bien calligraphiée qu'à l'habitude montrait à quel point il était sincère dans son propos. Nous parlerons donc de lui, puisqu'il n'a pas eu le loisir de la faire. C'est la le devoir de la communauté spéléologique.

Adieu Professeur Bernard Geze. Vous avez été un Grand Monsieur! Nous sommes fier de vous avoir connu!

Claude Mouret

### **Bernard Geze 1913-1966**

Aux côtés de Robert de Joly lorsque celui-ci relança en 1930 l'activité spéléologique en France, avec le Spéléo-Club de Paris en 1936 lorsque fut fondé un club auquel il n'a jamais cessé d'appartenir, présent en 1953 au Premier Congrès International de Spéléologie à Paris, mais ses qualités de secrétaire général, Bernard Geze est toujours là, cette fois-ci devant quand, lors du Quatrième Congrès International de Spéléologie, à Ljubljana, en 1965, fut fondée "sur son initiative" l'Union Internationale de Spéléologie dont il assura la présidence jusqu'en 1973 avant d'en devenir le président d'honneur.

Ce survol à lui seul serait suffisant à rendre l'hommage que doit lui rendre la communauté spéléologique. Pendant soixante six années, Bernard Geze a accompagné, favorisé, soutenu, dirigé le mouvement spéléologique, tant au plan national qu'au plan international. Au monde, nous n'avons nul équivalent d'un engagement aussi grand, d'une fidélité si exemplaire. Bernard Geze n'a jamais oublié le jeune-homme qu'il a été quand il s'intéressait, quand il encourageait les travaux de ses jeunes "confères en spéléologie", comme il aimait à lui que nous devons une Union forte et solide, mais bien sûr ce n'est pas une tâche qu'il a menée seul. Serait-ce ce qu'il nous laisse de meilleur mais aussi de plus difficile à assumer? Réponse impossible! En plus d'une activité spéléologique incessante, infatigable, tant en France qu'à l'étranger -il s'est déplacé au Cameroun, au Vanuatu (ex-Nouvelles-Hébrides), à Cuba, ... -, il laisse une oeuvre considérable, toute de pondération et de pertinence. Sa démarche était celle d'un scientifique authentique, observateur aigu et théoricien prudent. Géologue de vocation, il avait reçu une formation universitaire classique, c'est-à-dire républicaine et rationnelle. Aussi sa passion spéléologique était-elle rentrée, contenue, mais passion quand-même, car comment expliquer une telle longévité. Un exemple le montrera: il est tout à son honneur d'avoir combattu et surmonté le scepticisme qu'il éprouvait à l'égard de la radiesthésie. Et ceci est tout à fait cohérent avec le fait d'avoir fondé une union internationale. Ouverture d'esprit! Ouverture des frontières! Ouverture des esprits!

C'est bien pourquoi notre in memoriam nous laisse un goût amer, celui de ne pouvoir être à la hauteur de sa mission. Celui de manquer ce premier rendez-vous avec notre propre histoire. Mais d'autres lignes viendront, écrites par des mains plus expertes que les miennes, pour dire, haut et fort, pour dire, clairement, qui a été, ce qu'a fait, réalisé et pensé Bernard Geze.

Claude Chabert

### **Zbigniew Rubinowski (1929-1997)**

On February 11, 1997 died in consequence of skiing accident in the Salzburger Alps geologist, speleologist and climber - Docent Dr. Zbigniew Rubinowski. In his death Polish movement of inanimate nature preservation lost its most prominent representative.

Z. Rubinowski was born in Cracow on October 19, 1929. However, he spend his childhood and school time in Zakopane at the foot of the Tatra Mountains, where he was graduated in 1948 and begun his mountaineering activity as scout. Than he studied geology at Cracow Mining and Metallurgy University, where he obtained degrees of engineer in 1952 and M.Sc. in 1954. Since 1951 Z. Rubinowski started his professional career in research of mineral deposits in the Geological Survey of Poland. His M.Sc. Thesis was devoted to the paleokarst Pb and Cu deposits in Devonian limestones of the Holy Cross Mts. This area was his subject of investigation till the last days, because since 1957 he was employed as a chief of mineral resources laboratory of the Holy Cross branch of the GSP in Kielce. There he obtained Ph.D. (1967) and Docent (1973) degrees and changes his interest from exploitation to preservation of natural resources and environment of the area. Z. Rubinowski is the author of 250 scientific or popularizing papers and 150 technical reports in geology, speleology, climbing and nature protection.

Z. Rubinowski has struggled for protection of caves since the 1963, when was accidentally discovered during limestone quarrying excellently decorated Raj (Paradise) Cave near Kielce. He developed the idea, that not closing with the iron gate, but carefully management for controlled tourist sightseeing is the best mode of cave preservation. This idea was realized in 1972 under Rubinowski's direction. During the necessary excavation and construction the cave was fully investigated, the research was published in two collective books (1972, 1974) and Z. Rubinowski (T. Wróblewski co-author) prepared excellent popular scientific monograph Jaskinia Raj (two editions 1976, 1986). Subsequently Z. Rubinowski was elected the member of State Council of Nature Preservation and the president of the Commission of Inanimate Nature Preservation and Subcommittee of Karst Areas and Caves Preservation of this State Council.

Since his boyhood Z. Rubinowski had climbed in Tatra Mts., than in Alps, Caucasus, Altay, Pamir, Hindukush, Andes and Himalaya. Two time he gained Polish climbing record 7,492 m a. s. l. (Noshak, Hindukush in 1960) and 7,902 m a. s. l. (Kangbachen, Himalaya in 1974). He took part also in geological investigation in the Antarctic (King Georg Island in the summer 1979/1980). Moreover, Z. Rubinowski was certified instructor of climbing and skiing, he was experienced in climbing and caving rescue also.

Zbyszek with his calm and modest, but persevere personality with great personal authority was inappreciable in many difficult situation both during Himalayan expeditions, as well as in collective scientific and technical works. The death of Doc. Dr. Z. Rubinowski is not only a great loss for the Polish speleology, but he will be never forgotten and few will be the future works on geology, karst, caves and nature protection of the Holy Cross Mountains, that do not somewhere carry a little bit of Zbigniew Rubinowski in them.

Jerzy Glazek (Poznan)

### **Andrzej W. Skalski (1938-1996)**

Andrzej W. Skalski, the most prominent Polish biospeleologist, suddenly died after a busy day, due to heart failure in Cracow on September 16, 1996. He was born on May 14, 1938 at Craców and studied there at the Jagiellonian University between 1957-1963, obtaining M.Sc. degree in zoology. Since the late fifties He begun caving and speleological research as university student. Than he started his professional career as an instructor of hiking in local Youth Cultural Center for a short time and than in the District Museum at Czestochowa, where he was successively the head of the Natural Science Division, deputy director and director of the Museum till 1991, at that time he became an expert of State Council for Natural History Exposition in Museums. Simultaneously, after obtaining Ph.D. degree in zoology at the A. Mickiewicz University in Poznan (1978), he was a lecturer at the Pedagogical University (PU) in Czestochowa and an expert of the District Environmental Inspection in Czestochowa. Since 1992 he was employed as senior lecturer at Czestochowa PU.

A. W. Skalski during 25 years of work at the Museum in the heart of the biggest Polish karst area (Craców-Wielun Upland) not only exhibited great organizational ability, but also considerably developed knowledge on karst and subterranean life in science and in local society organizing special exhibitions, public lectures and symposia of national and international character (5<sup>th</sup> Intern. Colloq. *Gammarus* and *Niphargus* and 3<sup>rd</sup> Intern. Symp. Groundwater



Ecology). He attended numerous international conferences, among them several International Congresses of Speleology and many meetings of biospeleologists, as well as took part in speleological expeditions.

Andrzej has started his investigations with speleoecological study on cavernicolous beetles *Choleva lederiana gracilentia* (Szymcz.) occurring in caves near Craców (M.Sc. Thesis), than he studied microlepidoptera, present day and fossil from amber inclusions. The monograph of the genus *Niphargus* was his Ph. D. Thesis. Such broad field of experience gave him excellent base for later struggles for karst and cave protection, as well as for conservation of the natural environment. Dr. Skalski, since 1959 published over 350 of scientific and popularizing papers and reports. He described several cave dwelling species, new to the science, not only from Poland, but also from his scientific expeditions (e.g. from India), as well as several review papers on groundwater and cave inhabitants in Poland. His papers were published in many countries, not only in conference proceedings but also in prominent journals and books (e. g. *Int. J. Speleol.*, *Mém. Biospéol.*, *Encyclop. Biospeol.*).

The death of Dr. A. W. Skalski is not only a great loss for the Polish speleology, but he will be missed by his friends in many countries and in the biospeleological scene of science.

Jerzy Glazek (Poznan)

#### ANNUAL CONTRIBUTIONS CHANGED

The UIS General Assembly decided to rise annual contributions of the UIS member countries. Beginning with 1994, the annual contributions will be as follows:

Category A	300 USD
Category B	200 USD
Category C	50 USD

Each UIS member country has the free choice of the category in accordance with its own financial possibilities and with the number of speleologists or speleological societies/ associations/ federations/ clubs/ institutions

The UIS Bureau is authorized to reduce or to remit the contributions, if the UIS member country makes a respectively written demand. If the UIS Bureau requires, the UIS member country has to give reasons for the difficulties of a payment.

The authorization of the UIS Bureau to reduce or remit the contributions confirms that the impossibility of a payment by actual political problems of difficulties will not be an argument to exclude any member country from the international collaboration within the structure of the UIS.

Older numbers of the UIS-Bulletin

The volume 38 of the UIS-Bulletin as well as the most earlier volumes of the UIS-Bulletin are available on request by the UIS Past-President Prof. Dr. Mag Hubert Trimmel (Draschestraße 77, A-1230 Wien, Austria). The volumes 39 to 43 are available on request by the UIS Secretary General Dr. Pavel Bosák.

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SPELEOLOGICAL EVENTS FROM MID-JULY 1996 TO 1998

For national events in the U.S.A. see, please, the Calendar in each number of the NSS News

Events for January to mid-July 1996 were published in the UIS Bulletin 1997, Vol. 42, No. 1

N	17° Triangolo dell'Amicizia	1997 07-20 - 07-22	Montfalcone, Italy	F.S.I.	G.S.M. G. Spangar, via S. Francesco 29, I-34074 Montfalcone (GO), Italy
N	NSS Convention	1997 07-23 - 07-27	Sullivan, Missouri, USA	NSS	Pam Saberton, 3820 Juniata St., St. Louis, MO 63116, t.: ++1-314-772- 6956, e-mail: PamS107326@aol.com Internet: <a href="http://www.umsl.edu/~joellaws/nss">http://www.umsl.edu/~joellaws/nss</a>
I	2 <sup>ème</sup> Congress International de Subterranelogie. Archéologie et Histoires en milieu souterrain	1997 08-02 - 08-04	Mons, Belgium	SO.BE.R.E. S.	2 <sup>ème</sup> Congrès International de Subterranelogie, Maison des Arts, Chaussée de Haecht 147, B-1030 Bruxelles, Belge fax: ++32-2-6406589
I	Stage internationale de plongée souterraine	1997 08-02 - 08-08	Cabrerets (Lot), France	FFS	Joelle Locatelli, 4 rue Claude Bernard, F-08100 Bellignat t.: 04.24.29.21.73
I	Pre-Congress camps and scientific excursions	1997 07-27 - 08-09	La Chaux-de- Fonds Switzerland	Schweizerische Gesellschaft für Höhlenforschung	12e Congrès Internationale Case postal 4093 CH-2304 La Chaux-de-Fonds 4, Switzerland Internet: <a href="http://www.unine.ch/UIS97/">http://www.unine.ch/UIS97/</a> e-mail: <a href="mailto:congress.uis97@chyn.unine.ch">congress.uis97@chyn.unine.ch</a>
	Multimedia festival	1997 08-07 - 08-09			
	12 <sup>e</sup> Congrès International de Spéléologie	1997 08-10 - 08-16			
	UIS Commission activities and specialized colloquia	1997 08-17 - 08-27			
	Post-Congress camps and scientific excursions	1997 08-17 - 08-27			

I	Stage internationale d'équipier-chef d'équipe spéléo-secours	1997 08-19 - 08-29	Savoie, France	FFS, UIS	Christian Dodelin, La Charniaz, F-73340 Bellecombe en Bauges
I	International Workshop on tyrolean traverses	1997 08-21 - 08-29	Košice, Slovakia	Slovak Speleological Society, UIS	Gustáv Stibrányi, 044 02 Tur_a nad Bodvou 328, Slovakia t.:++42-943-662230, e-mail: meander@fairnet-ke.sk Internet: //www2.tuke.sk/users/kladiva/slt97/
I	Meeting M3 - Classical Karst  Fourth International Conference on Geomorphology	1997 08-24 - 08-28  1997 08-28 - 09-03	Postojna, Slovenia  Bologna, Italy	Karst Research Institute, Postojna  Int. Assoc. Geomorphol., Univ. of Bologna	IZRK SAZU, Titov trg 2, 6230 Postojna, Slovenia Fee: 220 USD  IV International Conference of Geomorphology, Planning Congressi s.r.l., Via Crociali 2, 40138 Bologna, Italy tel.: 0039-51-302980 fax: 0039-51-309477 e-mail: MICHELE.GALANTINO@PLANNING.INET.IT Fee: 300 000-800 000 LIT
N	Jahrestagung des Verbandes österreichischer Höhlenforscher	1997 08-28 - 08-31	Neuberg, Steiermark, Austria	Verband österr. Höhlenforscher	Verband österr. Höhlenforscher, Obere Donaustrasse 97/1/61, 1020 Wien, Austria
I	International School of Nature Conservation in Karst Areas	1997 09-10 - 09-12	Blansko, Czech Republic	Management of Landscape Protected Area of the Moravian Karst	Management of the Landscape Protected Area of the Moravian Karst, Sadová 2, 678 01 Blansko, Czech Republic
N	Hidden Earth B.C.R.A. National Caving Conference and exhibition	1997 09-12 - 09-14	Bristol	B.C.R.A.	contact: B.C.R.A.
N	3. National Speleological Congress	1997 09-17 - 09-21	Cluj, Napoca, Romania	Institutul Speologie, Bucuresti, Romani	Institutul Speologie E. Rakovi_a, Frumoasa str. 11, Bucuresti, Romania
I	Casola 97	1997 09-31 -	Casola, Italy		

		10-02			
I	Exploration, protection and exploitation of caves, International Symposium	1997 10-08 - 10-10	Mlynky, Slovakia	Management of Slovak Caves	Management of Slovak Caves, Hod_ova 11, SK-031 01 Liptovský Mikuláš t.:++421-849-20158 f.:++421-849-24550 e-mail:spravasj@isnet.sk about 1000.- SKK
N	Septième Rencontre d'octobre des Spéleo-Clubs de Paris Annual Meeting of the Association Française de Karstologie	1997 10-25 - 10-26	Sainte Baume, Var, France	Assoc. Fr. Karstol.	
N	Symposium on occasion of 100. Anniversary of death of Dr. Wankel..	1997 10-29 - 10-30	ěškovice near Blansko, Czech Republic	Agency of Nature and Landscape Conservation	Management of caves of the Moravian Karst, Svitavská 11/13, CZ-678 25 Blansko t.:++420-506-55476 f.:++420-506-417552 about 700.- CZK
N	Caves and Man, 2 <sup>nd</sup> Symposium	1997 11-05 - 11-07	Liptovský Mikuláš, Slovakia	Slovak Museum of Nature Conservation and Caving	Slovak Museum of Nature Conservation and Caving, Školská 4, SK-031 01 Liptovský Mikuláš t.:++421-849-22061 f.:++421-849-514381
N	7e Congrès Espagnol de Spéléologie	1997 12-06 - 12-08	Sant Esteve Sesrovires, Barcelona, Spain		contact: Spanish Speleological Federation, Barcelona
I	Pre-Symposium excursions  8 <sup>th</sup> International Symposium on Vulcanospeleology  Post-Symposium excursions	1998 01-31 - 02-07  02-08 - 02-09  02-09 - 02-14	Nairobi, Kenya	Cave Exploration Group of East Africa, UIS	Jim W. Simmons, c/o P.O.Box 47363, Nairobi, Kenya t.+fax: (254-2) 520883 price: pre-exc.: 30 to 610 USD post-exc.: 230 to 1,400 USD fee: 60-100 USD + 55 USD banquets hotels: 62 to 228 USD single room/night
I	2 <sup>nd</sup> International Symposium and Field Seminar on Water Resources in Karst	1998 spring	Kermanshah, Islamic Republic of Iran	Water Resources Research Org.	Water Resources Research Organization, P.O.Box 15875, 3584 Tehran, Islamic Republic of Iran
I	NSS Convention 1998	1998 08-03 - 08-07	Sewanee, TN, USA	NSS	Wmn Shrewsbury, PO Box 4444, Chattanooga, TN 37405-0444, USA tel.: ++1-423-8863296, e-mail: nss98@caves.org

I	IX <sup>th</sup> International Symposium on Vulcanospeleology	1999 09-12 - 09-18	Catania, Italy	Italian Speleologica l Society	G.M.Licitra, Centro Speleo Etneo, Via Cagliari 15, 95127 Catania, Italy fax: 0039-95-437018
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Note: I - International event, R - Regional event, N - National event

In the table, we mention only such events which are announced to the UIS Secretary General, the dead-line for acceptance for the print is **March 15** each year, except years in which the International Congress of Speleology is held (dead-line for winter and spring - February 15, dead-line for summer, autumn and winter - June 15)

#### **IMPORTANT NOTE**

to all organizers of the speleological events. The use of the name and/or logo of the International Union of Speleology (UIS) in the title or subtitle of the event brings some duties:

(1) the use of the name and/or logo have to be confirmed by some of the UIS Bureau members, and

(2) the use of the name and/or logo is against the payment. According to the motion of the Assembly General of the 9<sup>th</sup> International Congress of Speleology, Bowling Green, USA, July 22, 1981, point 4, the payment per capita in the UIS events are set **at 5% of the event registration fee, with a minimum of 3 USD** (see UIS Bull., 22, 1/2, p. 28).