

**46th EXECUTIVE COMMITTEE MEETING
INTERNATIONAL UNION OF GEOLOGICAL SCIENCES**

**JANUARY 24-28, 2000
CAIRO, EGYPT**

MINUTES

President R. Brett opened the 46th Executive Committee Meeting and said he was pleased to see the Committee members and observers in Cairo. He regretted that Vice President Liu Dun-Yi was not able to be present at the meeting. He expressed his hope that Vice President V. Zharikov, who was in Cairo, would soon recover from his illness and participate in the meeting. Until his recovery, R. Volkov would comment for him.

Brett thanked the host, Professor Lotfi Abdel Khalek, Chair of the Egyptian National Committee, for the hospitality in arranging the meeting and for organizing the unique four-day field excursion across the Sinai Peninsula prior to the Executive Committee meeting. Dr. Metsbah H.I. Khalil, Senior Geologist of the Italian-Egyptian Oil Company, excellently guided this pre-meeting excursion. Brett recognized the financial support of the Egyptian Ministry of Petroleum that had made both the meeting and field trip possible. He also referred to a planned seminar to be held one day in the course of the Committee meeting.

The participants then introduced themselves briefly.

0. WELCOME ADDRESS

Prof. Lotfi Abdel Khalek, Chair of the Egyptian National Committee, welcomed the participants to the premises of the Egyptian Geological Survey in Cairo where the meeting was held. He explained the situation of the Egyptian National Committee, composed of 20 geologists from different disciplines.

1. APPROVAL OF AGENDA

Boriani had distributed an agenda and an order of business for the four-day meeting taking into consideration the observers present on the different days. Johan informed the observers that the discussion on the budget item is a closed session. Brett proposed that the IUGS Strategic Plan, which had been

presented to the Committee members in a draft form, should be the main topic for discussion during the meeting.

The Committee APPROVED the agenda with no further changes and agreed to have a thorough discussion of the new draft Strategic Plan, mainly on the first day of the meeting, to enable the Committee to consider the ideas of the plan in later discussions on other items.

2. MINUTES OF 45th EXECUTIVE COMMITTEE MEETING HELD IN FLORENCE, ITALY, JANUARY 1999

2.a. Approval of Minutes

The Committee APPROVED the minutes of the 45th Executive Committee Meeting held in Florence.

2.b. Actions arising from these Minutes

A. Boriani reviewed the decision and action list resulting from the last Executive Committee meeting, noting that most of the actions were done or would come up later in the agenda.

3. ANNUAL ADMINISTRATIVE AFFAIRS

3.a. President's Report

The President presented an oral report that included a summary of the recommendations of the Strategic Plan Committee to be formally presented to the IUGS Council in Rio by the Executive Committee. Brett mentioned the lack of secretarial help at the USGS, the increased number of subscriptions to *Episodes*, and the continuation of all the Unesco-IUGS programs probably with a more stable funding. Both IUGG and IUGS Presidents had expressed concern about the lack of knowledge of earth sciences on the ICSU Science Committee. In October 1999, Brett had been elected to the ICSU Board, but has had no communication with other Board members since that time. Brett had spoken for six minutes on the World Science Conference in Budapest. He ended his report by pointing to the fact that there has been about 30% total inflation with respect to the US dollar since the IUGS membership dues were last increased in 1989.

The Committee ACCEPTED the President's report.

3.b. Past President's Report

W.S. Fyfe stated that the world is changing and soon Europe plus North America will make up less than 10 % of world population. IUGS must adapt to the new world. At a recent meeting of the Canadian Geoscience Council it was clear that there are individuals concerned with what IUGS is doing. Recent developments clearly show that the solutions to the world's great problems require interdisciplinary cooperation. A striking example is provided by the new International Society for Ecosystem Health (ISEH). He is now on the board of directors of this society and said he had attended several of their recent meetings. In their organizations are scientists, medical scientists, lawyers, politicians and people working with ethics.

Fyfe pointed to the growing interest in clean cities, mentioning that the ISEH is planning a meeting on this topic in 2001, with experts from the lead cities of Europe and Japan and many from the problem areas. He hoped IUGS would be a part of this plan.

He further noted that he had just been elected to the board of the American Association for the Advancement of Science (AAAS) that publishes *Science*. It will represent a new opportunity to show the importance of Earth Science in sustainable development.

He had also recently attended a special meeting of the new Geoforschungszentrum Potsdam and said that this large group is an outstanding example of a modern Earth Science organization. Their work in geothermal energy, satellite technologies, for monitoring bioproductivity, and continental scientific drilling, is impressive.

Fyfe concluded his report by stating that there is much to do at the 2000 Rio IGC. He commended the organizers for adopting his proposal to devote time to school teachers and earth science, stressing there is no doubt that high quality education is the foundation for survival and quality of life.

The Committee ACCEPTED the Past President's report.

3.c. Vice Presidents' Report

Brett asked the Vice Presidents to report on their IUGS-related activities in 1999.

G. Gaál reported on extensive travelling making contacts with National Committees and geologists principally in Northern Europe, Hungary, Romania, Russia and the new independent states of Central Asia, mainly on topics related to environmental problems. He had kept liaison to the IUGS/UNESCO Deposit Modeling Program.

F. Hervé reported on his main activities, which included his collaboration with I. Speden to prepare the Union's poster for the 31st IGC in Rio; his promotion of the Rio IGC, particularly among young geologists; his participation in the organizing of the Chilean Geological Congress to take place in connection with the Rio IGC; and his participation in the IGC's GEOHOST activities.

W. Al-Hashimi spoke of his correspondence with the other Vice Presidents and Bureau. He had carried out the necessary contacts for this Executive Committee meeting in Cairo.

I. Nyambok mentioned that he had continued to advocate and campaign for involvement in IUGS activities such as participation in IUGS Commissions and working groups, publication in *Episodes*, payment of annual subscriptions and initiating IGCP projects. As Vice President of IUGS he had been invited to give keynote speeches at two conferences, the Annual Geological Conference of Kenya, March 1999 and the 1st Regional Conference in Geomedicine in Africa in June 1999. He had stressed the role of IUGS in the advancement of geological sciences at the global level. As a co-convenor of session 13.1 of the 31st IGC he had interacted with several scientists worldwide regarding their participation and contribution to the session. Nyambok ended by referring to his involvement in the IDNDR related activities and expressed hope that IUGS would take an active role in its successor, the International Strategy for Disaster Reduction (ISDR). In the proposed ISDR initiatives there are several aspects that demand application of geological knowledge, and he emphasized the importance that COGEOENVIRONMENT and the Working Group on Landslides would adopt some of these aspects. Brett replied that IUGS is not directly involved in natural disaster reduction, but indirectly through the affiliate IAEG. IUGS is also involved in the newly launched inter-union group on megacities and their problems. Speden agreed with Nyambok, noting that in the last 15 years, IUGS has missed-out on this area and lost geologists to IUGG. Speden emphasized that the Union should concentrate on the key issues that are of interest to society.

I. Speden referred to his written report submitted to the Secretariat in December and cited his contacts with the

presidents of the National Committees of New Zealand and Australia, the National Contact for Papua New Guinea and the Chairman of the New Zealand National Committee for IGCP. There had been no response to contacts with individuals in Fiji and Indonesia. He had e-mail contacts with other Executive Committee members and also submitted a response to the questionnaire of the Strategic Planning Committee. Activities related to the preparation of posters for the IUGS Exhibit continued throughout the year in consultation with Hervé. Proofs of the two posters would be presented later.

Brett said that Liu Dun-yi was unable to attend the present meeting because his laboratory had been submitted for review. Brett read from Liu Dun-yi's report, which referred to a meeting of the Chinese National Committee for IGCP in November 1999 where Liu Dun-yi had been elected Chairman. Under the leadership of Liu Dun-yi, the committee had revised its working rules, which were formulated in 1980 and last amended in 1985, to make the committee work more efficiently and better serve the Chinese scientists who are involved in IGCP. It is setting up a home page for IGCP in China and plans to publish newsletters on the progress of China's IGCP activities. The Department of Basic Research (MOST) had given an encouraging promise for financial support to IGCP projects proposed by Chinese scientists and approved by the IGCP Scientific Board. Brett further reported that Liu Dun-yi had written a letter to about 20 of the IUGS National Committees in East, Southeast, South and Central Asia in order to promote contact between IUGS and its National Committees. Liu Dun-yi also mentioned some international meetings he had organized and attended, but not related to IUGS.

V. Zharikov's report, presented by R. Volkov, gave an outline of the Vice President's efforts to solve the internal Russian problems related to IUGS that had lead to Russia paying the membership dues to IUGS in advance. Zharikov is Chairman of the Russian National Committee on IGCP and had attended many meetings. He had also presented written comments to the new Strategic Plan.

Also this year a discussion was taken up on the guidelines for the Vice Presidents' duties on the Executive Committee. However, Boriani noted that if the new Strategic Plan is approved by the IUGS Council in August, guidelines will follow for the special duties of both the Vice Presidents and the new Councillor positions.

The Committee ACCEPTED the Vice Presidents' written and oral reports and urged the Committee

members to submit written reports to the Secretariat, thus enabling the reports to be distributed to the Committee members prior to the annual meeting.

3.d. Secretary General's Report

Boriani referred to his written report. He remarked upon the excellent collaboration with the Permanent Secretariat and the Office of the Treasurer concerning the Bureau meetings and the work involved in the preparation of the Strategic Planning Committee meeting. He also reported on the two ABRD meetings in 1999 in Strasbourg, France and Zurich, Switzerland, and that regular contact with IUGS bodies and National Committees had been maintained. He regretted that the ICSU grant program did not give satisfactory results for IUGS, despite the efforts made.

The Committee ACCEPTED the Secretary General's report.

3.e. Treasurer's Report

Z. Johan summarized the contents of his written report, giving a general overview of the financial situation of IUGS. The total assets at the end of 1999 were USD 717,350, including the Hutchison Fund. The increase of USD 200,000 since end of 1998 is mainly due to membership fees paid in advance.

Johan noted that the IUGS did well financially in 1999, despite the difficulties early in the year when it had been necessary to use reserve funds to pay IGCP Projects, other Unesco programmes and IUGS Bodies, before membership dues revenue arrived. He pointed out that the situation had been even worse in previous years and stressed the importance of maintaining a substantial reserve account with part of the Union's reserve in short-term placement. Concerning inactive countries, Johan mentioned that almost all of these countries are Category I members.

Johan ended by stating that the President and the Treasurer of the French National Committee had audited the accounts in September 1999.

W. Eder commented on the IGCP item in table three, noting that money for five IGCP projects not paid by UNESCO in 1999, will be compensated for in 2000.

Brett thanked Johan for his report and for the excellent work he had done.

The Committee ACCEPTED the Treasurer's report.

3.f. IUGS National Committees

Boriani reported that the total number of Adhering Bodies is 112. Gambia, Mongolia, Namibia, and Yemen are countries accepted as members by the Executive Committee, but are awaiting approval by the IUGS Council at its meeting in Rio de Janeiro. There has been no new application for membership in 1999.

The following 24 countries had submitted a 1999 report: Austria, Azerbaijan, Brazil, Czech Republic, Denmark, France, Germany, Indonesia, Italy, Iraq, Morocco, Namibia, New Zealand, Poland, Russia, South Africa, Spain, Switzerland, Taipei China, the Netherlands, Turkey, Vietnam, Uzbekistan and Yugoslavia. Boriani noted that the quality of the reports was extremely variable from a few words to many pages, some very informative and some not.

Boriani highlighted various comments from the annual reports submitted by IUGS Members. Azerbaijan proposes that a meeting be organized with other National Committees to discuss their activities and Brazil suggests that IUGS publish a Newsletter in addition to *Episodes*. The Czech Republic expresses its concern over the decreasing role of geology and requests that IUGS do more to improve the importance of geological sciences. Denmark would like to see the IUGS web site developed to become the hub for Geology. Italy expresses its hope in the new Strategic Plan while Switzerland's reporter states he is eager to see the results of the questionnaire of the Strategic Planning Committee. The IUGS National Committee in Taipei requests more free copies of *Episodes*. Morocco expresses its willingness to host IUGS research teams; Turkey would like to strengthen the links with IUGS and Uzbekistan requests that IUGS try to do more to co-ordinate international geological research.

Boriani commented that the role and the tasks of National Committees are still to be clarified. Speden proposed to make National Committees more aware of the Executive Committee Minutes on the IUGS website. Nyambok reminded the Executive that in many areas of Africa the Internet is not available and there is a problem to reach the institutions, because mail is expensive. Boriani stated that the effectiveness of the

National Committees is extremely low because Committees have little to do. He thought it would be better to unify, where possible, IUGS and IGCP Committees. Janoschek and Volkov explained that this would be impossible in their countries.

Boriani suggested to ask the National Committees to provide a report on the research in the different countries, because to stay aware of what is happening could be advantageous.

National member reports were orally presented by representatives from Iraq, Austria, Italy, and Russia.

W. Janoschek gave a brief outline of the Austrian National Committee, which has 60 members that meet twice a year, a five member Bureau that met three times in 1999. The Austrian group has a special subcommittee dealing with education because there has been a trend toward reduction of geology teaching in this country. The Commission's main activity is concentrating on the presentation of the offer to host the 32nd IGC.

Al-Hashimi said the Iraqi Geological Committee had been established in 1976 after the International Geological Congress in Sydney and had applied for membership in the 1980's. However, many geologists had left the country because of the embargo. It is very difficult for the scientists to obtain recent geoscience literature.

Volkov noted that the Russian National Committee had mainly dealt with financial matters last year and Russia had been able to continue the IUGS membership and also to arrange for the copies of *Episodes* to Russian geologists. The National Committee Secretariat had addressed 97 organizations with appeal to assist the Committee with funding. It had continued to sponsor meetings using the rouble account, and planned to have three meetings this year and two in 2001.

Vai spoke of the work of the Italian National Committee, which had been concentrated on the offer to host the 32nd IGC and the preparatory work for the Italian booth at the Rio IGC exhibit. A meeting on the 32nd IGC will also be held in April 2000 with national representatives of the Mediterranean.

Brett mentioned that the Bureau members had met with the French, Hungarian, Czech and Egyptian committees. He noted that the US Committee, now revitalized after about three years of dormancy, had a full day meeting to determine what its role should be.

The Committee thanked all the Adhering Organizations that had submitted an annual report and those who had given an oral report at the meeting.

3.g. Permanent Secretariat

A written report on the 1999 management of the Secretariat had been distributed to the Executive Committee members. H. Refsdal explained that the workload had increased considerably during the last year, mainly due to the increased use of e-mail messages and the problem of lack of secretarial help at the offices of the Bureau.

4. ANNUAL REPORTS OF IUGS BODIES AND FUTURE PLANS

4.a.1. Advisory Board for Research Development

Two ABRD meetings were held in 1999. The first one organized in connection with the EUG meeting in Strasbourg, France, on 28 March, to review the Commissions COGEOINFO and COGEOENVIRONMENT. Present were: J. Biesecker, A. Boriani, R. Brett (Chairman), A. Fabbri, G. Gaál, E. de Mulder, J. Plant, and A. Zappone.

The second ABRD meeting was held in Zurich, Switzerland on 11 December to evaluate the two Commissions CFF and GSGC and the Working Group on Global Geosites. Present were A. Baud, B. Biju-Duval, A. Boriani, R. Brett (Chairman) S. Cloetingh, W. Eder, Z. Johan, and W. Wimbledon.

Brett read the ABRD recommendations, which were discussed under the different Commission items.

Boriani noted that the former role of ABRD, in addition to review IUGS bodies, had also been to give recommendations on scientific management and policy issues. This will be discussed later during the meeting when the Strategic Plan is presented. The Strategic Planning Committee had recommended that the Board resume its "old" and broader role under a permanent Chairman.

During the discussion of Agenda Item 4.b.9. The Commission on Tectonics, the importance was stressed of having a clear definition of Commissions, Working Groups and Special Projects. Brett stated that the philosophy of Commissions should be provided by the Executive Committee or the Advisory

Board for Research Development rather than by the Strategic Planning document.

The Committee thanked the ABRD members attending both the meeting in Strasbourg and Zurich for the good work carried out.

The Committee AGREED to ask the ABRD, at its next meeting, to take a careful look at Commissions, Working Groups and Special Projects and provide precise definitions.

4.a.2. Advisory Board for Publications

The discussion on this item was postponed till the third day of the meeting, thus allowing the Advisory Board to meet during the Executive Committee meeting and present the outcome of its meeting to the Committee.

W.G.E. Caldwell (Chairman) circulated a comprehensive report to the Committee members including minutes of the Board meeting held during the Executive Committee meeting in Florence, Italy in January 1999 and a review of the production of *Episodes*. Reports on *Episodes* and the IUGS Web site had also been distributed.

Episodes: Zhang Hongren (Editor) summarized his written report and noted that last year the editorial office had been focussing on improving the quality of the journal. The Associated Editors had assisted in assessing the articles. Zhang expressed gratitude to the Associated Editors and Antony Berger, the Editorial Consultant, for their work and help with the improvement of *Episodes*. Zhang stated that 1999, which was the third year of operation, had been quite a smooth year and that the new Ministry is giving a lot of support.

Caldwell then introduced the review report of *Episodes*. The Memorandum of Understanding (MOU) between IUGS and the Chinese Ministry of Land and Resources, signed in 1996 and governing the production of *Episodes*, calls for a review after three years of operation. The IUGS Bureau had asked Caldwell to do it. He said that the review was divided into six parts: Context of the Report; Quality of the Journal Then and Now; Associate Editors; Subscriptions and Advertising; Staff; and Recommendations. He noted that the document had been approved by the Board at its meeting the previous day and went through the nine recommendations in blocks to be ratified by the Executive Committee. Caldwell stressed the importance to be

alert to improvements. However, *Episodes* should not compete with *Science* and *Nature*, and said it might be a better niche for the journal in review literature. He mentioned the need for a policy for obtaining new manuscripts and good marketing.

A discussion followed on how to increase the distribution and it was noted that a target might also be teachers, students, and general libraries. Fyfe emphasized the importance of displaying *Episodes* properly. Caldwell urged the Executive Committee for assistance, stating that the Editor and ABP should not be alone on this work.

Speden, in charge of the IUGS Exhibit at the Rio IGC, commented that Zhang has offered a poster for the IUGS booth.

The Committee RATIFIED the recommendations in the ABP review of *Episodes*, and AGREED on continuation of *Episodes* for four more years.

The Committee especially thanked and commended the Editor, Managing Editor and staff of the Editorial Office in Beijing for the notable improvements in *Episodes* over the last three years.

IUGS Web Site: Aaron referred to his written report, summarized the highlights of the web site in 1999 and noted that the most important achievement had been the moving of the server from USGS. At the Committee meeting in 1999, the Committee had recommended that he buy a new server. However, he had decided that a better and more cost-effective solution was to contract with an internet service provider for needed services. This had been done and had had a profound implication for both user and site. The site is now much faster and more secure, and more can be done, for instance implementing a public electronic bulletin board to allow people to interact with the site. He would start with the Strategic Plan. Aaron ended his report by mentioning that in 1999 the site has doubled the number of hosts visiting, and he would establish a link to the IGC.

Vai commended Aaron on his work, noting that many of the questions, which he usually would ask the Secretariat, are now answered on the web site.

The Committee sincerely thanked John Aaron for a superb job that is incredibly important to IUGS.

Caldwell reminded the Committee about the discussion at its last meeting about the abridged version of the *International Stratigraphic Guide*, and said that the guide would appear in *Episodes* in its last issue of 1999. Reprints with a special cover will be sold from the *Episodes* office.

Caldwell then drew attention to the final matter, the production of the new International Stratigraphic Chart. He explained the developments since the last Committee meeting, noting that the agreement IUGS thought it had with Unesco on printing the chart had changed direction several times. However, IUGS has now an agreement with Unesco along the lines discussed a year ago, but a year has been lost. The two organizations will have a joint partnership. The chart, last published in 1989, has been prepared by the International Commission on Stratigraphy and will also incorporate the latest GSSPs. The chart will be published in English and will be printed in due time before the Rio IGC.

Brett brought up the matter of IUGS publications, pointing out that IUGS Commissions produce a tremendous amount of books that could give visibility to IUGS but instead are published under different publishers. He said he was looking forward to the day that the books come out under the IUGS banner.

The Committee deeply thanked and commended W.G.E. Caldwell for all his work on the ABP, realising that a tremendous amount of his time is spent on the Board.

4.a.3. Advisory Board for Finances

The Committee decided to postpone discussion on this item till a possible approval of the Strategic Plan is accomplished.

4.b. COMMISSIONS

4.b.1. Commission on Comparative Planetology (CCP)

Chief Accomplishments in 1999:

Due to lack of allocation CCP did not cosponsor any meetings. Members of CCP were present, as usual, at several meetings such as the 30th Lunar and Planetary Science Conference in March in Houston, USA, the EGS XXIV meeting in April in Den Haag, The Netherlands, and the two Vernadsky-Brown Microsymposia of Comparative Planetology at Brown University (Providence) and the Vernadsky Institute (Moscow) in March and October. CCP regrets very much that no sponsorship was possible for the two latter meetings. Because of the high importance, especially of the meeting in Moscow, CCP is convinced that it deserves permanent financial support. This was outlined in detail in the last report. They point out again that

the Microsymposium in Moscow is an excellent opportunity to bring together scientists from eastern and western countries at low costs.

Brett (commentator) commented on the annual CCP report and referred to his meeting with the Commission members at their meeting in Houston two years ago. At this time, he had asked them what would happen if the Commission did not exist, and suggested that they compile a list of activities that would suffer if not within IUGS. He had hoped that such a list would be submitted, stating that the group is very international in composition. He commended the Commission for building up the connection between the Vernadsky Institute and the Brown University, but seriously questioned if IUGS needed this Commission and suggested a vote on this.

With regret, the Committee unanimously AGREED to recommend to IUGS Council that the CCP be abolished. It thanked the Commission for having done good work, but stated that planetology is alive and well outside IUGS.

4.b.2. Commission on Fossil Fuels (CFF)

Summary 1999:

Subcommission on Fossil Fuels Research:

The work of the subcommission was in 1999 devoted to implementation of the strategic directions set by the commission and to finalize the plans for the upcoming scientific research seminar in Iran. The objectives of the seminar is to facilitate the exchange of state-of-the-art technology between highly qualified researchers from the Iranian Petroleum sector and geoscientists from western countries regardless of their university or industry affiliation or their nationality. The focus of the seminar will according to Iranian interests address either the concept of petroleum systems and their specifications in Iran, i.e. an exploration focus, or on the problems related to the characterization of reservoirs in Iran, i.e. a focus more related to production and recovery. Several visits to Iran have been conducted and a co-organizer in the Ministry has been appointed, but planning is still moving slowly ahead for a seminar which is now planned for mid 2000.

Subcommission on Resource Assessment:

Most of the research activities were devoted to the elaboration of case histories on resource assessment which could be used as part of an international training effort covering both the national resource management objectives as well as those of oil companies. This effort has lead to the development of a geointelligence approach which is a decision support methodology for natural resources evaluation based on collaborative knowledge gathering from corporate Intranet and global Internet data stores.

The functionality of this concept was tested twice during 1999, first during a workshop arranged at the IAMG '99 meeting in Trondheim in August and at the workshop held in Paris from the 15th to 19th November 1999, where the political, economic and environmental components of a proposed oil development project in Chad were studied using geointelligence to gather relevant information.

The Commission is further organizing a special symposium on the evaluation of petroleum acreage and its use in resource management as part of the topic energy and mineral resources for the 21st century at the 31st International Geological Congress in Brazil.

Al-Hashimi (commentator) referred to the summary of the report and commented on the work of the two Subcommissions, which seems to be the undertakings of one individual.

Brett stated that the Commission had been reviewed by the ABRD in Zurich in December 1999 and listed the names of the reviewers. At this meeting the CFF Chairman had described a CFF workshop in November 1999, which had demonstrated clearly that the Commission can play an important role in promoting the use of new possibilities opened up by easier access to Internet from most parts of the world. This will provide an increased ability for the IUGS scientific community to evaluate earth resources projects according to their economic and environmental as well as political components. The work of the Commission is orienting itself towards these new possibilities where its low funding basis, as well as its character as an NGO will not represent a handicap regarding the value of its work relative to the IUGS community.

Brett reported that the ABRD had been positive to the idea of choosing an area and of using a holistic approach, but had not discussed if this work could be performed under another body than a Commission.

Eder, who had been present at the Board meeting, said that Unesco has recognized the need to evaluate earth resources projects and had supported the Commission's idea. He thought that in the future it would be good if this kind of work could be done by IUGS, even if it had to be on a reduced scale.

A discussion followed on whether CFF should continue as a Commission, be abolished, or transformed into a Working Group. The Committee agreed that the body did not fit in as a Commission, but expressed concern over abandoning this geological field from IUGS. Excellent work had been done, but it rather belonged to a project under a Working Group. Voting took place.

The Committee ACCEPTED the CFF annual report. It AGREED to transform the Commission into a Working Group, and expressed satisfaction that the field of fossil fuels is kept within the IUGS realm. The Chairman was asked to involve more people in the work and increase the number of officers.

4.b.3. Commission on Geological Science for Environmental Planning (COGEOENVIRONMENT)

Summary 1999:

A successful year for COGEOENVIRONMENT as it generated 45 new Action Items at its annual meeting in Kuala Lumpur, Malaysia in 1999. Four new officers were accepted to the Commission. Financial independence with external sources remains a problem of the group. The Commission's profile with the international community is high given an increase in Corresponding Membership to 230 and countries represented now at 82. The executive expanded its number to 14, representing 11 countries, with plans to add 2 officers in 2000. The intent of this increase is to adequately address the expanding number of actions and in anticipation of 4 officer retirements. Several new products and activities of the Commission have fostered greater awareness and appreciation of environmental geology amongst public, private and government individuals. Existing liaisons were expanded with the International Permafrost Association and IAEG to enhance cross-disciplinary communications within the IUGS. Several special sessions (e.g. IAMG in Trondheim), workshops (Geoindicators in Lithuania), forums (Sustainable Development Forum in Malaysia), conferences (Engineering Geology Conference in Nepal with IAEG), and meetings were organized and/or co-sponsored on a variety of subjects ranging from mathematical geology, to medical geology to sustainability. Public and professional lectures, as well as papers in journals on similar subjects were given and published by officers and members. COGEOENVIRONMENT Newsletters 14 and 15 were printed and distributed in 1999. A Medical Geology Newsletter was also published. The Working Group on Urban Geology received a "face lift" with new executive and new terms of reference. The new Working Group on Ecogeology began to take shape and another Working Group on Subsurface has been proposed. Sales of the Geoindicators book were high, and another Commission endorsed book on Environmental Geology Mapping is to be released in 2000. Finally, the WG on Medical Geology, Geoindicators Network (GEOIN) and COGEOENVIRONMENT all have their own websites prominently linked to the IUGS site.

Hervé (commentator) commented on an interesting report. In 1999 the Commission had sponsored or co-sponsored at least 10 meetings in association with different organizations, obtained a grant from ICSU for an international project on Geoindicators, and presented projects to different funding agencies (ICSU, IGCP, GSA, Belize). The new Working Group on Ecogeology has begun to take shape and a new Working Group on Subsurface has been proposed. Along with the websites maintained by its Working Groups on Medical Geology and Geoindicators, the whole Commission has established its own web site. At the IGC in Rio it will organize two short courses, two special symposia and one general. The Commission brochure has been translated into several languages, and newsletters of the Commission and some of the working groups have been published and distributed.

Hervé concluded by stating that COGEOENVIRONMENT is very active, expanding the range of its activities, which take place in liaison with a vast number of organizations.

Brett and Boriani reported on the ABRD review of COGEOENVIRONMENT that had been held in Strasbourg in March

1999. Ed de Mulder, the Chairman, had been present. Boriani raised the issue of the recommendations attached to the ABRD minutes and proposed a revised text:

"The ABRD recognizes the extensive links that have already been established with various organizations, within and outside IUGS and commends the Commission for this. The Board recommends that current links be expanded. In view of the changing position of the environment in society, the Commission should continue to adapt to such changing through launching new initiatives to cope with these developments in society.

The Board recommended that COGEOENVIRONMENT should continue as an IUGS Commission with the same name."

The Committee APPROVED the revised recommendations by the ABRD.

De Mulder presented some overheads and explained the state of affairs of the Commission and its perspectives. He stated that the average leverage of funds allocated by IUGS, has been over five times, some years even nine or ten times. The overheads also showed that there now was a positive balance of science and administration in the Commission.

Brett congratulated the Commission for the number of links with other organizations, like "Megacities initiative ", chaired by Grant Heiken, the shared meetings with IUGS Affiliated Organizations, like IAEG, its interesting Newsletters, the breadth of their interests, for its fund-raising abilities, and more generally, the spirit with which they do their job.

The Committee ACCEPTED the COGEOENVIRONMENT report, thanking the Chairman Ed de Mulder for his supplementary oral report and congratulating the Commission on good results.

4.b.4. Commission on Global Sedimentary Geology

ACTIVITIES OF THE COMMISSION IN 1999:

The main activity of the Commission in 1999 was the International Conference on PANGAEA AND THE PALEOZOIC-MESOZOIC TRANSITION. This international meeting was held 9-11 March 1999 at the China University of Geosciences, Wuhan, Hubei, People's Republic of China. In addition to GSGP, this conference was sponsored by the Australian Geological Survey Organization, the International Subcommittee of Triassic Stratigraphy, the International Paleontological Association, the China University of Geosciences (Wuhan), the National Natural Science Foundation Committee of China, and the International Subcommittee of

Permian Stratigraphy. The Honorary Chairman of the Convention was Professor Yang Zunyi, Member of the Academy of China. Professor Yin Hongfu, Member of the Academy of China and President of China University of Geosciences (Wuhan) was the general Chairman of the Conference.

The conference was structured into four main themes: 1) Tectonics and dynamics of Gondwana break-up, Pangea integration and Tethys evolution; 2) Paleogeography, paleoclimatology and paleoecology during the Pangea interval; 3) Stratigraphy, sea level changes, high-resolution events, inter- and intra-system boundaries and refinement of geochronology; and 4) biotic crisis, mass extinction, recovery and evolution at the Paleozoic-Mesozoic transition. The Proceedings of the conference were published during the Conference. A series of pre- and post-conference excursions was also offered to look at the classic Paleozoic-Mesozoic transitions in China. This conference was under the umbrella of GSGP's Project Pangea. GSGP's Chairman attended the meeting and addressed the audience both during the opening and closing ceremonies, in addition to presenting a technical paper. Over two hundreds geoscientists attended the Conference.

Another activity that falls under Project Pangea was the production of a special edition of Paleogeography, Paleoclimatology, Paleoecology by the current leaders of Project Pangea, Lars Stemmerik and Jorg Trappe. A dozen of manuscripts are currently being reviewed and edited, and should be published early during 2000. These manuscripts represent the proceedings of a Special Session that was held at the European Meeting of the International Association of Sedimentologists, in Heidelberg, Germany, September 1-4, 1997, also organized by Drs. Stemmerik and Trappe, the Chairperson for Project Pangea.

Speden (commentator) referred to the above summary, noting that 2000 geoscientists had attended the international conference in Wuhan, China. GSGP's main activity in 2000 will be its meeting at the Rio IGC, along with a meeting of the Program Development Committee. Consideration is being given to a new project on the links between Tectonic events, the Stratigraphic record and environmental turnovers, with an initial focus on the Permian-Triassic event. Plans are proceeding for a major workshop on the Permian-Triassic event to be held in Oman in January 2001. Work is progressing on a GSGP web site, which should be accessible by the end of February 2000.

Speden ended by stating that since GSGP is essentially meeting and project oriented, it may work best as a project or working group and that there may be merit in asking the Commission to provide a plan on developing a broader range of work and participation.

Boriani referred to the ABRD review in Zurich in December 1999, where Aymond Baud (Switzerland) presented the GSGP report prepared for the Board meeting. The ABRD found the activities of the Commission interesting and was in favour of continuation of the GSGP, but recommended the Commission to be more focussed on global sedimentology.

Brett explained the start of the Commission when it ran only one project. He was not in favour of making the GSGP into a working group.

The Committee ACCEPTED the GSGP report. The Committee unanimously AGREED to retain GSGP as a Commission until it finds another mechanism to exist.

4.b.5. Commission on the History of Geological Sciences (INHIGEO)

Chief Accomplishments in 1999:

A substantial symposium, attended by 176 persons with 95 paper being presented in German or English, was held in Freiberg, Saxony, from 19-24 September 1999, the theme being 'Abraham Gottlob Werner and his Times'. Excursions were made to visit the celebrated 'Scheibenberg' near Freiberg, which Werner regarded as an exemplification of his Neptunist theories; to the magnificent mineralogical and petrological collections, some dating back to Werner's time, held in Freiberg; to Dresden; and to Werner's birthplace at Wehrau/Osiecznica in Upper Silesia (now part of Poland, where we could observe the 'floetz' rocks that Werner would have seen close to his home and which probably influenced his thinking in the development of an important aspect of his theory. The participants also saw the grim descendant of his father's ironworks at Wehrau.

Volkov, on behalf of Zharikov (commentator), referred to the summary of accomplishments above and reported that the Commission had broad links to other programs and organizations. INHIGEO will organize two sessions in Rio. The Commission shows itself to be active, creative, and in good standing. He asserted that INHIGEO warrants its status as a Commission and that there is a lot to accomplish in its field.

Vai spoke on the importance of preserving the roots (of geology). Speden mentioned the importance that articles come out of the meetings. Some of the articles have been interesting but very specialized, and Speden proposed that the Commission arrange meetings to inform on a more general topic in the future.

The Committee ACCEPTED the INHIGEO report, trusting that the Commission will continue to do an excellent job in a worthwhile area. The Committee also reiterated its request for articles on benchmarks of geology, with comments, to be occasionally published in *Episodes*.

4.b.6. Commission on Igneous and Metamorphic Petrogenesis (CIMP)

SUMMARY 1999:

A chief accomplishment for 1999 was the preparation for the Workshop on Melt Inclusions in Mafic Minerals in December 1999 which included, at the time of writing of the CIMP report, 52 talks by geologists from France (10), United States (10), Australia (6), UK (3), Italy (4), Slovakia (2), India, Romania, Germany and Argentina.

The proceedings of a previous CIMP sponsored symposium were published in Lithos "Geodynamics of Giant Magmatic Ore Systems". Another special volume "Cosmochemistry and Origin of the Earth: Session dedicated to G. Wasserburg" will appear in Chemical Geology early next year.

IMPORTANT: The change of name from Commission on Igneous and Metamorphic Petrogenesis (CIMP) to Commission on Petrology and Chemistry of the Solid Earth (COPCSE) must be given preliminary approval by the IUGS Executive Committee before official approval at next IUGS Council.

Johan (commentator) reported that this is a Commission whose main activity is to sponsor international symposia and to publish proceedings in return for royalties. He referred to the above accomplishments in 1999 and stated that the main activity for 2000 is the preparation of a workshop to be held in Grenoble in March. In general, he said, the Commission is composed of very distinguished scientists publishing products of high scientific standard.

A discussion followed on this group continuing as a Commission and whether it would make a difference for the members if it became a working group. He surmised that the petrologists still needed an umbrella organization when they approached publishers. Johan drew attention to the visibility this Commission gives IUGS, but agreed to its transformation to a working group, as long as this caused no problems for its members. Boriani spoke of the need for an association for petrology and would propose that the Commission explore this possibility. Brett informed the Executive Committee that CIMP's members had been against forming a society.

A discussion then took place on the change of name from Commission on Igneous and Metamorphic Petrogenesis (CIMP) to Commission on Petrology and Chemistry of the Solid Earth (COPCSE). The change of name is reflecting a broader scope of the Commission. A few Executive members were against including "chemistry" in the new title because geochemistry is an obvious component of geology. It was also pointed out that geochemistry is covered by many of the IUGS Affiliated Organizations and the new activities could also overlap with the interests of IUGG Associations. However, some of the members concluded that the topics of the symposia indicate that the group is moving away from CIMP so that a name change was justified. The change of name was therefore submitted to a vote.

The Committee ACCEPTED the CIMP report, commending the Commission for doing good work. With a slight majority, the Committee ACCEPTED the change of name and asked the Commission Chairman to prepare a written explanation for the name change to be presented to the Council in Rio.

4.b.7. Commission on Stratigraphy (ICS)

Report of the Bureau:

The annual meeting of the Bureau of ICS took place in Neuchâtel, from April 9 to 11, 1999: The main topics were the ICS budget for 1999, the Global Stratigraphic Chart, the representation of ICS on the Rio IGC, and the transformation of the WG on Sequence Stratigraphy of the Jurassic SC into a Committee, which would also include stratigraphers from other sub-commissions. This would allow the WG to develop methodological aspects of Sequence Stratigraphy on a broader basis.

Selected issues from 1999 ICS Report:

- Boundary problems: Some boundaries which are problematic for different reasons were discussed: The mid-Carboniferous boundary; the Paleocene/Eocene boundary was very close to a solution already in January 1998 (meeting at Paris), therefore the ICS Bureau was concerned by the lack of progress; and the solution of the Plio/Pleistocene boundary problem.
- The Jurassic WG on Sequence Stratigraphy: The Bureau has noticed the interesting results presented by the WG on the 5th International Symposium on Jurassic Stratigraphy in Vancouver, in August 1998. The Working Group has indeed further developed multidisciplinary approaches to Sequence Stratigraphy and the Bureau thinks that the experiences gained by the Working Group should also be applied to other parts of the stratigraphic column.
- Budget: Following discussions of the IUGS EC with the Chairman of ICS, the Bureau decided to adopt a new policy in the calculation of allocations to ICS Subcommissions and Committees, in order to enhance the funding of the most active ICS bodies. A substantial part of the ICS budget will thus be reserved for a contingency fund, from which groups approaching the establishment of a GSSP or developing promising new projects may be supported. Such groups may apply to the Chairman of ICS for a special allocation.
- The International Stratigraphic Chart: The Chairman reported that the Chart is currently at the publisher. The responsibility for publication is, however, up to UNESCO and IUGS, who must agree on the copyright, place and date of publication. The Chart will certainly be published this year.
- Election of new Bureau members: ICS Chairperson/Secretary General (Felix Gradstein-Norway/James OGG-USA); ICS First Vice-Chairperson (Richard Lane-USA) and ICS Second Vice-Chairperson (Stanley Finney-USA).
- Internet: It was decided to establish an ICS home page with links to the IUGS home page and to home pages of individual Subcommissions and Committees.
- As in earlier years, most of the Subcommissions and their working groups cooperated with IGCP Projects; some projects were initiated by ICS groups. Except that of the Carboniferous Subcommission which contains unjustified polemic statements, all the reports were accepted by the Chairman and Secretary General of ICS. Several ICS Subcommissions edit newsletters, which are distributed electronically, where relevant new stratigraphic results are published and problems of interregional correlation discussed.
- Four new GSSPs have been successfully voted by the respective subcommissions of ICS, and then submitted to the Full Commission. All four of them have obtained the necessary majority of more than 60% (the detailed results have been reported on to IUGS by the Secretary General of ICS at an earlier date); these are: a) the base of the Zanclean Stage

and the Pliocene Series (Neogene); b) the base of the Messinian Stage (Neogene); c) the base of the Aalenian Stage and the Middle Jurassic Series; d) the base of the Ordovician System.

Speden (commentator) reported that detailed annual reports in the standard format were submitted by all 17 subcommissions and the committee for Quantitative Stratigraphy. About 2000 stratigraphers are involved in the extensive and diverse work of ICS, with a majority from developed countries whose organizations can support their work.

The annual reports demonstrate an impressive quantity, quality and range of research and products. Most subcommissions are making good progress on their objectives with priority being given to establishing GSSPs. Most Subcommissions held conferences and field workshops, distributed newsletters, established web pages and conduct business by e-mail. Most Subcommissions interface with IGCP projects or projects sponsored by other ICS Subcommissions or Unions: This is commended.

The work of the ICS and its Subcommissions and Committees remains very dependent on the efforts of individuals and the support given to them by their organizations and/or their national organizations. Lack of funding remains the major concern especially for resources to undertake field studies and the support for the involvement of geoscientists from developing countries. Some problems exist in designation or use of international stratotypes or agreed nomenclature because of nationalistic dogmas or individual attitudes. It should be noted that some subcommissions express increasing difficulties for officer-bearers to obtain time to implement duties or activities.

Speden highlighted the major achievements of the ICS report: This year's publication of the International Stratigraphic Chart and the ratification of the new officers for ICS and its sub-bodies for the period of 2000-2004.

Speden announced that five new Global Stratigraphic Sections and Points (GSSP) have been successfully voted on by Subcommissions and obtained the necessary 60% for ratification by ICS. The Five GSSP's to be ratified by the EC are:

- The base of the Zanclean Stage and the Pliocene Series (Neogene)
- The base of the Messinian Stage (Neogene)
- The base of the Aalenian State and the Middles Jurassic Series (Jurassic)
- The base of the Ordovician System

- Subdivision of the Carboniferous System into the Mississippian and Pennsylvanian Subsystems

12 other GSSPs are scheduled to be presented for ratification by the end of 2000. Work has been advancing on many more.

Speden concluded his comments by mentioning other matters of information to the Executive Committee:

- The Cambrian Subcommittee has submitted to *Episodes* an important article on "The quest for internationally recognized divisions of Cambrian time". This includes an outstanding inter-regional correlation chart.
- Chinese authorities have provided guarantees on free access to the Meishan section which enables a vote on a GSSP to proceed.
- The Subcommittee on Quaternary Stratigraphy is presently reorganizing and reorienting. Changes should be confirmed at a meeting scheduled for June/July 2000. An aim is to clarify relationship between ICS and INQUA/SC.
- A major problem for the Subcommittee on Geochronology is the difficulty in obtaining analytical reference material (K-bearing minerals) and funding for collaborations.
- The Subcommittee of Stratigraphic Classification's abridged version of the International Stratigraphic Guide appeared in the December 1999 issue of *Episodes*. Separates are to be sold at USD 5.00 plus postage. Working Groups have been established on "A glossary of stratigraphic terms" and on "Clycolstratigraphy. The Glossary is to be published in several languages.

Speden concluded his comments by noting that most Subcommittees are planning for activities (symposia, workshops, meetings) at the Rio IGC 2000.

A discussion followed on the GSSPs and the possibility of speeding up the work of the Subcommittees. It was mentioned that the ICS Bureau could be told to set a deadline for the GSSP. If a group working on a GSSP could not adhere to its deadline and could not provide a sound explanation for the delay, it could be dissolved and restarted with new people. Brett stated that any re-discussion on a GSSP should be refused before the whole period is defined.

The Committee ACCEPTED the comprehensive ICS report, commending the Commission for good work.

The Committee unanimously RATIFIED the ICS Subcommissions' vote on the four above mentioned GSSPs and one change in terminology.

The Committee APPROVED the new ICS bureau officers and the officers of the ICS bodies for 2000-2004, pending ratification by the IUGS Council in Rio.

4.b.8 Commission on Systematics in Petrology (CSP)

Summary 1999:

The commission and its three active subcommissions continued their work on systematics, classification and nomenclature of igneous and metamorphic rocks in business and working meetings and with questionnaires, circulars and written discussions. Links between chairman/secretary and subcommissions are regular. Information and addresses can be obtained via the webpage at <http://www.uni-freiburg.de/minpet/IUGS-CSP.html>

The Subcommission on the Systematics of Igneous Rocks (SSIR) held a full meeting at Prague for the final agreements for the 2nd edition of the 'Blue Book'. Two new subjects 'High Mg rocks' and 'Lunar Rocks' were discussed and incorporated into the new edition. The new designated chairman is Dr. Bernard Bonin.

The Subcommission on the Systematics of Metamorphic Rocks (SCMR) was handicapped in its working progress due to the chairman's work overload. A planned meeting of the subcommission did not take place. For the year 2000, the chairman announced to finally put the papers discussed during the Verbania meeting and dealing with the nomenclature topics of all major groups of metamorphic rocks onto the WWW and to organize a working meeting, probably in Prague.

The Subcommission on Data Bases in Petrology (SDBP) held a full meeting in Budapest for discussion of achievements, problems and further development of geological databases. The existing web pages were revised and new ones designed in the languages of Chinese and Russian.

Boriani (commentator) reported on the three Subcommissions, referring to the summary of activities above. He noted that the SCMR had little activity last year, but had promised to conclude its work in 2000. The SDBP had presented some interesting activities and programs.

During the following discussion, doubts were expressed on the real need for the Subcommission on Data Bases in Petrology to continue. The Committee members also recommended that the Subcommission on Metamorphic Rocks promptly publish the result of its work before it becomes obsolete.

Brett argued that this Commission should continue because terminology is constantly changing. There is also hope that an effective Subcommission on systematics of sedimentary rocks could be started during the Rio IGC.

The Committee ACCEPTED the CSP report, noting that the Commission's activity level in 1999 also has been low.

4.b.9 Commission on Tectonics (COMTEC)

Executive Summary:

COMTEC supported a range of innovative areas of vital research in Tectonics in 1999. The Subcommittee on Tectonic and Surface Process Interactions (SOTSPI) was involved in projects on Tectonic Activity in Low-seismicity Areas (a symposium was held at the International Quaternary Research conference), Topographic-stratigraphic Modeling of Reverse Fault Scarps and Folds (this research project was initiated), and Tectonic and Surface Interactions at Active Volcanoes (field work was conducted). SOTSPI was also involved in research in coastal lowland responses to earthquakes, symposia on various topics at four other international conferences, special volumes of the *Journal of Seismology* and the *Journal of Structural Geology*, and a Special Publication of the Geological Society of London. The Subcommittee on Rheology has two major areas of activity: a collaborative program of research and training with the Argentine Geological Survey (field mapping and sampling), and a working group on Textural and Microstructural Tools to Understand Magmatic to Subsidius Processes In Igneous Rocks (TAMTUMSPIR). The latter group organised a special session at the European Union of Geosciences meeting. The work of the Subcommittee on Computing in Tectonics has been completed, resulting in teaching products freely available at a Web site. 22 papers were published or accepted in 1999, and 62 conference presentations were made. COMTEC supports a wide range of activities in areas that would not otherwise be funded, with collaborators from Argentina, Australia, Belgium, Eire, Italy, Sicily, Sweden, U.K., U.S.A., and Zimbabwe. Plans for 2000 include continued support for the two active subcommittees (including four workshops/symposia and field work) and a major presence at the 31st International Geological Congress.

Hervé (commentator) commented on an interesting report from the Chairman, noting that the Commission had been very active. The two Subcommittees are dealing with frontier science and operation on a high level.

Subcommittee on Tectonic and Surface Process Interactions (SOTSPI) had convened the Symposium Icesheets, Crustal Deformation and Seismicity at the INQUA XVth Congress in South Africa. A special issue of *Quaternary Science Reviews* is being prepared with the presented papers. Research in Tectonic and surface interactions at active volcanoes and modelling of reverse fault scarps has continued. Tectonics and history of man will finish with the publications of *The Archeology of Geological Catastrophes*. A special volume of the *Journal of Seismology* and the *Journal of Structural Geology* are in preparation.

Concerning the Subcommittee on the Rheology of Rocks (SRR), Hervé referred to the above summary of activities. The cooperative project with the Argentine Geological Survey (SEGEMAR) continued its fieldwork and laboratory activities. He also pointed to the teaching material produced by the

Subcommission on Computing in Tectonics, which is available on its web site. This Subcommission has now finished its work.

Hervé was of the opinion that the Commission on Tectonics has a clear field to contribute to, with important developments in the Earth Sciences, and should concentrate on these issues rather than on projects involving a limited number of participants.

Speden thought that this Commission has a high potential for multidisciplinary work. Brett questioned whether the group should continue as a commission. In the following discussion it was stated that COMTEC includes a number of research projects and that it would be advisable to better define the role of Commissions, Working Groups and Projects.

The Committee ACCEPTED the COMTEC report. It proposed that the Commission more clearly identify the activities needed within the field of Tectonics and try to work out activities with long term continuity.

4.b.10 Commission on Management and Application of Geoscience Information (COGEOINFO)

Chief Accomplishments in 1999:

- Training of geoscientists from developing countries. In part using database and GIS software developed in previous years by COGEOINFO, members of the Commission and their associates have conducted extensive training sessions for representatives of the Pan African Network for Geological Information System (PANGIS) and some Asian countries. In 1999 this training was conducted for geoscientists from 15 countries at the Musée Royale pour l'Afrique Centrale, Belgium (MRAC).
- COGEOINFO played an integral part in the first SANGIS meeting. COGEOINFO played a vital and integral part in scoping, planning and conducting the first Southeast Asian Geologic Information System (SANGIS) Workshop in Bangkok, Thailand in 1999. With financial support from UNESCO and the French Government, representatives of 11 Asian nations attended the first SANGIS Workshop. Coordination and planning were provided by UNESCO, CIFEG, and IUGS/COGEOINFO, representatives of several European Geological Surveys plus the Coordinating Committee for Coastal and Offshore Geoscience Programs in East and Southeast Asia (CCOP) and the Geological Societies of Southeast Asia (GEOSEA) participated in this session. COGEOINFO representatives gave keynote talks at the workshop and was fully involved in establishing the agenda. At that meeting, it was agreed that the way forward for the region was through web-based meta-data catalogues referencing locally held data, using a method similar to that used in the recent project involving COGEOINFO and the EuroGeoSurveys. The priority meta-data will be bibliographic, building on the experiences of PANGIS. Both GEOSEA and CCOP have accepted the concept and ideas of SANGIS and are willing to cooperate on future ventures. SANGIS is a major success for IUGS and COGEOINFO.
- COGEOINFO obtained funding for an additional conference funded by ESF. In recent years COGEOINFO has worked with the European Science Foundation (ESF) on a series of workshops. The 1999 version was "New Paradigms for the Prediction of Subsurface Conditions".

- COGEOINFO redefined its mission and goals. Based on the IUGS ABRD review, and subsequent discussion with several ABRD members, COGEOINFO redefined its mission and goals.
- Increased use of the Multilingual Thesaurus for Geosciences: COGEOINFO will not use any additional IUGS funds for MT activities. However, using funds from sales of hard copy and the CD version of the MT, plus fees for licensed use of the MT, COGEOINFO continues to foster even more widespread use of MT.
- The two-year development of the EU funded GEIXS (Geological Electronic Information Exchange System) was finished in September 1999 and the system became live for use. A key component within GEIXS is the COGEOINFO sponsored Multilingual Thesaurus (MT). Use of the MT in GEIXS is by chargeable license. In addition, the GEIXS project will stimulate further language inclusion in the MT with the eventual aim of covering all major World languages. It would be a major success to add Chinese technical terms to the MT—Chinese is the most popular language on the globe. Twelve nations continue to pay representatives, to continue efforts in improving and expanding the MT.

Brett read Liu Dun-yi's (commentator) written comments, noting that the mission of COGEOINFO was revised, based on the comments from the ABRD review. The new objectives and goals are: To promote systems for development, dissemination and utilization of geoscience information in order to meet societal needs related to resources, geo-hazards, waste and the environment, world-wide.

The Board had recommended that the Commission continue looking for other financing sources, outside of IUGS and also that its members consider whether or not its activities would better suit a Working Group structure or a project under the tentative IUGS proposal policy.

Liu Dun-yi's comments referred to the above accomplishments in 1999 and mentioned that the plans for 2000 are to continue to develop the plan to initiate a Global Earth Science Catalogue. The Commission also intends to obtain funds to extend the concept of a unified, global geosciences meta-data catalogue to include facilities for those data held by non-governmental institutions to be included where possible.

A discussion took place on whether COGEOINFO fits under the category of commission or project. Again a clear definition of IUGS bodies had been useful. Speden put forward his opinion that this is another case of activities that are valuable to the Union, and suggested that COGEOINFO be developed into a more global style Commission, with strong emphasis on matters of global significance. Brett said that the Commission is working in this direction, but probably could be told once more. The Committee also questioned the relationship between COGEOINFO and CIFEG, SANGIS and PANGIS.

The Committee ACCEPTED the COGEOINFO report, noting that it is an active and productive

Commission. It asked that the Commission concentrate even more on international and global aspects of data and suggests that it apply for grants where this is feasible.

4.c. AFFILIATED ORGANIZATIONS

Before receiving comments from the Executive Committee on the Affiliated Organizations, Brett emphasized that discussion on the future of the Union has highest priority. For the IUGS' 36 Affiliated Organizations he asked the commentators to only report on matters of concern to IUGS or if they have requested money. Upon request, the IUGS Secretariat can provide copies of the reports.

A discussion followed on the relationship between the Affiliated Organizations and IUGS.

The Committee AGREED that a closer cooperation with the Affiliated Organizations, as suggested in the Strategic Plan, was highly desirable. It further AGREED to take the opportunity to arrange a formal meeting with representatives of the Affiliated Organizations during the IGC in Rio, to discuss areas for a probable cooperation.

Reports from 32 Affiliated Organizations had been received. No reports from the American Association of Petroleum Geologists (AAPG) (2nd year no report), The Geochemical Society (2nd year no report), Geological Society of America (GSA), and the International Society of Sedimentary Geology (SEPM) (2nd year no report).

4.c.1. American Association of Petroleum Geologists (AAPG)

No report had been submitted. Brett reported that AAPG is alive and well.

The Committee REGRETTED that for the second year no report had been submitted

4.c.2. Association of Exploration Geochemists (AEG)

Highlights 1999:

The Association of Exploration Geochemists (AEG) had an active membership roster of approximately 1,000 during 1999. In April 1999, the AEG sponsored the 19th International Geochemical Exploration Symposium (IGES), in Vancouver. Various technical sessions, one-day courses, and post-meeting field trips were conducted. The Association continued to spon-

for the publication of the Journal of Geochemical Exploration and to publish a monthly newsletter, EXPLORE.

The AEG sponsors an annual Distinguished Lecturer Series. In 1999, Dr. Gwendy Hall of the Geological Survey of Canada continued her tour of North America, Australia, and Europe. She presented lectures on 1) The design and application of phase-selective leaches in exploration and environmental geochemistry and 2) Cost-effective protocols for the collection, filtration, and preservation of water samples collected in hydrogeochemical surveys.

Gaál reported that the Association is functioning well and continues contributing significantly to research and development in exploration for new mineral deposits.

The Committee ACCEPTED the AEG report.

4.c.3. Association of European Geological Societies (AEGS)

Chief Accomplishments in 1999:

60 individuals from 10 different countries participated in MAEGS-11 'European Palaeogeography and Geodynamics, a Multi-disciplinary Approach' held in Alicante (Spain). During the EC meetings of AEGS held concurrently with MAEG11 some strategies for improvement of AEGS were prepared related to finances (fees to be paid in Euro) and establishing of links to AEGS member home page to the Society's home page.

Johan (commentator) referred to the submitted annual report.

The Committee ACCEPTED the AEGS report.

4.c.4. Arab Geologist Association (AGA)

Chief accomplishments in 1999:

AGA held joint scientific meetings with a) Arab Federation of Scientific Research Councils (FASRC). (Yemen hosted the 4th Arab Seismological Seminar and Baghdad hosted a one-day symposium on "History of Irrigation in Mesopotamia"); b) Shoman Cultural Foundation in Amman, Jordan (Jordan hosted "Impacts of Turkish GAP project on waters of the Euphrates and Tigris"); c) Iraqi Society for Political Sciences (Baghdad hosted "M.E. Oil and Global Politics"). The AGA took an opportunity in Yemen to highlight IUGS activities in the area of monitoring of natural hazards.

In the two combined issues of the Geoscience & Arab Development (GAD1/2 and GAD3/4) AGA published a free-of-charge advertisement for *Episodes*. The front cover of GAD3/4 was devoted to the IGC in Rio.

Al-Hashimi reported that AGA had organized and participated in several scientific meetings in Yemen, Amman and Baghdad. The Association had worked on the preparation of a symposium to be held in Baghdad. As an affiliate to IUGS, the Association endeavoured to promote IUGS, IGC and *Episodes* in the Arab World, working on the translation of the COGEOENVIRONMENT Brochure on Managing Human Environment into Arabic, which will be published in 2000.

The Committee ACCEPTED the AGA report.

4.c.5. American Geological Institute (AGI)

SUMMARY 1999:

- Earth Science Week: 40 states had issued proclamations and international interest continues to grow. More than 225,000 copies of the Earth Science Week poster were distributed to geoscientists and science teachers.
- National Geoscience Data Repository System (NGDRS): Work on Phase III of the project was completed August 1999. AGI received DOE support of \$1 million effective September for extension of the Phase III program over the next two years, 1999-2001.
- K-12 Education: AGI completed pilot testing of its curricula EarthComm (high school) Investigating Earth Systems. (middle school) and available in Fall 2000.
- Government Affairs: Dr. E. McLellan will take on the assignment as Congressional Science Fellow.
- GeoRef Database System: Access to GeoRef on the Internet is being expanded. Contracts have been signed with Cambridge Scientific Abstracts, Ovid Technologies, and EBSCO for GeoRef distribution. Currently, GeoRef is available on the Internet through the Community of Science, OCLC, and SilverPlatter. Service by these vendors is provided on an annual subscription basis.

Brett (commentator) reported on an alive and well organization.

The Committee ACCEPTED the AGI report.

4.c.6. Association of Geoscientists for International Development (AGID)

Chief Accomplishments In 1999:

- Networking activities in 1999 included the publication of 2 newsletters and the strengthening of the AGID website. Material was gathered for an issue of the journal 'Geoscience and Development' with the theme 'Geochemistry and the Environment'.
- AGID's book and journal exchange scheme continued - 800 titles are now available.
- AGID awarded 7 'William Greenwood Scholarships' to postgraduates from developing countries with preference to those pursuing topics with developmental applications.
- Assistance was given to 15 young geoscientists to attend meetings in Kenya (workshop on Geomedicine); South Africa (conference of the African Geological Society) and Pakistan (3rd Segmite Intl. Symposium on Sustainable Development of Surface and Groundwater Resources). AGID councillors were the lead organisers of these events.

Nyambok (commentator) stated that AGID is doing very well, particularly in its varied support to geoscientists from developing countries, despite its limited financial resources. It intends to maintain the same level of activities in 2000.

The Committee ACCEPTED the AGID report.

4.c.7. American Geophysical Union (AGU)

Chief Accomplishments and Products in 1999:

- A new electronic journal will be published starting in December: Geochemistry, Geophysics, Geosystems (G3). <http://www.g-cubed.org>

- Continued publication of the Journal of Geophysical Research, Water Resources Research and 8 other journals, approximately 10 new books and meetings of varying size. Advocacy positions related to: natural hazards, global climate change, test ban verification, and opposition to the teaching of creationism as science.

Hervé (commentator) reported on an interesting organization.

The Committee ACCEPTED the AGU report.

4.c.8. Association Internationale pour l'Etude des Argiles (AIPEA)

SUMMARY 1999:

- AIPEA aims at the world-wide promotion of clay science and clay science related activities. It promotes scientific interaction between clay scientists. A Council, which meets every two years is ruling the body. The Newsletter of AIPEA highlights the accomplishments of the Association.
- The chief accomplishments of 1999 include the maintenance of the Newsletter, the development of a Website and the meeting of the Council in Cracow, Poland.

Johan (commentator) referred to the Association's report.

The Committee ACCEPTED the AIPEA report.

4.c.9. Carpathian Balkan Geological Association (CBGA)

Activities in 1999:

- Meeting of Commission on Volcanology, in Slovakia.
- Meeting of the Commission on Metamorphism, Slovakia
- Workshop to Circumpannonian Terrane Maps, part Paleozoic, Hungary.
- XXIX International Congress of Geology and Hydrogeology, Slovakia
- International Conference of Carpathian Geology, Slovakia

Products in 1999:

- Commission on Metamorphism (CBGA), Field Meeting Abstract Volume, S.W. Faryad ed.
- International Geolgical Conference, Carpathian Geology, Abstract Volume, Special Issue Geologica Carpatica, Vol 50.
- Monothematic Issue dedicated to XXIXth IAH Congress, Slovak Geological Magazine, Vol 5.
- Atlas of deep seismic sections-Western Carpathians, Slovakia, Vozar, Ed.

Gaál (commentator) reported that this regional grouping is comprised of 12 National Committees from Central and Eastern Europe. The Association experienced difficult times in the nineties during a socio-economic transformation of the region and still suffers the lack of a financial budget. Nevertheless, the Association has been active during 1999.

The Committee ACCEPTED the CBGA report and was pleased with the results achieved by enthusiastic scientists on a voluntary basis.

4.c.10. Commission for the Geological Map of the World (CGMW)

CGMW ACCOMPLISHMENTS FOR 1999

CGMW received confirmation that the USGS will renew its ties and thanked Drs. Aaron and Brett for this. Dr. R. Volkov's efforts in arranging Russia's payment are also extensively acknowledged. CGMW revealed that Canada and Malaysia will withdraw from the Commission, which along with New Zealand's withdrawal (1997) creates problems.

MAPS PRINTED AND RELEASED

- The World Environments during the last two Climatic Extremes (Last Glacial Maximum and Holocene Optimum) at 1:25 M scale (CLIMEX), a co-publication with ANDRA (French Agency for Radioactive Waste).
- Tectonic Map of Europe at 1:5 M scale. published by CGMW-Russian Academy of Science-UNESCO, were finally received at UNESCO's warehouse last Summer
- International Metallogenic Map of Africa at 1:5 M, sheets 5 and 6 (Africa south of the equator). a co-publication CGMW and Council for Geoscience (South Africa).

MAPS PRINTED NOT RELEASED:

- Sheet 9 of the Mineral Atlas of the World at 1:10 M.
- Geological Map of the World at 1:25 M, second edition.
- International Stratigraphic Chart. The part played by the CGMW was to be the catalyst of the project (digital realization of the chart, organization of tripartite meetings in Paris, setting up of standard symbols and colours of chrono-stratigraphic units, etc.).

MAPS IN PROGRESS:

- Tectonic Map of Africa at 1:5 M scale, second edition (in cooperation with the Council for Geoscience). Tectonic Map of Asia at 1:7.5 M scale. Coordinated by the Russian Academy of Sciences.
- Geological Map of Europe at 1:2.5 M scale.(Federal Geological Survey of Germany).
- Geological Map of Europe at 1:5 M. (Federal Geological Survey of Germany
- Metamorphic Map of North America at 1:5 M. (Geological Survey of Canada)
- Metallogenic Map of Africa at 1:5 M scale. The digital dummy of sheet n° 3 has been finalized by Council for Geoscience (South Africa).
- Seismotectonic Map of the World at 1:25 M scale (1st edition). Dr. A. Haghypour (Iran) Prof. Madariaga, Prof. Ambraseys, Prof. Funiciello (Italy).

Gaál (commentator) stated that the CGMW activity is vital to the task of synthesizing and propagating regional geological information and thus significantly contributes to the understanding of Earth.

The Committee ACCEPTED the CGMW report, supporting the activity of CGMW.

4.c.11. The International Center for Training and Exchanges in the Geosciences (CIFEG)

Chief Accomplishments in 1999

SANGIS and PANGIS have been the brightest accomplishments for 1999. CIFEG created its Web site <http://www.cifeg.org>. CIFEG has also been involved in International research programs concerning natural risks in Colombia (Arequipa), in the Philippines with Phivolcs and in the Caribbean area (Paho Congress).

SANGIS

1st Regional Technical SANGIS Workshop, Bangkok, July 1999. The main purpose of the First Technical Regional SANGIS Workshop, which took place in Bangkok in July 1999, was to determine the conditions of SANGIS implementation in Southeast Asia, to co-ordinate it with on-going regional activities and to define co-operation details.

CIFEG, with the local help of CCOP, and with the support of UNESCO (Division of Earth Sciences) and the French Ministry of Foreign Affairs, gathered in Bangkok information management specialists of the Geological Surveys from 11 Southeast Asian countries; 6 European countries (Belgium, Denmark, France, Germany, Great Britain, The Netherlands), and representatives of regional and international organizations (CCOP, CIFEG, GEIXS, GEOSEA, IUGS-COGEINFO, UN-ESCAP, UNESCO) in order to define the i) Regional specific needs in geodata acquisition and processing and ii) Examine the support provided by the European geological surveys and International organizations. The Southeast Asian representatives formulated a set of recommendations, on which organizers will decide details of SANGIS implementation and next actions: i) that CCOP be a regional co-ordinator; ii) to increase the use of geoscience data through application development support, language translation and data sharing; iii) to modernize geoscience data handling by providing modern hardware and software, assistance to convert paper to digital data, assistance in database development; iv) to organize training in applications design and development, databases development; v) to consult each country before implementing the project.

PANGIS

A new application has been developed (French and English) in 1999 through Access (T.M.) to replace the former version CDS/ISIS. In 1999, 16 countries have received the new version of PANGIS through Access and have been trained.

Boriani (commentator) referred to the above achievements.

The Committee ACCEPTED the comprehensive CIFEG report.

4.c.12. Circum-Pacific Council for Energy and Mineral Resources (CPCMR)

Summary 1999:

The CPCMR along with USGS and Stanford University will convene an international conference in August 2001 (Palo Alto) that will deal with problem of the crowding of the Pacific rim. Participants will assess the nature and consequence of the risks from natural disasters and explore policy solutions.

CPMP (Map Project) is now in its 26th year and continues to produce and publish geoscience maps with explanatory notes of the four quadrants of the Pacific Basin, the two polar regions and of the entire basin. At present time ISGS will produce all in-hand manuscripts but will not accept more.

In 1999 the products of CPGDP Working Group on Geological Correlation (represented by its Chief technical advisor Carl C. Abston) was under some financial strains due to the withdrawal of support from a few companies. As all the National Coordinators become more familiar with data collection and digitization, CPGDP has gained momentum and hopes to create an aggregate of digital data of more significance than one that could be assembled by any individual country or commercial company.

The current activities of CPCMR:

- Completion of the Circum-Pacific Map Series.
- Completion of the East Asia Geographic and Geotectonic Map Series.

- Completion of the Geospatial Data Project in East Asia and development of a similar project in Latin America.
- Organizing special symposia to address timely and important scientific problems.
- Conducting workshops and training sessions for developing countries.
- Facilitating and sponsoring specialized scientific projects needing international support.
- Publishing important results of its activities in the Earth Science Series.

Speden (commentator) reported that the Council had recently revised its objectives, which have been incorporated in a new Mission Statement and has produced the first of a new Newsletter. Currently its seven objectives include the completion of the Circum-Pacific Map Series now in its 26th year, with 11 manuscript maps in production with the USGS committed to their publication; completion of the East Asia Geographic and Geotectonic Map Series; and completion of the Geospatial Data Project in SE Asia, with a CD-ROM holding 14,330 records although several companies have withdrawn their support because of incomplete locational data. Speden drew attention to the major conference called "Crowding the Rim" that is scheduled for August 2001. This conference is to explore and develop answers to "Potentially disastrous events" likely to confront countries and population around the Pacific Rim.

The Committee ACCEPTED the CPCEMR report.

4.c.13. European Association of Science Editors (EASE)

Accomplishments in 1999

- Membership unchanged, 930 from 53 countries.
- Publications: Three issues of EASE's bulletin, European Science Editing. Nos. 25 and 26.
- Further chapters of the Science Editor's handbook.
- Meetings: Two workshops (Poland and UK), and EASE had representation at two workshops (France and Spain).
- A Project for funding courses in scientific writing in Eastern European countries is going on.

Volkov reported on behalf of Zharikov (commentator) and referred to the above accomplishments in 1999.

The Committee ACCEPTED the EASE report.

4.c.14. European Mineralogical Union (EMU)

Activities for 1999:

- Co-sponsored four symposia of EUG 10 (Strasbourg, March 1999)
- Intensively preparing the second EMU School (subject: Environmental Mineralogy, Budapest, May 15-19 2000).
- Begun to prepare its third school (subject/place/date/co-ordinator: Mixing in Silicate and Oxide Systems, Lübeck, Germany, Summer of 2001, Charles Geiger) and its fourth school (subject/place/date/co-ordinator: Energy Modelling of Minerals, Budapest, Hungary, Summer of 2002, Carlo Maria Gramaccioli)

- EMU donated its annual "Research Excellence" medal during the EUG 10. The silver medal is for young scientists who make significant contributions to research and who are active in strengthening European scientific links.
- Aided 20 institutional libraries facing serious financial difficulties (mainly in Eastern Europe) by donating them free subscription of European Journal of Mineralogy.
- Organised its annual Council meeting during the EUG 10 (Strasbourg, March 1999).
- Number of EMU member countries grew to 26.
- Continued to run its homepage (<http://ulixes.geobio.elte.hu/emu.htm>).
- Contribute to the EUG 10. The EMU booth gave surface not only for EMU and EJM, but also for the European mineralogical societies to introduce themselves and to advertise their activities.

Boriani (commentator) commented briefly on this very effective organization.

The Committee ACCEPTED the annual EMU report.

4.c.15. The Geochemical Society

The Committee REGRETTED that no report had been submitted for the last two years.

4.c.16. Geological Society of Africa (GSA) f

Chief Accomplishments in 1999:

- GSA 11 (Capetown) 'Earth resources for Africa'. The Society's General Assembly was held consecutively to this international conference. Decision made to establish closer cooperative links with the Geological Society of America.
- Assisted the formalisation of the Cameroon Geological Society and associated with the international meeting of two geological societies (Kenya, Tanzania)
- Planning for the 18th Colloquium of African Geology (Austria, July). This colloquium rotates between Africa and Europe.
- Publishing of African Geonews.

Nyambok (commentator) reported that GSA is very active and striving to establish new links and collaborative programmes. Its activities are constrained by communication problems within the African continent, but this is being tackled. The number of paying members of the Society has improved and is now 420.

The Committee ACCEPTED the GSA report.

4.c.17. Geological Society of America (GSA) m

The Committee REGRETTED that no 1999 report had been submitted.

4.c.18. International Association of Engineering Geology (IAEG)

Accomplishments in 1999:

- Three issues of the IAEG Bulletin of Engineering Geology and the Environment were published. Contributors came from 21 countries.
- Two issues of the IAEG Newsletter were published (8000 copies each).
- The 1999 IAEG Executive Committee and Council meetings in Nepal. Thanks is to IUGS and the Nepalese organizing committee.
- Sponsored “Engineering geological conditions of Black Sea coastal zones” May 1999 Georgia; “Planning for Sustainable development” (Malaysia) organized by the Malaysian national group for IAEG; “Symposium on Engineering Geology, Hydrogeology and Natural Disaster with emphasis on Asia” (Nepal); “Civil and Environmental Engineering Conference – new frontiers and challenges” (Thailand)
- Council gave preliminary approval to a proposal to create of regional working group “South American Weak Rock Masses”

On behalf of Zharikov (commentator), Volkov reported on an active organization, referring to the above summary of achievements.

The Committee ACCEPTED the IAEG report.

4.c.19. Int. Association of Geomorphologists (IAG)

Chief accomplishments in 1999:

Regional Conference on Geomorphology was held in Rio de Janeiro, Brazil, on 17-22 July. Its main objectives were to provide a venue for South American geomorphologists to meet, to encourage further development of geomorphology in this part of the world, and to present current geomorphological research in South America and elsewhere, with particular focus on present and future of tropical geomorphology. The conference was attended by more than 200 people from 16 countries, including some senior geomorphologists to give plenary lectures, and was followed by one-day and three- to four-day field trips.

IAG Working Groups were active, including two international meetings organised by the WG for Large Rivers (in China and Brazil).

Herve (commentator) noted that IAG is now focused on its adhering bodies from 50 different countries. He mentioned the chief accomplishments in 1999 noting that several important publications were produced, and others in preparation. The Association will organize a thematic conference in China in 2000 and the 5th International Conference on Geomorphology in Tokyo, August 2000.

The Committee ACCEPTED the IAG report.

4.c.20. Int. Association of Geochemistry and Cosmochemistry (IAGC)

Chief Accomplishments in 1999:

- Several international meetings and symposia have been planned and held this year through the IAGC's Working Groups:
- Symposium on Physical and Chemical Controls of PGE-bearing Sulphide Deposits, Mar. 30 - Apr. 3, 1999, Strasbourg, France.

- Symposium on the Thermal History of Meteorites, July 11-16, 1999, Johannesburg, South Africa.
- 5th International Symposium on the Geochemistry of the Earth's Surface, Aug. 12-20 1999, in Reykjavik, Iceland.
- 3rd International Symposium on Applied Isotope Geochemistry, Sept. 21-25 1999, Orleans, France.
- 3rd IAGC Symposium on Sources, Transport, Fate and Toxicology of Trace Metals in the Environment at the Geological Society of America Annual Meeting, October 25-29, 1999, in Denver, Colorado.

The 1999 IAGC's journal Applied Geochemistry contained 75 papers in 8 issues and 1100 pages of the journal. This represents a substantial increase from 1998. Furthermore, the publication schedule is now on time and issues for the year 2000 are already being mailed out. Within volume 14, there has been one special issue published on the Aspo Hard Rock Laboratory in Sweden. In addition, two Newsletters have been produced under the guidance of the Newsletter Editor, Gunter Faure.

Brett read Liu Dun-yi's (commentator) written comments, stating that this is an active and healthy association.

The Committee ACCEPTED the IAGC report.

4.c.21. Int. Association of the Genesis of Ore Deposits (IAGOD)

Chief Accomplishments in 1999:

- Joint SGA-IAGOD Symposium, London, August 22 to 25 (nearly 600 participants)
- IAGOD Council, General Assembly and Coms/WGs meetings during the London Symposium
- IAGOD WGTT co-organized the IGCP-373 Field Expedition „Au, Ag and Cu deposits of Uzbekistan", 27 August – 3 September, Post-Conference Field Excursion of the Joint SGA-IAGOD Symposium in London
- IAGOD co-sponsored the International Conference „Models of Volcanogenic-Sedimentary-Ore-Forming Systems", June 7-10, Saint-Petersburg, Russia
- IAGOD Russian National Group co-organized the International conference "Precambrian Rift Formation, Magmatism, Metallogeny. Correlation of Geological Complexes in Fennoscandia", June 15-19, Petrozavodsk, Russia
- IAGOD Russian National Group also co-sponsored the International Symposium "Physico-Chemical Aspects of Endogenic Geological Processes", dedicated to the 100-Anniversary of D.S. Korzhinskii, September 13-15, Moscow, Russia
- IAGOD's Chinese National Group organized a field excursion in the East Qinling region for Au-W-Mo-Sb-Pb-Zn deposits, October 19-26
- CODMUR co-sponsored the IGCP-427 special field two day meeting held in Rouyn-Noranda, Canada, July
- IAGOD Mongolian National Group organized a Workshop "Mongolian Altai Metallogeny", May 14, Ulaanbaatar
- IAGOD Mongolian National Group co-organized the International Geological Symposium and Field Excursion on the East Asia (IGSEA), October 13-15, Ulaanbaatar
- IAGOD Slovak Group organized a workshop "Gold in Slovakia", June 16-17, Banska Stiavnica, Slovakia.

Johan (commentator) reported on an active organization.

The Committee ACCEPTED the IAGOD report.

4.c.22. International Association of Hydrogeologists (IAH)

Chief Accomplishments for 1999:

- During the year membership has risen to 3500 with membership currently growing at the rate of 30 a month.
- Hydrogeology Journal has now completed its 7th year of publication, this year being the second year with our new publisher, Springer for which the journal expanded to six issues per year. The journal is listed in the Science Citation Index, and was fully established as an on-line publication. Although the production arrangements have changed, the editorial policy remains the same giving a wide spread of papers from all over the world, assisted by additional editorial support to authors whose first language is not English.
- Our 1999 Congress was held in Bratislava, Slovakia on the subject of Hydrogeology and Land Use Planning.
- During the year a new chapter was formed in Norway and chapters are in the process of forming in Turkey and Portugal.
- During 1999 IAGOD established a new Commission on issues related to the management of Transboundary Aquifers.
- The 1998 Presidents' Award went to Prof. Jozsef Toth of Canada for his lifetime work advancing the knowledge of groundwater systems and many applied aspects of the science.

Nyambok (commentator) stated that IAH is progressively growing in terms of membership. It had remained active with respect to its core activities such as publication of journals and books, and holding of its congress. It intends to develop new alliances in Latin America, Africa and the Far East.

The Committee ACCEPTED the IAH report.

4.c.23. International Association of Mathematical Geology (IAMG)

SUMMARY 1999:

- The IAMG is planning sessions at the 31st IGC and the Sixth IAMG meeting is to be held in 2001 in Cancun, Mexico.
- The organization held its Fifth IAMG Meeting, IAMG'99, August 1999 in Trondheim, Norway. Eight technical sessions were held 6-8 October; 160 attendees saw more than 115 papers and posters. Workshop, excursions and field trips were also provided.
- IAMG co-sponsored or supported five other meetings during the past 12 months including "Statistical aspects of the physical and environmental sciences" (International Statistical Institute); "Image and analysis and morphometry of geological objects"; and "Mathematical methods in geology" (Czech Republic)
- The journal on Nonrenewable Resources was reconstituted under the new name "Natural Resources Research". Dan Merriam became the Editor-in-Chief as of 1 January 1999, replacing Richard McCammon. The journal is now a joint publication with the Energy Mineral Division of the AAPG.

Zharikov (commentator) said that this is a very active organization. It reflects the total interest to apply computing methods in geology. The group will hold a meeting session at the Rio IGC.

The Committee ACCEPTED the IAMG report

4.c.24. International Association of Sedimentologists (IAS)

Chief Accomplishments in 1999:

- Held the 19th Regional European Meeting of Sedimentology (Copenhagen)
- Co-sponsored the Regional Seminar on "Tectonics and Sedimentation of Indonesia" in Bandung, Indonesia; the International Symposium on "Evaporites and Carbonate-Evaporite Transitions" in Lviv, Ukraine, and the International Symposium on the "Paleoceanology of Reefs and Carbonate Platforms: Miocene to Modern" in Aix-en-Provence, France (27-30 September).
- IAS published 6 issues of its journal Sedimentology, comprising 1238 pages, and continued to co-sponsor the journal Basin Research. Two Special Publications on continental and fluvial sedimentology have been produced.
- Prof. H.G. Reading has been on a Lecture Tour, visiting 14 institutions in 8 countries. The impact of such tours is very satisfactory.
- An IAS short-course on "Clastic Sequence Stratigraphy" was organized in Prague, Czech Republic (22-27 May). There were 24 participants from 6 countries in east-central Europe. The positive feed-back of such courses encourages us to plan more in the near future, on different themes in different geographical regions.
- A Newsletter, which accompanies the journal Sedimentology, is where the IAS National Correspondents report on sedimentological activities in their country, reports on past meetings are given, forthcoming meetings are announced, and where IAS members can make comments.

Al-Hashimi (commentator) reported on a very active and healthy organization, referring to the above chief accomplishments in 1999.

The Committee ACCEPTED the IAS report.

4.c.25. International Association of Structural/Tectonic Geologists (IASTG)

Summary:

The IASTG, launched in 1990, encourages international communication among structural and tectonic geologists. Membership is open, without subscription, and current enrolments stand at 1223. Communication among IASTG members continues to be achieved by the "International Newsletters", published in the "Journal of Structural Geology" which is published twice-yearly and available on the World Wide Web through the IASTG Homepage: <http://www.man.ac.uk/Geology/IASTG>. A membership directory produced every few years, also helps individuals with similar interests keep in touch with each other.

Hervé (commentator) stated that this is a very good Association.

The Committee ACCEPTED the IASTG report.

4.c.26. International Federation of Palynological Societies (IFPS)

Chief Accomplishments in 1999:

- Publication of PALYNOS vols. 22.1 and 22.2.
- Dues and membership directories received from member societies.
- Received nominations for President of IPFS for 2000 - 2004, and received proposals for location of 2004 meeting.
- Plans are now complete for the Tenth International Pollen Congress in Nanjing, China, June 24-30, 2000.

Speden (commentator) referred to the above chief accomplishments in 1999, stating that IFPS is an active professional association. It has 23 affiliated societies, which pay an annual subscription.

The Committee ACCEPTED the IFPS report.

4.c.27. International Mineralogical Association (IMA)

Chief Accomplishments in 1999:

- IMA has intensively been preparing the mineralogy-related scientific activities of the 31st IUG. IMA sponsors or co-sponsors 28 symposia of the 31st IGC.
- IMA started to prepare (through its 4 commissions) the next conference of the second largest international IMA related conference series (Mineralogy and Museums 4, Melbourne, Australia, December 2000).
- IMA started to prepare its next General Meeting (Edinburgh, UK, 2-6 September 2002). The Organizing Committee (headed by IMA Vice President Prof. Ian Parsons) had its first meeting in February 1999.

Johan (commentator) referred to an extensive report, noting that the Association seemed to be in good shape.

The Committee ACCEPTED the IMA report.

4.c.28. International Paleontological Association (IPA)

A report for 1998 was submitted.

- Various activities were supported including the funding of participants from the Soviet Union to "Paleodiversification Land and Sea"; publishing of the Proceedings of the 6th International Graptolite Conference of GWA (IPA) and the ICS-IUGS Field meeting of Silurian Stratigraphy Subcommission.
- The Endangered fossils list published and all continents (except Antarctica) have submitted data. Published in Lethaia volume 31 (3).
- Dr. R.Kæsler was funded to create computerised Directory of Palaeontologists of the World as part of IPA website.
- Agreed to sponsor the first International Symposium of Paleontology to be held in Sydney, Australia in the year 2001.

Al-Hashimi (commentator) commented that the IPA report submitted is for 1998 and not 1999. The group had funded three meetings, but had called off their participation in the IGC in Rio and is planning to have its own international meeting (i.e. The International Palaeontological Congress). It is providing support to several Palaeontological activities.

Caldwell drew attention to the IPA plans to have its own congress, noting that the Association is drifting away from IUGS and thought this was a serious mistake. He therefore urged the Executive Committee, which has several members in the paleontological field, to contact IPA and use the golden opportunities provided in the Strategic Plan to improve the

relationship with this organization. The Executive Committee discussed the potential cooperation of IPA with several projects within the Commission on Stratigraphy, a Commission that was started by palaeontologists.

The Committee ACCEPTED the 1998 IPA report.
(The Secretariat received the 1999 report just after the Committee meeting.)

4.c.29. International Permafrost Association (IPA)

Chief Accomplishments for 1999:

The newly expanded Executive Committee held its inaugural meeting at the University of Copenhagen in April and reviewed activities for the next several years. Many major international programs are underway. The EU-sponsored Permafrost and Climate in Europe (PACE) program has in the first 2 years drilled 3 deep (at least 100 m) and 4 shallow boreholes in a transect through Europe from southern Spain to Svalbard to monitor changes in ground temperature. The international permafrost monitoring network for observation of changes in active layer and permafrost temperatures was endorsed by the WMO. The program was presented in Puschino, Russia, at the International Conference "Monitoring of the Cryosphere" in May and at INQUA in Durban, South Africa in August. IPA Working Groups (WG) convened the following meetings, workshops and field trips:

- 1) South Hemisphere WG organized INQUA poster sessions and a field trip, and is developing a joint approach for the Antarctic with SCAR.
- 2) Periglacial Processes WG cosponsored meetings and field trips in Finland and Lodz, Poland.
- 3) Coastal and Offshore Permafrost WG convened a workshop on arctic coastal dynamics in Woods Hole, MA, USA.
- 4) The Global Change WG is participating in the preparation of the IPCC Third Assessment Report.
- 5) Cryosol WG is preparing a soils monograph.

Zharikov (commentator) referred to the above accomplishments in 1999, adding that an issue of "Frozen Ground" was published at the end of 1999.

The Committee ACCEPTED the Association's report.

4.c.30. International Society for Rock Mechanics (ISRM)

Chief Accomplishments in 1999:

- Holding of the 9th ISRM International Congress, Paris, FRANCE, August 1999
- Holding of the annual meetings in Paris, FRANCE (Board, Council and Commissions)
- Conferment of the 3rd Müller Award
- Award of the Rocha Medal 1999
- Publication of three issues of the "ISRM News Journal"
- Publication of Commission Reports

Nyambok (commentator) stated that ISRM had been active during 1999 and remained true to its objectives. It intends to maintain the same level of activities in 2000.

The Committee ACCEPTED the ISRM report.

4.c.31. Int. Society of Soil Mechanics and Geotechnical Engineering (ISSMGE)

Chief Accomplishments in 1999:

- Board Meeting of ISSMGE 22 March 1999.
- Council Meeting took place at the venue of the 12th European Conference on Soil Mechanics and Geotechnical Engineering. Young Member Award established which is aimed at recognising the achievements of young engineers within the Society.
- Regional Conferences held: The 8th Australia-New Zealand Conference (Hobart); 12th European Conference was held in (Amsterdam); 11th Pan-American Conference (Foz do Iguassu); 11th Asian Conference (Seoul); 12th African Regional Conference (Durban). Regional Conferences were reported to be successful and there were plenty of opportunity for discussion, technical presentations and meetings of ISSMGE Technical Committees.
- Other ISSMGE conferences in 1999 included the 2nd International Conference on Earthquake Geotechnical Engineering held in Lisbon, Portugal, and the 2nd International Symposium on Geotechnical aspects of Underground Construction in Soft Ground organised by Technical Committee TC28 in Tokyo, Japan. Also, the 2nd International symposium on Pre-Failure Deformation Characteristics of Geomaterials was held in Torino, Italy under the auspices of Technical Committee TC29: Stress-Strain Testing of Geomaterials in the Laboratory.

Nyambok (commentator) reported that ISSMGE had been very active and organized several events during the year under review. It also maintained liaison with "sister societies" and plans to hold joint meetings with officers of similar societies.

The Committee ACCEPTED the ISSMGE report.

4.c.32. International Union for Quaternary Research (INQUA)

Chief Accomplishments in 1999:

- INQUA has 11 Commissions and two inter-congress Committees. It was decided at the INQUA congress in Berlin in August 1995 that the activities of these bodies should be project oriented. Around 50 projects have been funded by INQUA during this inter-congress period and their activities were evaluated by the INQUA Executive Committee meeting in 1999.
- Several of the Commissions and Committees have themselves, or sometimes with other organizations, held work shops and meetings.
- XV INQUA congress was held in Durban (See <http://INQUA.geoscience.org.za>). The main topic of the Congress was «The environmental background to hominid evolution in Africa».
- The INQUA Internet Home Page (<http://inqua.nlh.no/>) was up-dated. It contains a directory of the Union (the INQUA brochure, the Executive Committee, commission and committee leaders, sub-commission and working group leaders, national committees, newsletter and journal, statutes and bye-laws, commission and committee activities and INQUA projects). The INQUA web also includes information about INQUA meetings. The web is kept strictly informative in order to remain a useful tool for all scientists that work within the different INQUA bodies. Most of the scientific commissions and committees, as well as the 1999 Congress have their separate Home Pages which are linked to the central INQUA Home Page (see <http://inqua.nlh.no/ilinks.html>).
- A transfer from hard copy mailing to a fully electronically correspondence the major part of the correspondence of the INQUA Secretariat is now by e-mail. We have encouraged all our commissions and committees to publish their newsletters on Internet and to

move over to e-mail correspondence. Almost all INQUA officers are now connected to e-mail.

Chief Problem:

- INQUA may lose membership and revenue unless it attains full ICSU membership status.

Speden (commentator) reported that the Union has 36 national and geographic members, mostly from European countries. The scientific bodies are now project oriented. The secretariat correspondence is mostly by e-mail. The Union and most of its scientific commissions maintain home pages covering activities and achievements. Consequently, the report lacks information of scientific achievements or activities.

Speden further said that the Union reports that the "main problem in 1999 was the rejection of the application for a full membership of ICSU". Some nations have advised that they will terminate their affiliation with INQUA and other countries have reported that their Academies of Science will not fund their membership, as long as INQUA is not a full member of ICSU.

A discussion followed, describing INQUA as a very active association with great potential for collaborative projects with IUGS activities.

The Committee ACCEPTED the INQUA report, suggesting that INQUA reapply to ICSU to become a Union. If better explanation is provided for its objective to attain full member status in ICSU, IUGS may submit to ICSU a stronger statement of support.

4.c.33. The Meteoritical Society

Chief Accomplishments in 1999:

- Held a major international conference in July (Johannesburg).
- Continued the development of Meteoritics and Planetary Science into a major international planetary science journal.
- Awarding of Leonard and Barringer medals and presentation of Nier Prize for young scientists.
- Continued to sponsor its journal Meteoritics and Planetary Sciences (bi-monthly) and with Geochemical society the journal Geochimica et Cosmochimica Acta.

Brett (commentator) reported on a well and healthy organization.

The Committee ACCEPTED the Society's report

4.c.34. Society of Economic Geologists Incorporated (SEG)

Chief Accomplishments in 1999:

SEG sponsored and financed numerous international events, inc.

- Cordilleran Exploration Roundup '99 in Vancouver, Canada in January
- Gold '99 Trondheim, Norway in May
- Curso de Metalogenia en Ecuador in June
- Conference on Volcanogenic-Sedimentary Ore-Forming Systems in St. Petersburg, Russia in June
- SGA – IAGOD meeting in London, August
- Field conference on Epithermal Mineralization of the Western Carpathians in Hungary and Slovakia, September.

Gaál (commentator) reported that the Society is functioning well, stating that the membership had grown slightly and has now reached about 3,500 members. SEG publishes among others the prestigious journal *Economic Geology*.

The Committee ACCEPTED the SEG report.

4.c.35 Society for Geology Applied to Mineral Deposits (SGA)

1999 SUMMARY:

- The SGA was established in 1965 by an international group of economic geologists. Mineralium Deposita has been recognized as a premier international mineral deposit journal. The Society home page is <http://www.immr.tu-clausthal.de/sga.html>.
- Co-sponsored Scientific Meetings: Geological Society of Africa 11th Congress (Capetown); 5th Biennial SGA-10th IAGOD Quadrennial Meeting (London); 6th Annual Metallogeny Short Course (Brest).
- Publications include Mineralium Deposita, SGA News, and SGA Short course Series Vol. 1

Johan (commentator) commented on the successful meeting with IAGOD in London, noting that the activities of the Society have improved.

The Committee ACCEPTED the SGA report.

4.c.36 Society of Sedimentary Geology (SEPM)

The Committee REGRETTED that this was the second year no report had been received.

WORKING GROUPS

4.d.1. IUGS Working Group on World Landslide Inventory

Chief Accomplishments in 1999:

- Working Group members met with Technical Committee 11, International Society of Soil Mechanics and Geotechnical Engineering on 10 November in Matsuyama Japan on the occasion of IS-Shikoku, an International Symposium on Slope Stability Engineering.
- Drafts of “a Suggested Method for Reporting Landslide Remedial Measures” and the “Committee on Risk Assessments and Definition of Terms were discussed and moved towards publication.

- Published “International Symposium on Landslides” and “Landslides and the International Decade for Natural Disasters and Reduction” proceedings 14th International Conference of Soil Mechanics and Foundation Engineering.

Boriani (commentator) referred to the objectives of the Working Group and reported that the group will close its activities with a final meeting in Cardiff in 2000. However, its work will continue under three IUGS Affiliated Organizations in the areas of geomorphology (IAG), engineering (IAEG), and soil mechanics (ISSMGE). He also informed the Committee that there is an IGCP project on landslides and conservation of monuments, a project that is becoming increasingly important.

The Committee ACCEPTED the Working Group's report.

4.d.2. IUGS Working Group on Global Geosites

Activities of 1999

- Geosites first list for Europe published
- Kiev working meeting
- Concordat between IUCN and IUGS
- FIST contribution Bellaria meeting
- Bologna Geosites volume contribution
- Vilnius regional group meeting
- Preparation for Madrid IUGS-ITGE-ProGEO-SGE Third International Symposium on Geoconservation: Geosites workshop
- Madrid first meeting of S. Europe group

Hervé reported that the Working Group had made concerted efforts to finalize contributions to the multi-authored proceedings of the Bulgarian workshop in 1998. In addition, a symposium in Madrid is in preparation. To speed the methodology to evaluate geosites, five meetings are envisaged in 2000 in Capetown, Almaty, Izmir, Beijing and Rio de Janeiro. The group started to work in Europe, but is now planning an expansion of the activities to Africa, S.E. Asia and Latin America. Its relationship to the UNESCO Geopark network was also mentioned.

Boriani commented on the report and the ABRD recommendations resulting from a review held in Zürich, Switzerland in December 1999. The discussion during this meeting had given the impression of the group as being very active and doing an excellent and interesting job. Many books have been published and the next one will hold the IUGS logo. The Advisory Board had therefore expressed profound satisfaction with the working group's activity and commended the Chairman.

Speden suggested that some of the Geosite work should be published as educational material.

The Committee AGREED with the Advisory Board and APPROVED the report of the Working Group on Global Geosites.

4.d.3. IUGS Working Group on Continental Geochemical Baselines

Chief Accomplishments in 1999:

- Near completion of European sampling program
- Initiation of geo-chemical surveys in Botswana, Panama, Morocco, India based on recommendations from IGCP 259 and 360;
- Completion of pilot study for this project in Colombia
- Panama and Morocco are in the progress of establishing geochemical survey
- The Committee for Coastal and Offshore Geoscience Programmes (CCOP) has agreed to act as a Regional Coordinator for their member countries (China, Japan, Vietnam, Indonesia, Cambodia, Thailand, Malaysia, Papua New Guinea, Philippines, and Korea) in S.E. Asia

Brett introduced the report and read Liu Dun-yi's written comments, stating that the group had been very active. The overall objectives of the Working Group is to prepare a global geochemical database, and its representation in map form, to document the concentration and distribution of chemical elements and species in the Earth's near-surface environment. The database and accompanying maps may then be used to create a geochemical baseline against which future human-induced or natural changes to the chemistry of the land surface may be recognized and measured.

Fyfe noted that the topic had had a huge impact on the correlation between health and industry and had lead to a number of new questions. Speden wondered if this group, in view of the success of its programme, had published enough. Brett referred to an informative brochure and some publications, but said that the group should be encouraged to do more. However, he stressed that this is not entirely an IUGS body, it is closely associated with the work of several organizations.

The Committee ACCEPTED the written report, commending the Working Group for a good programme and encouraging it to publish more of its results.

4.d.4. IUGS Working Group on Geoscience Education and Training

W.S. Fyfe, Chairman of the Working Group, referred to his written report, stating that it had been a busy year. He said

there is vast and growing data that education is the key to survival.

He reported on the Budapest Congress where capacity building in science was discussed, and stressed that education starts at home and not in super graduate schools. During the congress had been much discussion on how to bring the best information to all people, of all ages, throughout world. There is no doubt today that one of the great cultural forces influencing people of all ages, is television, and all nations should have a global educational television channel. Fyfe asked the Committee to react on an article he had written entitled "A Proposal for a New International United Nations" (Global Education, T.V. Channel, UNEG).

Fyfe further remarked that some countries have very good educational material for children and showed different books and pamphlets from all over the world. He also mentioned that Mexico had established natural history museums for little kids. Most people live in cities and therefore field trips for children should be arranged.

He concluded by referring to the meeting being planned on clean cities of the world, where people from problem cities will meet with people who have solved the problem.

A short discussion followed and Brett urged the Committee to read Fyfe's article on a global educational T.V. channel.

Fyfe informed the Committee that he wanted to step down as Chairman of the Working Group, noting that they had several excellent candidates to take over. Brett reminded the Committee that this group had originally been a Commission, but was made into a Working Group to allow the Past President, W. Fyfe, to chair the group. An Executive Committee officer cannot concurrently be Chair of a Commission. Since Fyfe now is stepping down as Chairman, Brett suggested that the group resume its status as a Commission.

The Committee APPROVED the Working Group's report and thanked Fyfe for his additional oral report. The Committee APPROVED that the Working Group again become a Commission, pending the decision of the IUGS Council.

4.d.5. IUGS Working Group on Geochronological Decay Constants

Liu Dun-Yi had in his written report reiterated the goal of this new Working Group: to formulate new specific recommendations for decay constants, isotopic abundances, and uncertainties based on evaluation of existing data and acquisition of new data. The decay constants that have been used for the last 22 years were endorsed and recommended by IUGS (Steiger & Jager, 1977). However, recent analytical improvements have exposed potential problems with the 1977 recommendation.

Liu Dun-yi had further mentioned that the Working Group is chaired by the two leaders who are convening plenary meetings and stimulating co-ordinated experimental work. The work plan for 2000 contains the completion of the status reports by all participants.

Boriani commented that the group was very active. The members are working in different subgroups, each dealing with particular nuclides. A discussion followed on the need for this group.

The Committee ACCEPTED the Working Group's brief report.

4.d.5. Proposed New Working Groups

Arctic Geology: Boriani reported that the IUGS Bureau does not recommend establishing a working group on Arctic geology as proposed last year by N. Bogdanov. It did not receive enough support by the organizations contacted by Boriani, which included the Russian Academy of Science.

5. REPORTS ON COOPERATIVE ENTERPRISES

5.a. IUGS/UNESCO International Geological Correlation Program (IGCP)

W. Eder reported on IGCP, noting that this was one of Unesco's star programs and a strong joint program of Unesco and IUGS. The IGCP Scientific Board would meet the following week in Paris. The Board has sixteen members. Altogether, 102 nominees had been received for the six vacancies on the Board. In agreement with Unesco and IUGS the following new members had been appointed to start their term in 2000:

- Susan Turner (Australia) and Max Deynoux (France) for Working Group 1 (Stratigraphy, Paleontology, Sedimentology, Fossil Fuels)

- Gerhard Wörner (Germany) and Nobutaka Shimada (Japan) for Working Group 3 (Mineral Deposits, Petrology, Volcanology, Geochemistry)
- Alexander O. Gliko (Russia) and Victor Ramos (Argentina) for Working Group 4 (Geophysics, Tectonics, Structural Geology).

Eder further mentioned that V. Babuska, the IGCP Secretary, had retired in April 1999 and this had implications in the operation of the program. The Secretary post has not been lost, due to pressure from IUGS and others; however, the position may be down-graded. For the time being Eder is acting as the IGCP Secretary.

He remarked that the upcoming meeting of the Scientific Board has an exciting agenda and will also discuss the future of IGCP. Following a decision of the UNESCO General Assembly, also IGCP should be more oriented towards applications to problems of societal interest. The proposed change of name of IGCP, from International Geological Correlation Programme to International Geosciences Programme, is in the same line. There is also a proposal to transform the IGCP into an intergovernmental program.

Eder concluded by thanking the IUGS Bureau for excellent cooperation.

Boriani expressed concern that both IGCP and IUGS move towards applied geology and about the low number of good research project proposals. Most countries are pushing projects for the benefit of society. Eder said that there is still a platform for science within IGCP, but this should be of benefit for the society. This is also reflecting the needs of the changing world. However, the 13-14 project proposals received in 1999 are covering the whole area. Boriani suggested that fewer projects receiving more funds would make it more appealing and result in better projects proposals being submitted. Eder emphasized that IGCP is relying on the grassroot principle, and did not see that an increase of funds would improve the quality of the projects. Vai noted that he agreed to both pure research and applied in IGCP, but would also like to see projects especially devoted to education.

A discussion followed on the change of name. Eder said the word "Correlation" is confusing to many of the IGCP partners and is claimed to belong more to the stratigraphers' field. The programme is not doing pure stratigraphy. Boriani asked if the name is being changed, what is then the difference between

the IGCP projects and the projects funded under the new IUGS proposal policy.

Speden commented on transforming IGCP into an intergovernmental program, stating that it is essential that IGCP remains in the Unions' sphere. Eder explained the background for this change, noting that it is difficult at present time to judge in which direction it will go, but the main purpose is to transform the programmes into much bigger programmes that will receive their governments recognition.

Eder then explained the idea about the new Geopark Network. It was planned from the beginning to have it separate from IGCP, but Unesco did not accept the establishing of a new advisory board or scientific committee to overview the network. At the Unesco General Assembly it had been recommended to undertake a feasibility study on how Geoparks and Geosites could be developed in connection with IGCP. Eder said that the IGCP Scientific Board, that would meet the following week, will be asked to give an idea of how this could be structured in the future. He mentioned that the Geoparks have similarities with the World Heritage, but the scope is different. Geoparks should reflect regional and local needs and not the global.

A discussion followed. Eder stated that the best solution was to have a separate body to deal with Geoparks. Brett noted that IUGS had been reluctant to join the Geoparks as a partner if money was involved and had therefore withdrawn. However, he was now worried about a connection directly with the IGCP. A general meeting of the Scientific Board would be needed, followed by a special meeting for the Geoparks. Boriani suggested to select only some of the Board members to meet as councillors for the Geoparks after their general meeting, in order to take advantage of their presence in Unesco. Speden remarked that he preferred the idea of a separate committee. If taking advantage of the IGCP Scientific Board members, he meant that one or two non-geologists should be included, for instance conservationists. Fyfe questioned why a board had to meet, why not a review by e-mail?

The Committee thanked W. Eder for his oral report.

5.b. IUGS/UNESCO Program on Geological Applications of Remote Sensing (GARS)

Chief Accomplishments In 1999:

- PHIVOLCS/GARS (UP VI, U of Cambridge, MRAC) conducted the "2nd Manila Training & Workshop on application of RADAR-images to volcanic hazard mitigation" (20 philippino participants)
- Promotion of Dr. Fredy Garcia (Peru) at UP VI, Paris with a thesis:
- Applications des Images Satellitaires et des Modèles Numériques d 'Élévation à l'Analyse des Processus et Aléas volcaniques - Exemples aux Philippines et au Pérou
- EC project "mitigation of volcanic risk by remote sensing" in concluding phases 96 UK, French & Italian partners.
- Second thermal mapping mission of Taal Volcano accomplished in December 1999 by PHIVOLCS and BGR
- Presentation of the GARS-Program at important international meetings:
- GARS Chairman: UNISPACE III (Wien, July 1999); International Conference on Integrated Drought Management (Pretoria, September 20 - 22)
- GARS Secretary: UNISPACE III (Wien, July 1999)
- MRAC: 13th ERIM Thematic Conference on Geological Remote Sensing (Vancouver, 27/02 - 5/03); Eurisy colloquium in Moscow (7-8/12/99)

Eder commented on GARS, which is another joint programme, noting that the general objective is 1) to demonstrate the use of advanced remote sensing techniques for the solution of key geological questions, 2) to ensure the transfer of information and technology through co-operative research in the field in combination with educational programmes and 3) to ensure a wide dissemination of results.

It had started in 1984 and from 1993 been dealing with the volcanic hazards in the Philippines, chaired by D. Bannert. The programme has been modified, many more institutions and countries are now involved. The idea is to have GARS as open as possible, the only major missing partner is USA.

Hervé (commentator) gave a positive evaluation. Brett, however, asked if GARS would be affected at all, if IUGS did not support it. IUGS hears about this programme just once a year when the annual report is submitted. Eder replied that IUGS is well appreciated in GARS and its complementary cooperation is needed. Schmid (Unesco in Cairo) stated that IUGS and Unesco together are strong in this field.

Speden asked for an article in *Episodes*, and Eder replied that a draft paper for *Episodes* is ready and circulating in the GARS Steering Committee.

The Committee ACCEPTED the GARS report and thanked Eder for his additional oral report.

5.c. IUGS/UNESCO Program on Mineral and Energy Deposit Modelling (DMP)

Eder spoke of this joint programme, reviewed its objectives and referred to DMP's last workshop in Saudi Arabia. The

workshop was good. Eder added that the DMP Steering Committee had a broad international composition.

Gaál (commentator) also reported on the workshop "Precious and Base Metal Deposits in the Saudi Arabian Shield" held by DMP in Jeddah in November 1999. The main product of the programme was the work shop materials and the field trip guidebook. 50 participants from Arab and African states (Egypt, Eritrea, Ethiopia, Jordan, Saudi Arabia, Sudan, Syria, Yemen, Qatar) were trained in utilizing new approaches to the prospecting and assessment of ore deposits, with particular focus on gold mineralizations.

A discussion followed, the Committee members commending DMP for organizing a successful workshop in a region, which has so far not benefited much from the progress of deposit modelling activity. The Committee then briefly discussed the succession of the chairmanship after retirement of Richard McCammon, USGS. At present acting Chairman of DMP is Kathleen Johnson, USGS.

The Committee ACCEPTED the short DMP report and thanked Eder for his additional oral report.

6. INTERNATIONAL GEOLOGICAL CONGRESS (IGC)

6.a. 31st IGC - Rio de Janeiro

6.a.1. Status of planning

Boriani reported that no representative of the 31st IGC Organizing Committee had been able to attend the present Executive Committee meeting. However, he summarized the written progress report that had been submitted by C.O. Berbert, the IGC Secretary General, stating that the preparation for the Congress to be held from 6-16 August 2000 is on schedule. 23,000 copies of the Second Circular had been distributed in May, 1999. The Third Circular had been announced but not distributed yet. A large number of abstracts had been received. The Scientific Programme of the Congress is comprised of colloquia, special symposia, general symposia, short courses, workshops and field trips. Special meetings of scientific societies and organizations are also scheduled for the Congress period as well as the GeoExpo 2000 Exhibition and other scientific events. Boriani further commented on the GEOHOST Programme, which had received about 500 application forms until the deadline on October 1999. The GEOHOST Selection Committee will give their final word on successful

applicants by February 2000. The Committee has representatives from the 31st IGC, IUGS (F. Hervé), UNESCO, AGID and the 30th IGC. A Youth Congress on geology will also be organized, and W. Fyfe's proposal to develop a geological theme for children on August 12 had been accepted.

Boriani concluded by mentioning the vital support of the Brazilian government's institutions to this Congress.

Caldwell commented on the low number of registrations and abstracts received from North America. 381 North American abstracts were submitted, 130 of which were from Canada. He felt this was an unusually low number compared to the 1375 abstracts submitted from Eastern Europe.

Brett said he had several comments regarding the circular, complaining first that IUGS was listed at the same level as other sponsors of the Congress even though IUGS is the main scientific sponsor. Concerning accommodation, he pointed out that full payment of hotels was required in advance, without refund after June 1.

Janoschek proposed that IUGS should take more responsibility for the Congress. Brett said that the Strategic Plan recommended that IUGS should receive more recognition for its role as scientific sponsor of the IGCs and that it should also receive a financial return from the Congress, and he agreed.

IUGS MEETINGS DURING THE CONGRESS were discussed. The following dates of the IUGS meetings were confirmed after the Committee meeting:

August 8th (10:00- 18.00) IUGS Executive Committee (Outgoing Officers)
Representatives of the Affiliated Organizations will join the EC at 16.00

August 11th (9:00 - full day) IUGS Council Meeting- Part I

August 14th (9:00 - full day) IUGS Council Meeting- Part II

August 15th (14.00 - 16.00) IUGS Executive Committee (Incoming Officers)

Brett stated that, according to the IUGS Statutes, each adhering organization that has paid its subscription up to the end of the preceding year has one vote.

Following a question whether countries without voting status should be able to speak during the Council session, the

Committee AGREED that only representatives of Adhering Organizations that have paid the membership dues for 1999 should be able to speak.

IUGS EXHIBIT BOOTH was discussed. Brett referred to the last Executive Committee meeting in Florence, where the IGC organizing committee offered some exhibition space to international institutions, among them IUGS, which will have 30 square meters. Hervé and Speden had volunteered to organize the IUGS Poster Exhibit. Speden reported that the Secretariat circulated an invitation for posters, with specifications, to IUGS organizations. However, to date there were only six confirmations and the notice will be re-circulated after the Executive Committee meeting.

Speden displayed the two posters he and Hervé had prepared to introduce the Exhibit. These drafts were entitled "What is IUGS?" and "Who Does What?" An executive consultant had designed the poster. Hervé explained the difference between the two drafts, experimenting with various backgrounds. Speden informed the Committee that the CEO of the Institute of Geological and Nuclear Sciences in New Zealand had approved funding of up to USD 1,500 for the production of the two posters.

A discussion followed, especially on the background of the poster showing pebbles, and on whether the posters were too crowded with information. Janoschek stated that IUGS would need a third, eye-catching poster that would draw attention of a passer-by who could then read for more information in the other two posters.

Brett asked the Committee to examine the posters and give their comments to Speden to bring back to New Zealand.

The Committee thanked C.O. Berbert, the IGC Secretary General, for submitting a progress report on the IGC in Rio de Janeiro.

The Committee thanked I. Speden and F. Hervé for their work accomplished on the IUGS Exhibit at the Rio IGC.

6.a.2. Proposal for Modification of IGC Statutes

Brett explained the change of the statutes proposed by the IGC Steering Committee and some other proposals by Nyambok and Brett, which should be presented to a vote at the IGC General Assembly. The changes concerned votes, members of the Steering

Committee, the increase from a four to eight-year notification that a country will host a congress, and some smaller changes.

6.b. 32nd IGC

Janoschek presented the offer from Austria to host the 32nd IGC in 2004 in Vienna, concentrating on what had happened after his last report to the Executive Committee in Florence. Vai presented Italy's invitation to host the 32nd IGC in Florence. Both offers will be presented to the IGC General Assembly in Rio whose participants will make the final decision on the venue in 2004.

7. INTERNATIONAL COUNCIL FOR SCIENCE (ICSU)

7.a. Relations with ICSU

Brett commented that most ICSU Unions are paying more to the Council than they are receiving in return, adding that belonging to ICSU costs IUGS money and that there are some resentment within the Unions. ICSU wants more and more to have its own programme and that its committees receive most of the money. He noted that ICSU has a new Japanese President and also a new Executive Director and IUGS has to wait and see what happens with the relations with ICSU. Brett had been elected member of the ICSU Executive Board in October 1999.

7.b. ICSU General Assembly

Brett reported that there was little to comment regarding the Assembly.

7.c. ICSU Committees

Please refer to the IUGS Directory for the list of IUGS representatives to ICSU Committees.

7.c.1. Scientific Committee on the Lithosphere (SCL-ICS)

Brett commented on the activities of SCL, stating that it is a well-run organization. He had met with Alan Green, the SCL President, who has been looking for a new President and Secretary General. Green had also been a member of the IUGS Strategic Planning Committee.

7.d. Relations with other Unions of the ICSU family:

7.d.1. International Union of Geodesy and Geophysics (IUGG)

Brett informed the Committee that Peter Wyllie had stepped down as the IUGG President and that the Union elected a new President, a Japanese space physicist.

7.d.2. International Union of Geography (IGU)

Brett referred to the good relationship with IGU over the last five years.

7.e. ICSU Grants

Boriani reminded the Committee that the ICSU Grant policy had changed two years ago. There are now two categories of grants, category I for grants between USD 50,000 and 100,000 and category II for grants under USD 50,000.

7.e.1. ICSU grants for 2000

Boriani reported that IUGS had received USD 7,000 from ICSU for category II and none in category I.

He said IUGS had requested financial assistance for one activity from the ICSU Grants Programme for 2000 for category I: "Future human environments from past records: database workshop and conference series". This project was rejected by ICSU, and its data, which comes from IGCP projects, would be lost if nothing was done. Boriani recalled the decision made by Executive Committee in Florence to start with proposal projects and explained that this decision gave the Bureau mandate to grant money to this extremely valuable project.

Boriani further reported that in category II three proposals had been submitted: 1) Human Health Effects of Rock and Mineral Chemistry, 2) Global Geochemical Baselines, and 3) Landslide Hazard Assessment and Cultural Heritage. IUGS had received a grant of USD 7,000 from ICSU, but not for a specific project. The Bureau had therefore decided to give the funds to the first project proposal and had added USD 3,000.

Brett commented on the criteria used by ICSU to select activities such as, interdisciplinary entities and helping developing countries, but that the criteria were not clear. ICSU has now a scientific committee to evaluate the project proposals.

7.e.2. Proposals for ICSU grants for 2001

Boriani reported that the deadline for submission for proposals to ICSU was 15 April 2000 and that the Bureau had

decided to submit a project proposal that was not submitted in 2000: a conference in San Francisco, August 2001 entitled "Crowding the Rim".

7.f. IUGS Representatives in ICSU and ICSU Committees

Only few of the IUGS Representatives on ICSU Committees had been present at the Committee meetings, partly due to lack of funds but also due to the lack of meeting information from the Committee. IUGS should ask the Committees to notify the IUGS Representatives of their meetings.

Please refer to the 1998 IUGS Directory for the list of IUGS representatives to ICSU Committees.

7.g. World Science Conference

Brett reported that the ICSU-UNESCO World Conference on Science: "Science for the Twenty-First Century, A New Commitment" was held from 26 June to 1 July 1999 in Budapest, Hungary. Brett and Fyfe had attended.

8. IUGS POLICY AND STRATEGY MATTERS

8.a. IUGS Statutes

Vai, who had been in charge of the recommendations for changes in the IUGS Statutes, reported on the changes, stating that these will be distributed to the IUGS Adhering Bodies in due time before the IUGS Council in Rio. He noted that if the Council approved the new Strategic Plan, additional amendments to the IUGS Statutes would be required. Janoschek and Vai agreed to draft these changes. On a suggestion by Caldwell the Committee agreed to make all the "IUGS Advisory Boards" into "IUGS Committees" responsible to the Executive Committee.

8.b. Nominating Committee

Fyfe reported that nominations of several excellent candidates had been received.

The Committee meeting would be held on 29 and 30 January, following the Executive Committee meeting. The following members were present in Cairo: W.S. Fyfe, P. Affaton, V. Babuska, F. Hervé, T.C. Partridge, B. Ratanasthien, Liu Dun-yi had regretted that he could not attend the meeting.

Brett urged the Nominating Committee to consider the suggestions in the Strategic Plan when deciding on new

candidates for the Executive Committee. He informed Fyfe that Al-Hashimi, Gaál, Nyambok, and Speden will continue as Vice Presidents for two more years.

8.c. IUGS Strategic Planning Committee

Brett described the intense three-day meeting of the Strategic Planning Committee (SPC) in Prague in September 1999, chaired by Dr. Peter Cook. Everyone on the Committee contributed to the report, but it should be obvious that a great deal of work after the meeting was required to weave together a coherent narrative from the notes, poster boards, and disjointed skeletal report fragments that were produced in Prague. This task fell mainly upon John Aaron, the designated *rapporteur*, with help from Cook and Brett.

Aaron then introduced the 50-page draft report, "*International Earth Science in the 21st Century: Science and Organisational Strategies for the International Union of Geological Sciences*," which he had distributed to the Executive Committee a few days earlier. He said that he trusted that all had read and digested the report, pointing out that in that single three-day meeting they had tried to accomplish something that for most organizations would require many meetings over several months and a lot of money. He felt that the SPC had done the very best they could under the circumstances. Moreover, he thought that they had achieved significant results, but only the Executive and the Council could judge to what extent that was true.

The SPC carefully reviewed the structure and effectiveness of the Union, concentrating particularly on its organization and operations, scientific programs, partnerships with other organizations, communications and publications, and funding. Also considered were the responses to a lengthy questionnaire circulated prior to the meeting to seek the views of the IUGS family and the broader scientific community. These thoughtful opinions were very useful in helping the committee to identify organizational and programmatic strengths, weaknesses, threats, opportunities, and other issues upon which it should focus attention in the course of formulating a strategic plan. The resulting Strategic Plan was presented in the report as a set of recommendations. These recommendations address issues, concerns, and problems identified in the topical areas where the SPC concentrated its attention and established the needs and the rationale for change. In all, there are 26 recommendations, which, taken together, constitute a prescription to bring about organizational change and renewal leading to stronger, more diverse, and more effective basic

and applied scientific programs, and to improved visibility and recognition of the Union in the scientific community.

First and foremost, Aaron stated, a Strategic Plan was needed because it is sound policy periodically to take a critical look at the organization and reaffirm or modify its mission and goals. It must re-examine why it exists, its purpose, how it works, and what it does now. Then, it must agree on its vision -- what it wants to be and do in the years ahead. A strategic plan need not be more than that, but also it must not be less. Aaron thought that the SPC's plan satisfied this requirement.

Second: the Strategic Plan will help the Union to deal with organizational uncertainties brought about by changing times. Even if the Union's fundamental purpose is crystal clear, other things change, especially the external operating environments, that call for serious modifications in how the Union operates. He thought that everyone could recognize how fundamentally the practice and politics of international science, indeed all of science, have changed in the 39 years since the Union was founded. He pointed out that the Union itself had changed very little over that period. The Executive Committee easily could relate to this problem, he said, because geology has a word to describe organisms that fail to adapt to changing conditions and environments. We call them *fossils*. In many respects, Aaron said, organizations are no different. We do not want the IUGS to become a fossil any time soon, if ever.

Third: the Strategic Plan will provide a comprehensive and understandable basis to guide decision-making within the framework of a set of determined priorities.

Fourth: the Strategic Plan will assist in the critically important task of raising funds. The plan provides a framework for determining needs and establishing justification for seeking financial support, which the Union must do if it is ever to escape the budgetary shackles that now so severely limit its programs.

Fifth: the Strategic Plan should also guide "resource allocation", i.e. how the Union spends its money, both annually and over several budget cycles.

Last, Aaron stressed that the Strategic Plan should assist in "performance evaluation" by establishing criteria against which to measure and evaluate how well the Union is doing,

dealing with the end and the results achieved. How, for example, could the Union possibly determine whether it is achieving its purposes and goals unless those purposes and goals are clearly stated and understood by all involved?

Aaron concluded by stating that strategic planning is all about organizational change -- actively guiding and implementing desirable change -- change that strengthens the Union and its scientific programs -- while avoiding destructive changes. He pointed out that even desirable change, no matter how sweeping, must be balanced by an appropriate measure of continuity in order to maintain organizational stability, which the SPC endeavored to do.

Aaron then, on behalf of the entire Strategic Planning Committee, formally presented the report to the Executive Committee. He asked for its thoughtful consideration and discussion. He stressed that the Committee now had an opportunity to do something that no other Executive Committee had ever done in the entire history of the Union: to recommend to the IUGS Council a Strategic Plan designed to nurture the future organizational health, financial welfare, and both the scientific and societal relevance of the Union.

Brett thanked Aaron for his deliberations and all of his work for the Strategic Planning Committee. He then invited comments from members of the Executive Committee, stressing that major changes could not be accepted since the work of SPC would be altered. He suggested that the Committee study the 26 recommendations in Chapter Four. To save time, suggested changes in expression and grammar should be given directly to Aaron, who will consider them for the final version.

A long discussion followed on the recommendations. Brett again asked the Committee members to forward changes to Aaron. De Mulder stressed the importance that the wording not result in the appearance that activities of IUGS conflict with the work of IUGG.

On the second day of the meeting, Fyfe stated that Geo-ethics was missing in the strategic plan and suggested including a new paragraph on this topic. Boriani pointed out that this topic had been mentioned during the meeting in Prague, but was absent from the report. Brett agreed that a sentence should be included in the plan.

Brett concluded the discussion by stating that it was difficult to change the substance of the Strategic Plan and

that everyone in the Executive Committee could have a different view or a dissenting opinion. However, he would appreciate it if those individuals could forward their comments and suggestions in writing to the IUGS Secretariat to be forwarded to Council.

The Committee APPROVED the Strategic Plan with the minor changes being discussed, which will be forwarded to John Aaron for consideration.

The Committee commended and thanked P. Cook and the members of the Strategic Planning Committee for excellent achievements of the three-day meeting.

Brett informed the Executive Committee that the report would be revised to respond to key points raised in the meeting, after which it will be circulated as soon as possible for comment by IUGS Bodies and Adhering Organizations. A summary of comments received would then be forwarded to the Executive Committee before the report is submitted for consideration by the IUGS Council. The strategic plan will be presented to the IUGS Council for approval in whole or in part at its meeting in August 2000. The new Executive Committee should then consider implementation of the Plan implementation.

8.d. IUGS Working Group on Public Affairs

Brett reported that David Applegate, American Geological Institute, has been appointed Chairman of the Working Group on Public Affairs with the task of gathering relevant declarations, laws and decisions by Governments and important agencies regarding geosciences. He noted that a letter with a questionnaire had been sent out to different IUGS bodies and affiliated organizations and that the issue was moving ahead.

8.e. Proposal policy

Brett referred to the decision at the last Executive Committee meeting to call for proposals for two projects, with guidelines on topics, in order to have a couple of examples and some experience before the next IGC. The projects should be allocated USD10,000 each. The Bureau had later decided to wait for the Strategic Plan, before any further elaboration was done on this item. However, before the proposal policy comes into force, Boriani suggested using the project proposals that will be called for the 2001 ICSU Grant Program.

The Committee AGREED that the Bureau examine the project proposals that will be submitted for the 2001 ICSU Grant Program and see if any is suitable for the IUGS funds.

8.f. Increase of membership dues

Referring to the Strategic Plan, Brett stressed the importance of discussing the possibilities of membership dues increase. Johan compared the inflation rates in various countries, noting that a 5 percent increase in dues would only represent 20 percent of the total inflation over the last 10 years. IUGS would need more funds if the Strategic Plan is to be implemented and if this cannot be done by increase of dues, it has to come from other sources. Brett said that since IUGS is the scientific sponsor of the International Geological Congress (IGC), he would like to see IUGS receive more income from the event. He was concerned that this would not happen with the Rio IGC, but there is an opportunity with the next Congress.

A discussion followed. If IUGS does not raise its dues this year, a total of 15 years will have passed before anything can be done. Speden stated that the Union does not even have enough money to publicize itself and this is crucial.

Johan explained the three page document he had prepared: the first page showed the evolution of rate of US dollar in the late nine years, the second a table of consumer price index, and the last the present situation and a proposal.

9. EXTERNAL RELATIONS

No external relations were discussed.

10. REQUESTS FOR FUNDS AND BUDGET FOR 2000 (Appendix 1)

Johan presented the budget for 2000, explaining the different posts. A discussion followed.

The Committee AGREED on the 2000 budget.

11. UPDATE

11.a. Directory

Refsdal reported that the Secretariat is continuously updating the address data base and that it will be possible to print a

new updated Directory including new officers of IUGS bodies, shortly after the Rio IGC, only pending the finances at the Secretariat.

11.b. Brochure

Boriani reported on the new two-page IUGS brochure that had been distributed to the Committee members. The brochure will also be available at the Rio IGC.

12. VENUE AND DATE OF 46th EXECUTIVE COMMITTEE MEETING

A two-day Executive Committee meeting will be held during the Rio Congress, on 8 and 15 August. The first day will be for the outgoing Committee members to prepare the matters to be discussed at the Council meeting on 11 and 14 August. The second day of the meeting will introduce the newly elected members of the Committee and discuss the implementation of the Strategic Plan, if approved by Council.

13. OTHER BUSINESS

Hutchison Fund for Young Scientists

Johan referred to the decision at the last Committee meeting to use 90% of the interest of the Fund on young scientists for attending the Rio IGC. Accordingly, six young geologists will receive a grant of USD1,000 each to help covering travel expenses to the IGC in Rio. The recipients were chosen out of the GEOHOST applicants.

Brett thanked Lotfi Abdel Khalek and the Geological Survey of Egypt for the excellent organization of the Executive Committee meeting in Cairo and the attendees for their participation. A special thank went to Vice President Zharikov, for whom this was the last Committee meeting.

The 46th session of the Executive Committee closed at 13:00 on Friday, January 28, 2000.

May, 2000

Secretariat
International Union
of Geological Sciences
Trondheim, Norway

(The preceding minutes are subject to approval and adoption by the
Executive Committee.)